Executive Summary

This volume devotes special attention to the urban environment, a major focus of Habitat II—the United Nations Conference on Human Settlements—scheduled for June 1996 in Istanbul, Turkey. Urban environmental conditions are important to the health and quality of life of a city's inhabitants and can impose significant costs on economic and social development. The impact of urban areas on the surrounding environment is also an issue of growing concern. More than half of humankind will live in urban areas by the end of the century, and 60 percent by 2020. In most nations, cities generate a majority of the economic activity, ultimately consume most of the natural resources, and produce most of the pollution and waste. Thus, urban environmental issues, although often overlooked, are important both locally and on national and global scales. Neglect of these issues could compromise larger economic, social, and environmental goals in both developed and developing countries.

This volume also surveys a number of current trends in the global environment and their implications for the future. Most of these trends show worsening environmental problems, suggesting that many national and international environmental goals will not be met without extensive policy reform and significant changes in current practices and strategies. On the positive side, however, this volume also reports a significant environmental milestone, the partial phaseout of production of ozone-depleting chemicals.

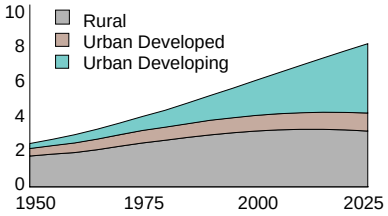
The Urban Environment

Cities embody the diversity and energy of human pursuits. They are in many ways remarkable engines of economic and social progress. Cities offer employment opportunities, entertainment and other amenities, and potential efficiencies not found elsewhere, as well as advantages in the delivery of education, health, and other social services. On average, urban dwellers have higher incomes and live healthier, easier lives than their rural counterparts, although these advantages are often not shared by all urban inhabitants.

But cities also play a central role in degrading the physical environment and in shaping the social environments in which most of the world's people will soon live. Dysfunctional urban environments have high costs, making more difficult the economic growth needed to improve living standards and helping to perpetuate inequities. The developed world is already largely urbanized. In the developing world, the rapid urbanization now under way will increasingly concentrate both population and economic growth in cities—as much as 90 percent of future population growth and a major share of future economic growth—intensifying the problems of the urban environment. (Chapter 1.)

In recent decades, urban areas in developed countries have made major progress in cleaning up local environmental problems, but they remain significant contributors to regional and global environmental

Urban Population Growth
(population in billions)



burdens. At the same time, the urban social environment in developed countries—which includes factors such as violence and drug abuse—poses major threats to human health and productivity. In developing countries, urban areas often have huge populations living in poverty and facing the same urban social threats that confront residents of cities in the developed regions. Disparities among different income groups are often more extreme in cities of the developing world. In many cases, for example, overall improvement in urban health indicators masks a widening split between the poor and the well-to-do. The problems of the urban poor are similar to those of the rural poor—lack of access to clean water, sanitation, and adequate housing—compounded by overcrowding and exposure to industrial wastes and urban air pollution. (Chapter 2.)

Burgeoning cities are expanding into fragile ecosystems—nearly 40 percent of cities larger than 500,000 are located on the coast. Cities sometimes deplete nearby areas of water and firewood, rendering them less capable of supporting rural populations and thus adding to the pressures for urban migration. Air pollution already exceeds health standards in many megacities in developing countries. Sewage and industrial effluents are released into waterways with minimal or no treatment, threatening human health and aquatic life. Some urban environmental problems such as access to safe drinking water improve with economic growth, while others tend to worsen. Thus in the absence of policy reform, stronger institutions, and enlightened political leadership, economic and population growth in developing countries in the near term may lead to a deterioration of the urban environment, both physical and social. Stresses on the global environment from urban activities are also likely to accelerate. A major share of greenhouse gas emissions already comes from the use of fossil fuels in wealthy urban areas, especially in the developed countries. (Chapter 3.)

