

A U.N. study of 20 megacities found that every one of them had at least one major pollutant at levels exceeding World Health Organization (WHO) guidelines. Fourteen of the 20 had *two* major pollutants exceeding WHO guidelines, and seven had *three*. Such pollution is not only unpleasant but dangerous. In Manila, the Philippines, the Asian Development Bank found levels of suspended particulate matter in the air to be 200-400 percent above guideline levels. In Mexico City, where sulfur dioxide and lead concentrations are two to four times higher than the WHO guidelines, and where national ozone levels are exceeded on more than half of the days throughout the year, seven in 10 newborns have dangerously high levels of lead in their bloodstream. WHO studies demonstrate that it is unhealthy for human beings to breathe air with more than 100 to 120 parts per billion (ppb) of ozone contaminants for more than one day a year. Yet Mexico City residents breathe this level, or more, for over 300 days a year. In Bangkok, Thailand, where air pollution is almost as severe as in Mexico City, research has shown that lead-bearing air pollutants reduce children's IQ by an average of 3.5 points per year until they are seven years old. It has also been estimated that Bangkok's pall of dust and smoke causes more than 1,400 deaths each year and \$3.1 billion each year in lost productivity resulting from traffic and pollution-linked illnesses.

Proximity to industrial facilities, often the result of the need and desire of the poor to live near places of employment, poses another set of risks. A notorious accident at the Union Carbide factory in Bhopal, India, in 1984 caused 2,988 deaths and more than 100,000 injuries, mostly among residents of the shantytowns near the chemical factory.

NEW PATTERNS: THE POLYCENTRIC METROPOLIS

Traditional patterns of land use and spatial organization in many parts of the world are being transformed by the local effects of splintering urbanism. Economic and cultural globalization, together with the uneven evolution of networked infrastructures of information and communications technologies, is forging new landscapes of innovation, economic development, and cultural transformation, while at the same time intensifying social and economic inequalities between the fast world and the slow world. As we noted in Chapter 10, these trends are most pronounced in world cities and major regional metropolitan centers, particularly in core countries. Nevertheless, fragments of this splintering urbanism are increasingly evident throughout the world as new technologies, new forms of economic organization, and new sociocultural norms spread through the global urban system.

North American cities were the first to break away from traditional patterns. Geographer Pierce Lewis coined the term "galactic metropolis" to capture the disjointed

and decentralized urban landscapes of late-twentieth-century North America.⁴ The galactic metropolis evolved from the traditional pattern of concentric zones as secondary business districts and commercial strips emerged in the suburbs to cater to neighborhood shopping and service needs and decentralized industrial districts developed around airports and freeway interchanges. Subsequently, edge cities grew into suburban hubs of shops and offices that sometimes overshadow the old central business districts. **Edge cities** are nodal concentrations of shopping and office space situated on the fringes of metropolitan areas, typically near major highway intersections. Tysons Corner, Virginia, just outside Washington's beltway, provides a good example (Figure 11.32).

The result is a polycentric metropolitan structure that now has variants around the world. Geographer Peter Hall has identified six common types of nodes within the polycentric metropolis:⁵

- **The traditional downtown center**, based on walking distances and served by a radial transportation center. The hub of the traditional metropolis, it has become the setting for the oldest informational services: banking, insurance, and government. Examples include the City of London, Châtelet-Les Halles (Paris), lower Manhattan, and Maronouchi/Otemachi (Tokyo).
- **Newer business centers**, often developing in an old prestigious residential quarter and serving as a setting for newer services such as corporate headquarters, the media, advertising, public relations, and design. Examples include London's West End, the 16th Arrondissement in Paris, midtown Manhattan, and Akasaki/Roppongi (Tokyo).
- **Internal edge cities**, resulting from pressure for space in traditional centers and speculative development in nearby obsolescent industrial or transportation sites. Examples include London's Docklands, La Défense (Paris), and Shinjuku (Tokyo).
- **External edge cities**, often located on an axis with a major airport, sometimes adjacent to a high-speed train station, always linked to an urban freeway system. Examples include Washington's Dulles corridor, London's Heathrow district, the O'Hare area in Chicago, Schipol (Amsterdam), and Arlanda (Stockholm).
- **Outermost edge-city complexes** for back offices and R&D operations, typically near major train stations 30 to 50 kilometers (18.6 to 31 miles) from the main core. Examples include Reading (outside London); St. Quentin-en-Yvelines (Paris); Greenwich, Connecticut (outside New York); and Shin-Yokohama (Tokyo).

