CHAPTER 6

Getting the Best from Cities

ities of the developing world face a formidable undertaking, given the rapid rate of growth and sheer numbers of urban residents to be employed, housed, and serviced. Cities offer proximity, which generate externalities both positive and negative. On the positive side, proximity is a source of productivity; industrial and service activities emerge in cities because entrepreneurs and small firms can share markets, infrastructure, labor, and information. Cost savings and productivity advantages that accrue to firms when they locate near each other in the same industry or near other economic activities derive directly from physical proximity or indirectly from less tangible interaction among economic actors (learning and networking, leading to innovation). However, large groups of people and activities in close proximity also generate negative externalities: poor sanitation, pollution of air and water, congestion, crime, and so on. This puts a premium on the quality of institutions-both formal and informal-to ensure the positive externalities and to cope with the negative externalities.

As the previous two chapters have noted, the development of urban areas will have to be better coordinated with the development of rural areas by providing markets for rural products, by subcontracting activities to expand nonfarm rural employment, and by helping rural migrants adapt more rapidly to city life. Cities and towns facilitate society's transformations in knowledge, institutions, and economic activity. By bringing together diverse people and activities, urban areas offer great opportunities for improving the quality of life.¹ For cities and towns to realize the promises 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 that ensure the provision of public goods. Such institutions are central to an urban governance that is inclusive of all residents, responsive to their needs, and conducive to careful management of natural resources and wastes.

This chapter first describes the opportunities and challenges for urban life and then asks the following questions:

- How can informed constituencies be built to address spillovers and anticipate risks? Providing information, building knowledge, and mobilizing dispersed interests are key to creating constituents that act together to anticipate problems and to prevent and manage disasters.
- How can competing interests be balanced and dispersed interests articulated to provide urban public goods? Foresight, political will, and a governance system that is accountable to a wide array of stakeholders are key ingredients for achieving credible commitments.
- How can inclusion and access to assets be encouraged—one key to a city's sustainability? Security of tenure and guidance of new settlements to prevent future slums will lessen the inequitable access to assets, thus empowering and enabling poor people to become productive members of urban society.
- What institutional mechanisms are necessary for good urban governance and sustainable urban development? These include an appropriate sharing of responsibility and coordination across stake-

holder groups; wide participation in strategic planning; and networking among practitioners and stakeholders.

City lights: beacons of hope and warning flares

The rising share of people in urban areas and the corresponding economic growth of cities and towns are two defining experiences of economic and social development (box 6.1). Urban areas offer possibilities for greater welfare because they give individuals the opportunity (through a myriad of functioning urban markets) to develop a wider and larger portfolio of assets—and to achieve higher returns to their labor. They also exist because of collective concerns to share culture, learning, religious observation, and mutual protection.

Yet across cities in all regions of the world there is evidence that the potential benefits, both individual and collective, are not being fully realized, and are clouded instead by myriad problems. The inadequate provision of jobs, housing, and other goods and services stems from imperfections in markets and policies. For many environmental and social concerns, markets cannot provide the coordination needed to reveal interests and minimize transaction costs. In many countries institutional failures mean that markets are less effective than they could be, while alternative solutions and innovative uses of market instruments to address the threats to sustainable development are inadequately developed. This chapter does not examine the full range of good urban policies.² Instead, it focuses on the conditions for building institutions to protect urban assets-particularly environmental and social assets-because these conditions shed light on the potential for identifying and adopting good policies, and determining society's ability to respond to future concerns.

The role of cities in sustainable development

Over the next three decades the urban population of developing countries will grow (from natural increase, migration, and reclassification of formerly rural areas) by 60 million people a year—equivalent to the population of the Arab Republic of Egypt or Ethiopia. Urban areas will need to perform a few key functions to support sustainable national development:

Facilitate social and institutional change, by improving access to ideas, knowledge, and technol-

Box 6.1 The focus of "urban" in this chapter

Two categories of urban issues are relevant to this Report: the spatial system of urban areas in the country and the performance of urban areas. The first topic is discussed in chapter 7. This chapter takes the second category of urban issues—the city and its governance—as its unit of analysis. Focusing on the city spotlights the impacts of urban living (good and bad) and how the relevant institutional framework, both national and local, affects these outcomes.

Although the analysis of this chapter applies both to cities and to towns, as their smaller counterparts, the discussion mainly refers to cities. Most of the benefits of agglomeration and most of the diseconomies appear as towns become recognizable cities.

The Report examines changing opportunities and challenges that appear as population moves along the settlement-size continuum, but it does not argue that the prospects for sustainability are a function of scale. Very large settlements (cities of multimillion inhabitants) are neither necessarily the best nor the worst cases of sustainable development.

- In some countries urban air quality tends to be worst in medium-size cities (populations between 100,000– 500,000).*
- Crime and vulnerability to disaster often become problems in urban agglomerations well below 1 million inhabitants, but do not increase proportionally with population size.
- Congestion tends to worsen with city size but also depends on such other factors as public transport, traffic management, and road space.
- Many of the economic benefits of urban productivity, such as higher wages and increased human capital, appear positively correlated with city population, at least to a fairly large threshold.

What is most clear is that the quality of urban governance and management is critical to gaining the benefits and reducing the negative aspects of cities of any size. As chapter 1 notes, the projected trend of increasing numbers of people (and possibly shares of urban population) living in very large cities over the coming decades in developing countries will put a premium on building institutions to address the problems of those cities.

* Observation based on countries with most extensive data by cities. Lvovsky (2001), annex B.

ogy and by creating both the impetus and opportunity for innovation.

Provide employment and services at a scale sufficient for 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 20–30 years can translate into increased savings and investment.

Ensure a healthful and attractive environment for the urban population while protecting natural resources and reducing deleterious impacts on wider regions and later generations. The massive new investment in the capital stock of cities required for the doubling of urban population by 2030 will be critical to environmental outcomes.

What enables urban areas to promote change and improved quality of life is their scale and density and their social and economic diversity. Proximity and heterogeneity make urban areas mechanisms for knowledge and learning, for productivity and market development, and for improved choice and quality of services. And they do this even more when the institutional conditions are right.

The urban stimulus to social transformation and innovation. The shift from rural to urban society, with greater mingling among diverse people, transforms social attitudes and behaviors. It reveals the limits of traditional values and institutions and intensifies pressures for change in local governance and intergovernmental relations. Traditional social norms that perpetuate inequalities for women and for certain minorities tend to be less strictly enforced in the urban environment.³ Urban households are generally more motivated to limit family size, because of economic alternatives and lifestyles.

The ferment of urban life generates new forms of collective action to address the challenges that arise. Urban-based constituencies have been the driving force behind many of the environmental causes that pertain to national and global public goods—creating national parks, protecting biodiversity, and managing coastal zones. More than 90 percent of China's environmental NGOs are located in cities of the relatively well-developed eastern coastal region.⁴ A recent study of Indonesia proposed that the best way to save the tigers was to teach urban children about them.⁵

Historically, cities have been centers of learning and innovation. The growing intensity of knowledge exchanges arising from globalization and the information technology revolution has the greatest impact where there is also occasion for interpersonal communications.⁶ Informal information or tacit knowledge, important to productivity and to social relationships, thrives on face-to-face contacts.⁷ Research among Mexican firms, for example, shows that access to informal networks (business lunches with local buyers, suppliers, competitors, and government officials) has a significant and positive effect on their productivity.⁸ And proximity to higher education institutions provides firms with opportunities to commercialize research ideas, often through university-enterprise partnerships.⁹

Sources of urban productivity. 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. The benefits extend to rural areas, which need access to urban markets to expand and diversify both farm and nonfarm production.

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 ancillary services for producers.¹⁰ As long as this greater productivity outweighs higher costs for land, labor, housing, and other necessities, the city can thrive. Once the diseconomies become too great, larger cities may lose their edge in creating jobs or improving the welfare of residents, unless they can shed some activities (those that are more mature and standardized) to smaller cities to make room for others (more innovative and higher value industry and services) and change land uses.

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 well integrated and inclusive—with accessible workplaces and residences. A city can improve its investment climate. However, cities in general can only 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 more heavily on publicly provided infrastructure and information, and are particularly vulnerable to institutional and policy failures.

More affordable and higher quality services. The greater scope for competition and specialization in all goods and services enables urban areas to provide consumer benefits in the form of greater choice and

quality.¹¹ But the advantage is especially important for services with high fixed costs (increasing returns to scale), such as middle- and higher-level education and health facilities, and network infrastructure.¹² The cost advantage explains some of the manifestly better social indicators in urban areas and in countries that are more urbanized.¹³ That is, urbanization has a large positive impact on a country's efficiency in achieving health and education outcomes.¹⁴ Even where more expensive services are required for environmental and health benefits (as for waste disposal, sewerage, water treatment, and mass transit), the added cost can often be justified by higher economic returns.

Migrating for choice and change. The offer of new opportunity and a better life is often what draws migrants to towns and cities (the pull factor). Limited employment options in rural areas, whether from agricultural dislocations arising from natural and social disasters, or from increased agricultural productivity that reduces the demand for farm labor (chapters 4 and 5), also contribute (the push factor).¹⁵ Cities and towns allow individuals to substitute their human capital (work effort and skills) for natural, financial, or physical assets they may lack—and to

more steadily transform and expand their portfolio of assets than is possible in many rural areas.

Those who migrate to cities are often better off than their neighbors back home;¹⁶ in cities they receive more education and better skills, and in the longer run they catch up with established urban residents.¹⁷ A recent survey in Latin America finds a potentially large private gain from migration to urban areas, in part because the returns to human capital tend to be larger there.¹⁸ A study of the urban labor market in the Punjab State of India found no evidence that migrants remain confined to marginal jobs or are disproportionately unemployed.¹⁹ Migrants frequently obtain work, housing, and urban services through the informal sector, and they often depend on supportive social networks to do so (box 6.2). Nonetheless, imbalances in the demand and supply of jobs, housing, and urban services can contribute to urban poverty initially and for long periods.

In the short term, the influx of migrants can sometimes overwhelm some urban areas, particularly when the pace is sharply accelerated by civil conflict or national disaster. In the medium term, as part of the natural development process, rural-to-urban migration and the resulting return flow of transfers

Box 6.2

How social networks help the urban poor manage risks and get ahead

Urban areas are often said to lack social capital. Yet social networks are important to the survival and mobility strategies of urban poor people and to decisions about migration from rural areas. Risks in the urban context arise mainly from weak property rights (which can result in loss of assets and involuntary resettlement), inadequate sanitation, exposure to violent crime, and unemployment or other effects of macroeconomic shocks. The urban poor, like their rural counterparts, cope by using their social networks and personal assets.

Social networks in the city are based more on reciprocal links between individuals and friends, than on familial obligations (as in rural areas). Yet, maintaining close links between rural and urban social networks can be crucial to preserving one's identity. As in rural areas the ability of urban communities to engage in collective action is often instrumental in obtaining public services. This is particularly the case in large cities (for instance, Jakarta or Manila) where the urban poor because of their numbers, and the relative ease of organizing them—are an important political constituency that can also be manipulated by officials promising services.

