
SUSTAINABLE DEVELOPMENT IN A DYNAMIC WORLD

World Development Report 2003

Overview



The World Bank
Washington, D.C.

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Development / The World Bank
1818 H Street, N.W., Washington, D.C. 20433, U.S.A.

Cover design by Debra Naylor, Naylor Design, Inc.
Cover images: A montage of two satellite sensor products, the
cover image shows the lights of human settlements and (on May 14,
2002) variation in sea surface temperatures. The image illustrates
several *World Development Report 2003* themes: the link between
growth and environment (higher income correlated with greater
energy use), the continuing socio-economic challenge of inequality
and poverty reduction (vast disparity in the energy use of developed
countries and that of developing countries), the interconnectedness
and impact of human activity (fossil fuel-based energy use raising sea
surface temperatures), and the need to gather information (such as
that provided by satellite sensors) to anticipate and monitor prob-
lems if the world is to shift to a more sustainable development.

City lights image courtesy of the Defense Meteorological Satellite
Program Digital Archive, National Geographic Data Center,
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Sea surface temperatures image courtesy of U.S. National Climatic
Data Center.

Inside art and typesetting by
Barton Matheson Willse & Worthington, Baltimore.

Manufactured in the United States of America
First printing August 2002

This document summarizes *World Development Report 2003*,
a copublication of the World Bank and Oxford University Press.
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ISBN 0-8213-5187-7

Contents of World Development Report 2003

1 Achievements and Challenges

The core development challenge
Act now—for long-term problems

2 Managing a Broader Portfolio of Assets

Sustainability—an evolving framework
Measuring sustainability
The importance of a range of assets
Why the need to manage a broader portfolio of assets?
Tradeoffs and sustainable development
Some assets are overused or underprovided—why?
Correcting the overuse or underprovision of important assets

3 Institutions for Sustainable Development

Institutions coordinating human behavior
Institutions protecting assets
Picking up signals, balancing interests, and implementing decisions
Overcoming barriers to coordination
Promoting inclusiveness
Catalysts for change

4 Improving Livelihoods on Fragile Lands

Inclusion, innovation, and migration
Managing fragile land to improve livelihoods
Living on the edge—the arid plains
Living on a precipice—the mountains
Nurturing assets by listening—and by enabling communities to act
Nurturing women's human capital
Building on traditional social capital
The use of nonrenewable local resources—balancing interests
Balancing interests among governments, companies, and communities
Partnering for change

5 Transforming Institutions on Agricultural Land

Land and water constraints
Eliminating rural poverty and preparing outmigrants
Intensifying the use of land
Intensifying the use of water
Getting ahead of the frontier
Conclusion

6 Getting the Best from Cities

The challenges of urban life
City lights: beacons of hope and warning flares
Building informed constituencies to address spillovers and anticipate risks
Balancing interests to provide urban public goods
Inclusion and access to assets—challenging the institutional roots of urban slums
Institutions for sustainable urban development
Conclusion

7 Strengthening National Coordination

Promoting inclusiveness
Creating a sound investment climate
Managing the environment
Managing natural resources and using aid effectively
Averting violent conflict
Conclusion

8 Global Problems and Local Concerns

Designing institutions to solve global problems
Conserving biodiversity: maintaining current services and future options
Mitigating and adapting to risks of climate change
Conclusion

9 Pathways to a Sustainable Future

Acting today
Ongoing dialogue: a global vision and accord
Ongoing dialogue: some open questions

Bibliographical Note

Selected World Development Indicators

Overview

Development is sustainable if the rules of the game are transparent and the game is inclusive.

Two billion people will be added to the world's population over the next 30 years, and another 1 billion over the following 20 years. All of this increase will occur in developing countries, and almost entirely in urban areas. Today, 2.8 billion people in developing countries live on less than \$2 a day. The core challenge for sustainable development is to ensure a better quality of life for all these people while meeting everyone's aspirations for well-being. This demands substantial growth in income and productivity in developing countries. At the same time, it is necessary to sustain critical ecosystem services and strengthen the social fabric that underpins development.

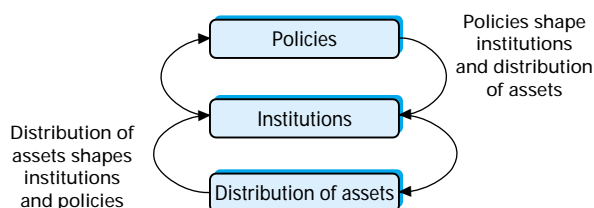
World Development Report 2003 is about improving well-being and protecting what people value and want to pass on to their children. Its messages, in brief, are these: For people to thrive, assets must thrive. A broad portfolio of assets—physical, financial, human, social, and environmental—needs to be managed responsibly if development is to be sustainable—because of thresholds and complementarities among assets.

- Institutions such as property rights and the rule of law are essential for the creation of human-made assets and the efficient operation of markets as a coordinating institution.
- Additional institutions are needed to coordinate and ensure an adequate supply of the assets that

are not spontaneously provided by markets: environmental assets (clean water, clean air, fisheries, and forests) and social assets (mutual trust, ability to network, and security of persons and property).

- Competent institutions for coordination pick up signals about problems, balance interests fairly and efficiently in formulating policies, and execute policies in an accountable fashion. Such institutions enable societies to negotiate paths to “win-win” opportunities—paths that can be elusive when the costs to some groups go uncompensated.
- The distribution of assets is critical in determining whom institutions serve and how policies are formed. Institutions are often absent, or are flawed, when interests are dispersed or when some groups in society are poor or in other ways disenfranchised. Groups that lack assets tend also to lack voice, security, and a stake in the larger society, hampering the ability of institutions to perform their necessary coordination functions. This can result in vicious, self-reinforcing circles as biased institutions implement policies that lead to more unequal asset distribution and greater polarization. It is difficult, but possible, to develop policies that increase voice and access to assets, shifting development dynamics from vicious to virtuous circles and toward greater sustainability (see figure 1). When more people are heard, fewer assets are wasted. As the world comes to resemble a single community, these lessons may apply even at the global level.

Figure 1
Policies-institutions-assets loop



The implication for development strategies and development assistance is that greater emphasis should be placed on:

- Identifying the vicious circles that keep the pace of growth slow and the distribution of assets unequal—and developing strategic interventions to break these vicious circles
- Investing in projects, programs, and initiatives that bring about better, more inclusive institutions and ensure systematic learning
- Supporting the evolution of an ecosystem of organizations that learn—and applying that learning to improving policies and projects.

Development strategies that emphasize inclusiveness, shared growth, and better governance will make great demands on leaders and communities in developing countries. The introduction of more welcoming trade, aid, migration, and knowledge-sharing regimes in industrial countries—to facilitate growth in developing countries—will make great demands on industrial countries' leaders and voters. Overcoming the inertia that hinders tackling these difficult problems—the fears and risks connected with unilateral action—requires greater coordination. This coordination would be facilitated by a bold common vision and a self-reinforcing, mutual, long-term commitment to a 50-year global accord. Such an accord would promise additional, more appropriate, and sustained assistance if reform deepens—and would provide assurance that reform will deepen if assistance is forthcoming.

The Report takes a 20 to 50 year perspective, recognizing the long lead times involved in social evolution and transformation. On this time scale, current actions will shape the evolution of future technologies and future individual and social preferences. This

perspective allows analysis of the cumulative impact of incremental changes that affect sustainability and recognizes the longer time horizon required for institutional reform. Because the Report looks at a longer time horizon, many policy parameters become variables. For example, preferences and technologies that can be assumed to be fixed in the short run cannot be assumed to be fixed in the long run. Similarly, allocation issues (the subject of economics) and the bargaining over distribution problems (the subject of politics) cannot be neatly separated.

The Report does not focus on specific policies or organizational designs, nor does it evaluate projections based on different policy or organizational scenarios. It recognizes the importance of economic incentives and policies in changing behavior, but argues that appropriate policies have not been adopted or implemented because of institutional weaknesses. For this reason, it looks at the underpinnings of good institutions that can design, adopt, and implement sustainable responses and at how such institutions emerge and adapt to problems and opportunities. The premise for this institutional focus is that development problems and solutions which are not even foreseeable today can be better, and sustainably, addressed when institutional foundations are strong. The Report draws on the many institutional innovations under way worldwide to illustrate the opportunities and the catalysts. Durable solutions do not emerge from quick fixes.

Significant gains in development, but at costs that cannot be sustained

During the past 30 years, 2 billion people were added to the world's population, mostly in developing countries. Substantial gains in human welfare accompanied this growth. The infant mortality rate in low- and middle-income countries was cut in half, from 11 percent of live births to 6 percent; illiteracy among adults fell from 47 to 25 percent, and for women, from 57 to 32 percent. Real per capita income (in population-weighted 1995 dollars) rose from \$989 in 1980 to \$1,354 in 2000. And many of the world's people enjoy more freedoms and greater opportunities to participate in democratic processes than they did three decades ago.

There have also been success stories in reducing pressures on the environment—for example, in protecting the ozone layer and curbing transboundary acid rain. Urban air pollution is declining in Mexico

City and in many of China's fast-growing cities. Most countries have phased lead out of gasoline. In just the past 10 years, access to sanitation in low- and middle-income countries rose from 44 to 52 percent.

But some social and environmental trends associated with past development strategies in industrial and developing countries are not sustainable. There are still 1.2 billion very poor people (those living on less than \$1 a day) despite the success in reducing this number by at least 200 million in the past two decades, even as overall population grew dramatically. The average income in the richest 20 countries is 37 times that in the poorest 20—a ratio that has doubled in the past 40 years, mainly because of lack of growth in the poorest countries. In the 1990s, 46 countries were involved in conflict, primarily civil. They included more than half of the poorest countries (17 out of 33). These conflicts have very high costs, destroying past development gains and leaving a legacy of damaged assets and corrosive mistrust that impedes future progress. More than 1 billion people in low- and middle-income countries lack access to safe water, and 2 billion lack adequate sanitation, subjecting them to avoidable disease and premature death.

Environmental conditions have also deteriorated in many places across the planet and will worsen if present trends continue. Nearly 2 million hectares of land worldwide (23 percent of all cropland, pasture, forest, and woodland) have been degraded since the 1950s. Larger and thirstier populations draw on finite freshwater resources, and local water conflicts and the loss of freshwater ecosystems loom in some regions. By 2025, three-quarters of the world's people may live within 100 kilometers of the sea, putting immense pressure on coastal ecosystems. Two-thirds of all fisheries are exploited at or beyond their sustainable limits, and half or more of the world's coral reefs may perish in this century.

Every decade, another 5 percent of tropical forests is cleared. More than a third of terrestrial biodiversity is squeezed into habitat fragments covering just 1.4 percent of the Earth's surface and could vanish if those fragments are lost. Humans are changing the world's climate, threatening coastal and island populations with rising sea levels and residents of semi-arid areas with desertification. And hundreds of developing country cities have unhealthy air, causing premature deaths that would be preventable at a modest cost.

Seizing the opportunities for sustainable growth

The next half-century offers an opportunity to transform the global pattern of economic growth so as to eliminate poverty and move to sustainable use of a broader portfolio of assets.