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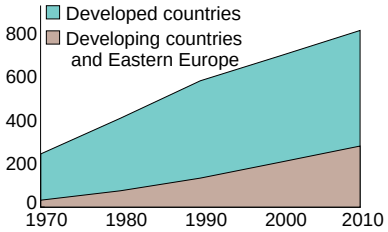
Transportation issues illustrate how environmental, social, and economic factors interact in the urban environment. Transportation demand and motor vehicle ownership are concentrated in urban areas, and energy use for transportation is rising faster than that for any other sector. Motor vehicles in turn are a primary cause of congestion and local air pollution, which are posing a growing threat to economic productivity and human health. Yet the dispersed form of many urban areas makes motor vehicles virtually essential. It also contributes to social inequities, for example, limiting access to jobs and other opportunities for those who cannot afford vehicles or requiring long trips by public transit or on foot. (Chapter 4.)

World Motor Vehicle Ownership
(vehicles in millions)

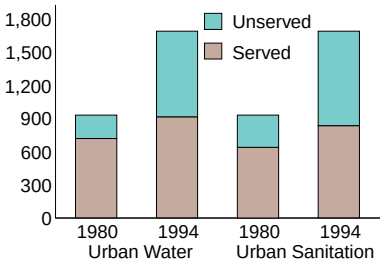


Priorities for Action

Three issues emerge as particularly critical: water supply and sanitation and water resource management, solid waste management, and air pollution. In each area, there are compelling economic, social, and environmental rationales for change. Successful efforts, however, are likely to require significant changes in urban practices and strategies.

Improving access to clean water and sanitation, for example, has been cited as "the single most effective means of alleviating human distress." Past experience shows the need for a shift away from centralized systems and toward more flexible, community-oriented strategies. In hopes of cutting the costs of solid waste management while improving service, many cities are experimenting with public-private partnerships and informal, community-based approaches. Focusing on pollution prevention and on energy conservation, in part by fixing distorted prices and using other novel economic tools, is likely to be central to reducing air pollution. Underlying many urban environmental problems—from congestion and air pollution to the lack of affordable housing to urban decay—are land use patterns and practices. More effective land use planning is critical to improving access to urban services for the poor and to reducing resource consumption and improving the quality of life in more affluent communities. (Chapter 5.)

Access to Water and Sanitation in Urban Areas
(population in millions)



Community-Based Strategies

Beyond the immediate priorities for improving the urban environment lies the need to strengthen local governments, to implement new approaches to alleviating poverty and supporting communities, and to develop more environmentally friendly cities. Virtually all of the policies needed to improve the urban environment require more effective urban governance. That will require not only strengthened governments but also the involvement of many other actors in the urban environment—including the poor and the private sector. Community-based approaches are essential if urban services are to reach those who need them and if there is to be broad-based support for needed changes in strategies and practices. The sheer size of urban populations and economies means that cities must lead the way toward more environmentally sustainable practices for the world as a whole. (Chapter 6.)

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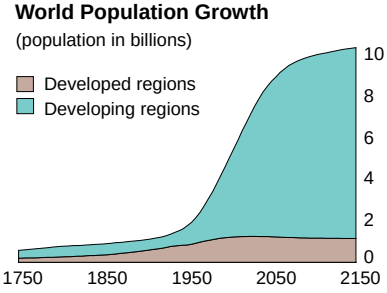
IMPLICATIONS OF CURRENT GLOBAL TRENDS

Population Growth

Current population trends are cause for both optimism and concern. Some developing countries are moving rapidly toward population stability. But other countries are experiencing rapid population growth, usually accompanied by high levels of poverty, limited progress for women, and high levels of internal and international migration. Overall, the world population is increasing by more than 86 million people every year. Such rapid growth places enormous pressure on natural resources, urban infrastructure and services, and governments at all levels, especially in the poorest countries where growth is most rapid.

World Population Growth
(population in billions)



Global population will continue to grow for many decades to come, reflecting the demographic inertia of countries in which a large fraction of the population has not yet reached child-bearing age. In the U.N. medium popu-

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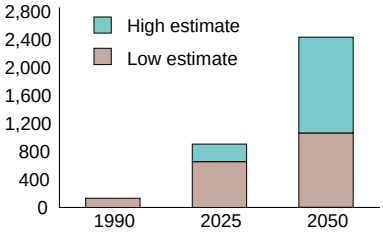
lation projection, world population reaches about 10 billion by the middle of the next century before gradually leveling off. Much of that growth occurs in the next few decades and is concentrated in a few regions, such as Africa and Asia. In these projections, fertility is assumed to decline from current levels in developing regions of the world. Projected fertility rates cannot be taken for granted, however; policies that influence fertility rates—provision of family planning services, alleviation of poverty, and improvements in education, health care, and economic opportunities, especially for women—can have a marked effect on future population levels. (Chapter 8.)