Recent field research in the slums of Delhi confirms that the major source of risk to the home and asset base for residents of squatter settlements is insecure land tenure. The slums with the least security are usually those harboring new migrants and others with relatively limited social networks, who are unable to negotiate with bureaucrats and politicians. Social networks among slum residents assist with survival (coping with emergency needs), similar to traditional rural networks, and to upward mobility of individuals and the community. The transition from an "unrecognized" to a "recognized" slum affords access to water and sanitation and immunity from demolition. Similarly, networks are used to get ahead occupationally, whether through formal sector employment or informal self-employment. Slumdwellers also use relationships with local leaders to obtain citizenship status and strengthen their legal protection.

The urban poor, including migrants, move from their initial inherited networks to ones that link them to external benefits and resources outside their original community. While these networks are a useful resource, the energies of poor people would be used more productively if basic services and security of tenure were provided more consistently and transparently, thus removing both the need for exhaustive negotiations to acquire basic entitlements and the opportunity for rent-seeking by local officials.

Source: Rao and Woolcock (2002).

raise incomes and living standards in both areas. Circular and temporary migration to and from cities or towns help manage risk for both rural and urban households.²⁰ Openness to new ideas and learning acquired by urban migrants are transmitted to rural communities through social and family links—and through the use of remittances to introduce technology to rural activities.²¹ In the longer term, once the urban transition has been completed, natural population increase in cities, rather than rural-to-urban migration, will account for most urban growth. Migration among cities will continue in response to changing economic opportunities.

Making the environment work for urban residents—and saving it for others. Urban living poses environmental hazards, which affect the current population (especially poor people) through immediate, local impacts on health and safety. It also causes environmental degradation, with longer-term, widerarea, and intergenerational consequences.²² Variations in the incidence and relative severity of a range of environmental problems across cities at different levels of development suggest differences in priorities for action (table 6.1).

In low-income cities fewer than half the households are connected to water and sewerage, and per capita water consumption is half that of cities with lower-middle income ranking (table 6.2). Less than one-third of solid waste in the poorest cities is disposed of properly; only the richest cities provide comprehensive wastewater treatment. Partly reflecting environmental risks, the average mortality of children under five in the poorest cities is more than twice that in the next city-income category, and 20 times that in the richest cities.

Especially in cities at low levels of development many residents face environmental risk because of their living conditions and location. These households are least able to afford protective or mitigating mechanisms—or to assert claims for improved services. Most vulnerable are children and women, the elderly and disabled, and homeworkers, who are continuously exposed to hazards in their immediate environment.

In the poorer cities badly managed urban growth degrades natural resources, especially watersheds, soils, and coastal environments—because of untreated sewage discharge, poor solid waste disposal, and a lack of storm drainage. In contrast, many of the issues of environmental degradation in richer cities, such as greenhouse gas emissions from hydrocarbon fuels, stem from lifestyles entailing high consumption and associated waste of natural resources.

Despite these differences in the incidence of risks and their links to income and consumption, urban residents of middle-income countries suffer environmental insults both traditional and modern (such as exposure to hazardous wastes and chemical pollutants).²³ International travel and changing global weather patterns are bringing environmental profiles of cities in industrial and developing countries closer together by spreading some risks (of disease and natural disasters, respectively) to both groups of countries. For the full range of concerns, institutional reform is required to protect poor people and environmental assets in cities both today—and in the future.²⁴

Allowing the urban potential to transform society and to improve welfare, while also protecting the environment, may appear to be harder for the developing world today than it was for industrial countries at similar points in their urban transition. Why? Because of today's faster urban population growth rates (figure 6.1) (approximately one-half from migration and the rest from natural growth and reclassification of contiguous areas) and the sheer numbers of urban residents to be employed, housed, and serviced over the next few decades. Urban population growth rates, especially in Sub-Saharan Africa, have been unprecedented, though as in other regions they are projected to slow. Despite the deceleration, almost 20 million new urban residents a year are projected through 2030 for East Asia.

The same characteristics of urban areas—density, scale of settlement, and social diversity—that can bring about the positive potential of more jobs, services, and learning also create the negative potential and the need to balance interests. In addition to environmental spillovers, urban areas are associated with other threats to sustainable development and livability. Problems of land use and accessibility (including congestion) impede the utility, inclusiveness, and enjoyment of urban life, while physical insecurity results from poorly managed risks of natural disasters, crime, and violence. All of these problems affect poor people even as they reduce the welfare of all urban residents.

None of these threats is driven primarily by the rate of urbanization, by the size of city, or by the lack

Table 6.1 Urban environmental issues and status by level of city development

Sector or problem are	a Low	Lower-middle	Upper-middle	High	
Water supply service	Low coverage, high bacteria contamination, inadequate quantity for hygiene (high risk of food contamination and infectious diseases)	Low access by poor residents and informal neighborhoods	Generally reliable, but rising demand causing shortages in resource supply	Good supply but high total consumption; some con- cern with trace pollutants	
Sanitation	Very low coverage, open defecation in some neigh- borhoods and low ratio public toilets to residents; high risk of diarrheal diseases	Better coverage of latrines and public toilets, but poorly maintained; low sewerage coverage	More access to improved sanitation, but still large numbers of residents in large cities not covered especially in informal settlements; most waste- water discharge untreated	Full coverage; most wastewater treated	
Drainage	Storm drains very in- adequate, poorly main- tained; frequent flooding, creating high risk of water-related disease vectors (mosquitos)	Somewhat better than in low income	Better drainage; occasional flooding	Good drainage; very limited flooding	
Water resources	Mixed sewerage and storm water runoff to water bodies causing bac- terial pollution and silting	Risk of groundwater contamination from poorly maintained latrines and untreated sewage	Private wells drawing down groundwater; severe pollution from industrial and municipal discharge	High levels of effluent controls and treatment to reduce pollution	
Solid waste management	Little organized collection; recycling by informal sec- tor, open dumping or burning of mixed wastes; high exposure to disease vectors (rats, flies)	Moderate coverage of collection service, little separation of hazardous waste; mostly uncon- trolled landfills	Better organized collec- tion; severe problems but growing capacity for hazardous waste manage- ment; semicontrolled landfills	Increased emphasis on total waste reduction, resource recovery, and preventing hazardous waste; controlled landfills or incineration	
Air pollution	Indoor and ambient air pollution from low-quality fuels for household uses and power generation	Growing ambient air pollu- tion from industrial and vehicular emissions (high per-vehicle, due to ineffi- cient fuels and vehicles)	Ambient air pollution still serious (but greater capacity to control espe- cially industrial sources)	Ambient air pollution mainly from vehicles (due to high volume of vehicle kilometers)	
Greenhouse gas emissions	Very low per capita	Low but growing per capita	Rapidly increasing, mainly Very high per capita due to motorization		
Land management (environmental zoning of fragile sites and prepara- tion for new settlements)	Uncontrolled land devel- opment; intense pressure from squatter settlements on open sites	Ineffective or inappropri- ate land-use controls, pushing new settlements toward urban periphery; continued high population growth	Some environmental zoning	Regular use of environ- mental zoning; little popu- lation growth, but rising incomes press for more land consumption for existing residents	
Accident risk	In-home and workplace accidents due to crowding, fires	Increased risks of indus- trial workplace and traffic accidents (pedestrians and nonmotorizcd vehicles)	Transport accidents in- creasing, but some miti- gation and emergency treatment response	Rate of industrial and transport accidents re- duced despite increasing travel (vehicle kilometers)	
Disaster management	Natural disasters produce massive loss of life and property especially in set- tlements in disaster-prone areas; little capacity for mitigation or emergency response	Somewhat better than in low-income, although with increasing risk of industrial disasters	Increasing awareness and capacity for disaster mitigation and emergency response	Good capacity for mitigation and response	

Note: Cities grouped by estimated city product (city average income calculated by national accounts methods). Sample is of cities (including in OECD countries) with available data and is not statistically representative. Low income defined as city product below \$750 per capita a year; lower-middle as \$751–2,499; upper-middle as \$2,500–9,999; high as above \$10,000. *Source:* Adapted from Leitmann (2001) and Hardoy, Mitlin, and Satterthwaite (2001).

Table 6.2

Environmental health, welfare, and living conditions vary by city product

	City product category				
Indicator	Low	Lower- middle	Upper- middle	High	
Household connections (percent)					
water	48.0	78.8	92.9	99.9	
sewerage	45.6	68.7	84.3	99.9	
electricity	72.3	93.6	95.0	100.0	
Water consumption					
liters per person per day in all settlements	88	161	232	247	
Wastewater treated					
percent treated	29.4	56.7	68.2	97.4	
Solid waste disposal (percent)					
sanitary landfill or incinerated	30.7	41.4	37.6	77.7	
other (open dump, recycled, burned)	65.9	58.3	62.2	22.3	
Under-five mortality per 1,000	104.2	39.7	25.8	5.2	
Households below the locally defined poverty line (percent)	31.7	23.2	16.0	6.9	
Sample size (cities)	49	36	25	20	

Note: Cities grouped by estimated city product (city average income calculated by national accounts methods). Sample is of cities (including in OECD countries) with available data and is not statistically representative. Low income defined as city product below \$750 per capita a year; lower-middle as \$751–2,499; upper-middle as \$2,500–9,999; high as above \$10,000.

Source: United Nations–Habitat Global Urban Indicators Database 1998.

Figure 6.1

Many developing countries are undergoing urban transition with relatively high urban population growth rates



Note: All averages weighted by population. Lines indicate increase in share of urban population between end-point years (25-year increments). Source: Developed country data from Brockerhoff and Brennan (1998); other data and projections from U.N. (1999).

of fiscal or other resources—though these factors (and such others as geography, local culture, and historical legacy) can make problems harder to manage. Cities need not suffer crippling diseconomies whatever their size or income (see box 6.1). Shanghai, one of the world's largest urban areas in one of the poorest countries, devotes more than 3 percent of the city GDP to environmental protection. And it has managed to achieve better outcomes (green space, improvements in air quality and sewage treatment) than most other developing-country cities.²⁵

The growth of urban poverty in many countries, evidenced especially by the increase in populations residing in extremely poor environmental conditions, is partly a reflection of the pressures on limited city resources.²⁶ It also underscores the failures of institutions and their unresponsiveness to certain constituencies. As urbanization plays out, growth rates will slow, easing the pressure on cities. But catching up over several decades is not satisfactory. Measures are needed now to accelerate the rate of improvement in cities and to avoid making it more costly to close the gaps later. There are now technological and institutional options that need to be explored more vigorously.

For cities to contribute to sustainable development, they need to maximize the positive while minimizing the negative externalities. The favorable economic and social impact of cities can exceed their "ecological footprint."²⁷ Cities can get themselves into vicious or virtuous circles that become selfreinforcing, and triggers for change can often be found in institutional innovation. A key institutional catalyst—information—can increase urban benefits and reduce diseconomies and risks.

