

# 22 Population, Urbanization, and Environment



**Remember** the definitions of the key terms highlighted in boldfaced type throughout this chapter.



**Understand** ways in which the natural environment reflects the operation of society.



**Apply** demographic concepts and theories to see population trends here and around the world.



**Analyze** the many differences between urban and rural social life.



**Evaluate** the current global population increase and the state of the natural environment.



**Create** a vision of how people can live in a way that is environmentally sustainable.

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## Chapter Overview

This chapter explores three dimensions of social change: population dynamics, urbanization, and increasing threats to the natural environment. Not only are all three important, but they are closely linked as well. ■■■



**There's been a lot of talk about what will happen to our planet when we reach 2012**, the year the ancient Mayans claimed some great change would take place. While no one can be sure what the future holds, one thing is all but certain: By the time we usher in the year 2012, our planet will be home to 7 billion people—more than ever before in history.

At one level, a record global population seems like a good thing—more people are alive and living better than ever before. Yet, warning signs point to a future crisis. For one thing, more and more people demand more and more food. With food prices going up everywhere, in some parts of the world the

cost of food is already reaching a crisis level. Similarly, with most of the planet's people now living in cities, the populations of the world's largest cities—found in lower-income nations—are now far greater than ever before. Finally, the soaring population of our planet means that we now consume more and more oil, water, and other resources; in addition, we are creating unprecedented mountains of waste.

It is hard to imagine what a global population of 7 billion means. But consider this—just fifty years ago, the planet's population was less than half as big. So while we can't be sure exactly what future decades will bring, we can be certain that huge changes are underway.

## Demography: The Study of Population

### Apply

When humans first began to cultivate plants some 12,000 years ago, Earth's entire *Homo sapiens* population was around 5 million, about the number living in just the state of Colorado today. Very slow growth pushed the global total in 1 C.E. to perhaps 300 million, or about the current population of the United States.

Starting around 1750, world population began to spike upward. We now add more than 80 million people to the planet each year; today, the world holds 6.9 billion people (Population Reference Bureau, 2010).

The causes and consequences of this drama are the basis of **demography**, *the study of human population*. Demography (from Greek, meaning “description of people”) is a cousin of sociology that analyzes the size and composition of a population and studies how and why people move from place to place. Demographers not only collect statistics but also raise important questions about the effects of population growth and suggest how it might be controlled. The following sections present basic demographic concepts.

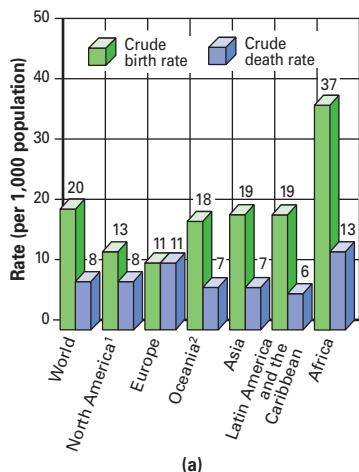
### Fertility

The study of human population begins with how many people are born. **Fertility** is *the incidence of childbearing in a country's population*. During her childbearing years, from the onset of menstruation (typically in the early teens) to menopause (usually in the late forties), a woman is capable of bearing more than twenty children. But **fecundity**, or maximum possible childbearing, is sharply reduced by cultural norms, finances, and personal choice.

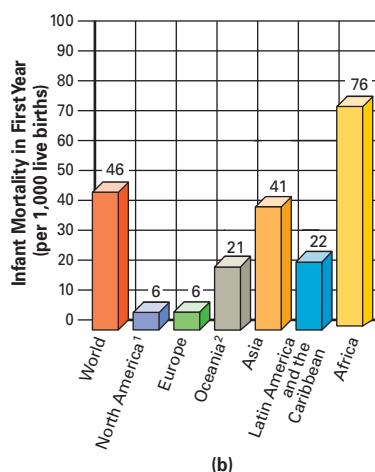
Demographers describe fertility using the **crude birth rate**, *the number of live births in a given year for every 1,000 people in a population*. To calculate a crude birth rate, divide the number of live births in a year by the society's total population, and multiply the result by 1,000. In the United States in 2009, there were 4.1 million live births in a population of 307 million, yielding a crude birth rate of 13.4 (Hamilton et al., 2010).