⁴P. Lewis, "The Galactic Metropolis." In R. Platt and G. Macuriko, eds., *Beyond the Urban Fringe*. Minneapolis: University of Minnesota Press, 1983, pp. 23-49.

⁵P. Hall, "Global City-Regions in the Twenty-first Century." In A. J. Scott, ed., *Global City-Regions: Trends, Theory Policy*. New York: Oxford University Press, 2001, pp. 59-77.



Figure 11.32 Tysons Corner, Virginia An edge city located on the beltway outside Washington, D.C., Tysons Corner is an unincorporated area that contains 45,000 residents and over 100,000 jobs. Tysons Corner does not exist as a postal address: residents' mail must go either to Vienna or McLean, Virginia. But this anonymous city contains a huge concentration of commercial space (the eighth largest of all downtown CBDs in the United States in 2000), including more than 27 million square feet of office space, several million square feet of retail space, nine major department stores, more than 3,500 hotel rooms, and parking for more than 90,000 cars.

- **Specialized subcenters**, usually for education, entertainment, and sporting complexes, exhibition and convention centers. These take a great variety of forms and locations. Some are on reclaimed or recycled land close to the traditional core; some are older centers, formerly separate and independent, that have become progressively embedded in the wider metropolitan area.

The largest of the world's polycentric metropolises have become "100-mile cities"—metropolitan regions that are literally 100 miles or so across, consisting of a loose coalition of urban realms, or economic subregions bound together through urban freeways. In some regions, clusters of networked, polycentric metropolises have developed into cohesive "megapolitan" regions (see Box 11.2: "Megapolitan Regions.")

Sprawl

Inherent in the polycentric metropolis and endemic to most contemporary urbanization is suburban sprawl. The United States is the exemplar (Figure 11.33). Between 1985 and 2000, when the population of U.S. metropolitan areas increased by 17 percent, about 25 million acres of farmland and open space (roughly the size of Indiana) was developed around these metropolitan areas: a 47 percent increase in developed land. Since 1985, the 100 largest urbanized areas have sprawled out over an additional 37,670 square kilometers (14,545 square miles). In the polycentric metropolis, suburbs are no longer just bedroom communities for workers commuting to traditional downtowns. Rather, many are now strong employment centers serving a variety of economic functions in their regions. As the polycentric metropolis has evolved, suburbs have become more economically and physically diverse.

At one end of the continuum lie suburbs built in the early or middle twentieth century that are experiencing

central citylike challenges—aging infrastructure, deteriorating schools and commercial corridors, and inadequate housing. At the other end are the **boomburbs** of the western United States: new tracts of sprawling, low-density, and auto-dependent suburbs that are growing at a feverish pace at the fringe of metropolitan areas.

In many metropolitan areas the changing face of suburbia is fueling an intense debate about the quality, pace, and shape of growth. Central to the debate is the idea of **smart growth**. **Smart growth** is a package of suburban land-use planning principles designed to curb sprawl. Its advocates claim that growth restrictions raise the quality of life, increase the efficiency of urban infrastructure and protect the environment. Among the key principles of smart growth are the following:

- preserving large areas of open space and protecting the quality of the environment by setting aside large fringe areas where development is prohibited;
- redeveloping inner suburbs and infill sites with new and renovated structures to make them more attractive to middle- and upper income households;
- reducing dependency on private automotive vehicles—especially one-person cars—by requiring higher density development, clustering high density around transit stops, raising gas taxes, and increasing public investment in light-rail transit systems;
- encouraging innovative urban design and zoning regulations that create pedestrian-friendly communities, mixed land uses, and commercial centers located at transit stops;
- creating a greater sense of community within individual localities and a greater recognition of regional interdependence and solidarity.