Building informed constituencies to address spillovers and anticipate risks

The spatial concentration of people and economic activities in urban areas creates spillovers with significant impacts on residents—and increasingly on wider regional and global populations. Mobilizing for action to solve such problems (for example, pollution) requires that the parties affected 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 more difficult where the impacts are uncertain and infrequent, as in disaster mitigation. Advances in technology and knowledge help, and local and national governments need to play important leadership roles in both cases.

Credible information and incentives—curbing air pollution

Air pollution generates large social and economic costs. In many developing and transition countries, the damage reaches 4 to 6 percent of urban income, and has serious adverse affects on human health. Between 500,000 and 1 million people die prematurely every year as a result of air pollution-induced respiratory problems.²⁸ Vehicle emissions create the greatest damage to human health because they occur near ground level and in dense population centers, while smokestack sources disperse pollutants more widely at higher elevations.²⁹ Urban residents in low- and middle-income countries have greater exposure (well above WHO guidelines) to some localized air pollutants, such as suspended particulates, than their counterparts in high-income countries, even though the latter consume more energy per capita.³⁰

Countries do not have to suffer worsening air quality as they industrialize, motorize, and become richer. Many technologies and behaviors for curbing urban air pollution are cost-effective even at low levels of economic development and limited institutional capacity, as long as there is political commitment and public understanding.³¹ While action by industrial countries to eliminate leaded gasoline, for example, took a decade to implement, sharing knowledge and demonstrating workable solutions have permitted developing countries to phase out this fuel much more rapidly (chapter 7).

Curbing stationary sources of urban air pollutants (concentrated interests) is institutionally easier than curbing mobile sources (dispersed interests) because there are fewer polluters.³² That the fuel supply was the main source of airborne lead made it easier for countries to implement the phaseout administratively. Pressure from an informed public has been more instrumental in getting governments to rein in other types of pollution and in motivating regulatory or other action. In China the educated urban population has been an important force for such reforms. But the national government's willingness to make information on health costs and risks publicly available was an essential precondition.³³

Curtailing mobile sources of pollution and large gas guzzling vehicles is most challenging because the middle- and upper-income groups are the beneficiaries of increased motor vehicle travel, and the main source of growing emissions with global and regional impact. These stakeholders are a more influential interest group than the general public, and especially more so than poor people suffering from the resulting pollution and accident risks. Collective action to reduce transport-based GHG, (especially CO_2) is further complicated by the nonlocal and longer-term nature of the damages.

Growth in motor vehicle ownership in developing countries could overwhelm improvements in fuel or vehicle efficiency. Effective approaches to reduce transport-based pollution therefore involve a range of interventions at different scales (local, national, and global), forming part of the integrated transport strategies discussed below.³⁴ These measures include improved information on levels and sources of, and damages from, pollution, educational campaigns, incentive systems (including taxation of vehicles and fuels), and technological measures, such as replacing high-mileage, heavy-polluting vehicles and installing computerized inspection and maintenance regimes.

It is also necessary to manage supply and demand across transport modes, through better public transport, improved conditions for nonmotorized transport, traffic-management, traffic-calming measures,³⁵ and road and vehicle user fees. These measures require coordination between jurisdictions within urban areas and across levels of government.³⁶

Creating constituencies—for clean water and wastewater management

Even though inadequate neighborhood disposal of wastewater has unavoidable negative impacts, solutions are often limited by weak organizational capacity for collective action. Technological innovation, spurred by a professional association of progressiveminded civil engineers, was behind the introduction of a low-cost approach of shallow, small-bore sewerage networks in Brazil a decade ago. Compared with conventional systems, this condominial sewerage reduces investment costs by half but requires a strong commitment of households to maintain it collectively. Condominial sewerage systems have worked well where this cooperation was sustained and participating households understood their responsibilities. But since it can be difficult to get individual households to commit to take part, a more organized institutional arrangement, through community associations that would contract for the maintenance

work, is being considered for any future extensions of the system.³⁷

While communities and NGOs can work together to provide household and neighborhood sanitation facilities, the social costs are lower and benefits greater if disposal and treatment of wastewater are citywide. Few cities in developing countries treat their wastewater, contributing to the pollution of downstream water bodies and corruption of fragile coastal environments. Because investment costs are high and impact areas can extend across many jurisdictions, solutions require cooperation among local governments and across levels of government.

Water pollution charges have been much less effective in making municipalities cut their emissions than industrial and agrobased polluters. The Watershed Cap and Charge System in Colombia has induced industrialists to reduce effluents, yet two-thirds of local governments, which create 70 percent of the water pollution, have been unresponsive.³⁸ Rising public demand for improved water quality will be needed to press for such changes, aided by income growth and good water-system management to reduce waste and sustain net revenues, since treatment is very costly.

For both air and water pollution, public awareness and citizen pressure on governments and polluters are possibly the most important factors motivating environmental reform in the face of entrenched interests or official indifference. Political democratization and the freedom to associate can be catalytic in making dispersed stakeholder groups see their common concerns and collective strength (box 6.3).

Mobilizing dispersed interests to anticipate problems—preventing and managing disasters³⁹

Urban disasters (natural and industrial) can cause large loss of life and have enormous economic and financial costs. They are especially devastating to poor people, who often live and work in precarious conditions. The drive for mitigation increases as the effects of disasters, and the costs of failures to take action, become more immediate and widely perceived. Institutions are needed that can motivate action in advance of crisis and share the costs and benefits of preventive measures among citizens in a fair manner. Hazard mitigation requires improving knowledge, building constituencies for risk reduction, and strengthening institutions and partnerships across levels of government and the private sector.

Box 6.3

Political reform and stakeholder alliances overturning pollution

The city of Cubatão, in São Paulo State, Brazil, was castigated in the country's press in the late 1970s as the "valley of death" because of the extreme industrial pollution of its water, air, and soils that had occurred under decades of military dictatorship. Poor people lived in the midst of toxic waste dumps in an area also prone to natural disasters. In 1983 the state environmental protection agency (CETESB) initiated a pollution control program that significantly reduced pollution levels in less than 10 years. The agency managed to challenge the privileged position of entrenched industrial interests and make industrialists bear most of the costs of pollution control.

How was this achieved? A citizens' association of "victims of pollution and bad living conditions" (APVM) focused the public debate on the human toll of pollution and attracted widespread support for reform. While the program was advanced by high-level support for environmental improvement in the state government and aided by international opinion, three changes at the national level in the early 1980s were key: the transition to democracy that allowed the emergence of independent social activism, free elections at the state level, and the elimination of media censorship.

In executing the program, CETESB relied on a suitable legislative framework and its status as the only agency with both the mandate and expertise for pollution control in the state. Still, the environmental clean-up of Cubatão was possible only after changes in the political rules of the game meant that progressive bureaucrats could ally with informed citizens to challenge the powerful economic elite that had stymied previous reform efforts. The experience of APVM forged a collective identity among victimized residents that moved them to act and set new terms for a collaborative relationship between the citizens and economic powers of the city.

Source: De Mello Lemos (1998).

Climate change and natural disasters are closely related. Global warming, projected to raise sea levels as much as 0.8 meter this century,⁴⁰ is particularly threatening to coastal cities—where most of the megacities in developing countries will be located by 2025⁴¹—as well as to small island states.⁴² Climaterelated events directly affecting urban areas include floods, mudslides, heat inversions, wind storms, and storm surges. Much of the economic and human toll will strike at the advancing frontier between the built environment and nature in the cities of developing countries, which also serve as reception areas for environmental refugees.

Although earthquakes claim fewer lives than weather-related events on an annual basis, between 40 and 50 of the fastest-growing cities in developing countries are in earthquake zones.⁴³ Exposure to such hazards and the reduced ability to provide basic services after a crisis can jeopardize a city's attractive-ness as a business location.

Building knowledge. Knowledge about the hazards may be scant or absent, even among residents most at risk, yet community awareness of physical hazards is fundamental for mitigation efforts. Comprehensive vulnerability assessments using remote sensing, satellite imagery, risk and loss estimation modeling can help document and reduce physical, social, and economic vulnerability. Changing physical infrastructure and innovative techniques for retrofitting buildings can improve disaster prevention. So can "soft," nonstructural methods—those that increase hazard information, create new knowledge, build the capacity of institutions, and train and raise the awareness of decisionmakers and the communities at risk.

Estimating losses can make the financial case for preparedness. Memphis, Tennessee, calculated a \$0.5 million cost for retrofitting water pumping stations to be disaster resistant—compared with \$17 million to replace each pump and \$1.4 million for each day the system is out of service.⁴⁴ But developing countries rarely have well-documented, location-specific, and hazard-specific costing of hard and soft mitigation measures. Even more rare is costing used systematically for public education. Without an educated constituency collective decisions on disaster policies are usually dominated by better-off members of the community. Their priorities can differ greatly from those of poor people, who risk a larger share of their assets in a disaster.⁴⁵

Creating incentives and constituencies for risk reduction. Indispensable for mitigation strategies are strong disaster prevention proponents and the political will to lead regulatory changes and financial appropriations. With limited resources developing countries must rely on partnerships of all actors. In the United States disaster prevention started with coalitions of scientists, emergency relief organizations, professional associations, and other civic groups who lobbied governments to fund research and hazard mitigation strategies. This movement received impetus when the Federal Emergency Management Agency (FEMA), armed with a federal mandate and incentives, took the lead and promoted local and state initiatives (such as the regional Earthquake Preparedness Projects in California), but still worked through civic and professional partners.

The public needs to decide on acceptable levels of risk, comparing the immediate benefits of expenditures on other social priorities with the delayed benefits of reduced loss of life and asset replacement cost following a potential disaster. These tradeoffs can be eased when well-designed incentives change private behavior to help prevent hazards. Examples include reducing insurance premiums on residential property when basic hazard-resistant steps are taken, offering disaster insurance with strict enforcement of building code provisions, or providing tax holidays or grants for mitigation.⁴⁶ Poor residents, for whom insurance or fiscally based incentives may not be practical, would benefit from urban planning for slum prevention, enforceable environmental zoning in cities, and resettlement combined with community-based upgrading and tenure regularization schemes (discussed below).

Recent disasters can motivate countries to undertake some of these measures and instill longer-term thinking. Gujarat State in India is trying to establish effective disaster management institutions following the January 2001 earthquake that killed 15,000 people. The state has a new disaster management authority to coordinate all aspects of the response, working with NGOs, the private sector, universities, local communities, and external donors. The program includes predisaster preparedness and postdisaster response, reconstruction, and disaster prevention. Incentives are being introduced to build constituencies for disaster prevention by capitalizing on the population's heightened awareness and willingness to change.