**January 18, Coshocton County, Ohio.** Having just finished the mountains of meat and potatoes that make up a typical Amish meal, we have gathered in the living room of Jacob Raber, a member of this rural Amish community. Mrs. Raber, a mother of four, is telling us about Amish life. “Most of the women I know have five or six children,” she says with a smile, “but certainly not everybody—some have eleven or twelve!”

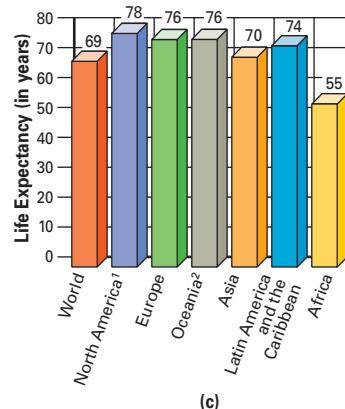
A country's birth rate is described as “crude” because it is based on the entire population, not just women in their childbearing years. In addition, this measure ignores differences between various categories of the population: Fertility among the Amish, for example, is quite high,



(a)



(b)



(c)

## Global Snapshot

FIGURE 22-1 (a) Crude Birth Rates and Crude Death Rates, (b) Infant Mortality Rates, and (c) Life Expectancy around the World, 2010

By world standards, North America has a low birth rate, an average death rate, a very low infant mortality rate, and high life expectancy.

<sup>1</sup> United States and Canada. <sup>2</sup> Australia, New Zealand, and South Pacific Islands.

Source: Population Reference Bureau (2010).

and fertility among Asian Americans is low. But the crude measure is easy to calculate and allows rough comparisons of the fertility of one country or region in relation to others. Part (a) of Figure 22-1 shows that on a global scale the crude birth rate of North America is low.

## Mortality

Population size also reflects **mortality**, *the incidence of death in a country's population*. To measure mortality, demographers use the **crude death rate**, *the number of deaths in a given year for every 1,000 people in a population*. This time, we take the number of deaths in a year, divide by the total population, and multiply the result by 1,000. In 2009, there were 2.4 million deaths in the U.S. population of 307 million, yielding a crude death rate of 7.8 (Kochanek et al., 2011). Part (a) of Figure 22-1 shows that this rate is about average.

A third useful demographic measure is the **infant mortality rate**, *the number of deaths among infants under one year of age for each 1,000 live births in a given year*. To compute infant mortality, divide the number of deaths of children under one year of age by the number of live births during the same year, and multiply the result by 1,000. In 2009, there were 26,531 infant deaths and 4.1 million live births in the United States. Dividing the first number by the second and multiplying the result by 1,000 yields an infant mortality rate of

6.47. Part (b) of Figure 22-1 indicates that by world standards, North American infant mortality is very low.

But remember that differences exist among various categories of people. For example, African Americans, with nearly three times the burden of poverty as whites, have an infant mortality rate of 12.7—more than twice the white rate of 5.3.

Low infant mortality greatly raises **life expectancy**, *the average life span of a country's population*. U.S. males born in 2009 can expect to live 75.7 years, and females can look forward to 80.6 years. As part (c) of Figure 22-1 shows, life expectancy in North America is twenty-three years greater than is typical of low-income countries of Africa.

## Migration

Population size is also affected by **migration**, *the movement of people into and out of a specified territory*. Movement into a territory, or *immigration*, is measured as an *in-migration rate*, calculated as the number of people entering an area for every 1,000 people in the population. Movement out of a territory, or *emigration*, is measured in terms of an *out-migration rate*, the number leaving for every 1,000 people. Both types of migration usually occur at the same time; the difference between them is the *net migration rate*.