For their livelihoods and well-being, people depend on assets—natural and human-made; communal, individual, and public. All these assets need protection and encouragement in order to thrive. The institutions that provide these safeguards range from the social capital and norms governing grazing and shared maintenance to such modern institutions as property rights, fishing quotas, and forestry agencies. The soils, fish, and forests that benefit the poor directly can be wastefully degraded when people lack security and a long perspective. In the same way, investment in machines and human capital needs the support of such institutions as credible laws and property rights to enhance confidence. The restraint required involves important commitment problems, since thriving assets are tempting targets for appropriation by individuals, firms, and governments and their officials. No set of actors is perfect. Institutions must compensate.

Drivers of change and transformation

Of the many interrelated drivers of socioeconomic change and transformation, four stand out: scientific and technological innovation, and income growth, (both of which are ongoing processes), and population growth, and urbanization (both of which are one-time transitions).

- *Scientific and technological innovation.* Science and technology have the potential to enable developing countries to learn faster from each other and from industrial countries—to improve the health and productivity of poor people, and to mitigate climate change and environmental degradation. Whether they will do so depends in large measure on collective decisions about funding, implementing, and disseminating technological innovation.
- *Income growth.* The projected growth of global income of 3 percent a year over the next 50 years implies a fourfold increase in world gross domestic product (GDP). This growth will require major investments in new human-made capital to expand capacity and to replace existing capacity as it ages. Making these investments (many of which are long lived) more environmentally and socially responsible

through appropriate investment criteria will go a long way toward putting development on a more sustainable path—an opportunity that must be seized.

- **Demographic transition.** It is likely that global population will stabilize in this century at 9 billion to 10 billion people—85 percent of this growth will occur by 2050. This is an historic opportunity. The slowing of population growth, and the growth in the proportion of the working-age population, mean that governments that were struggling just to keep up with increasing populations can move toward a focus on enhancing the quality of life for all their citizens. This opportunity depends, however, on ensuring that the people are educated and have employment and investment opportunities.
- **Urban transition.** By 2050, for the first time in history, the majority of people in developing countries will be living in towns and cities (see figure 2). Well-functioning urban areas are engines of productivity growth, employment, and social transformation. The projected doubling of urban populations will make it necessary to create anew the long-lived built environment of cities. The investments in infrastructure and other capital will affect land use, public space and energy, and the quality of life of both urban and nonurban resi-

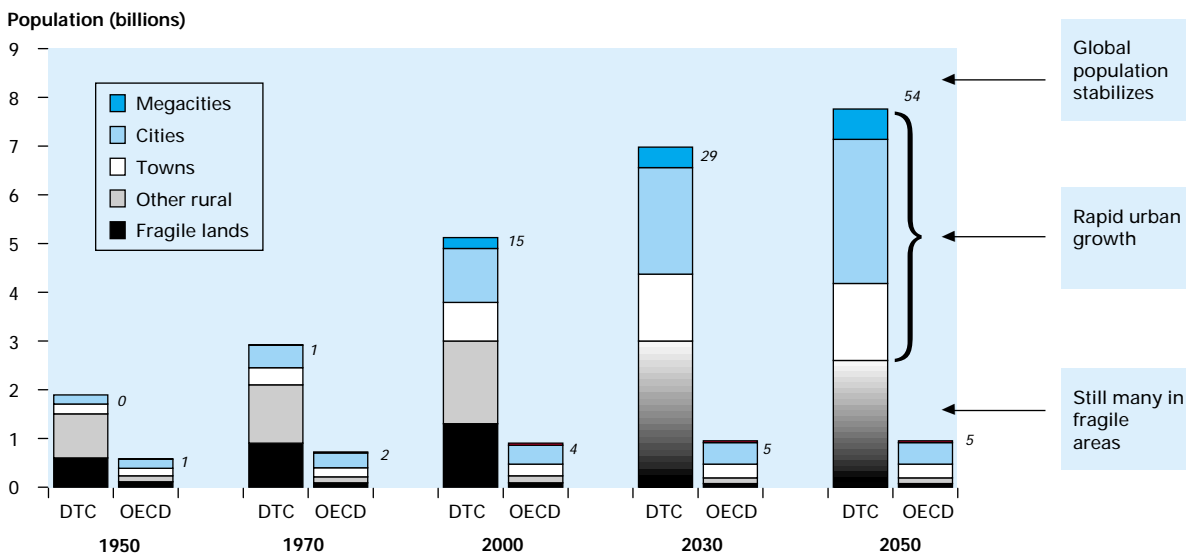
dents. The demographic and urban transitions will also provide a major window of opportunity for reversing the expansion of agriculture into terrestrial ecosystems—but they will create stresses on freshwater and coastal ecosystems. Taking corrective action in anticipation of these known trends can avoid future regrets.

Major challenges to be overcome in the next 50 years

Problems and opportunities arise wherever people live—in mountain villages and dryland areas, in island and coastal communities, in rural and periurban settlements, in towns and cities. The following are some of the key challenges with local and global implications that will face the world population over the next five decades.

- Today, 1.3 billion people live in fragile and often remote rural ecosystems—semi-arid areas, mountains, and forests—and their numbers are growing faster than the populations in more favored rural areas. Will these people be able to overcome poverty, improve their livelihoods, and adapt to new opportunities—where necessary, by migrating out? Or will they be left to languish?

Figure 2
Opportunities seized—or lost? Demographic and urban transitions



Note: DTC refers to developing and transition countries; OECD refers to high-income industrial countries (and not all members of the Organisation for Economic Co-operation and Development). The numbers to the right of the columns refer to the number of megacities. Towns are classified as having a population of less than 100,000; cities, a population of 100,000 to 10 million; and megacities, a population of greater than 10 million. Source: Global population projections are based on World Bank estimates; estimates of population shifts in urban and rural areas are based on U.N. data.

- Populations in cities and megacities in the developing world will more than double. Will urban areas live up to their potential as dynamic engines of growth and social modernization? Or will they become mired in poverty, pollution, congestion, and crime?
- Will renewable natural resources be managed as sustained sources of livelihood and well-being, or will forests, soils, water, biodiversity, and fisheries be depleted?
- Will societies be resilient, forward-looking, and creative—able to promote more equitable development and cope with unexpected shocks as they undergo sweeping transformations in patterns of growth and migration? Or will they become intolerant and hostile to new migrants, values, and ideas, or turn to fighting over resources?
- Will poor countries be able to accelerate their growth without creating destabilizing social and environmental stresses? Will the prospective world GDP of \$100 trillion at midcentury generate fewer environmental and social stresses than today's much smaller global economy?

Action must begin now to deal with emerging problems that have long-lived consequences . . .

Traditionally, institutions designed to protect assets and facilitate transactions have developed over long time periods, often with lamentable lags. Wasteful races for timber or fish—tolerable when stocks are abundant—become imminent threats when depletion of trees or fish is in sight.

Urgent action is required to address acute environmental and social problems, whether they have short or long horizons. Such progress is possible. Living conditions in slums can improve rapidly if residents have secure tenure and if governments and public utilities are willing to work with them. Industrial water pollution can be reduced substantially and at relatively low cost if monitoring and enforcement procedures are in place. Illegal deforestation can be curbed if there is popular support for doing so. For none of these actions is income growth a prerequisite, and for none is it a cure-all. In short, rapid progress is possible if competent institutions are in place to enable public action.

For other acute problems, action is urgently needed now precisely because of the long lead time required to reorient poorly functioning institutions. Some examples are the elimination of perverse subsi-

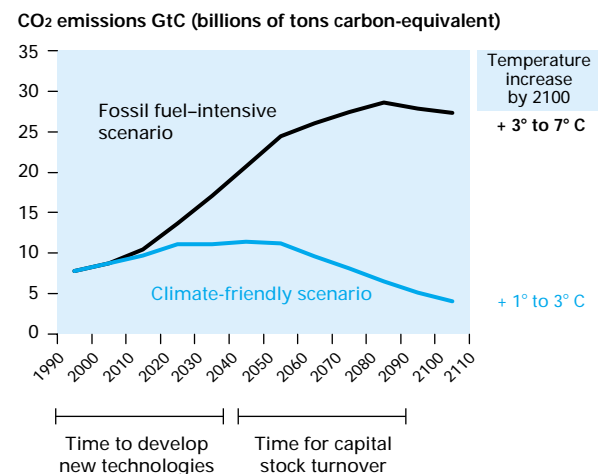
dies and tariffs in industrial countries on products in which developing countries have a comparative advantage; the conservation of overexploited fisheries or forests; and reduction of extreme inequality in developing countries. On each issue, strong constituencies for unsustainable or undesirable outcomes have emerged over time, leading to a political “lock-in” that is difficult to reverse. Trade reform can take decades; so can peaceful reductions in asset inequality.

Some of the most difficult problems are not yet severe and have long lead times, but they will be difficult to address if action is deferred until the problem is glaring. For instance, water basin management authorities may come into being only after all the water in a major river has been appropriated and the river literally runs dry at its mouth. At that point, with strong agricultural and industrial water user lobbies in place, it is difficult to reallocate enough water to maintain riverine and coastal ecosystems. Climate change presents a striking illustration of the need to think long term but act now (see figure 3).

. . . and for problems that require commitments over longer time horizons

The tough problems are not subject to quick technological fixes or transfers of ready-made solutions from one culture or locale to another. It is also sobering that the gains of recent years can be forfeited, as

Figure 3
Think long-term; act now



Source: For CO₂ emissions, IPCC scenarios A1FI and B1 in Nakicenovic and Swart (2000); for temperature, Stott and Kettleborough (2002).

is happening in the many states in conflict. The challenge is to accelerate progress and to put in place deep-seated institutions that can resist backsliding before it begins.

Major policy changes, especially those intended to reform education systems, manage ecosystems, or change the use of urban space, unfold over decades. To ensure that the institutions created today can support better outcomes in the future, they must be durable and adaptable. Durability means that institutions need to be endowed with the capabilities and incentive structures to replicate their beneficial effects in the future. Because it is impossible to predict the full range of problems, needs, and opportunities that will arise, institutional structures must also be capable of learning, evolving, and adapting without losing their core mandate. Greater productivity and prosperity depend on improvement of the many dimensions of human well-being—both material wealth and the nonmaterial aspects of personal and social welfare. Improving well-being, so defined, requires management of a diverse portfolio of assets—physical, human, financial, social, natural, and intellectual.

The reason for a diverse portfolio is that assets are often complementary. Individuals with serious deprivations in education or health cannot take full advantage of whatever natural or physical assets they may have. Urban housing is devalued by dirty air, contaminated groundwater, or the loss of flood-moderating wetlands. A country or region, even if it has educated labor and finance at its disposal, cannot advance if social institutions are devastated by enmities and conflicts that erode trust and cooperation.

Environmental assets are underprovided because of spillovers . . .

Environmental and social assets often have common-property characteristics. Individuals using such assets may fail to consider the spillover effects on others. For example, someone who clears and burns forest may damage other people's fields (if fires spread), health (because of haze and smoke), and water supply (as a result of siltation). The same is true for air pollution from power plants and vehicles.