Adapting to climate change. Adapting to climate change may be more difficult since the risks mount gradually and less visibly—but no less urgently.⁴⁷ Coastal cities and other population centers (especially small island states) will need to invest in protective barriers and possibly to relocate residences and essential public facilities through managed retreat. Priorities for such adaptation should be given to built areas and infrastructure that require urgent attention in any case, such as vulnerable informal settlements and outgrown sanitation and drainage systems. Adaptive expenditures will place a significant burden on the public sector, private utility companies, and, indirectly, on the urban economy. Low-income residents living in harm's way will need particular assistance.

Balancing interests to provide urban public goods

Urban areas can enhance and enrich social integration through the provision of public goods and cultural and environmental amenities. Achieving these benefits requires institutions to channel dispersed interests of a pluralistic public-to give expression to the social value of equitable access to publicly provided assets, and to identify future needs in land development and redevelopment-and sometimes to overcome powerful vested interests. To provide other urban public goods, similar mechanisms are needed to balance competing interests (for a well-integrated transport system, and sanitary solid waste disposal),⁴⁸ and to express dispersed interests (for drainage). Foresight, political will, and a governance system accountable to a wide array of stakeholders are key ingredients for achieving credible commitments.

Balancing private and public interests in land use and committing to priorities in the public interest

The challenge in anticipating urban population growth is to focus on the most socially, environmentally, and economically important aspects of future land uses, and commit to credibly executing these public choices. New settlements in or near existing urban areas require the following actions:

- Setting aside rights of way for primary transport arteries
- Proscribing settlement or other development of areas that are unsuitable because of environmental fragility or vulnerability to disasters (steep hillsides, flood zones)—and protecting fragile environmental resources (urban watersheds, wetlands)
- Reserving areas for amenities, especially parks, and developing other public spaces with social and cultural value.

This effort has to take into account emerging supply and demand and avoid overdetermining the city's future. A frequent problem is that city master plans may exclude large high-value sites, especially at the periphery, from urban development, while failing to fence off environmentally vulnerable or risky sites in an enforceable way. Although urban expansion into agricultural areas may pose real social welfare tradeoffs, much so-called agricultural zoning around cities is outdated. It neglects the greater economic and fiscal benefits of urban land uses and fosters opportunities for corruption and speculation. Urban municipalities often have much less say over land conversion at the periphery than do national governments or powerful elites.

To identify minimal, high-priority, and enforceable limits on land use, local institutions must first identify the socially desired outcomes for urban development (such as which environmentally sensitive areas to protect-recall the Catskill example in chapter 2, and how much green space to set aside) and then commit credibly to achieving them. In Conakry, Guinea, the municipality developed a basic structure plan for the city in the early 1980s. Thirteen years after the plan was adopted to create the primary roads and infrastructure networks essential for urban mobility and productivity most of the networks are in place. Now the city's focus is on upgrading densely populated neighborhoods by providing internal and secondary roads linking to this network, and basic municipal services (drainage and solid waste collection), as part of an integrated citywide program.

Urban redevelopment for public goods. The economic and social vitality of cities is enhanced by promoting and protecting their cultural characters, developing public spaces and other amenities as equitable social assets, and converting abandoned and degraded land and waterfronts to new uses. Civic groups and private entrepreneurs can motivate such collective action, but often formal partnership and political leadership from local and national government are needed.

A city's historical heritage and social culture embedded in its neighborhoods and structures are valuable assets.⁴⁹ Vision and voice for dispersed and future interests are necessary to give appropriate weight to such intangible values, to counteract pressures to rebuild and modernize for commercial or highincome uses, and to prevent the gradual degradation of the built environment because of poor households' need for affordable places to live. In the early 1980s the city government of a historic Chinese city, Ping-yao, almost demolished the old city wall to build a wide road. Protests by scholars and residents, with help from officials and news media elsewhere in China and abroad, persuaded the government to locate new development outside the old city. The city's economic decline has been reversed and it now enjoys a new distinction for tourism as the only city in China preserved within old city walls.⁵⁰

The use and reuse of public spaces provides an opportunity to cultivate a city's natural resourcesby preserving or creating parks, architecturally distinctive streetscapes and squares, and waterfronts. Such urban amenities are part of a city's portfolio of assets and broad access to them enhances well-being and strengthens social capital, since poor and wealthy alike can enjoy them. In the fast-growing cities of the developing world reserving open spaces requires strong commitment (championship) and forward thinking to speak for these dispersed interests. A former mayor of Bogotá saw in the hundreds of kilometers of drainage canals crisscrossing the city a way of connecting all parts of the city by converting them to walkways and bikeways. Despite resistance from some quarters, the city realized this vision, creating one of the world's largest pedestrian paths lined with trees, lighting, open sculptures, and benches-and linking some of the poorest neighborhoods of the city with golf courses and parks.⁵¹

Remediation of despoiled sites and abandoned structures (brownfields) can also present many benefits to a city. Overcoming the institutional and financial barriers to brownfield redevelopment is important to correct the environmental and social blight in surrounding areas and to prevent the flight of new (greenfield) investments to the urban periphery. Extensive experience in industrial countries underscores the social and economic benefits when brownfields are redeveloped as an integral part of neighborhood renewal processes.⁵² Public-private investment partnerships require clear legal frameworks for property rights, risk sharing, and assigning liability for pollution clean-up. Efforts in Budapest to identify a redevelopment program for the Csepel steel works on an island in the Danube River in the middle of the city have been delayed by difficulties in negotiating with more than 200 owners of the site, which was hastily privatized during the postsocialist transition.

Leadership and foresight are also key to urban renewal. In the mid-1980s the mayor of Istanbul led an initiative to clean up an inlet of the Bosphorus, known as the Golden Horn, which had become putrid from the dumping of sewage and solid waste. The program—part of a large metropolitan sewerage investment to extend sanitation to some 300,000 low-income residents and treat municipal water also relocated the polluting industries and warehouses. The water quality of the Golden Horn has been restored. Recreational and tourist activity has reemerged. And public and private investment has rejuvenated the area's historic and cultural assets.⁵³

Balancing competing interests for accessibility⁵⁴

Urban transportation is closely tied to urban land development and can create both positive and negative externalities as cities grow. Urban transport is best addressed as part of integrated urban strategies that can attend to the interests of all user groups (including poor people, women, and the mobilityimpaired) and anticipate long-term needs that have no vocal constituency. Most cities in developing and transition economies are sufficiently densely populated to support extensive public transport,⁵⁵ and often include (depending on physical and climatic conditions) walking and cycling as major modes of travel. It is important that institutions are developed that balance and give weight to these interests. And since motorization is still at an early stage, it is likely that an urban transport strategy will emerge in such an institutional setting that focuses on balancing roads and private cars with other alternatives within a broader urban perspective.

Traffic congestion is one of the major negative urban externalities. As cities grow and become richer, vehicle ownership and use increase more rapidly than available road space. Expanding road space tends to stimulate more car use, so the imbalance continues. Experience shows that more road building is not the route to a congestion-free future. Most important is how the space devoted to roads is used and managed—for example, it should be organized hierarchically to separate traffic flows for different purposes. Managing demand, through taxes and impact fees on road construction and use, is politically much more difficult once car dependency becomes entrenched. Cities need a minimal amount of space for circulation relative to their size to operate efficiently, and early reservation of rights-of-way for major transport routes is essential to good urban planning.⁵⁶ Transport infrastructure costs rise sharply as cities become more densely developed, and the investments are large and "lumpy," so requirements need to be considered well in advance of actual demand.

Although the environmental and efficiency costs of motorization and related traffic congestion attract vocal (and often competing) lobbies, the interests of poor people are less well expressed politically.⁵⁷ Yet poor people lose when the dominance of private vehicle traffic undermines support for public transport and space for nonmotorized options. Poor people become more restricted in their mobility-and as pedestrians, they suffer most from road accidents. High-speed roads often carve up low-income neighborhoods, increasing noise and ground-level pollution. During the construction of the U.S. interstate highway system in the 1950s, for example, the planning criterion of selecting "least cost" sites caused intrusion not only into environmentally sensitive areas (wetlands and so on) because their market land value was low, but also into the poorest urban neighborhoods, severing them from the rest of the city and hastening their deterioration. The massive public spending on the highway system, unbalanced by sustained support for other transport modes, accelerated the flight to the suburbs of wealthier city residents and the economic decline of older inner-city areas, contributing to persistent social problems in U.S. cities.

Urban transport strategies that focus on the mobility of all residents, not just a few, to make transportation more sustainable environmentally, socially, and economically contain a balanced array of measures:

- Managing the existing road infrastructure to improve the traffic flow and calm speeds around densely populated areas
- Giving weight to the effects of induced traffic and impacts on nonmotorized transport and the environment when evaluating new road projects
- Internalizing the social costs of road use by charging land developers impact fees to finance new roads, introducing road congestion pricing (or some proxy), and charging the full social costs of parking
- Improving the viability of public transport by giving priority to buses on restricted lanes, ensuring adequate financing, and improving operational efficiency through regulated competition
- Protecting pedestrians and nonmotorized transport users by providing safe walkways and bicycle paths
- Providing rail-based mass transit in very large cities with high transport demand, where it can also serve low-income users, as in some Latin American cities.

Box 6.4

Meeting environmental, social, and economic objectives through urban transport strategy in Bogotá

Since 1998 Bogotá has implemented a comprehensive urban mobility strategy that includes promotion of nonmotorized transport (bicycle paths), restriction of automobile use during certain hours and days (approved by public referendum), and a bus rapid transit system (Transmilenio). Using exclusive busways on central lanes of major roads and a network of feeder buses and stations, the system provides express and local services and carries 45,000 passengers an hour per direction. Vehicle operations, passenger access, and ticketing services are carried out by private companies through competitively tendered concessions. The new bus system is attracting ridership by former car users and restoring respect for public transport.* By mid-2001 the system had achieved high productivity (630,000 trips per weekday) at a fare that fully covers operating costs, with no traffic fatalities. Some air pollutants have been reduced by 40 percent, and user travel time is down by 32 percent.

Bogotá's transport strategy benefited from strong mayoral leadership in articulating a long-term vision and representing the interests of noncar users despite the resistance of motor vehicle lobbies. The program also required partnership between the private concessionaires and the municipal government, which financed and implemented the physical infrastructure and provided the dedicated road space.[†]

* Presentation by Peñalosa (2001), updated April 2002. [†] World Bank (2002a), box 8.2

Planning and managing transport requires balancing conflicting interests in an environment of uncertainty and risks. Many decisions have long-term impacts and high costs, so coordination across the various modes of transport is needed. Cities that have managed to execute a comprehensive transport strategy, such as Curitiba, Bogotá, and Singapore,⁵⁸ have combined political will and leadership with technical and professional competence (box 6.4). Similar integrated approaches are necessary to ensure traffic safety.