Freshwater Supplies

One environmental consequence of growing populations is increasing pressure on natural resources. Demand for water is growing rapidly as populations and industrial activity expand and irrigated agriculture (the largest use) continues to increase. From 1940 to 1990, for example, withdrawals of freshwater from rivers, lakes, and underground aquifers increased by a factor of four. Many current patterns of water withdrawals are clearly unsustainable, such as pumping from subsoil aquifers at rates far greater than they are recharged. Water shortages are already critical in some regions, posing obstacles to continued development and threats to freshwater habitats.

Population Subject to Water Scarcity
(population in millions)



The future availability of water for human use depends on how water resources are managed; water can, in principle, be reused many times. Future pressures on water resources can thus be seen as a measure of the management challenge that water-short regions will face. According to one estimate, between 1 billion and 2.4 billion people (13 to 20 percent of the projected world population) will live in water-scarce countries by 2050. Africa and parts of western Asia appear particularly vulnerable. Policies that improve the efficiency of water use, avoid waste, and preserve supplies (by controlling water pollution and maintaining watersheds) can markedly extend the availability of scarce supplies. Particularly important are more efficient irrigation systems, appropriate water pricing and removal of harmful subsidies, upgrading and improved maintenance of urban water distribution systems, control or treatment of industrial wastewater and urban sewage effluents, and cooperative management of shared watersheds and river basins. (Chapter 13.)

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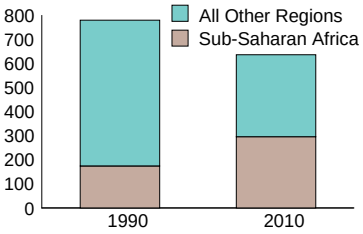
Food Security

Water scarcity has a direct impact on food security. Indeed, many countries facing water scarcity may not be able to support irrigated agriculture at levels necessary to feed future populations from domestic agricultural activities. Soil erosion and degradation, especially in fragile tropical and subtropical environments, also threaten the continued productivity of agricultural lands. Overfishing threatens to damage fisheries and lower future harvests, denying many developing regions an important source of protein.

These trends may put severe strains on the world's ability to increase global food production in parallel with population growth. Nonetheless, most recent assessments suggest that global food production—the supply end of the equation—has the capability to keep pace with rising global demand.

There is less optimism about the prospects for reducing undernutrition and improving food security. Even if global food supplies are adequate, the inability of poor nations to pay for food imports, along with an inadequate distribution infrastructure and the inability of poor families to buy food, means that many people will continue to go hungry. For 1990 to 1992, the U.N. Food and Agriculture Organization (FAO) identified 27 countries as having low or critical food security indexes. In sub-Saharan Africa, for example, FAO projects that the number of undernourished people could rise from 175 million to some 300 million by 2010.

Estimated Chronic Undernutrition
(population in millions)



Food trade is projected to nearly double between 1990 and 2010, but trade and food aid may not fill the food security gap. Policies that strengthen agricultural research and extension systems, promote sustainable intensification and more sophisticated management of agricultural resources, and develop more effective agricultural markets in developing countries could play a major role in helping these countries to meet their own food needs. Policies that increase rural employment and access to land and credit and that strengthen the capacity of developing country governments can also have an important indirect impact on food security. (Chapter 10.)