. . . and are prone to wasteful races for control

Traditionally, many natural assets have been viewed as though they were openly available to everyone and were infinitely renewable. When assets such as forests, fisheries, or land seem inexhaustible to all

potentially interested users, there may appear to be no need to assign and defend control rights to manage their use. But as economic activities become integrated nationally and globally, and the technological capability of human activity increases, even at local levels, the pressure on natural resources and their regenerative capabilities also increases. With the realization of growing scarcity, many parties compete to grab assets and assert control through occupation or through preemptive extraction of natural assets (timber, forestland, fisheries, urban plots, and water). Even the use of environmental “sinks” for dumping waste (in land, air, or water) is subject to a race for property rights—early polluters leave fewer options, at higher costs, for later ones, as can be seen in the global imbalance in carbon emissions.

Addressing these problems requires coordination

Cooperative solutions aimed at avoiding these spillovers and races would be better for everyone. Some examples are agreeing to limit fish catches, or maintaining an irrigation or drainage system so that all can benefit from its good operation, or collecting and safely disposing of solid waste to reduce environmental hazards for all village or urban residents.

Institutions that restrain the taking of assets—through norms or under threat of punishment—are essential if assets are to thrive, whether the assets are human-made or natural, and whether they are transacted in markets or not. For example, restraint is necessary if forests and aquifers are to yield sustained benefits when population density, changes in technology and preferences, and other developments increase the demands on their use. Institutions that ensure such restraint allow assets to thrive. But because the benefits they yield are dispersed, these institutions do not emerge easily.

Protective institutions define and support control rights for access to and use of assets central to human well-being—who is allowed to graze their cows where; who controls a factory; who takes home the eventual profits; who is allowed to discharge emissions, and when and where.

- A special subset of protective institutions, private property rights, embodies well-delimited rights of use and decisionmaking for an “owner” and typically includes the right to sell or lease an asset. Such institutions entail a commitment from society (extended family, neighbors, villagers, and

governments) to help protect these rights. In a modern state this commitment requires an active obligation of enforcement by the government (police, judges, and other authorities), and the government must respect the rights. For this reason, the security of property rights is closely associated with the rule of law, enabling people to make assumptions about what will be respected as theirs.

- Protective institutions also arise to manage assets not amenable to private ownership. A pollution control agency defines and protects control rights to the air. A central bank protects the integrity of a currency and financial system. And, as the literature on common-property resource management and social capital demonstrates, local communities can solve coordination problems and allow assets to thrive.

Markets can play a positive role in many but not all circumstances

Where property rights are respected, the market works well as a coordinating institution to provide certain types of assets, goods, and services, such as food and clothing. Markets convey the dispersed preferences of individual consumers, and balances supply and demand through the price mechanism and the profit incentive. They work best when, in addition to clear property rights, there is ready access to information, competitive forces are strong, and there are no spillovers, such as pollution (see *World Development Report 2002*).

For many problems in the environmental and social sphere, however, these conditions are not fully met. Nevertheless, parts of a problem can sometimes be structured to permit the use of market instruments. For instance, by establishing emissions caps and issuing pollution permits that can be traded, a public institution creates scarcity in the emission of pollution and has to enforce it. Once this happens, markets in the trading permits can function well to meet the pollution cap at the lowest cost. But it is not always possible to compensate for market imperfections, and then nonmarket institutions are needed.

Policies can correct market failures but can themselves be flawed

Policies can correct for many market failures and imperfections, through taxes or regulations to discourage negative spillovers or through subsidies to encourage activities that have positive spillovers. But

often, appropriate policies are not adopted—or are not implemented. In other cases there can be policy failures (such as perverse subsidies that favor narrow private interests over society's broader interests) when well-meaning decisionmakers lack the necessary information or when institutions are captured. More generally, these problems reflect the inability of the dispersed interests in society to have their views heard and to gain support for adoption and enforcement of the right policies. In other words, institutional mechanisms that could balance competing interests between the few individuals who gain from the current situation, such as those logging or dumping waste illegally, and the larger numbers who would benefit from a cooperative arrangement are nonexistent or weak.

Thus, cooperative solutions that appear attractive to any objective observer—such as “win-win” policies favoring both the environment and economic efficiency (as described in *World Development Report 1992*)—are stymied. This can happen because of distributional issues (who bears the cost, and who gets the benefits), because interests are too dispersed to permit an articulated consensus, or because a sensible agreement could not be credibly enforced.

Competent institutions are needed to perform key functions

Coordinating institutions are robust and competent when they perform three interrelated functions well:

- *Picking up signals*—sensing and anticipating problems and listening to messages from the social and geographic fringes of society.
- *Balancing interests*—mobilizing dispersed interests and providing forums in which all parties can express their interests, assess options and strategies, and work out mutually acceptable bargains. In some cases the agreements need to be crafted so as to have winners compensate losers and to provide insurance for risk-averse actors.
- *Executing agreements*—following through on what has been decided. This requires commitment, accountability, and learning.

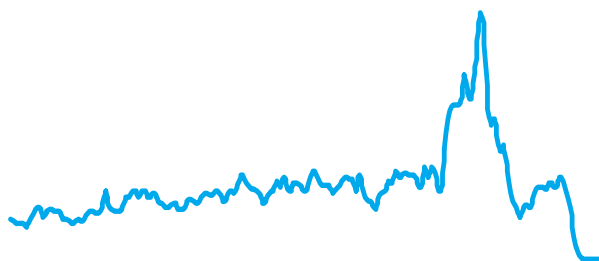
Conversely, coordination fails when:

- There are no means for actors to make credible long-term commitments

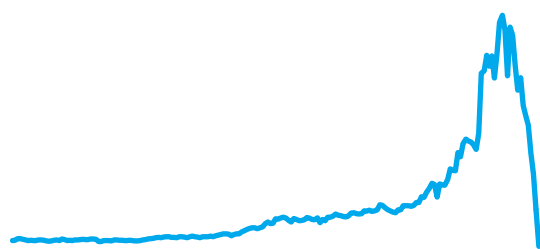
Figure 4

What happens when protective institutions fail? The cases of Newfoundland cod fisheries and of Enron

Newfoundland cod catch (tons) 1850–2000



Enron, market value, 1985–2002



Source: Hannesson (2002); for Enron, CRSP, University of Chicago, original data from New York Stock Exchange.

- Dispersed interests have no means of channeling their views or of counterbalancing focused interests
- Some groups, lacking assets and voice, are excluded from participation in society.

The collapses of the Newfoundland cod fisheries and of Enron, the giant U.S. energy-trading company, illustrate, in their disparate realms, common problems when protective institutions fail. Potentially renewable assets—fish in the one case, trust in the other—were run down, to the short-run benefit of some but the long-run loss of society (see figure 4).

Links between institutional quality and inclusiveness: voice and access to assets

Cooperative agreements are difficult to reach in polarized societies. Extreme inequality in access to assets, and social and economic exclusion, hamper the emergence and growth of strong institutions that can pick up signals, balance interests, and execute policies through credible commitments to ensure long-term sustainability. Instead, institutions are impervious to signals from poor or disenfranchised groups (who could be a majority) and indifferent to their interests. Because poor and excluded people cannot develop their human capital or other assets, their potential is wasted, and they fail to develop a stake in the wider society, making the whole society more vulnerable to income shocks and to conflict and crime.

Past patterns play out in vicious cycles

Past patterns of inequality—in access to land, education, or political voice—tend to reduce economic

efficiency and to trap societies into perpetuating inequitable institutions that can be long lived. In the Americas, the societies that began with high inequality in the ownership of assets (land and money) at the outset of colonization generated institutions that subsequently restricted the opportunities of the majority of the population to advance through, for example, access to education. In most of Latin America wide access to landholding, public schooling, and voting rights came about much later than in North America, locking in highly skewed wealth and income distributions for centuries. Similar long-lasting patterns linking inequality in access to land and to education to reduced growth have been found in many other countries.

There is recent evidence of this, as well. The more unequal are incomes and assets in the rural sector (as an outcome of concentrated land ownership), the less powerful is the effect of rural income growth on poverty reduction. In urban areas where large segments of the population lack secure tenure, these residents also lack recognized rights to urban services and formal political representation—and to protections that would promote home improvement or community engagement.

Bad habits can be broken, creating more virtuous cycles

Reversing social and economic exclusion can be a particularly powerful impetus to institutional change. This reversal can occur through negotiated land reform, as in Brazil, Colombia, and South Africa, or through greater support for rural smallholders, as in

the major Southeast Asian countries over the past 30 years. In Brazil and in many other countries, protecting residents of slums and informal settlements from involuntary eviction without due legal process provides them with the security they need to make private investments in their homes and neighborhoods, and with rights and responsibilities as taxpayers entitled to services. In Ait Iktel, Morocco, villagers—suddenly able to articulate and mobilize responses to their demands for new assets, including water, roads, electricity, schooling, and access to knowledge—created a development dynamic that raised their confidence and capacity. Removing informal and formal obstacles to women's education and rights also opens new opportunities, as in the semi-arid mountainous areas of Tunisia, where female agricultural extension workers are able to reach out to women producers for the first time.

Reversing social and economic exclusion can be a particularly powerful impetus to institutional change. Mechanisms for change can build the deeper foundations for sustainable institutions through expanded access to assets and influence (see box 1). Catalysts for improving institutions include:

- *Empowerment through improved access to assets.* This can be accomplished by increasing access to education; providing agricultural land to smallholders and enhancing their access to water, roads, and agricultural technologies; and providing protection from arbitrary eviction to urban slum dwellers. Removing the threat of summary eviction makes possible economic and social transformation of informal slum settlements, giving residents entitlements and responsibilities that change their relationships with formal institutions and with each other.
- *Increased democratization.* Significant changes in governance to increase representation and accountability include such moves as electing rather than appointing mayors (Mexico City), replacing military with elected regimes (Cubatão), and increasing the role of a free press.
- *Inclusion and participation.* Deep institutional change occurs when women, indigenous people, and other disadvantaged groups are given a new voice and access to political power. Facilitating the private sector by removing barriers to entry, and empowering local government through well-

Box 1

Expanding inclusiveness in Malaysia and South Africa

Highly unequal societies fail to value the potential in many of their people, and assets that benefit these people lack spokespersons. This situation is wasteful and possibly unstable.

First, the benefits of the status quo are concentrated. Expanding inclusiveness benefits poor people who lack voice and ensures more widely distributed benefits in the longer term. Second, the negotiating parties face credibility problems. Can the excluded group commit to moderation once it is empowered? Can people in either constituency trust that their leaders are doing what is best for them? Can leaders trust each other and their ability to deliver?

In Malaysia, tensions—threatening at the time—galvanized a long-term development strategy for using natural resource revenues for shared growth and for building political stability through broad-based development, with an emphasis on schooling and health.

In South Africa, as growing domestic conflict and global politics gave rise to more effective pressures and sanctions, the need to move away from apartheid and exclusion was clear. Leaders of vision saw the need for confidence building and took steps to anchor trust—first, secret meetings; next, lengthy and open participatory processes to build relationships; and then the creation of the Truth and Reconciliation Commission headed by Bishop Desmond Tutu. A political culture that emphasizes human rights and reconciliation was decisive.

In Malaysia the significant long-term benefits of shared growth are evident: stability supported investment and employment opportunities, and poverty reduction equipped many people to seize opportunities and realize their potential. In South Africa the peaceful transition toward a more inclusive society has been an impressive feat and an achievement in itself. In both countries major but different challenges remain as they confront and balance difficult choices.