Reaching a consensus and compensating losers sanitary solid waste disposal

The production of solid waste (including hazardous waste) increases as economic activities shift from agriculture to industry, incomes rise, and lifestyles change. Its improper disposal can have environmental consequences. Managing waste removal and disposal is a coordination problem. Waste collection is usually the responsibility of municipal government, but in many cities the formal service covers at best half the waste generated. Informal private operators do much of the pick-up, sorting, and recycling of garbage, and communities sometimes provide the service for themselves.⁵⁹ But these informal solutions are rarely well integrated into a safe disposal system. Improper disposal of solid waste damages drainage systems, contaminates groundwater, and releases methane, a potent greenhouse gas.

A key constraint to collective action and coordination is the NIMBY syndrome ("not in my back yard")—no community wants the waste disposal site. Disposal is then neglected, or a facility is located without public discussion near the population with the least political clout. Successes in public decisionmaking on solid waste disposal facilities (sanitary landfills or incinerators) suggest several lessons:⁶⁰

- First, public discussion should be early and open, with site selection based on transparent criteria agreed on in advance by candidate communities.⁶¹
- Second, communities adversely affected should be compensated, through financial transfers or access to other desired investments. In Canada and the United States the selected community typically receives "host fees."
- Third, the project sponsor needs to be credible in meeting commitments to minimize environmental impacts, through proper operation and management. The facility should be monitored by the local community and local authority—and designed to retain functions for informal collectors, so that they can acquire less risky livelihoods.

The problem of safe disposal is particularly acute in large cities and metropolitan areas where several municipal governments need to reach agreement on siting and cooperate to share costs and reach economies of scale. Many large cities have been stymied by the absence of an appropriate governance arrangement. In Monterrey, Mexico, a special-purpose metropolitan authority runs a public company to operate a sanitary landfill serving eight municipalities. In Santiago, Chile, 14 communes created a jointly owned corporation to build and operate a landfill and gas recovery system through voluntary cooperation rather than a formal metropolitan authority. These examples show that collective action by governments, as by other social entities, requires goodwill, trust, and a conviction that interests are fairly balanced (in this case, reflected in burden sharing of costs and environmental spillovers from the disposal facility).⁶²

Finding voice for dispersed interests—drainage

Many cities also lack effective storm drainage systems, and ill-planned construction closes off natural water courses. In Algiers, where massive flooding in November 2001 caused 800 deaths (700 in densely populated neighborhoods), a natural water runoff channel in the city had been converted to a paved road. Overflowing of clogged storm drains and sewers during high rainfall is projected to become a greater source of disasters in major cities than river flooding.⁶³

The key institutional issue is that drainage has no clear constituency until major problems occur. Local governments may become motivated to act on drainage issues when flooding affects the business district, as in Cabanatuan in the Philippines, where the local business community put pressure on the mayor to invest in drainage infrastructure. In Kampala the local authorities had neglected for years to protect past investments in the Nakivubo channel from settlement encroachment and obstruction with solid waste. There, and in communities in Ethiopia, recent reforms expanding local democracy have raised the profile of drainage as a priority for public expenditure.

Inclusion and access to assets: Challenging the institutional roots of urban slums

As noted in chapter 3, the evolution of good institutions to solve coordination problems is itself determined by the extent of inclusion and access to assets by a wider public. Access to urban land—the city's scarce natural resource and most durable asset—is key to a city's economic, social, and environmental sustainability. Institutions need to allow people to settle securely, so that they can envision a future for their families and their city, while allowing for flexibility in land use. Informal, illegal, or quasilegal neighborhoods with seriously substandard living conditions, often generically called slums, are an obvious manifestation of inequitable access to physical and financial assets, to secure land tenure, and to political representation. They also reflect the failures of government to guide and facilitate the growth of low-income housing and basic services for incoming migrants through appropriate policy and planning. These communities grow through the enormous entrepreneurial energy of residents who build the city and provide its labor. With the right institutional environment they can evolve more quickly into safe, healthful, and hospitable urban neighborhoods.

Geographical and environmental manifestations of exclusion

Poverty and its many manifestations in cities can be appreciated only by looking at disaggregated (especially spatially detailed) data. In Cali, for example, the incidence of income poverty is highest in periurban neighborhoods with precarious environmental and infrastructural conditions. The eastern area (formerly a lagoon) and the western zone (steeply sloped) are settled mainly by poor migrants and minorities living in very crowded housing (figure 6.2).⁶⁴

Figure 6.2 Poverty in Cali, Colombia: 1999 headcount rates



Source: Departamento Administrativo de Planeación Municipal de Cali, Colombia, 1999.

Reducing the disparities in welfare among residents within cities is one of the starkest challenges to a sustainable urban future.⁶⁵ These disparities are often masked by official data on access to water and sanitation, which do not accurately reflect problems with the quantity, quality, and reliability of services—or the numbers of people sharing facilities in dense settlements. In Accra, Ghana, for example, only 12 percent of the richest quintile of the population, but more than 66 percent of the poorest quintile, share one toilet or latrine with more than 10 other households.⁶⁶ Some 44 percent of households in Mysore, India, have water connections, but only 8 percent of those in informal settlements do.⁶⁷

Such inequities help account for infant mortality rates three or more times higher among the lowincome households of many cities than among highincome households (figure 6.3).⁶⁸ Poor people in Accra and São Paulo have higher death rates not only from communicable diseases of childhood but also from respiratory and circulatory diseases and injuries from traffic accidents and homicides. The threats affect all age groups, creating a web of insecurity.⁶⁹

Local groups and agencies concerned with environmental health problems and epidemiology in

Figure 6.3

High inequality in health outcomes in urban areas



Urban infant mortality rate, second poorest income quintile

Note: Data shown for all countries with data base for which adequate size sample is available (lowest quintile inadequately represented to be shown). Infant mortality rates measured as deaths before one year of age per 1,000 live births.

Source: Demographic and Health Surveys (see www.measuredhs.com).

cities are combining census data and household surveys with a geographic-referenced information system to map service access and health outcomes by neighborhoods. In Porto Alegre, Brazil, for example, the local authorities use a detailed environmental atlas for planning and management and for education in schools.⁷⁰

The multiple environmental health and safety risks in urban areas are related largely to the conditions and location of settlement. Hundreds of millions of urban dwellers have few affordable options other than to live on sites (usually public lands) where development has not been approved and where residents are therefore not officially entitled to urban services or protections. Such informal neighborhoods remain in squalid condition for decades. Since the home is also a major source of income (both from rental and home-based industry) and the household's main private asset, the social and economic burden of such physical conditions is profound. Many slums are also disaster-prone sites-on hillsides or floodplains, or near factories. Monsoon flooding in Mumbai claims hundreds of victims among the illegal occupants of hazardous areas-including the canals meant to drain the excess water.

The population of urban slums is estimated by U.N.-Habitat at 837 million in 2001. Based on 1993 regional breakdowns, more than half are in Asia accounting for one-third of the region's urban population. Slums house more than one-half of all urban residents in Africa and about one-quarter in Latin America and the Caribbean.⁷¹

Slum neighborhoods typically have disproportionately high concentrations of low-income people (though not necessarily the extreme poor, such as the homeless). They may also house middle-income residents in cities where formal provision of infrastructure and housing markets are very weak. Residents of inner-city slums, typically settled for many years, generally have better availability of infrastructure (though it is often poor in quality and unreliable). They also have more established communities and less physical isolation than residents of newer settlements, usually on the outskirts. Both groups suffer from the stigma of their neighborhood that impedes their access to employment and to wider networks of social capital.⁷²

Factors associated with crime and violence are also common in zones of deprivation within cities. The highest homicide rates in Cali are found in its poorest neighborhoods. Surveys of urban residents in Guatemala and Colombia identified tensions over access to water as a cause of violence.⁷³ Analysis of administrative regions or municipalities in São Paulo State categorized their territorial exclusion based on physical hazard, provision of urban services, and security of tenure. Municipalities with the most precarious living conditions had the highest homicide rates, and those with the least territorial exclusion were the least violent. The regions with the worst outcomes also had very high income inequality.⁷⁴ Such exclusion contributes to frustrated expectations, defeated hopes, and mistrust in society's future.

Even in some transition economies many of the urban poor live in severely substandard, quasilegal settlements (for example, 15–25 percent of urban residents in the Former Yugoslav Republic of Macedonia, many of them ethnic minorities).⁷⁵ But not all informal settlements feature low-quality housing. Some illegal or irregular housing is produced by commercial developers or politically influential parties who speculate that property investments will be regularized later (akin to the race for land rights at the agricultural frontier described in chapter 5). Such land speculation is encouraged when countries lack clear policies on tenure security, and authorities are unable to balance interests and articulate public choices regarding land use, or commit to enforcing them.

Empowerment through access to assets: security of tenure

Although slums reflect institutional failures in housing policy, housing finance, urban planning, public utilities, and local governance, one of the most fundamental failures is the absence of tenure security. Security of tenure means "protection from involuntary removal from land or residence except through due legal process."⁷⁶ The emphasis is thus on preventing forcible and arbitrary eviction, whether of individual households or entire settlements. The significance for urban poverty underlies its inclusion under the Millennium Development Goals (MDGs) as indicator 31 ("Proportion of people with access to secure tenure"), related to Target 11 ("By 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers") and Goal 7 ("Ensure Environmental Sustainability"). The issue is also a focus of the U.N.-Habitat Global Campaign for Secure Tenure and the Cities without Slums program of the multidonor Cities Alliance.

Lack of secure tenure in urban areas has not been systematically measured. Even the designation of residents as homeowners or tenants does not convey protection from summary eviction when land registration and the rule of law are poorly enforced.⁷⁷ Secure tenure is part of a country's hierarchy of rights, ranging from legal titles and contracts to customary recognition of use rights.⁷⁸ Providing secure tenure therefore does not pit the rights of squatters or tenants against those of private property owners and landlords, who should be protected under contract law. But countries permitting arbitrary eviction often also fail to enforce private real estate contracts and otherwise obstruct the private rental market, further disadvantaging low-income citizens.

By confirming the rights and responsibilities associated with the occupation and use of land, regularizing 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 gives them a stronger stake in urban society and an incentive to work with local officials to obtain services. A study in Indonesia found that stronger tenure security increased the probability of demanding garbage collection.⁷⁹ And surveys of slum dwellers in Bangalore reveal that better tenure status has a significant and positive impact on willingness to engage in collective action to obtain urban services, even in culturally heterogeneous communities.⁸⁰

A growing commitment by city, state, and national governments of Brazil to regularize slums or *favelas* has put in train a process of transformation (box 6.5). A key turning point was the 1988 federal constitution, which strengthened the role of local government and encouraged municipal policies to legalize and improve tenure conditions in these informal settlements. A groundbreaking new city statute enacted at the federal level in July 2001 provides a legal underpinning for municipalities to regularize *favelas* as part of concerted plans to combat spatial segregation and social inequity—and to create more inclusive and democratic urban governance.⁸¹

Security of tenure is both a collective good and a private good in the urban context.⁸² Whole communities are threatened when shanty towns are bulldozed, while residents individually gain security

Box 6.5 Regularizing *favelas* in Brazil

In many cities in Brazil, large shares of the population-25 percent of the residents of Rio de Janiero and 40 percent in metropolitan Recife—live in informal or illegal settlements, often on public lands. These favelas are home to an essential workforce-a workforce subject to terrible health conditions, frequent natural disasters such as mudslides and floods, and crime. Official policy toward favelas in the past was that of neglect (with occasional introduction of services when politically expedient or necessitated by emergency) and threats of eviction. Not until the 1970s did most municipalities begin to even include such settlements on planning maps as provisional, despite their existence for decades in many cases. Transformation in these settlements has started to occur in recent years where local governments, supported by their state and the national government, have made commitments to sociopolitical as well as physical inclusion of the favelas into the city.