Smart-growth advocates include anti- or slow-growth and environmental organizations, together with central city and inner suburban leaders and interest groups, such

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Figure 11.33 Suburban sprawl Contemporary urban development in the United States is characterized above all by suburban sprawl. This photograph shows a new subdivision layout encroaching on farmland outside East Phoenix, Arizona.

as mayors, downtown business groups, and community-based organizations. Opposed to smart-growth principles are most developers, homebuilders, major landowners, and chambers of commerce. Their objections to smart growth are partly based on the contention that smart growth costs more, and partly on an ideological objection to planning controls that inhibit opportunities for profit through real estate development.

Resistance to smart growth and debate as to its effectiveness has meant that, in practice, sprawl continues to gather pace, consuming ever greater amounts of agricultural land. The scale of the development industry is now such that suburban sprawl occurs in large increments, cutting and within months filling swathes of rural land with residential subdivisions, condominium complexes, bleak access roads, strip malls, parking lots, and office parks. Most of the architecture and urban design is without merit, adding up to what architect Rem Koolhaas has called “Generica”⁶ (Figure 11.34). Following the logic of a fast return on investment and flexibility in use, most commercial structures are simple boxes, while economies of scale dictate a cookie-cutter approach for all but the most upscale residential subdivisions—where “monster homes,” “starter castles,” and “McMansions” take over as the norm.

Packaged Landscapes

The generic landscapes of the polycentric metropolis are increasingly packaged in order to appeal to particular submarkets. As we have seen (Chapter 10), globalization has produced a splintering urbanism that requires the development of several kinds of functional enclaves within metropolitan areas that are active nodes within the global urban system. Globalization has also contributed to the emergence of a postmodern culture in which the symbolic properties of places and material possessions have assumed unprecedented importance, with places becoming important objects of consumption (Chapter 6).

In this new economic and cultural context, packaging has become an important marketing strategy. So, for example, the developers of business parks bundle office space with day-care centers, fitness centers, and integrated retail and entertainment spaces, surrounded by lush landscaping and perhaps a nine-hole golf course. Shopping malls are themed and packaged with movie theaters and dining, exhibit, and performance spaces. Condominium complexes are packaged with high-bandwidth Internet access, enhanced telephone services, movies on demand, party centers, pools, and fitness centers. Private, master-planned residential communities are packaged with security systems, concierge services, bike trails, “town” centers, and even elementary schools. Increasingly, master-planned communities are themed and packaged in different ways in order to appeal to different market segments and

⁶R. Koolhaas, *Mutations*. Bordeaux: ACTAR, 2001, p. 524.



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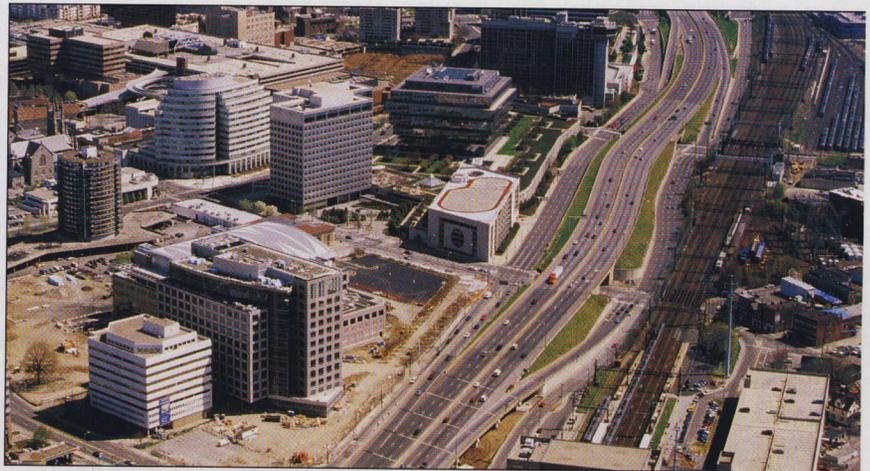
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A. Stamford, CT