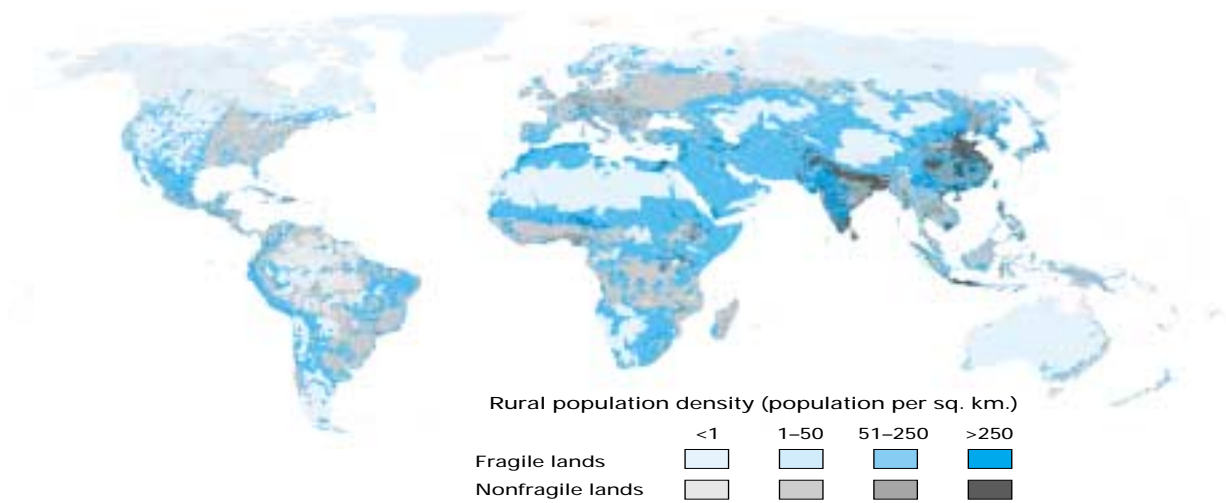
Source: Sparks (1996).

designed decentralization reforms, can also have major institution-building effects.

IMPROVING LIVELIHOODS ON FRAGILE LANDS

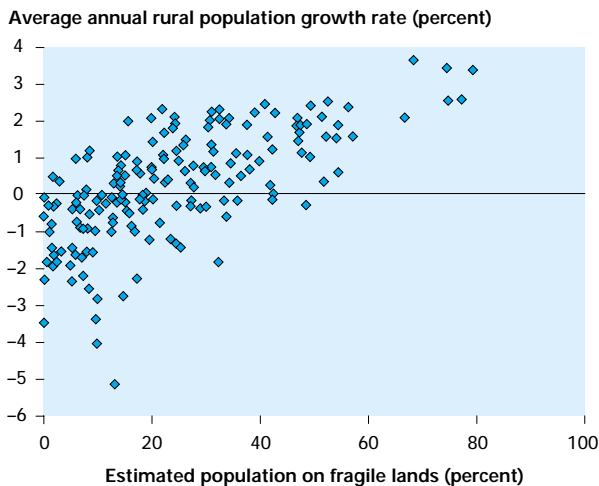
A quarter of the people in developing countries—1.3 billion in all—survive on fragile lands, particularly in arid and mountainous areas that present significant constraints for high-yield commercial agriculture. People's links to these lands are critical for the sustainability of communities, pastures, forests, aquifers, watersheds, and other natural resources. As

Figure 5
Rural population on fragile lands



Note: Number of people living on fragile lands (areas that are forested, arid, on steep slopes or on soils unsuitable for agriculture) per square kilometer of land.
Source: FAO Global AEZ Aridity and Soil Map; USGS / NOAA Slope Map and Land Cover; CIESIN Population Map; World Bank staff estimates.

Figure 6
Rural population growth rate relative to share of total population on fragile lands



Source: World Bank estimates for population on fragile lands; average rural population growth rates for 1995–2000, U.N. Secretariat.

shown in figure 5, East and South Asia have the most people on fragile land, and Sub-Saharan Africa and the Middle East and North Africa have the largest shares, nearly 40 percent.

Populations on fragile lands account for many of the people living in extreme poverty (on less than \$1 a day). Although there has been some outmigration, many people remain, and others are migrating in. The estimated population on fragile lands has doubled since 1950. Countries with more than 30 percent of their populations on fragile lands have had exceptionally high rural population growth rates over the past 50 years and continue to have high growth rates today (see figure 6).

A century ago, international migration was a major channel for improving the opportunities of those living on fragile lands. Today, that option is restricted. Wage rates reported for farm labor and unskilled construction workers (two typical jobs for people migrating from the rural periphery) have remained low and flat in many countries during the past decade.

Making the periphery visible

Improving the livelihoods of people living on fragile lands and increasing the productivity of their portfolio of assets is essential for meeting many of the United Nations Millennium Development Goals for the coming decades. These people are vulnerable, but they do have a modest portfolio of assets that can

help bring them out of poverty: the land (albeit under constraints), traditional social capital, human capital, and indigenous knowledge. The potential of even these assets has not been fully realized by either local or national institutions; for instance, women's potential has not been tapped. Living as they do in dispersed settlements and working in the informal or subsistence economy, people on the rural periphery are largely invisible to decisionmakers. Because it was assumed that they would move out of these areas, few governments have taken the initiative to gather data about their activities or needs. There is little information on their incomes, wages, and job opportunities and little empirical scientific research on what is happening to their lands, aquifers, forests, and other livelihood-sustaining natural resources.

As a result, national institutions have not been picking up social and environmental distress signals from the periphery, nor have these institutions been able to balance interests (particularly dispersed interests) in setting their development agendas. For the past 50 years, governments and the private sector have focused most of their attention and agricultural spending on lands that have commercial potential, even though much of the rural population remained on marginal lands. National institutions have focused on developing minerals and ecotourism in these remote areas but have often failed to share the benefits with local communities to improve their capabilities and quality of life.

This focus is beginning to shift. Boosting yields in fragile areas is becoming a more pressing—and more feasible—task. New, more balanced institutional arrangements for mineral development are emerging. But in order to address the needs of people on fragile lands, more research on appropriate technologies and services, and more information on the conditions of these people, are required. Many households in these areas are headed by women and are constrained by poor educational opportunities, little information, and absence of legal land tenure. Population pressure, lack of knowledge, and simple fear of change lead to destructive patterns of asset management. Understanding the problems and finding ways to help these people out of the vicious circles that lead to degradation of existing assets, damage to livelihoods, and blockage of the paths out of poverty are major challenges.

Freeing these areas from the vicious circle of poverty and neglect requires major transformations, led by bottom-up community-driven initiatives and top-down national and international initiatives. People are more likely to break out of vicious circles when the risks and benefits of change are shared and when changes are introduced gradually but steadily over long periods. Change is more likely when the risk factors are addressed openly, in ways that make the costs less burdensome to those who have the most to lose. To mitigate risks, advice and grant money for experimenting with innovative institutional solutions should be part of the package. Countries can also benefit from long-term partnering with experienced institutions from inside or outside the country to help them think through the process. Successful strategies combine outmigration by a few family members, organization of community associations, and national programs that upgrade the community's modest portfolio of assets.

Combining know-how, information, and grassroots understanding

Public, private and civil society (national and local) institutions can promote better opportunities by:

- Nurturing all the assets available to poor communities—sharing know-how, upgrading the status of women, mobilizing local labor and family remittances, applying research on special crops, and sharing revenues from mineral and other assets that have national benefits.
- Promoting voice and the inclusion of these groups in decisionmaking. Only in this way can institutions pick up the signals on what is happening at the periphery and design appropriate solutions.
- Creating environments that enable and motivate entrepreneurial people to come forward with ideas that address grass-roots realities—economic, social, or environmental. Particularly important is the role of “cultural translators” who can help reorient traditional social capital toward actions for community development (see box 2).
- Establishing long-term partnerships between the public sector, the private sector, and nongovernmental organizations (NGOs) to promote transparency, accountability, the transfer of knowledge, and solutions that balance everyone's interests.

Box 2**The role of “cultural translators” in building social capital in a Moroccan village**

The village of Ait Iktel is located in the High Atlas Mountains, about 100 kilometers from Marrakech. Its most valuable asset is its traditional social capital, embodied in village elders who manage by consensus building and in an equitable, shared distribution of limited resources (brush forest, water, and communal grazing land). That social capital has enabled the community and its social, musical, and religious traditions to survive over the centuries.

In 1995, when Ait Iktel faced a third consecutive year of drought, two villagers—Ali Amahan, then director of the National Monuments of Fez, and his cousin Mohamed Amahan, a mechanical technician at a phosphate mining company in Casablanca—organized the village men in constructing a well, with the help of pooled remittances from migrants. Assuming the vital role of cultural translators—people who both understand modern management methods and are steeped in local traditions—the two men noticed how the women spontaneously and efficiently organized water distribution and the maintenance of the well and decided that the community was ready to do more. The success of the water project set off a development dynamic that continues today.

The villagers established an association, Ait Iktel pour Développement, that functioned under the authority of the village assembly. The assembly, a traditional patriarchal authority structure, brings together all the *chefs de familles*, manages village affairs, resolves disagreements, and makes decisions on the basis of unanimous agreement. The association mobilized the migrants’ remittances for community development projects and set up a village work bank. Each family contributes five labor-days a year to projects.

After the well was finished, Ali and Mohamed asked the assembly about building a school for girls, but the village’s priority was to upgrade the access road and purchase an ambulance to help reduce maternal deaths. When these two projects were completed, the two men again raised the possibility of setting up a girls’ school. Again, the village assembly had another priority—electricity. Mohamed designed a project that fit the income levels of the villagers: a small generator for all the homes in the central village, and solar panels for more remote locations. It was critical to the building of social capital that everyone contribute to and benefit from the project. In 1997, on the night they all celebrated lighting up the village, the assembly agreed to a school for girls.

Source: Amahan (1998).

- Addressing population pressures in fragile areas by encouraging outmigration. Steps in this direction include better preparing rural inhabitants to take on nonrural jobs and improving the ability of commercial rural areas and urban areas to provide them with more productive opportunities. For the people living on fragile lands, as well as for those

in commercial agricultural or urban areas, developing human capital is critical for expanding options for improved livelihoods.

TRANSFORMING INSTITUTIONS ON AGRICULTURAL LAND

Approximately 2 billion people live in rural areas with commercial agricultural potential, either in frontier areas where market-driven agriculture is newly emerging or in areas closer to larger urban markets. Some of these people will migrate to cities, and many live in areas that will be reclassified as urban as population densities increase. Overall, the number of people living in such areas is likely to remain stable during the next three to five decades. These areas, however, will have to help feed a growing, more urban, higher-income world population. Better management of the interaction between agricultural development and the environment will be needed, and steps will have to be taken to ensure that the poor receive better access to assets, giving them better opportunities and a stake in society.