Beginning in the early 1980s a number of cities, most notably Belo Horizonte and Recife, initiated efforts to regularize or integrate the favelas into the urban fabric and give them legal recognition. New planning instruments were introduced at the national level to permit designating certain settlements as "special residential zones of social interest" (ZEIS), which permitted planning and zoning regulations to be adapted to the land use requirements of these communities. In Recife, a further mechanism (PREZEIS) was established in 1987 to institutionalize, for the first time, the process of integrating irregular settlements into the formal planning apparatus, with community participation, and allow for the provision of services and infrastructure to reduce disparities. Under this law Recife created a land tenure legalization commission charged to identify and address specific problems in each ZEIS through participation of multiple stakeholders-a device credited with enforcing the government's commitment to follow through with its regularization program despite resistance from conservative sectors. The state of Pernambuco has joined Recife's efforts by bringing investment resources to help cover the settlements designated for regularization across the metropolitan area

Programs with similar objectives have been adopted in other Brazilian cities, including Porto Alegre, Rio de Janiero, and São Paulo. The Rio program (where the state government has also reversed its past resistance to *favelas*, by providing finance for building materials for residents without requiring collateral) is notable for its scale.* In Belo Horizonte and Porto Alegre the programs entail 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 some kind of *favela* or informal settlement upgrading program and about 506 of these include some form of land tenure regularization.

Where tenure regularization policies have intended to transfer 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 the physical upgrading and service provision. Other municipalities, such as Porto Alegre and Recife, have used an innovative alternative legal instrument to promote individual and community security of tenure. This formulation, the "concession of the real right to use" (CRRU), is a leasehold that confers private property rights to publicly owned land for a period of up to 50 years, either for an individual or a community.[†] Combined with the designation of settlements as "zones of social interest," the CRRU protects residents from eviction and gives them broad property rights. This instrument permits the state to protect access for the low-income communities to land they occupy in order to promote socioeconomic integration of the city; it also serves to 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 physically integrated with the adjacent areas.

Though still largely untested, the new national City Statute gives municipalities the tools to go even further in regularizing informal settlements. The Statute includes, for example, provisions for facilitating the transfer of privately owned land to the existing occupiers in cases where occupation has gone uncontested for at least five years. To complete the transformation in the quality of life and social inclusion of the urban poor, these political and legal commitments and investments need to be supplemented by a broader set of policies that also promote economic opportunity and counter other dimensions of poverty.

⁺ In Brazil, the CRRU can be registered, allows transfer of right to legal heirs, selling, renting and use of land as collateral. It can be used as both individual and collective right (a form of condominium), and has a gender dimension, as women are given priority treatment in granting of use rights (Payne and Fernandes 2001; Fernandes 2002). *Source:* Cira, background note for the *WDR 2003.*

when their settlement is accepted as an integral part of the urban fabric. Often there is enough stability of inhabitants that they confirm each others' rights to residence. Community organizations in informal settlements use their strongest asset (social networks) to protect their area from encroachment by new entrants, to resist involuntary resettlement, and to push for associated rights as urban citizens.⁸³ The Railway Slum Dwellers Federation in Mumbai (RSDF) successfully managed the resettlement of member house-holds to permit a transport project with citywide benefits (box 6.6).

How important is a legal title? Experience in many developing countries confirms that households and

^{*} The first phase upgraded about 60 *favelas* and 20 irregular subdivisions, affecting some 250,000 people, supported by an Inter-American Development Bank loan in 1995. A second phase and loan in 2000 applies to 56 *favelas* and 8 irregular subdivisions, for about the same number of residents. The total costs of upgrading under these projects average \$4,000 per household, which compares favorably to most housing programs and to many sanitation and social services projects. Brakarz (2002).

Box 6.6

How railway dwellers in Mumbai managed their own resettlement

In Mumbai, the commercial capital of India and home to 12 million people, some 24,000 families have lived for almost two decades along heavily traveled suburban rail lines, with some huts hardly a meter from the tracks. Besides risking death and injury, these residents suffer from a near-total absence of basic services.

A project to improve the city's traffic and transportation system required the resettlement of these slumdwellers. To represent civil society in the resettlement plan, the Maharashtra Government task force sought the participation of an alliance of The Society for the Promotion of Area Resource Centers (SPARC; a registered NGO), the National Slum Dwellers Federation (NSDF), and a savings cooperative of women slum and pavement dwellers. A constituent unit of the NSDF is the RSDF, made up of the Mumbai families who would have to move for the railway project.

By June 2001 the alliance had resettled 10,000 families, in just over a year, without force, to accommodations with assurance of secure tenure and basic amenities of water, sanitation, and electricity. How was this done? The Mumbai Metropolitan Regional Development Authority in charge of the railway project was willing to give up some of the powers normally held by government agencies in resettlement and rehabilitation—determining eligibility, obtaining baseline information on the community, allocating housing. Such functions, which provide opportunities for rent-seeking and corruption, were ceded to the NGO alliance.

Long before the railway project was initiated, the RSDF had collected information on the railway dwellers as a means of community mobilization and had the trust of its own members as a resource for the resettlement process. The households agreed on the criteria for allocating permanent and temporary accommodations. In the new settlements the families have formed lending cooperatives to compensate for income forgone as a result of the move.

The experience shows that a mobilized and self-governing community of poor people can act collectively for its own good and for the good of the larger urban society when there is mutual trust and flexibility on the part of the community and government agencies.

Source: Burra (2001a)

communities realize significant benefits in moving from highly insecure tenure to de facto tenure (more secure though not fully legal).⁸⁴ Granting individual legal titles (freehold) is sometimes expected to confer additional advantages, such as greater access to housing loans and a more active housing market.⁸⁵ But this requires supportive banking and real estate institutions, which have often not materialized because of other limitations, including low incomes and the reluctance of lenders to finance incremental home improvements, the main way poor people provide their own housing.⁸⁶ In the transition economies of Europe and the Former Soviet Union, some of the incentive effects of housing privatization have been limited by the informational and financial impediments in the real estate markets.⁸⁷

Titling can even worsen poor people's overall access to affordable land and housing. That can happen when titles are extended only to certain settlements, when tenants are forced out by higher rents after titling, or when slumdwellers are resettled into new neighborhoods with deeds of ownership but no assistance in acquiring infrastructure services.⁸⁸ Effective demand for legal titles is therefore often less than would be expected by observed increases in land values.⁸⁹

Legal titling can also have significant administrative costs, especially since many cities lack good cadastres, leading to protracted legal battles over ownership status. The COFOPRI program in Peru achieved a much higher volume of legal titling (one million deeds issued in four years) than did similar efforts in other countries. But this has been possible because of the large tracts of government-owned land on the urban periphery. Titling in older urban areas of the country has progressed more slowly because of ownership disputes.⁹⁰ An alternative to formal titling and cadastres that can be quite effective and easy to implement to aid service delivery and acknowledge occupancy is street addressing-the mapping and naming or numbering of streets and homes in informal settlements. This system, used in 15 West African countries, aids utilities in billing for services and permits the simple taxation of plots.⁹¹

When residents in informal neighborhoods do not fear arbitrary eviction, they can devote their social capital to negotiate claims for services with local government or utility companies and take collective action to improve their settlements.⁹² In Pune, India, a residents' organization used similar techniques of community mobilization and self-assessment as in Mumbai to respond to their own demands for sanitation, after these had been long neglected by the municipal authorities. The Pune slumdweller alliance (mainly the women) assessed the needs of residents, managed the construction with innovative designs to meet the needs of different user groups, and set up effective payment and maintenance arrangements. Their efforts resulted in a record outturn of latrines in just a few years, serving about half of the city's 1 million slumdwellers.93 In Santo Domingo, the Dominican

Republic, residents' associations of three low-income settlements took similar steps. These settlements, located on the sides of ravines are vulnerable to frequent landsides. Association members, mainly the women, designed and managed their own disaster mitigation program by building retaining walls and making other infrastructure improvements.⁹⁴

Institutions for sustainable urban development

Good urban governance requires institutions to reveal and balance divergent interests and to commit to solutions for collective welfare. Some institutional arrangements are particularly important to ensure performance of these functions across the range of urban issues:

- A structure of responsibility sharing and coordination that links the community, local government, and provincial and national levels of government and empowers the appropriate actors to address problems at each level
- A forum for wide participation in strategic thinking, to enable common understanding and consensus, motivate actions, and assess progress
- Networks for communication and capacity building among practitioners and stakeholders.

As noted, some informal arrangements that work in rural areas can be paralleled in urban communities, especially in neighborhoods. But such informal institutions are often asked to do too much. They can stimulate private enterprise but not enable firms to grow. And they can provide support to households but not confer all the services, economic security, or political legitimacy that the population deserves at the scale the city requires. The greater scale and complexity of urban life thus require effective formal institutions that operate with greater predictability, transparency, and adaptability.

What prompts such institutions to emerge and grow? Often major changes seem to come about through sudden crises—a disease outbreak or natural disaster—or the rise of a charismatic leader. In recent years democratization and fiscal decentralization have given new legitimacy and authority to local governments (chapter 7).⁹⁵ And globalization has been creating new opportunities, bringing in new knowledge, and raising new expectations for addressing urban challenges.

Empowering the appropriate level of actors and ensuring coordination

The environmental and social assets needed for sustainable urban development get more complex with increasing scale of settlement. Moving from neighborhood to city, to region, and to nation implies more extensive environmental and social linkages and impacts, increasing the divergence of interests and potential for conflict, and greater technical and institutional requirements for coordinating those divergent interests.