Energy and Climate

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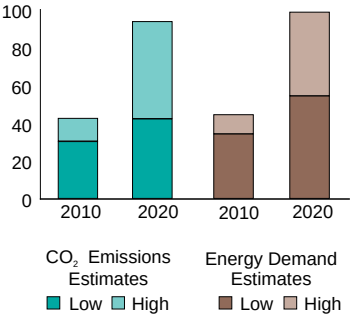
Energy use is already high in the developed countries and is increasing rapidly in many developing countries as they industrialize. Three different studies of future energy demand conclude that global energy use is virtually certain to rise considerably in coming decades. These studies find plausible increases in the range of 34 to 44 percent by 2010 and 54 to 98 percent by 2020. The projected growth is concentrated in Asia (a 100 percent increase from 1990 to 2010) and Latin America (a 50 to 77 percent increase over the same period). Moreover, most of the expanded production will come from fossil energy sources—coal, oil, and natural gas—in the absence of specific policies to alter market incentives. The so-called "new renewables" such as solar, wind, and farm-grown energy crops are expected to provide only 2 to 4 percent of global energy supplies from 1990 to 2020 if current practices and strategies continue.

Projected Increases in CO_2 Emissions and Energy Demand
(percent increase from 1990)



These projections imply that local and regional air pollution is likely to increase significantly in rapidly developing regions and that global emissions of greenhouse gases will increase as well, greatly increasing the risk and potential impact of global climate change. Emissions of carbon dioxide from industrial activity climbed 38 percent during the 20 years prior to 1990 and are expected to rise another 30 to 40 percent by 2010.

These projected trends make clear that significant changes will be required in energy strategies and practices in all major regions of the world to

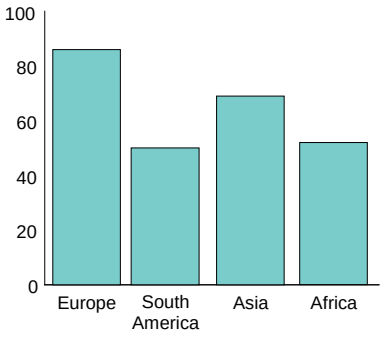
stabilize global emissions of greenhouse gases. Even greater efforts and, almost certainly, a transition to nonfossil energy sources will be required to eventually reduce emissions and hence stabilize atmospheric concentrations, the ultimate goal of the Global Climate Convention. Policies that encourage more efficient use of energy, that tax energy-based pollution or provide market incentives for the introduction of renewable energy sources, and that facilitate use of the best available technologies for energy consumption and production are well known, if not always easy to implement. Given the growing scientific consensus on global climate change—reflected in the finding by the Intergovernmental Panel on Climate Change that there is "a discernible human influence on global climate"—these policies deserve far greater attention. (Chapters 12 and 14.)

About 60 percent of the global population lives within 100 kilometers of the coastline. And about half the world's coastal ecosystems appear to be at significant risk from development.

Critical Ecosystems at Risk

Coastal habitats, some of the richest storehouses of marine biodiversity, provide one example of how critical ecosystems are increasingly threatened. About 60 percent of the global population lives within 100 kilometers of the coastline, drawing heavily on coastal and marine habitats for food, building sites, transportation, recreational areas, and waste disposal. According to a new study by the World Resources Institute, 51 percent of the world's coastal ecosystems appear to be at significant risk of degradation from development-related activity. Europe, with 86 percent of its coastline at high or medium risk, and Asia, with 69 percent in these categories, are the regions most threatened by degradation. Worldwide, nearly three fourths of marine protected areas within 100 kilometers of continents or major islands appear to be at risk. (Chapter 11.)

Percent of Coastlines at Risk
(percent)



Forest losses are continuing at a rapid rate. A new FAO study shows that fully 20 percent of all tropical natural forest cover was lost from 1960 to 1990. Temperate forest cover, too, has declined, primarily in developing countries. Natural forest cover declined 8 percent in developing countries during the 1980s, although this loss was partially offset by new forest plantations and growth in wooded areas outside forests.

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Forest losses in developing countries echo earlier deforestation in developed countries. North America has lost an estimated 20 percent of its original forest cover; the countries of the former Soviet Union, 35 percent; and Europe, 60 percent. Many remaining undisturbed forests are at risk from logging, and fragmentation of forest cover is widespread. Air pollution and fire suppression practices have also contributed to declining forest health.

There is still no international consensus on how to protect forests, nor is it clear that the world community is ready to move forcefully toward managing forests on a sustainable basis. Many efforts are under way to explore policy instruments in areas such as forest management and trade in forest products; others are focusing on improving information about forests and developing greater consensus about appropriate practices. (Chapter 9.)