B. Houston, TX



Figure 11.34 Generic American attitudes toward investment in the built environment, together with poor planning and weak regulations, have led to a generic landscape of office buildings, warehouses, shopping malls, and residential sprawl.

lifestyle communities. Some, like Anthem, north of Phoenix, Arizona (Figure 11.35), are packaged to appeal to young families. Anthem feels more like a luxury holiday resort than a town. It includes a water park with water slides, a children's railway, hiking trails, tennis courts, a rock-climbing wall, two golf courses, several spotless parks, a supermarket mall, two churches, a school, and a country club. Some master-planned residential communities are packaged to appeal to affluent retired people: The Del Webb development corporation's marketers have identified early-retiring baby-boomers—"Zoomers"—as the target market for their latest Sun City development, packaged accordingly with Starbucks cafés, Internet access, and multi-gyms, as well as the usual tennis courts, pools, and golf courses. Some are packaged as "green" communities or smart-growth developments. Others have a narrower focus: Front Sight, Nevada, is under construction with a guns-and-ammo theme, featuring streets with names like Second Amendment Drive and Sense of Duty Way, target-shooting ranges, a pro shop stocked with weapons, a martial arts gym, a defensive driving track, a kindergarten-through-12th-grade school where teachers will be allowed to carry concealed firearms, and sales inducements that include an Uzi machine gun and a game-hunting safari in Africa.

Marketing packaged landscapes like these has been very successful in metropolitan regions around the world. In Istanbul, Turkey, communities in the edge cities of Esenkent and Bogazköy are modeled on American suburbia. In Manila, in the Philippines, private master-planned communities are packaged with privatized infrastructure networks of roads, drainage, water supplies, power, and telecommunications and designed and marketed as fragments of urban Europe, with names like "Brittany" and "Little Italy." In the United States some 47 million people—one in six of the total population—live in 230,000 privately planned residential communities, and half the new home sales in big cities are in these communities.

The result is a mosaic of packaged developments and mega-projects: refurbished heritage and cultural zones, waterfront redevelopments, campuses and technopoles for high-tech industry, and airport complexes, as well as business centers, condominium complexes, master-planned communities, and shopping malls. The preferred architectural styling for much of this rebundled urban activity is postmodern. Postmodern urban design has brought a return to traditional and decorative motifs and introduced a variety of deliberately "playful" and "interesting" architectural styles in place of the functional designs of Modernism. Postmodern urban design is