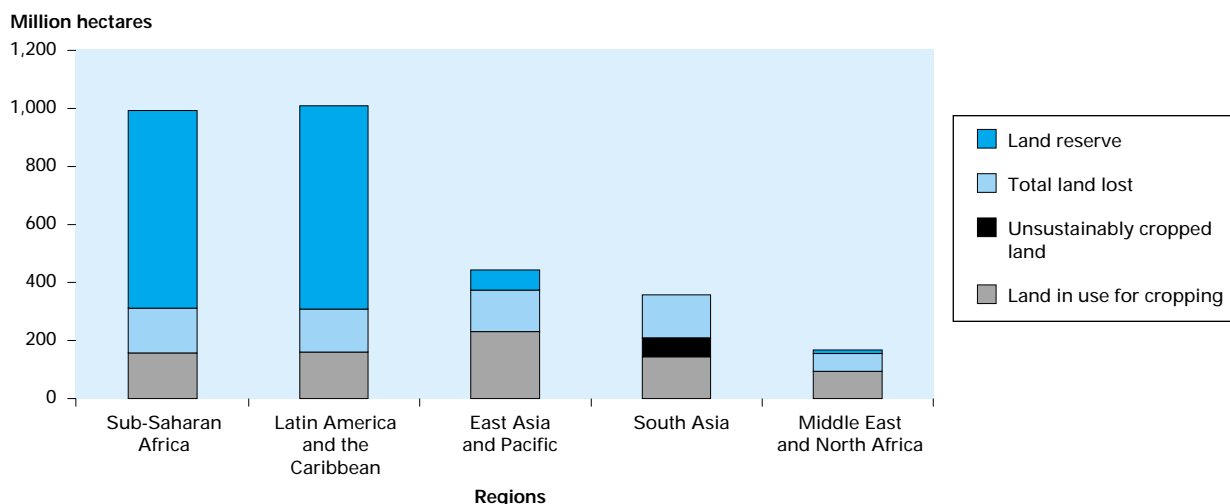
The smooth emergence of land and water institutions is of fundamental importance because the rules for property ownership determine the character of the state and society. Countries that have distributed rural property equitably have developed more egalitarian and democratic societies than those that put assets in the hands of relatively small rural elites.

Serious local and regional water and land shortages are emerging in some regions, particularly North Africa, the Middle East, and South Asia (see figures 7 and 8). Even though, throughout the 20 to 50 year time horizon of the Report, land and water are projected to be adequate for meeting the needs of a growing world population and for improving nutrition, there is a need to improve policies and institutions for allocating increasingly scarce local resources.

The food problem is a poverty problem

The world food problem stems from insufficient purchasing power in the hands of poor people, not from global constraints on aggregate food production. Although as many point out, annual increases in food production have been falling, annual increases in demand are falling even more rapidly, depressing food prices to record lows. Yet 820 million people do not receive enough food to lead healthy and productive lives, and about 160 million children are seriously underweight for their age.

Figure 7
Availability of cropland



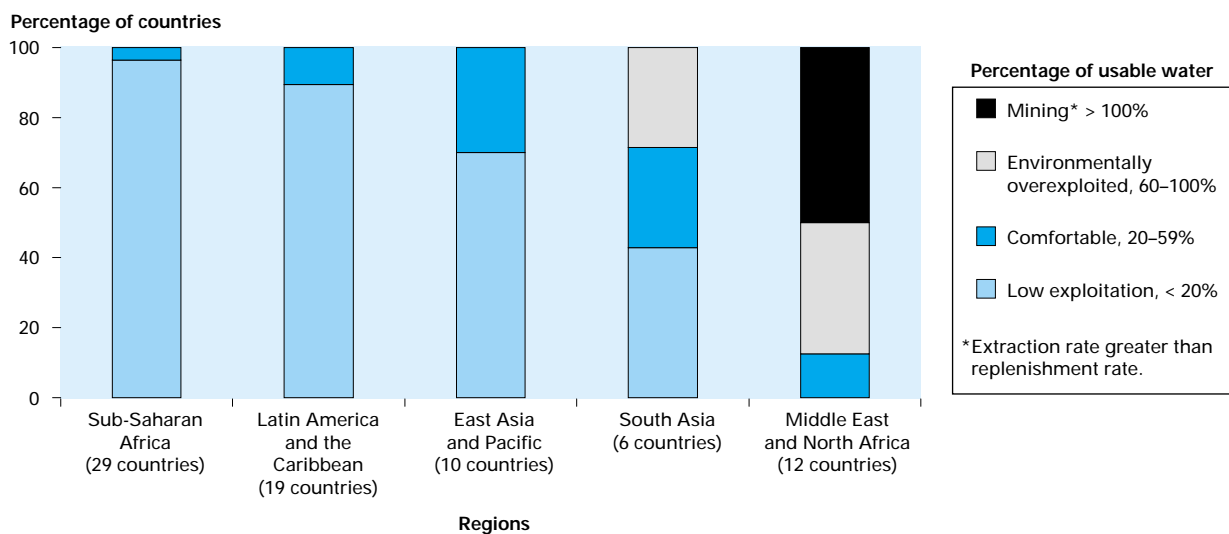
Note: "Land reserve" includes areas potentially not suitable for agriculture because of environmental constraints such as forest cover.
Source: IBSRAM (2001).

Key rural development challenges

Eliminating rural poverty and preparing outmigrants. Urbanization has been rapid over the past several decades, and in many countries rural migrants have moved to the cities without the advantages of physi-

cal or financial assets or adequate human capital. Nor have institutions evolved to include them in the development process. In Asia and Africa most people still live in the countryside. There, a strategy for strengthening the assets of rural people would simul-

Figure 8
Exploitation of usable water



Source: IWMI (2001).

taneously strike a blow against rural poverty, generate an inclusive orientation in institutional evolution, and prepare migrants to become productive urban citizens. Rural areas on the urban periphery benefit significantly from the opportunities generated in the urban economy.

The value of assets is enhanced through agricultural research directed toward poor people and through better agricultural institutions. In Africa improvement of agricultural institutions may depend on strengthening asset values first, through creation of water control and transport infrastructure and a concerted program to enhance soil fertility. A reasonable estimate for the cost of a fertility enhancement program to scale up currently successful models is \$100 million annually for 10 years.

Intensifying agricultural production. Intensifying agricultural production is highly desirable for three reasons: it increases the food available to the cities; it minimizes pressures on biodiversity and on marginal agricultural areas; and it leads to dynamic rural-urban linkages. Higher population density and strong rural-urban linkages make investments in rural health and education more effective, increases the potential for off-farm employment, and helps farmers accept risk and innovate. These arguments all support a tenure policy which promotes the smallest farm that is economically efficient.

The increasing scarcity of water will lead to the emergence of markets—formal or informal; legal or illegal; established peacefully or through violence. The tendency will be for water to go to its highest-value use, given the infrastructure in place. If the settlement of rights is protracted, the negotiation strategies of individual claimants will lead to a wasteful drawdown of the resources, and to premature, uneconomic investment because of the incentive to “lock in” water claims before other claimants do so—often years, if not decades, before the infrastructure is justified by emerging demand.

The environmental use of water—that is, maintenance of flows adequate to support healthy aquatic ecosystems—will not be protected unless there is specific institutional intervention. In the absence of protective institutions, the environmental use of water is priced at zero; every other use will have a prior claim. If estuaries and freshwater ecosystems are to be maintained, institutional solutions have to be put in place to take into account the public-good nature of water.

Getting ahead of the frontier. In many countries the advance of the agricultural frontier into woodlands and forests reflects a failure of land tenure policy. The race for property rights leads to excessive farm sizes, underutilization of land, and lack of opportunity in more favorable areas nearer cities. It also creates incentives to open new land on the frontier.

The results are nearly all negative. First, because of distance, cost, and the transience of settler populations, the government’s ability to provide for human development on a frontier is extremely limited—and frontier people are the big losers. Second, the low cost of land on the frontier leads to extremely extensive agriculture. If biodiversity and carbon values are not taken into account in the farmer’s decision to open new land, the environmental costs will be high. Third, there is a high probability that marginal frontier land being opened up today will be abandoned as uneconomic in the future. This is becoming truer now than ever, as global food projections indicate little need in most places for additional land to meet the anticipated growth in population and incomes.

Getting ahead of the frontier by establishing parks, reserves, and production forests helps end this cycle of transience and conversion of low-value land. It stabilizes the frontier economy. It provides incentives for more intensive development nearer to cities. And it reduces needless loss of biodiversity (see box 3).

Creating off-farm opportunities. In areas closer to cities, nonfarm rural employment will be a powerful force for diversifying income, thereby allowing greater risk taking and investment. It can also act as a stepping stone for rural workers to enter productive urban employment. Rural areas on the urban periphery benefit significantly from the opportunities generated in the urban economy. Smallholders with assets develop voice and become political players. History shows that this generates an inclusive development path that helps countries face later challenges. But getting assets into the hands of smallholders requires good land and water policies.

GETTING THE BEST FROM CITIES

Cities in the developing world face formidable tasks, given the expected rapid rate of growth and the sheer numbers of urban residents to be employed, housed, and provided with services. Cities are sources of productivity and innovation. Industrial and service activities emerge in cities because entrepreneurs and small firms can share markets, infrastructure, labor,

Box 3 Putting institutions in place ahead of the frontier: Brazil's experience

The race for frontier property creates a sharp disparity between what is good for an individual landholder and what is good for society. First, the rancher or farmer opening new land is unlikely to take into account the loss of biodiversity and of carbon storage capacity. Second, holdings at the extensive margin tend to be associated with low density and transient communities, raising the costs and lowering the quality of government services and creating little opportunity for building human and social capital. In an extensive, predatory agricultural economy, either the state incurs sharply higher costs for providing human services equivalent to those in other areas, or services are poor, leading to a corresponding loss in human potential.

In the Brazilian Amazon, 140 million hectares (28 percent of the area) have been removed from frontier agriculture through the creation of protected areas—national parks, biological reserves, extractive reserves, and indigenous reserves. Analysis based on satellite imagery and on field surveys, to detect signs of occupation and to identify forestry potential and high biodiversity values, shows that without competitive use, 46 million new hectares (9 percent of the Brazilian Amazon) could be put into biodiversity protection and 70 million hectares (14 percent) into national production for sustainable forestry.

If this were to come about, more than half the Amazon would be dedicated to either preservation or to sustainable forest use. The government has pledged to put a representative 10 percent of the Amazonian forest (41 million hectares) into new protected areas through the World Wildlife Fund (WWF)–World Bank Forest Alliance. It is also developing a national forest program to strengthen the forestry system and establish new national forests. The long-term goal is to create a mosaic of land use to control the advance of the agricultural frontier, build sustainable communities through sustainable activities, and put in place a strategic buffer for areas of high biodiversity value.

Source: Verissimo and others (2000).

and information. But the presence of large groups of people and activities in close proximity also generates negative externalities—waste, pollution, congestion, and crime. This puts a premium on the quality of institutions, both formal and informal, and on their ability to promote the positive and cope with the negative.

Urban areas can stimulate the development of rural areas by providing markets for rural products, subcontracting activities that expand nonfarm rural employment, and offering employment in the city itself. Cities and towns facilitate society's transformations in knowledge, institutions, and economic activity. By bringing together diverse people and ac-

tivities, they offer great opportunities for improving the quality of life. If cities and towns are to realize the promise of a better life—especially for poor people and for migrants from rural areas—they need stronger institutions to provide wide access to assets and to balance interests in ensuring the provision of public goods.