Taking responsibility for urban services and spillovers at the lowest practical level—the principle of subsidiarity—is a basic condition for mobilizing collective action. Subsidiarity empowers those with most at stake and strengthens the legitimacy of higher government through power sharing. Decentralizing urban services to local government is desirable for enhancing the voice of urban citizens and the access to credible information, but it requires the respective authorities to be accountable and have the means to address problems at their level—and that depends on the framework of intergovernmental financial relationships.⁹⁶

Political tensions across levels of government are common. Central governments frequently impose unfunded mandates on local governments, and local governments may innovate without getting adequate support from central governments. Local governments can also be less progressive than central governments and obstruct needed reforms. In China, some local governments resisted disseminating information on city environmental conditions well after the State Environmental Protection Agency had authorized it, while others (in Jiangsu province) moved on disclosure policies—experimentally—in advance of the central government's commitment.⁹⁷

Collective action in neighborhoods. Local environmental problems, such as removing solid waste from the neighborhood, can often be addressed by coordination at the community level. The commonality of interests makes collective action possible either to solve problems internally or to obtain what is needed from other parties (government or utilities). Grassroots and community organizations that move beyond confrontation to engagement with city government have greater prospects for obtaining sustainable benefits for the urban poor.⁹⁸ Experience in Pakistan, the Philippines, and Thailand with programs for basic infrastructure and housing improvements in low-income neighborhoods demonstrates what community associations can achieve as key players in partnership with government and the private sector. Those partnerships, however, require a long-term commitment to sustain them.⁹⁹

The main weakness in many such programs has been the lack of continuity in financial and political support from formal institutions. In particular, city agencies and utilities need to assume responsibility for scaling up and maintaining infrastructure networks and such services as drainage, lighting, and parks beyond the neighborhood. Links with off-site infrastructure (roads or solid waste disposal sites) are often inadequate because of weak coordination with responsible government agencies, reducing the environmental and other benefits.

Many urban neighborhoods have also used their internal social networks to create protective institutions to ensure local public safety, such as through community "crime watch" activities-but this also requires the close collaboration and support of formal institutions, such as the police. In the Warwick Junction district of Durban, South Africa, 50 traders from the community voluntarily patrol around the clock. The group was trained by metropolitan police on citizen's arrests, constitutional rights of individuals, and court procedures to ensure successful prosecutions. Their efforts have contributed to a reduction in crime, and new trust between the community and police has improved the rate of successful police investigations and prosecutions. But relations are still strained by the citizens' perceptions of inadequate formal policing in the city.¹⁰⁰

Strong local (municipal) government. Most issues of sustainable development in urban areas extend beyond an individual neighborhood and require a permanent formal mechanism of collective action, through effective local government that works with communities but shoulders broader responsibilities. This is where clashes of interests among larger and more powerful stakeholder groups—and tradeoffs about priorities and who gets served—begin to occur, underscoring the need for representative governance.

Reforms to make municipal governments and their agencies more accountable and transparent to all constituents are thus at the core of improving sustainable development in cities. The reform agenda comprises:

- Increased democratization (electoral processes)
- Good practices and incentives for sound financial management
- Public participation and access to information in budgeting and investment planning
- Upgrading of skills and professionalism of government staff
- Monitoring and evaluation based on benchmarking and client feedback.

Many cities demonstrate innovative relationships between civil society and local government to increase pressures for performance in the execution of basic functions. Reform initiatives often gain ground through collaboration on concrete activities of the local government-such as the public review of municipal budgeting and procurement in Obninsk, Russia,¹⁰¹ and the citywide referendum to affirm residents' willingness to pay for infrastructure improvements after flooding in Tijuana, Mexico.¹⁰² Such initiatives can then launch wider, deeper processes of reform in other areas. Obninsk is now influencing reforms at the provincial level, and Tijuana transformed its disaster recovery plan into a series of innovations linking taxation and public work improvements. Participatory budgeting, which was initiated in Porto Alegre and has now spread to over 80 cities in Brazil, has dramatically transformed relationships between civil society and local government.¹⁰³

As part of urban capacity building and decentralization in Senegal and Guinea some local governments have institutionalized public consultation in the production of their public investment and maintenance programs and embedded these programs in a contractual agreement between the city and the central government. This municipal contract commits the authorities at both levels to enforcing the agreed financial implications and reform measures promised to constituents.¹⁰⁴

Collaboration across jurisdictions—metropolitan management.¹⁰⁵ The wide impact areas of many environmental spillovers, and the interdependence of major economic activities sharing spatially contiguous infrastructure networks and other services, require collaboration among local governments, as well as regional and national governments. This is especially true for systems implying economies of scale citywide transportation, water resources management, pollution control, landfills, and wastewater treatment. But this next level in the hierarchy of collective action presents an even greater potential divergence of interests, especially over sharing costs and benefits. And fragmentation and excessive competition among municipalities are more the norm. In the more than 70 countries undergoing decentralization, with the notable exception of India, municipal laws and constitutional reforms have had the largely unintended effect of weakening the prospects for metropolitan solutions to large city problems.

A variety of organizational arrangements—formal and informal, in developing and industrial countries—have evolved over the years to meet the challenges of managing large cities. In one common pattern (as in Dhaka and São Paulo), jurisdiction for specific functions is assigned by geographic area, creating many general purpose local governments that may cooperate for specific purposes, such as gathering regional data or sharing the costs of expensive equipment and facilities. Sometimes this collaboration results in a specialized metropolitan area or district service, in which limited powers—usually for planning or preservation, as of watersheds or regional parks—are ceded to special authorities.

Formally constituted metropolitan authorities, created or authorized by national law, are less frequent. In a pattern called functional fragmentation, lower-tier governments are limited to basic functions such as water distribution and street lights, while a second tier handles areawide functions, such as freeways and water trunk supply lines, as in Mexico City (box 6.7). These second-tier governments can be autonomous bodies, sometimes with executive powers to carry out projects such as the development authority in Kolkata. In other cases, as was common in Latin America in the 1970s and 1980s, the metropolitan agencies have only a consultative role. The most formal arrangement-that of centralized metropolitan organizations as in Bangkok, Kuala Lumpur, and Seoul-is fairly rare and usually imposed by central government to manage a capital city.

Some cities, such as Johannesburg, have blended these models—and the original prototypes are also changing as demands shift. Globalization exposes cities to forces requiring a wider basis for management and planning—and more strategic direction. Metropolitan arrangements also seem to be responding to the need to connect voter-taxpayers with mechanisms of public choice. In the past few decades, London, Montreal, New York, Ottawa, and Toronto have

Box 6.7

Mexico City's search for metropolitan management arrangements

Mexico City has explored several organizational arrangements in recent decades. The urban agglomeration in the Valley of Mexico starts with the Federal District, the seat of the central government, an area with 10 million people divided into 16 boroughs or *delegations*. Surrounding the Federal District, but seamlessly connected in functional terms, are 12 contiguous municipalities (another 7 million people) in the State of Mexico. An even more encompassing definition (the Mexico City Region) covers nearly 100 municipalities in five states.

Various metropolitan commissions have been created to cover key areas of need. A water commission was formed more than 30 years ago to plan and implement a mammoth system of interbasin transfers to supply water to Mexico City. Similarly, an air quality commission has steadily grown to manage mobile sources of pollution. The commission has successfully eliminated lead from fuel and is working to reduce the volume of traffic and to improve vehicle operating efficiency.

A persistent problem, despite half a dozen planning and special purpose commissions, is coordinating the city's growth with water and transport infrastructure—for example, having mass transit connect residential areas to key concentrations of employment. Recent political reforms making the office of the mayor an elected position have sparked an active political debate about creating an entirely new metropolitan authority for Mexico City.

Source: Campbell, background note for the WDR 2003.

all followed an iterative path, moving first (in the late 1980s) from formal metropolitan bodies with executive authority to a system of fragmented, independent municipalities. By the end of the 1990s these cities had shifted back to various centralized systems, but with more democratic input from elected or appointed citizen groups.

As these and other arrangements evolve, international sharing of experience will be important. Leadership from national or provincial governments is often necessary to provide functional assignments and funding for metropolitan arrangements, since local governments do not cede powers easily, especially when it involves redistributing tax revenues across jurisdictions.¹⁰⁶

Building consensus and strategies for sustainable urban development

An essential condition for coordination is having a shared understanding of the problem, knowing the costs and benefits of alternative solutions, and accommodating the concerns of different stakeholders. Two relevant sources of experience in revealing interests and reaching a consensus on what to do are local environmental action plans and city development strategies.

Since the Earth Summit in 1992 some 6,400 local authorities in 113 countries have either formally committed or actively undertaken to produce local environmental action plans (called "Local Agenda 21s").¹⁰⁷ These initiatives integrate environmental objectives into development plans, emphasizing participation and accountability. They articulate local concerns and motivate local stakeholders around shared priorities for the area's future. And they provide a basis for coordinating the work of different levels of government and sectoral agencies.

The city of Manizales, Colombia, with about 360,000 inhabitants, has formulated a local environmental action plan with wide consultation and integrated it into the municipal development plan and budget. The plan included measures to revitalize the city's architectural heritage, improve public transport, strengthen watershed management of the Chinchina River which provides water to the city aqueduct, reduce risks of landslides, create ecoparks, and define community environmental action plans. The plan also devised an innovative indicators program of "environmental traffic lights" to signal progress.¹⁰⁸

Not all Agenda 21 exercises have been as participatory as planned, and the momentum for longerterm implementation has often waned—the difficulty of forging long-term commitments being one of the barriers to successful coordination noted in chapter 3. Success has been greater with sustained support by successive mayoral administrations, strong participation by a local NGO or university, and efforts to mobilize funding for local economic development. Most Local Agenda 21s have been undertaken in smaller cities, perhaps indicating the difficulty of consensus-building at a metropolitan scale. National government leadership has also been instrumental in replicating Local Agenda 21s within countries.

City development strategies are similar efforts in participatory strategic planning, but with a potentially broader focus of integrating environmental and productivity concerns within a propoor perspective.¹⁰⁹ They have been used to build consensus on a vision for the city and on the steps to achieve the vision. These strategies typically include a participatory assessment of the city's economic, social, and environmental conditions and prospects, and spell out priorities and action plans for both policy and investment. Some examples:

- A city development strategy in Cali, Colombia, helped explore stakeholder views on major public projects and led to changes in the city's investment priorities. The first phase, which also prompted discussion of violence as a key issue for the city, pointed out the need for better understanding of the local economy and employment constraints.
- In San Fernando, in the Philippines, a city development strategy helped reorder investment priorities for sanitation, among other outcomes.
- Santo Andre in São Paulo State focused its strategic planning on social inequities and exclusion and undertook social mapping to target and monitor actions to reduce disparities.

A good practice for institutionalizing city strategies is to incorporate their key elements into the regular systems of city planning. While sustaining and implementing strategic planning remains a challenge, such efforts can reveal the priorities of various stakeholders and contribute to public pressure for change.¹¹⁰ Two items that should be on the agenda of most city development strategies are: Getting ahead of the expanding urban frontier; and making urban density affordable and livable.