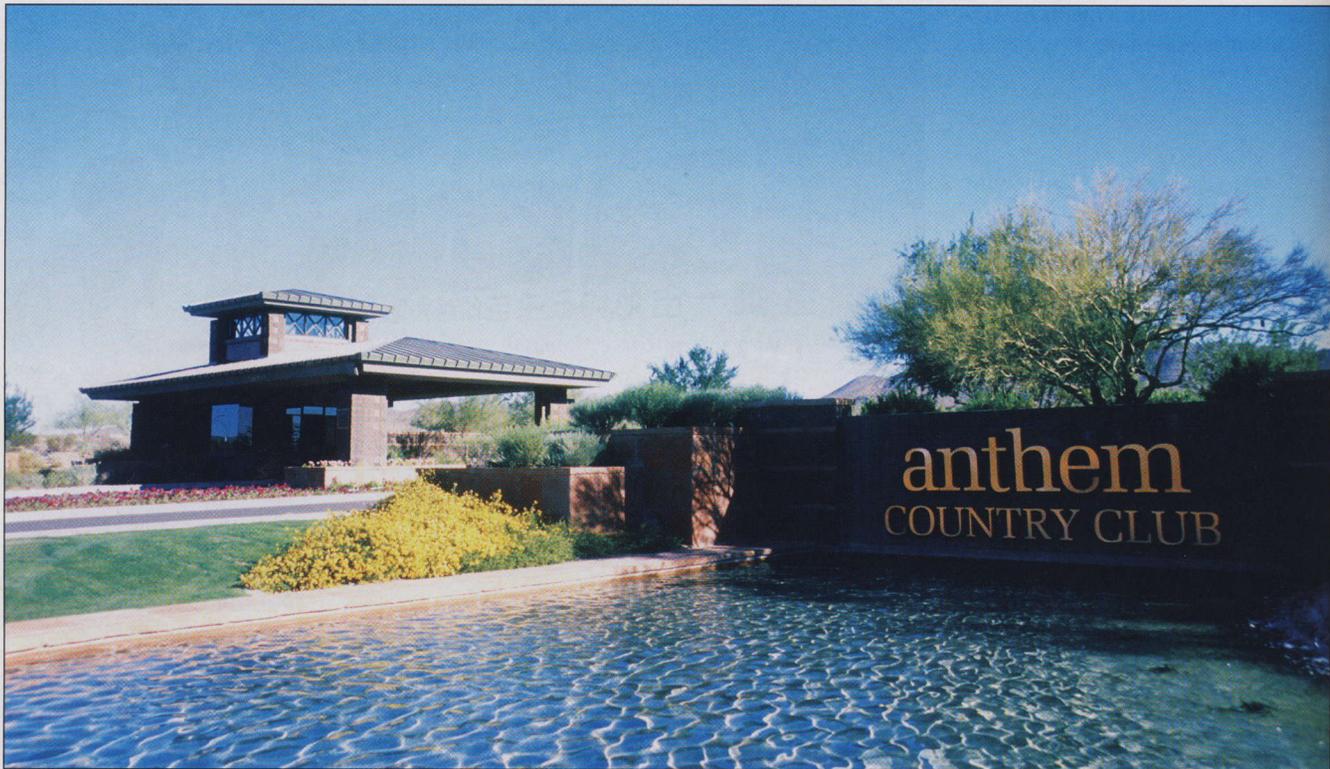


Figure 11.35 Anthem, Arizona Anthem, which is planned to have 12,500 homes, opened in 1999. Its houses and roads look spotless. One reason for this is that everybody who buys a house in Anthem has to follow certain covenants, conditions, and restrictions (CC&Rs) governing everything from the color of your house to whether you can put your car up on blocks outside (you can't). (Photo courtesy of JEFF@JAGPPhotoInc.com © 2002.)

characterized by a diversity of architectural styles and elements, often combined in the same building or project. It makes heavy use of symbolism and of color and decoration. It is no coincidence that postmodern design has flourished in the most recent phase of globalization. Having emerged as a deliberate reaction to the perceived shortcomings of Modern design, its emphasis on decoration and self-conscious stylishness has made it a very convenient form of packaging for the new global consumer culture. It is geared to a cosmopolitan market, and it draws quite deliberately on a mixture of elements from different places and times. In many ways it has become the transnational style for the more affluent communities of the world's cities.

Globalization and the Quartering of Urban Space

Intensifying social polarization is another dimension of contemporary urbanization that is associated with globalization. The increased mobility of capital, together with the increasing span of control that is possible through advanced information and communications technologies, has resulted in an increasing concentration of wealth and an increasing gap between the fast world and the slow world (Chapter 2). In most of the world's

metropolitan regions there has been an increase in the relative numbers of those who are rich and those who are poor, along with an increase in the financial distance between them. There has also been a greater differentiation among the intermediate groups, so that there is often a four- or five-part division of socioeconomic groups rather than a simple division into two. The United Nations Center for Human Settlements (UNCHS) has identified this social polarization as an indirect but crucial determinant of contemporary patterns of segregation of people and land uses around the world. The overall effect of globalization, according to the UNCHS *Global Report on Human Settlements 2001*,⁷ is the "quartering" of cities into spatially partitioned, compartmentalized residential enclaves.