Some key urban development challenges

Anticipating and providing for urban growth: guiding new settlements to prevent future slums. Cities and towns in developing countries will need to accommodate a projected doubling of the urban population over the next generation, by 2030. The required massive new investment in the capital stock of cities will be critical to environmental outcomes. Urban land use patterns, right-of-way arrangements, and building standards will affect energy and water use. Local governments have often shied away from acknowledging the need to anticipate and facilitate the growth of low-income settlements, instead letting these areas fend for themselves. Providing infrastructure networks after the fact is costly, especially for very dense settlements with irregular layouts or where resettlement is required. In Bogotá the urban development agency estimates that installing drainage networks is about three times more expensive in informal settlements than in planned neighborhoods.

Valuable experience in planning low-income settlements has come from sites-and-services programs, usually initiated by local governments or their agents, that provide basic plot layout and minimal infrastructure such as core sanitary facilities in advance of spontaneous development. A program of this kind in Lima aimed at preventing the growth of squatter areas by anticipating demand.

Empowering the poor through access to assets: security of tenure. Security of tenure is defined as “protection from involuntary removal from land or residence except through due legal process.” The emphasis is thus on preventing forcible and arbitrary eviction of individual households or of entire settlements. By confirming the rights and responsibilities associated with the occupation and use of land, regularization of tenure status removes a major source of economic and political insecurity for households and for communities. It reduces some of the risks that discourage residents from investing in their houses and shops, and it gives them a greater stake in urban society and an incentive to work with local officials to obtain services.

Box 4 Inclusive policies for the poor in Brazil's *favelas*

In many cities in Brazil, large shares of the population—a quarter of the residents of Rio de Janeiro and 40 percent in metropolitan Recife—live in informal or illegal settlements, often on public land. Beginning in the early 1980s, a number of cities initiated efforts to regularize or integrate these *favelas* into the urban fabric and to give them legal recognition.

In Rio the state government gave up its resistance to *favelas*, providing finance for building materials for residents without requiring collateral. In Belo Horizonte and Porto Alegre the *favela* programs place a strong emphasis on participatory budgeting and planning for investments in the settlements. A 1998 study by the Brazilian Institute for Applied Economics indicates that at least 794 municipalities have a *favela*-upgrading program; about 506 of these programs include some form of land tenure regularization.

Where tenure regularization policies have the goal of transferring full individual freehold titles to the occupiers of public or private land, as in Belo Horizonte and Rio, this aspect of the program has been problematic to implement and less successful than physical upgrading and service provision. Porto Alegre and Recife, among other municipalities, have used an innovative alternative legal instrument to promote individual and community security of tenure. The “concession of the real right to use” is a leasehold that confers private property rights to publicly owned land for a period of up to 50 years, for an individual or for a community. In combination with the designation of settlements as zones of social interest, the concession protects residents from eviction and gives them broad property rights.

This instrument permits the state to protect access for low-income communities to land they occupy in order to promote socioeconomic integration of the city. It also helps preserve scarce public land for current and future social uses. Settlements granted such use rights have gained physical improvements from private and public investment in housing and infrastructure and increasingly take on the appearance of working-class neighborhoods that are physically integrated with adjacent areas.

Source: Brakarz, Greene, and Rojas (2002).

A growing commitment by governments at the city, state, and national levels in Brazil to regularize slums (*favelas*) has put in train a process of transformation (see box 4). For decades, the *favelas* were home to a hard-working labor force, constituting one-fourth of the city's population, yet government institutions withheld recognition of these neighborhoods as an integral part of the city deserving of urban services. In Brazil, as in other countries, security of tenure triggers a virtuous circle of equitable access to urban assets, as well as political and economic inclusion, giving residents rights and responsibilities as citizens with a stake in the city's future.

Stimulating urban investment and job creation. Cities will need to provide employment and services on a scale sufficient to take care of current residents and new arrivals. Productive employment is critical so that the fall in demographic dependency ratios projected in most developing countries over the next 20 to 30 years can translate into increased savings and investment. Urban employment and services benefit from the economies of agglomeration—from cost savings and other advantages that accrue to firms when they locate near others in the same industry, or simply near other economic activities, to share markets, services, infrastructure, labor, and information. The productivity advantage means that urban investment has strong multiplier effects in stimulating other high-value activities.

As a rule, larger urban areas are the most productive, since they allow for greater specialization in labor use, better matching of skills and jobs, and a wider array of consumption choices for workers and of ancillary services for producers. As long as this greater productivity outweighs higher costs for land, labor, housing, and other necessities, the city can thrive.

For cities to fulfill their potential as engines of national economic growth, they need to ensure that the labor market is not only deep but also well integrated and inclusive, with accessible workplaces and residences. Cities in general can improve the national investment climate if their overall legal and regulatory framework complements the national framework to minimize risks, uncertainties, and transaction costs to investors. This is especially important for small and informal sector enterprises, which provide most urban employment, rely heavily on publicly provided infrastructure and information, and are particularly vulnerable to institutional and policy failures.

Building informed constituencies to address spillovers and anticipate risks. Mobilizing for action to solve the problems described above requires that the affected parties gain access to credible information on costs and benefits and that they perceive a common interest in finding a solution. Building an effective constituency can be difficult where the impacts are uncertain and infrequent, as in disaster mitigation. Advances in technology and knowledge are helpful, and local and national governments need to play important leadership roles in both areas.

Urban communities, like their rural counterparts, often work through informal social networks to solve

some of their common needs, such as waste collection. Residents' associations in Pune and Mumbai (India) and in Santo Domingo (Dominican Republic) canvassed neighbors to assess demands for services and local public works and used this information to obtain additional support from other agencies in meeting their needs (for latrines in Pune, resettlement in Mumbai, and disaster-mitigating infrastructure improvements in Santo Domingo). But many environmental problems that transcend the neighborhood, such as drainage, solid waste disposal, and protection of water quality, require support from the larger collective and from more formal institutions. Because of the physical interdependence and scale of urban settlement, most issues of sustainable development that have a citywide impact—including environmental services, transport, land use planning, and public safety—require intervention by local government, and often coordination among multiple municipalities across metropolitan areas, as well as support from the national government.

Inclusion makes a difference

Institutional innovations that provide forums for participatory planning and networking among practitioners to share ideas and experiences can be useful for encouraging creative forward thinking in support of urban development and poverty reduction strategies. Increases in democratization and other reforms that provide greater voice and wide access to information can also help build constituencies to address externalities affecting urban populations today and in the future. In Cubatão, for example, civil associations paired with government officials to overturn a legacy of environmental damage.

STRENGTHENING NATIONAL COORDINATION

Many opportunities can be realized only by improving coordination at the national level. Political boundaries, currencies, trade policies, safety regulations, and much private sector activity is national in scope. Since many externalities spill outside municipalities and regions, the nation is often the level at which interests can be balanced, either directly or by facilitating negotiations among localities. National actors are better placed to organize the provision of public goods and to take advantage of scale economies when the beneficiaries extend beyond subnational regions. The national government must also find a

delicate balance between maintaining authority and giving other actors—including lower levels of government, civil society, and the private sector—freedom to perform their critical functions in improving coordination. Such distinguishing features make the nation, as a conglomeration of interests and actors, an important unit of analysis.

Eliminating poverty requires growth and investment. Efforts to generate a strong investment climate—including sound macroeconomic fundamentals, good governance, and basic infrastructure—need to be strengthened at the national level. How they are designed and implemented will affect management of the environment; for example, dismantling perverse subsidies, husbanding forests and fisheries, and curbing air pollution.

Management of natural resources can seriously test coordinating institutions and their ability to perform the key functions of picking up signals, balancing interests, and executing and retarding the emergence of strong institutions that are important for the creation of a continuous stream of new opportunities and economic performance in the long run. Heavy reliance on natural resources for public revenue can hurt growth by weakening government accountability. Ensuring that aid does not have similar effects is a major focus of the current efforts to improve aid effectiveness. The tragedy of violent conflict is also more likely to visit countries with lootable natural resources and lack of sustained growth (see figure 9).

Emerging institutional solutions offer some hope for addressing these difficult national problems. Strides are being made in increasing inclusiveness by expanding educational access and basic health services. The falling costs of communications and the deepening of democracy are strengthening voice and accountability. The importance of a sound investment climate as a core component of sustainable development is becoming widely recognized, as exemplified by the prominent position of governance on national agendas and by the progress over the past decade in confronting corruption through the concerted efforts of governments, civil society, and the private sector to change the rules of the game.

New models for dealing with these issues are also emerging. They rely on government partnerships with civil society, the private sector, and international organizations to ensure greater fairness and accountability. Institutional reforms in the manage-

Figure 9
Unsustained growth, point-source natural resources, and conflict

COUNTRIES WITH UNSUSTAINED GROWTH						
1999 GDP per capita (1995 US\$) was reached:						
In 1960 or before	During the 1960s	During the 1970s	During the 1980s			
Senegal <i>Somalia</i>		Honduras <i>Mali</i> <i>Philippines</i> Zimbabwe				
<i>Angola</i> <i>Cen. African Rep.</i> <i>Chad</i> <i>Dem. Rep. of Congo</i> Ghana <i>Haiti</i> <i>Liberia</i> Madagascar Nicaragua Niger Nigeria <i>Rwanda</i> <i>Sierra Leone</i> Venezuela, Rep. B. de Zambia	Bolivia Côte d'Ivoire Jamaica Mauritania Togo	<i>Algeria</i> <i>Burundi</i> Cameroon <i>El Salvador</i> Gabon <i>Guatemala</i> Guyana Iran, Islamic Rep. of Malawi <i>Peru</i>	Ecuador <i>Ethiopia</i> <i>Iraq</i> Jordan Kenya Paraguay <i>Rep. of Congo</i> Tanzania Trinidad and Tobago	Benin Botswana Brazil Burkina Faso Chile <i>Colombia</i> Costa Rica Dominican Rep. Egypt, Arab Rep. of Fiji Guinea Indonesia Mauritius Mexico Morocco	Oman <i>Papua New Guinea</i> <i>South Africa</i> <i>Sudan</i> Syrian Arab Republic Tunisia <i>Uganda</i>	COUNTRIES WITH POINT SOURCE NATURAL RESOURCES

Note: Countries are considered as having declining output if their 1998 per capita GDP was reached in some prior period, as indicated (Murshed 2002). Countries are categorized as point-source economies if their two most important exports are of fuels, minerals, or plantation crops (with some judgments made where there was some ambiguity) (Isham and others 2002). Countries in bold italic were reported to be in civil conflict in the 1990s, defined as war that has caused more than 1,000 battle deaths, challenged the sovereignty of an internationally recognized state, occurred within its recognized boundary, involved the state as a principal combatant, and subjected the state to an organized military opposition that inflicted significant casualties (Sambanis 2000).
Source: Murshed (2002).

ment of forests hold the promise that such environmental resources will be better husbanded in the future (see box 5). The wider impact of projects is increasingly recognized, as exemplified by the use of a revenue-monitoring board in connection with the Chad-Cameroon oil pipeline.

Efforts to avert conflict will benefit from nondiscriminatory policies that emphasize shared growth. International aid agencies may be able to contribute in a similar way by providing a base of assets for poor people and poor countries that enables greater participation. In addition, the international community can help overcome the serious commitment problems associated with removing perverse subsidies, disarming them by helping to guarantee agreements.

