



“Summary of article by Molly O’Meara Sheehan: Reinventing Cities for People and the Planet” in Frontier Issues in Economic Thought, Volume 6: A Survey of Sustainable Development. Island Press: Washington DC, 2001. pp. 149-154

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In 1900 only 160 million people, or 10% of the world's population, lived in cities. By 2006 about 3.2 billion people, half of the estimated total population of 6.4 billion at that date, are projected to be urban dwellers. Cities occupy only 2% of the world's surface, but consume over 75% of key resources, and account for 60% of human use of water.

Many of the world's social and environmental problems are concentrated in cities. At least 220 million people in cities in the developing world lack clean drinking water, 420 million lack basic sanitation, 600 million lack adequate housing, and over 1 billion suffer severe air pollution. China alone reported 3 million deaths from air pollution between 1994 and 1996; children in Mexico City, Beijing, Shanghai, Tehran, and Calcutta inhale the equivalent of two packs of

Table IV.6. Metropolitan Areas (population in millions)

1900		2000	
London	6.5	Tokyo	28
New York	4.2	Mexico City	18.1
Paris	3.3	Bombay	18
Berlin	2.7	São Paulo	17.7
Chicago	1.7	New York	16.6
Vienna	1.7	Shanghai	14.2
Tokyo	1.5	Lagos	13.5
St. Petersburg	1.4	Los Angeles	13.1
Manchester	1.4	Seoul	12.9
Philadelphia	1.4	Beijing	12.4

cigarette per day. Patterns of water, waste, food, energy, transportation and land use in urban areas are critical determinants of the balance between human activities and the environment.

Urbanization Trends

At the beginning of the 20th century, all of the world's largest ten cities were in Europe, the United States, or Japan. By 2000 seven of the world's largest ten cities will be in developing nations (Table IV.6). Rapid urban growth continues throughout the developing world. In just

five years, between 1990 and 1995, the cities of the developing world grew by 263 million people -- the equivalent of another Los Angeles or Shanghai forming every three months. By

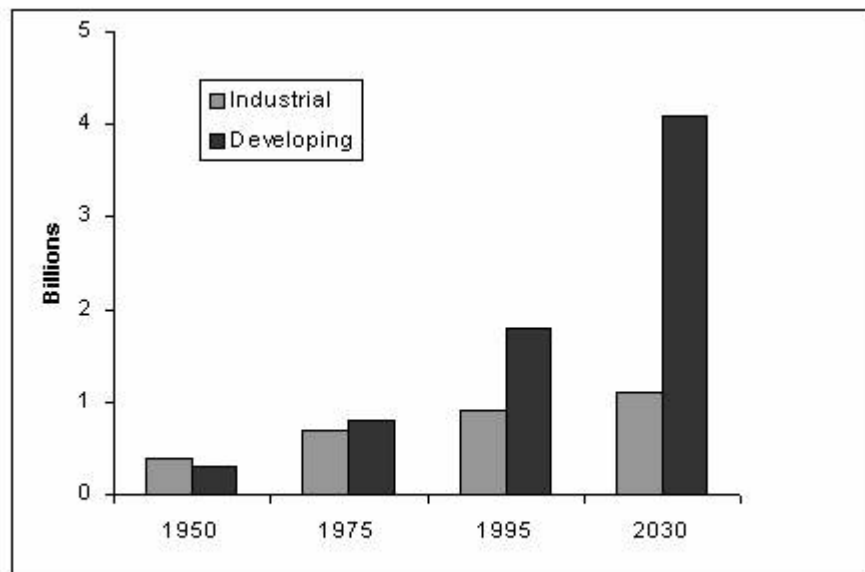


Figure IV.4. Urban Population in Industrial and Developing Regions

2030, the urban population in developing regions is projected to more than double over 1995 levels (Figure IV.4).

This explosive urban growth includes "megacities" of over 10 million (14 in 1995), cities of 5-10 million (23 in 1995), and numerous large cities of over 1 million and "mega-villages" of several hundred thousand. Over half of the largest cities (population over 5 million) are in Asia. The most urbanized region within the developing world is Latin America, where 73% of the population lives in cities (a proportion comparable to Europe and North America). The fastest rates of urban growth are in Africa, which is characterized by one mega-city, Lagos, and many rapidly swelling mega-villages. Many of these urban areas present management problems which are outrunning the capabilities of local authorities.

Water and Waste

While agriculture is the world's largest user of water, urban and industrial demand for water are growing rapidly. Urban growth in water-scarce areas such as the Western U.S. and northern China, together with existing agricultural demand, has led to water overdraft and declining water tables. Over-pumping of aquifers often leads to subsidence; parts of Mexico City have sunk more than 9 meters. Comprehensive watershed protection and conservation strategies are needed for urban areas, including adequate water pricing, collecting rainwater, and recycling wastewater.

Urban waste streams can lead to "trash mountains" such as New York's Fresh Kills landfill, which rises higher than the Statue of Liberty. Organic waste, which accounts for 36% of the

waste stream in industrial countries, pollutes waterways with excess nitrogen, but can be converted into a valuable resource through composting. Some European cities now recover more than 85% of these wastes. Urban solid waste recycling rates are often low in the United States, but have been boosted to the 45-60% range in some cities through curbside recycling and "pay-as-you-throw" systems for unsorted garbage. In developing nations, decentralized and community-based innovation in water supply, sanitation, waste collection, and recycling have been successful in cities such as Karachi, Pakistan, and Cairo, Egypt.