Getting ahead of the expanding urban frontierguiding new settlements to prevent future slums. Cities and towns in developing countries will need to accommodate the projected doubling of urban population over the next generation. Even with institutional reforms to upgrade and integrate existing slums, new ones may form. Local governments have often shied away from acknowledging the need to anticipate and facilitate the growth of low-income settlements, instead letting them fend for themselves. Providing infrastructure networks after the fact is much more costly, however, especially for very dense settlements with irregular layouts or requiring resettlement. In Bogotá the urban development agency estimates that installing drainage networks is about three times more expensive in informal settlements than in planned neighborhoods.¹¹¹

Political will is essential to create an institutional environment that senses and anticipates the demands from new entrants and permits forward thinking and partnership among government, pri-

Box 6.8

Leading the advance on urban settlement growth in Lima

Lima, Peru, 1977—As we stood on a hill overlooking a new settlement on the edge of a vast desert plain about 10 kilometers northeast of downtown Lima, the boy, about 7 or 8 years old, said he was an engineer. An engineer? "Well," he said, "I am helping the people draw the lines for the lots and build our barrio." The settlement, which consisted of little more than chalk lines and shanties of woven reeds and plastic sheets, was growing day by day, as new arrivals were trucked in by the National System for Social Mobilization (SINAMOS). The settlers helped the surveyors lay out the plots and clear areas for playgrounds and community facilities.

The core group of settlers had initially organized itself to squat on public land under high-tension power lines. They had come mostly from slums in the city center, where they rented rooms or lived with family. On the agreed-on night, walking in small groups and with plastic sheets wrapped around their bodies, they converged on the selected site and built their tents and shacks overnight. Having established themselves as a squatter settlement, they knew SINAMOS would remove them to a permanent, if unserviced, settlement, one of the new *pueblos jóvenes*, or young towns.

SINAMOS, staffed mostly by young and deeply committed engineers, architects, and social workers, was established in the mid-1970s. Armed with enthusiasm and an understanding of the dynamics of settlements that John F.C. Turner had developed in Arequipa and Lima, SINAMOS set out to meet the challenge of rapidly growing squatter settlements on the outskirts of Lima.* They called the low-income communities *pueblos jóvenes*, which gave the squatter settlements a positive image.

SINAMOS developed a two-pronged approach. It upgraded existing *pueblos jóvenes*, relying on community participation and relatively little public investment. Then, as squatter settlements continued to appear, it began a massive slum prevention program, providing surveyed plots to meet anticipated demand for low-income housing. The first minimal structure plan was gradually detailed down to neighborhood layouts and engineering studies for trunk infrastructure.

Twenty years later the *pueblos jóvenes* had become wellconsolidated, low-income and low-middle-income neighborhoods with most urban services, schools, clinics, markets, and other amenities. The key to the program's success was picking up signals of demand, balancing interests, and committing to implementation—matching social coordination with the aspirations of poor people.

* Turner and Fichter (1972). Source: Chavez, background note for the WDR 2003.

vate investors, and households. Valuable experience in planning low-income settlements has come from sites and services programs, usually initiated by local government or its agents, to provide basic plot layout and minimal infrastructure (such as core sanitary facilities) in advance of spontaneous development. Such a program in Lima aimed to prevent the growth of squatter areas by anticipating demand (box 6.8).

Forging long-term commitments is key to successfully getting ahead of the frontier. A strong supply response is important in making such schemes sustainable. Many well-meaning programs have been stymied by the lack of affordable land and housing-even for the middle-income groups. This has reduced political support for minimal design/minimal cost approaches, and poor people have been pushed to the end of the service queue. In Conakry the municipality's basic structure plan aimed in part to set aside periurban areas for new settlements and to test public-private partnerships for the production of serviced plots. The government planned to facilitate connection of the sites to infrastructure networks while the private investors, through payment of an "equipment contribution," were to ensure replication of the scheme. But the authorities could not commit to fully implementing this part of the plan when no private developers joined in, and resulting delays led to land disputes as squatters moved into the area. In El Salvador, however, a private commercial company (ARGOZ) has carried out a profitable land development scheme for low-income households for more than 25 years, with the help of a conducive legal framework for urban land conversion and a determination to keep design standards affordable.¹¹²

Making urban density affordable and livable. Accommodating the growth of population in cities will involve both physical expansion at the periphery and, in many cases, increased density of settlement in the city. Average urban densities are already vastly greater in major cities in developing countries, especially in Asia, than in North America and Europe for example, Mumbai has almost 400 persons per hectare and Shanghai 500, compared with about 170 for the Barcelona metropolitan area, and 40 for New York.¹¹³ The key issue for mature cities of developing countries is to provide the infrastructure and services (especially sanitation, public transport, and green spaces such as parks and playgrounds) needed to make already high densities livable and efficient, with ease of access to homes, work, and other places. The challenge for cities that have not yet filled in is to avoid making such spatial development unaffordable to their growing population.

Governments often try to control city size and influence the spatial form of city growth by regulating land use—through rules on minimum plot sizes and road widths, for example. It is common for cities to present inconsistent signals to investors: an official stance extolling compact urban form, countered by regulations and financial practices promoting low density land uses that favor middle- and higherincome groups. At the start of the economic transition in Cracow, Poland, municipal officials advocated higher density development of the inner city yet rigid zoning persisted, inconsistent with both the planners' intentions and the market incentives.¹¹⁴

When land-use regulations aiming to limit densities are strictly enforced, as in Brasilia, they drive up the cost of inner-city housing and force poor people to the periphery, where infrastructure services and transport are unavailable or expensive.¹¹⁵ Even cities that try to encourage development around public transport zones (such as Curitiba, Brazil) or to curb periurban expansion by imposing a green belt (such as Portland, Oregon) have seen denser land uses shift to the outskirts. In Mexico, the lack of financing for rehabilitation of existing housing or for most multifamily units, as well as vestiges of rent control, deter improvement of inner-city neighborhoods and promote development on the urban periphery.¹¹⁶

Urban growth controls aimed at tightly regulating densities and building codes can make access to urban assets of land and housing more inequitable.¹¹⁷ Zoning that permits mixed land uses—consistent with how low-income neighborhoods develop naturally is more advisable to keep jobs, services, and housing accessible. Fiscal and other policies that charge developers the full costs of providing the incremental infrastructure required for new settlements are also necessary to internalize the social cost of expanding urban development. These charges, which should be introduced before spatial expansion patterns are locked in, can be a combination of development impact fees and general taxation linked to property values.

But such charges will not reduce the demand for low-income settlements at the periphery in developing-country cities. Residents in these areas are not subject to formal taxation as long as they lack tenure security, and they already pay dearly for whatever infrastructure they are able to acquire from informal markets. So, regularizing informal settlements and facilitating low-cost land and housing development should be the highest priorities to ensure more equitable access to urban assets and more healthful, attractive living conditions in developing-country cities. These measures, coupled with appropriate allocation of urban land for public purposes—right of way, environmental easements, and so on—can transform the institutional basis for the evolution of urban form.

Promoting institutional learning and leadership through networks

Institutions for sustainable urban development need to embody incentives and processes for learning to better solve existing problems, and anticipate and prepare to deal with new problems. Increasingly this stimulus occurs through networking by local government and nongovernmental groups, through both associations and Web-based communications. Networks foster communication among peers, disseminate innovations, and enhance reputational pressures for change. They can also instill professionalism and high standards of performance, cultivating leadership. Increasing forums for public feedback also helps identify mistakes and make mid-course corrections.

A prime illustration of networking is the association of local, national, and international NGOs promoting the empowerment of communities and women in India and other countries. Through the alliance of SPARC, Mahila Milan (a women's savings cooperation), NSDF of India, and Slum Dwellers International (see box 6.6), practitioners and the urban poor share experiences on housing, urban services, and security of tenure. And by distributing information gathering methods (such as a self-census of slumdwellers), negotiating skills, and encouragement across the city and country and communicating with similar groups elsewhere, the alliance is increasing the scale and sustainability of its efforts.

Local governments are also networking internationally to learn from each other. National, regional, and international associations of local governments diffuse technical assistance, training, and ideas to member cities on a wide range of planning, operational, and fiscal issues.¹¹⁸ The Union of Capital Cities of Ibero-America (UCCI) runs workshops and a Web site to help member cities learn about municipal modernization, solid waste management, urban transport, cultural heritage protection, and other issues.¹¹⁹ The first cohort of Philippine cities that carried out city development strategies is helping others do the same, as part of a growing urban knowledge network involving the Philippine League of Cities, the China Association of Mayors, and other national groups in East Asia.¹²⁰ The Clean Air Initiative, a consortium of donor and private funding, is helping build capacity among cities in several regions—for example, to extend to African cities the Asian and Latin American experiences with removing lead-based fuel (chapters 3 and 7).

Networks also help to create incentives for sustained collective action by building reputational pressures within peer groups. Professional associations of local governments provide advice and standards on performance indicators that can be compared or benchmarked among member cities. Numerous external rankings of cities on quality of life or attractiveness to investors have been widely publicized and have sometimes provoked corrective action.¹²¹

Conclusion

Achieving sustainable urban development requires forward-looking institutions that sense emerging problems, balance interests (especially by heeding the disadvantaged in society), commit to effective execution of agreed solutions, learn, and adapt. To make such institutions emerge and function well, it is necessary to confront basic inequities in access to assets, to empower dispersed interests and balance them against vested interests, and to build constituencies that can represent and commit to longerterm concerns.

Priority actions to reveal problems and divergent interests include developing disaggregated datasets, such as mapping environmental hazards within a city. Wide dissemination of such information, along with the costs and benefits of alternative solutions, is essential to building constituencies for action. Balancing interests and forging consensus can be facilitated through participatory strategic planning, aided by networking among practitioners and local governments for sharing local and global knowledge, innovations, and reputational pressures that stimulate leadership. These measures to strengthen the workings of institutions are fairly low in cost and can be implemented in the short term with existing capacities and resources. Support from the central government can help, but city stakeholders should take much of the initiative.

More fundamental changes would have wider and more lasting impact-and would be more instrumental in building new institutions. These deeper reforms include granting secure tenure, which can transform the balance of power between urban poor people and the rest of the urban society. Increasing the openness and accountability of local government, through democratic processes and participatory procedures, would also increase the responsiveness to the interests and problems of poorer constituencies and the legitimacy of government actions. Although these reforms are long in impact, experience shows that they can be initiated fairly quickly-provided there is political will. More complex measures-such as devising metropolitan management arrangements, and helping cities mitigate disaster risks and adapt to threats from climate change-may require more creativity, leadership, and resources. They also require greater and sustained support from national institutions.

Much of the future physical development that cities require can come at a lower cost when problems are recognized sooner rather than later; for example, setting aside rights-of-way for primary transport routes and parks and green spaces, facilitating new low-cost settlement, and guiding land development away from precarious or environmentally fragile areas. Investments to protect environmental health locally can also be made effectively and cheaply with the participation of residents to identify and carry out appropriate solutions. Significant advances in the quality of life of the less advantaged urban residents are possible when there is a shared commitment to integrating them fully into the life of the city; when there is flexibility on the part of government and private service providers; and when there is an openness by formal institutions to creative solutions developed by a diverse array of residents, actors, and networks in a city. Many activities in one location or community have consequences that affect other locations or communities. The principle of subsidiarity requires that these spillovers be addressed at higher levels-a principle based on matching the span of the spillover with the span of the jurisdiction best able to internalize the problem. The principle of inclusion ensures that people's well-being is a priority to be addressed at national and global levels, as discussed in the next chapters.