SOLVING GLOBAL PROBLEMS AND ADDRESSING LOCAL CONCERNS

Social and environmental problems often spill over national boundaries. Dealing with them requires

much the same kind of institutional apparatus at the local and national levels as described above: problems must be detected and diagnosed; interests must be balanced within and across borders; and agreements need to be implemented. But there is a big difference: at the global level, commitment is a more difficult problem, and there is no central authority to enforce agreements. Nations have to devise ways to keep themselves on agreed paths.

Innovations in institutional design for transnational problems

Picking up signals of the problem and agreeing on its nature. Among the institutions that are providing a credible, legitimate forum for fostering consensus on diagnosis and action is the Intergovernmental Panel on Climate Change (IPCC), set up to foster political buy-in to scientific findings. Over the past 10 years, the IPCC's work has contributed greatly to promoting consensus on the nature and causes of

Box 5

Creating a platform for dispersed interests in Cameroon's forest policy

Forests are important to Cameroon—Africa's largest wood exporter—but also to the world, because of the biodiversity they contain. As in some other forest-rich nations, logging has been poorly regulated. Until the mid-1990s, logging permits were awarded through an opaque administrative process linked to deep-seated patronage.

After years of policy dialogue with donors, in 1994 the executive branch introduced in parliament a new forestry law providing for the auction of forest concessions on the basis of per-hectare bids by prequalified bidders. The law was intended to increase transparency, discourage unnecessary expansion of logging road networks, and encourage high value added industrial activity. The law also required management plans and allocated half the revenues from logging to local governments and communities.

After three years of little movement, a flexible framework for debating and supporting the implementation of the forestry law was put in place. Progress was due in part to the emergence of constituencies for reform, including a strong team of reformers in the government and in the communities that began to benefit from increased revenue sharing.

Consultations among stakeholders have intensified. Transparency has increased: newspapers publish the details on which companies are authorized to operate in which locations, thus helping local residents identify illegal operators. Also important is the widespread formal use of independent observers. Respected Cameroonians are hired to observe the concession

allocation process. Cameroonian and international NGOs are contracted to assist in verifying concessionaire compliance with logging regulations, through both on-the-ground inspection and use of satellite imagery. This helps ensure that the bidding system does not encourage overexploitation of the forests.

The results so far include:

- Clarification and simplification of forest management regulations, resumption of field inspections, and prosecution of illegal logging, with fines up to \$15 million being levied on a single company
- Gradual exit of short-term speculators and increase in long-term investors, with a positive impact on high value added industry and local employment
- Enhanced revenue capture in the interests of the nation and rural communities; annual forest revenues increased from less than \$3 million in 1995 to more than \$30 million in 2001 (excluding timber export taxes and duties). Fiscal revenues accruing to local communities increased from negligible levels in 1998 to \$8 million in 2002.

The program is still evolving to address new challenges, but the benefits of increased transparency are already being considered in other sectors.

Source: Essama-Nssah and Gockowski (2002).

climate change. Other examples include the Transboundary Diagnostic Analyses, sponsored by the Global Environment Facility (GEF), which convenes stakeholders to draw up strategic action plans for tackling international management of freshwater and coastal ecosystems.

Learning and adapting. The diagnostic process is most effective when it feeds into an adaptive process of balancing interests, setting goals, taking action, and learning from results. The Convention on Long-Range Transboundary Air Pollution, described in box 6, illustrates such adaptive learning.

Building local capacity for assessment, negotiation, and action. Bolivia and Costa Rica have countless pressing domestic concerns, yet they have taken the lead in pursuing biodiversity conservation goals which have global implications. In both countries, research organizations linking national and international scientists nurtured a group of policy entrepreneurs who could blend scientific knowledge and international financial resources with the domestic political skills and experience needed to usher in and implement major policy reforms. Attuned to ideas

from abroad but deeply immersed in domestic social movements and policy debates, these policymakers have been at the forefront of an impressive record of environmental policy innovations and have helped stimulate national dialogues on environmental quality and sustainable development.

Inducing socially responsible behavior. Various initiatives are beginning to publicize information about environmental and social performance, and there is some evidence that firms are responding. Government-sponsored public disclosure programs, which report publicly on firms' pollution levels, have been effective in influencing polluters' behavior in Colombia, Indonesia, and elsewhere. Nongovernmental evaluation and certification systems such as those in forestry are developing quickly. Several private investment firms have developed "triple bottom line" rating systems to assess firms' social, environmental, and financial performance. And the Global Reporting Initiative, sponsored by the United Nations Environment Programme, is developing auditable standards for environmental and social reporting analogous to those for financial reporting.

Box 6**An adaptive, learning institution for reducing transboundary air pollution**

The Convention on Long-Range Transboundary Air Pollution, although it has North American signatories, has concentrated mainly on mitigating pollution in Europe. Its first substantive agreement, the Helsinki Protocol of 1985, required parties to reduce sulfur emissions by 30 percent from their levels in 1980. Many observers consider this a modest goal, but it established a track record of cooperation that has so far resulted in six subsequent, and increasingly more ambitious, protocols on emissions reduction.

In setting, refining, and implementing reduction targets, the convention has been aided by the Cooperative Programme for the Monitoring and Evaluation of the Long-Range Transmission of Air Pollutants in Europe (EMEP) and by the acid-rain modeling group at the International Institute for Applied Systems Analysis (IIASA). The EMEP has worked to compile data on emissions and air quality and to model atmospheric transport of pollutants. Several reviews by political scientists have pointed to the EMEP as catalytic in promoting better understanding of pollution problems and facilitating agreements on more stringent emissions limits. Over more than a decade, the EMEP has worked to ensure consistency in data collection and reporting methods among its diverse members.

By 1990, the data were deemed good enough to support a credible simulation model, RAINS, for assessing the costs and impacts of alternative emissions reduction scenarios. This model, developed at the IIASA, was used by negotiators in setting commitment levels for the Second Protocol on Sulfur Reduction. It and subsequent analyses showed that the near-term cost of fully meeting environmental goals was unaffordable, and this led to agreement on achievable interim measures.

The process of data gathering, model building, and model application facilitated communication among scientists and policymakers, fostering a virtuous cycle of building trust and continual refinement of data and models. This has helped the convention tackle additional pollutants and provides a basis for all stakeholders to monitor nations' compliance with the protocols, increasing mutual confidence in the convention.

Source: Jäger and others (2001).

Conserving biodiversity: maintaining current services and future options

Because the services stemming from biodiversity do not yield revenues, it can be difficult for local constituencies to protect their environmental assets. The challenge is to find ways to ally domestic and global interests that support conservation and sustainable use while facilitating a substantial improvement in the well-being of poor people.

Balancing interests in biodiversity for the public good will require a new breed of ecosystem management institutions. For the most part, problems of biodiversity loss cannot be solved on individual farms or on local fishing grounds. Solutions need to consider entire ecosystems and social systems, for three reasons. First, the incentives driving biodiversity loss must often be addressed at the market level or at the political level that governs access to land and water. Second, actions in one part of an ecosystem can affect a distant part, as when water pollution harms a faraway reef. Third, to reduce potential conflict, efficiency is necessary, requiring incentives that keep agriculture on land with high economic value and low ecological value.

Ecosystem management institutions will take quite different forms depending on the biodiversity involved and the prevailing systems of tenure and governance. For instance:

- *Aquatic ecosystems*, whether marine or freshwater, often extend over national boundaries. A wide variety of stakeholders, including industrial and municipal polluters and fishing interests, must be coordinated. Institutions for integrated coastal management and for river basin management are beginning to emerge.
- *Frontier forests* are sparsely settled sites of conflict and exploitation, as both corporations and individuals rush to seize rents and claim property. Biodiversity conservation here is an outgrowth of the more fundamental need to establish governance and rationalize land use. Examples of promising institutional responses include Cameroon's reformed system for forest concession auction and monitoring (see box 5) and the program for monitoring and enforcing land use regulations in Mato Grosso State, Brazil.
- *Commons in transition* are areas, often with fairly high population densities, where traditional community management of forests, rangelands, or fisheries has broken down, frequently as a result of government appropriation and mismanagement of the commons. The breakdown is exacerbated in some cases by population growth. Sustainable use of biodiversity depends on resolving disputes among communities, and on clarifying community and government rights and responsibilities.

This effort is currently being made in many parts of South Asia and Africa, with varying degrees of success, through joint forest management, and community forest management programs.

- *Fragmented habitats with less disputed tenure* pose difficult policy questions. These tend to be mosaics of agricultural land and natural habitat where both the private opportunity cost and the social benefits of sustainable use are high. They include some of the “hot-spot” areas where the risk of losing an entire ecosystem is greatest. Mechanisms for achieving and efficiently realizing consensus visions for regional development and land use are essential here. Costa Rica’s Program for Environmental Services Payment is one illustration of having beneficiaries pay to protect environmental services.

Mitigating climate change and adapting to its risks

Change in the planet’s climate is quintessentially a global problem because greenhouse gases mix rapidly in the atmosphere and have the same impact on climate change regardless of where they are emitted. The problem is a long-term one because the great inertia in social, economic, and physical systems means that it would take decades to moderate substantially the rate of change.

The impacts of climate change are already here. Low-lying islands and coastal areas everywhere will be exposed to flooding and storm damage. Arid and semi-arid areas in Africa and Asia will probably face higher temperatures. Feedback between vegetation loss and reduced rainfall could result in more rapid desertification.

These impacts, if unchecked, are predicted to intensify, posing risks of varying kinds for different countries. The effects will fall heavily on many developing countries, including those that have not contributed to climate change. Impacts on industrial countries are thought to be mixed but may be generally negative. And there is a risk of catastrophic consequences of climate change that could be irreversibly set in motion during this century.

Three points are essential for understanding the problems of balancing interests and executing agreements. First, emissions per capita in industrial countries are much higher than in developing countries and are likely to remain higher for some time. This

raises questions of equity. On average, citizens of industrial countries are imposing higher damages than others on the world at large. Second, developing countries will nonetheless emit substantially more in the aggregate than industrial countries and therefore must be involved in implementation. Third, to mitigate climate impacts by 2100, it is essential to start now.

A mitigation strategy. An adaptive strategy for mitigating climate change would enable midcourse corrections in light of new information and provide incentives for taking action now to reduce greenhouse gas emissions over the near term (5–10 years), the medium term (10–20 years), and the long term (20–50 years). Some actions need to be undertaken now—the impact of those actions will play out over three time horizons:

- Vigorously pursue current options for cheaply abating greenhouse gas emissions, thus reducing the possibility of triggering catastrophic climate changes and buying time for longer-term, more fundamental actions to take hold. This includes, among other things, finding ways to deter wasteful deforestation that does not contribute to sustainable development and to promote instead more intensive but sustainable agriculture.
- Set up incentives to ensure that the next generation of long-lived capital stock (trillions of dollars worth of transport infrastructure, generators, and buildings over the next 50 years) is energy-efficient; to encourage agricultural intensification and the maintenance of carbon stocks in forests; and to shift urban structures toward lower energy use.
- Start now on research and development to ensure that zero-emission energy technologies can be developed and widely deployed by midcentury.
- Building on current efforts, create adaptive international institutions for fostering cooperation and burden sharing.