Food and Energy

Most urban areas rely on long food and energy supply lines, with significant processing and transportation costs (for food) and transmission and distribution costs (for energy). Centralized power plants and industrialized agriculture have many negative environmental impacts, including nitrogen and sulfur emissions, fertilizer and pesticide runoff, and genetic uniformity of crops. But alternative techniques involving shorter supply chains and less environmental damage are available. "Homegrown food and clean, locally produced energy can not only green a city but also increase income and security for its inhabitants." (33).

Urban agriculture has a long history in Asia, where cities such as Hong Kong and Singapore produce large proportions of their own vegetables, poultry, and meat. As recently as the 1980's, China's largest cities produced 90% of their vegetables and over half of their meat and poultry, but these numbers have declined due to intensive building. Urban agriculture is widespread in Africa, where it is an essential survival strategy for many residents, and is on the rebound in many European cities.

Decentralized energy technologies such as solar panels, geothermal heat pumps, and small cogenerating gas turbines make it possible for city buildings to be self-sufficient in energy or to sell power back to the grid. Improved energy codes for buildings can cut heating and cooling requirements by up to 70%. Landscaping, including trees and roof gardens, can reduce energy use and provide environmental and aesthetic benefits.

Transportation and Land Use

Automobile use in U.S. cities is the highest in the world, and continues to rise, increasing by 2,000 kilometers per person between 1980 and 1990. While most of the rest of the world is far below U.S. levels, urban automobile use continues to increase almost everywhere. Sprawling automobile-based conurbations diminish the vitality of street life, promote congestion and pollution, and contribute to a toll of fatalities estimated at 885,000 worldwide per year -- the equivalent of 10 fatal jumbo jet crashes per day. They also require more water and sewer pipes, power lines, roads, and building materials. Wasted fuel and lost productivity from traffic jams cost \$74 billion annually in the U.S.

Integrating transportation and land use planning can achieve more livable cities with an emphasis on public transit, bicycles, and high-density development. Curitiba, Brazil, and many European cities have successfully reduced automobile traffic while improving the flows of people and goods. Portland, Oregon, has taken steps to limit outward growth of the city, and reduce the

need for cars within city boundaries. Tolls and pricing policies can be used effectively to discourage automobile congestion; the city-state of Singapore leads the world in regulating traffic through fees that rise at rush hour. Proper pricing for the extensive parking spaces which cars require, and the abolition of parking subsidies, also help to make drivers aware of the true costs of automobile use in the city.

Shifting property taxes from buildings to land can help promote compact development and avoid urban blight. This tax system rewards owners for productive improvement of urban land, while reducing inefficient land uses. Protection of surrounding fields and forests can be combined with policies to encourage "infill" development. Provision of good public transit systems can be complemented by public-private partnerships to provide fleets of bicycles for public use, or car-sharing networks, both of which have been successful in European cities.

Financing the Sustainable City

Lack of local control over financing is a significant problem for city management. Most cities are dependent to some degree on transfers from state or national governments, but these authorities often do not favor sustainable urban priorities. National policies supporting road-building rather than mass transit can thwart sustainable urban policies. Subsidies to water and energy can undermine city building codes aimed at promoting energy and water efficiency. Cities may be able to close the gap by using fees -- on water supplies and sewer linkage, garbage collection and parking, for example.

Municipal bonds can provide an additional source of funds. Revenue bonds can be linked to fees for specific projects, while general obligation bonds depend on future tax revenues, of which land value taxation is the best suited to cities. Unfortunately, most local authorities in developing countries do not have access to a reliable municipal bond market. Attacking corruption and establishing effective tax and fee collection systems is the essential prerequisite to city creditworthiness. Ahmedabad, India, has recently been able to float India's first municipal bond after reducing corruption and improving revenue collection.

Public-private partnerships to provide urban services can raise additional funds, while also providing badly needed employment opportunities. Small-scale lending programs and community reinvestment can help promote entrepreneurship and small business development. Helping existing local businesses to expand is usually more successful than trying to lure outside businesses to impoverished areas.

Information Needs and Political Strategies

Demographic and environmental data are important in addressing urban problems. The Urban Management Program, a joint effort of UNDP, The U.N. Centre for Human Settlements (UNCHS, or Habitat), and the World Bank developed a "rapid urban environmental assessment" survey to identify key environmental indicators in cities of the developing world. UNCHS created a database of such indicators for 237 cities in 110 countries. Map data provided by geographical information systems (GIS) can aid urban planners and provide a valuable tool for citizen activist groups. Direct information exchange between cities can leapfrog national

government bureaucracy and divisions; the Toronto-based International Council on Local Environmental Initiative (ICLEI) links over 2,000 cities in 64 countries working on "local Agenda 21" programs for environmentally sound development. Greater awareness of inter-related problems can help to promote metropolitanism -- cooperation between cities and suburbs to deal with mutual problems of energy, transportation, water, waste, and economic development.