Although varying from city to city because of differences in national political and economic structures and in cities' roles in the international economy, their historical development, and their demographic composition, there are some basic features that characterize this quartering of urban space. Geographer Ronald van Kempen and planner Peter Marcuse describe six **socio-spatial formations**—

⁷United Nations Center for Human Settlements, *Cities in a Globalizing World: Global Report on Human Settlements 2001*. London: Earthscan, 2001, p. 33.

residential patterns that, they suggest, add up to a new spatial order that characterizes globalizing cities:⁸

- protected enclaves of the rich—“citadels” or exclusionary enclaves that generally consist of expensive apartments in favorable locations (see Box 11.3: “The Globalization of Suburbia”);
- gentrified areas occupied by young professionals and managers, typically located in the inner districts of central cities;
- middle-class suburbs and medium- and high-rise apartment and condominium complexes;
- working-class neighborhoods, often of rented tenements, that are differentiated according to income, occupation, and ethnicity, sometimes with hardened spatial boundaries between them;
- ethnic enclaves—a specific form of tenement area where ethnic segregation is particularly pronounced;
- excluded ghettos—the slums inhabited by the very poor, the excluded, the never employed and permanently unemployed, and the homeless.

⁸P. Marcuse and R. van Kampen, “Introduction,” in P. Marcuse and R. van Kampen, eds., *Globalizing Cities: A New Spatial Order?* Oxford: Blackwell, 2000, pp. 3–5.

These socio-spatial formations represent another aspect of splintering urbanism. The premium spaces within the quartered city are plugged in to the networked infrastructures of information and communications technologies that underpin the fast world. They are partitioned off from the slow world and its spaces of perceived danger, difference, and poverty through processes of segregation and congregation, assisted by the practices of designers and developers who deploy and market security as a key feature of the built environment. Urban designers have become adept at programming **defensible space** into the layout of new developments, while architects have adopted bunker- and fortress-style elements for their buildings.

Developers, meanwhile, have learned to include access control and surveillance technologies in the packaging of the built environment. Gated communities are the most striking example of the way in which the quartering of urban space is being splintered into hardened security zones. In the United States many of the private master-planned communities are gated: In all, about 8 million people live within the walls of gated communities. Gated communities are by no means confined to North American cities, however; they have become symptomatic of social polarization in globalizing cities everywhere.

CONCLUSION

Patterns of land use and the functional organization of economic and social subareas in cities are partly a product of economic, political, and technological conditions at the time of the city's growth, partly a product of regional cultural values, and partly a product of processes of globalization. Geographers can draw on several perspectives in looking at patterns of land use within cities, including an economic perspective that emphasizes competition for space and a sociocultural perspective that emphasizes ethnic congregation and segregation. Nevertheless, urban structure varies considerably because of the influence of history, culture, and the different roles that cities have played within the world-system.

The evolution of the unintended metropolis of the periphery has been very different from the evolution of metropolitan areas in the world's core regions. Similarly, the problems they have faced are very different. In the core regions, the consequences of an economic transformation to a postindustrial economy have dominated urban change. Traditional manufacturing and related activities have been moved out of central cities, leaving decaying neighborhoods and a residual population of elderly and marginalized people. New, postindustrial activities have begun to cluster in redeveloped CBDs and in edge cities around metropolitan fringes. In a few cases, metropolitan growth has become so complex and extensive that 100-mile cities have begun

to emerge, with half a dozen or more major commercial and industrial centers forming the nuclei of a series of interdependent urban realms.

In other parts of the world, traditional patterns of land use and the functional organization of economic and social subareas have been quite different, reflecting different historical legacies and different environmental and cultural influences. A basic trend affecting the cities of the world's periphery is demographic—the phenomenal rates of natural increase and immigration that have given rise to overurbanization. The example of Lagos provides some sobering insights into the human consequences of overurbanization. An ever growing informal sector of the economy, in which people seek economic survival, is reflected in extensive areas of shanty housing. High rates of unemployment, underemployment, and poverty generate acute social problems, which are overwhelming for city governments that are understaffed and underfunded. If present trends continue, such problems are likely to characterize increasing numbers of the world's largest settlements. Meanwhile, globalization processes are recasting metropolitan structure and intensifying social and economic inequalities between the fast world and the slow world. In the next chapter, we consider this question as part of a broader discussion of future geographies.