Adaptation. The climate system has considerable inertia. Even if greenhouse emissions were magically halted today, the effect of past emissions would continue to raise temperatures and sea levels for centuries to come. Adaptation efforts are therefore necessary and will need to be assisted by those who created the problem and have the ability to pay now.

But the adaptation agenda has only begun to be addressed.

There is growing recognition that developing countries, especially, are not dealing optimally with current weather-related risks, let alone future ones. Efforts to reduce current vulnerabilities will thus not only have immediate payoffs; they will also increase countries' capacity to deal with increasing vulnerability to climate change.

The most general and effective way to help vulnerable poor countries adapt to climate change is to promote rapid and sustainable development. Over the coming decades, more vigorous growth rates and accelerated investments in human capital will shift these countries out of climate-sensitive sectors and improve their capacity to cope with climate-related risks.

PATHWAYS TO A SUSTAINABLE FUTURE

At a modest 3 percent annual rate of growth, the global economy in 50 years will be four times the size it is now. Will that larger economy generate less environmental and social stresses than the much smaller economy does today? Most of the physical capital required for the economy 50 years hence has not yet been created. This provides an opportunity to incorporate inclusiveness and sustainability criteria in current investments. The potential is there to shift development paths, provided institutions that adopt and implement better policies can be put in place.

The Report shows that rising income can facilitate but not guarantee better environmental and social outcomes; for instance, countries do not simply "grow out of" pollution or civil conflict. The Report also shows that low income does not condemn people to a deteriorating environment or a worsening social climate. Actions can be taken now to improve the ability of institutions to identify, adopt, and implement policies that facilitate growth while addressing critical environmental and social issues.

Innovative institutional approaches can be built on—now

Many, if not all, of the institutional innovations cited in the Report already show signs of being replicable and capable of being scaled up to meet the challenges ahead. For example, the pilot experience with security of tenure in *favelas* in Brazil is being extended to hundreds of thousands of households. The multi-stakeholder pollution disclosure programs in China

have moved from 2 pilot municipalities to 13, and countrywide implementation is under discussion. The village initiative in Morocco is being replicated in a dozen other villages. The forest concession program in Cameroon has created a constituency for its expansion to other sectors. There is much creativity under way with initiatives emerging from the public sector, the private sector, and civil society. An enabling environment nationally and globally is needed to encourage such initiatives, facilitate partnerships, and help mobilize the resources needed to scale up promising activities within and across countries.

Sustainable development requires action across many sectors and disciplines, including water, energy, health, agriculture, and biodiversity. The Report takes an approach that is intended to complement and support the sectoral perspectives. Its message is that many of the problems are inherently intersectoral and their severity varies by location, so proposing and endorsing a set of action plans are important first steps, but realizing them requires an institutional apparatus that cuts across sectors. Achieving all the broad sectoral goals will involve problem diagnosis, decisions with distributional consequences, and coordinated and sustained commitments to action. These functional capabilities require that institutions for coordination within and across countries be improved. The Report shows that even with imperfect institutions it is possible—indeed, imperative—to build now on the many institutional innovations already present and to show the way forward through:

- Creation of information for constituencies and constituencies for information
- Transparency, performance reporting, and accountability (certification systems for commodities, and reporting systems for private firms and public agencies)
- Forums and networks for negotiation
- Compensation and incentives
- Enhancing capacity building and problem solving in the developing world through research-policy-action organizations and networks that promote learning and problem-solving abilities and nurture policy entrepreneurs
- Think-and-do tanks
- Scientific research organizations, based in the developing world

- Learning networks for sharing knowledge
- Nongovernmental organizations for monitoring and evaluating government and corporate performance
- Mainstreaming of monitoring and evaluation functions inside government agencies
- Expansion of the scope of global assessment institutions to address emerging issues
- Increased voice—an expansion of substantive democratization and participation
- Better distribution of access to assets. Dynamic growth and development processes create more assets and new types of assets. It is much easier to increase inclusiveness when the poor and disenfranchised, who may even be in a majority, have greater access to these newly created assets.

Ongoing dialogue: a global vision and accord

Overcoming the barriers to solving collective action problems faster and more systematically requires much stronger institutions, as well as mutual commitment by developing and developed countries to a bold global vision and accord to eliminate poverty and to protect and manage a broader portfolio of assets that will ensure the well-being of future generations. This vision is ambitious, but achievable.

History teaches that: (1) prosperity and well-being, like peace, are indivisible and must be shared if they are to be maintained. (2) And two generations—50 years—are enough to eliminate all poverty and move to a more sustainable development path.

Balancing interests and forging credible commitments are difficult at the national level, and even more so at the global level. Yet a credible global commitment is necessary because national action is increasingly insufficient for dealing with the scale of demands and spillovers generated by a more interconnected world and global economy. Recent initiatives (MDGs, NEPAD, Global Deal, Monterrey,...) show that there is growing recognition of the need for mutual commitments and for accelerated improvements in key development indicators.

In the spirit of these initiatives, and to maintain the momentum of the Millennium Development Goals beyond 2015, the Report calls for extending the goals to include:

- Eliminating global poverty completely
- Putting the global economy on a more sustainable development path by the middle of this century,

- And for this to be followed up by a long-term, mutual commitment and accord.

Two features are added to supplement existing initiatives: a deeper target over a longer time horizon and a greater focus on institutional development. It will require 10 or 20 years—starting now—to build up the institutions that can help shift trajectories from unsustainable to sustainable paths over the next 50 years. Many of these long-horizon initiatives will yield benefits in the medium term in support of the Millennium Development Goals. But capacity building requires patient investment, because its large pay-offs take time to be realized. Fundamental reforms require improved institutions, which evolve slowly.

For development strategies and development assistance, this means placing a greater emphasis on the following actions:

- Identifying vicious circles, which keep the pace of growth low and the distribution of assets unequal, and developing strategic interventions to break these vicious circles.
- Investing in projects, programs, and initiatives that bring about better, more inclusive institutions and ensure systematic learning.
- Supporting the evolution of an ecosystem of organizations that learn—and applying that learning to improving policies and projects. These are long-term efforts that will bear fruit over a decade or two as the institutions train people and build dense networks of trust and knowledge. Funding by donors and multilateral development banks must be committed over periods much longer than traditional projects, and donors must accept that the impacts of these investments, though potentially enormous, will be deferred and difficult to quantify.

The tasks ahead

The global accord is the device to commit all parties to making this global vision a reality. It requires commitments to action by developing countries and developed countries, individually and jointly, by civil society, and by the private sector. The main responsibilities of each of these groups can be encapsulated as follows:

- Developing countries must strengthen their institutions, promote greater inclusiveness in access to

assets, and ensure greater transparency in managing resources (including aid) more effectively.

- Developed countries must increase aid and make it more appropriate; reduce the burden of debt; open agricultural, industrial and labor markets; and implement incentives for the development and transfer of technologies to developing countries—including technologies for disease prevention, agricultural development, and energy efficiency.
- Developing and developed countries together must establish a global partnership and set the framework for rule making and the modalities of burden sharing.
- *Civil society organizations* can help aggregate the voices of dispersed interests and provide independent verification of public, private, and non-governmental performance. Academia needs to be recognized as a key player in learning, monitoring, and evaluating.
- *The private sector* can help by constructing a framework that provides meaningful and appropriate incentives for firms to advance economic, environmental, and social objectives simultaneously.

Some open questions

If such an accord makes sense, then the outline above will require more careful work over the next few years to develop an implementable program that can adjust to contingencies without undermining the promise of the accord. Many global issues of sustainable development remain the subject of heated debate. Here are four important and controversial topics for which progress in international consensus is needed:

- *When is consumption overconsumption?* Concern is often expressed about “overconsumption” in wealthy countries and about the threats to sustainability from increasing levels of global consumption. But what kind of consumption qualifies as overconsumption? Why is it harmful? And what should be done about it? Is the problem fundamentally related to aggregate consumption, or is it more closely linked to production technologies and the mix of consumption? One view of overconsumption is that it refers to environmental externalities associated with the consumption typical at higher levels of per capita income—for instance, greenhouse gas emissions from energy-

intensive housing and transport. For these, there are known solutions in public finance. Another interpretation, much more difficult to document, has to do with social externalities. People judge the adequacy of their own consumption—clothing, automobiles, housing—in part by comparison with the norms set by others. If this is true, consumption takes on some of the aspects of an arms race. But greater understanding of the nature and extent of these externalities is needed before there can be any consensus on the desirability and nature of actions for dealing with them.

- *What is the future of agriculture and of genetically modified organisms?* Despite great promise for improving the agriculture of the poor, biotechnology in general, and transgenic research in particular, have barely begun to be put to work to address the problems of the poor. Applying the precautionary principle—balancing risks to food safety and the environment against prospects for development and poverty alleviation—will be a difficult task, requiring a broader debate on credible information.
- *How can interests be balanced to avoid the race for property rights at the intellectual frontier?* Intellectual property rights (IPRs) represent a compromise in balancing the interests of users, owners, and creators. The Trade-Related Aspects of Intellectual Property Rights (TRIPS) agreement, a World Trade Organization (WTO) instrument, represents a global strengthening of the rights of producers over those of users. Its immediate effect will be to increase payments of royalties to IPR holders, who are overwhelmingly in the industrial world. Whether the emerging IPR regime will be detrimental to the long-run interests of developing countries is hotly debated. In principle, TRIPS affords wide latitude for a developing country to fine-tune an IPR system appropriate to its needs. In practice, developing countries’ room for maneuver may be more limited, and the potential for unequal outcomes is worrisome.
- *What are the prospects for international migration?* Global inequality, combined with demographic trends, will create ever more pressure for migration, with a growing supply of and growing potential demand for immigrant labor over the next half-century. Dealing with this pressure is a challenge worldwide. There are many reasons to support both more long-term and circular migration

but migration remains an extremely sensitive political issue in receiving countries. The problem cannot be ignored.

Conclusion

In many areas, developing countries are doing more to address environmental externalities than industrial countries at comparable stages of development. But limited internal resources are forcing unnecessary tradeoffs, generating environmental stresses.

Unless action is taken now, the planet will face predictable challenges that will increase in intensity over the coming decades. There will be more environmental stresses on air, water, and land. There will also be more social stresses as poor people's income and hopes lag behind those of the rich. There will be increasing inability to deal with known and unforeseen problems as interests diverge and tradeoffs appear steeper.

This need not happen. The Report shows how institutions can detect and diagnose problems requiring coordinated action, balance interests fairly, and take effective action. The foundation of this ability is enhancement of the assets and voice of poor and excluded people at the local, national, and global levels. But there are also specific institutional mechanisms for promoting information flows and transparency that can be replicated and scaled up.

The key is to act now to initiate virtuous rather than vicious circles—to create constituencies for sustainability, not for environmental degradation and social polarization. Much will be possible if we plant now the seeds of adaptive, durable institutions that respond to the interests of all citizens. Cities can evolve as beacons of hope and growth. People on fragile lands can claim improved and more sustainable livelihoods. Water and land can be fairly and efficiently allocated before scarcity and conflict erupt. Climate changes can be anticipated and managed. And the trajectories of energy production and consumption can be shifted in a benign direction. With vision and broad participation, we can bring about the transformations needed to put our planet on an inclusive and sustainable path. The more people heard, the less assets wasted.

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