All nations experience internal migration, movement within their borders from one region to another. National Map 22-1 shows

**demography** the study of human population

**fertility** the incidence of childbearing in a country's population

**crude birth rate** the number of live births in a given year for every 1,000 people in a population

**mortality** the incidence of death in a country's population

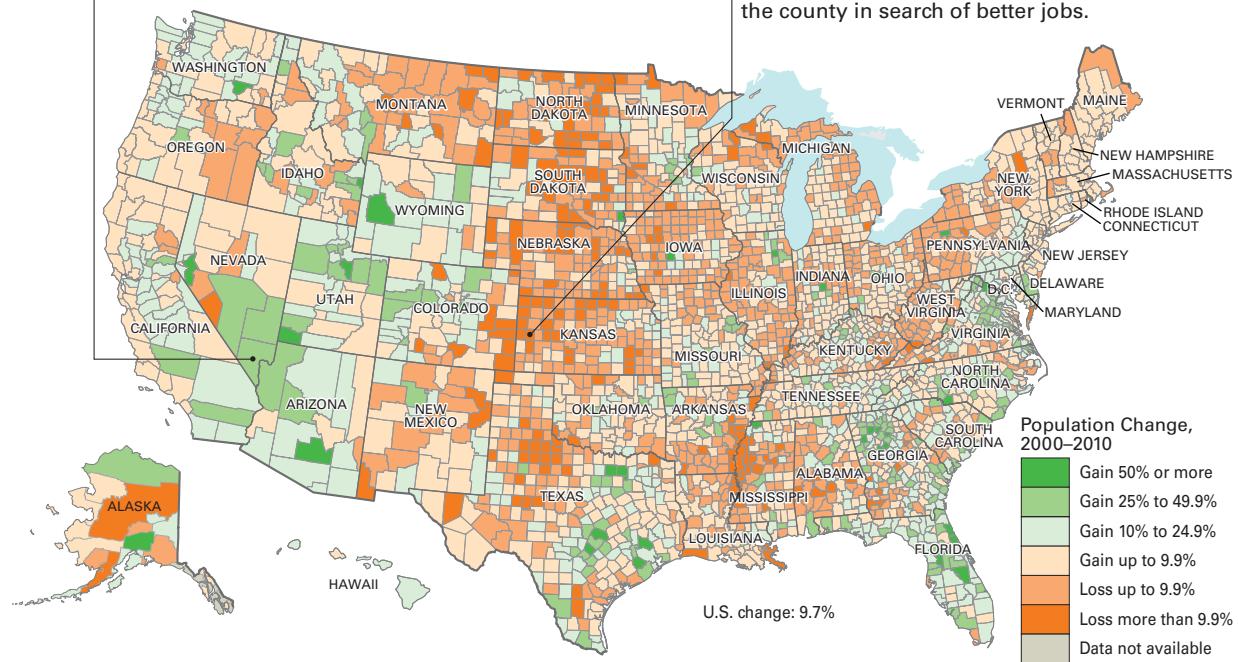
**crude death rate** the number of deaths in a given year for every 1,000 people in a population

**infant mortality rate** the number of deaths among infants under one year of age for each 1,000 live births in a given year

**immigration** the movement of people into and out of a specified territory

Cheryl Richardson, age 36, has just moved to Las Vegas to work in the expanding tourism industry, which has boosted the region's population.

Tom and Ellen Posten, in their sixties, live in Wichita County, Kansas; like many other families in the area, their children have all moved out of the county in search of better jobs.



## Seeing Ourselves

### NATIONAL MAP 22–1 Population Change across the United States

This map shows that between 2000 and 2010, population moved from the heartland of the United States toward the coasts. What do you think is causing this internal migration? What categories of people do you think remain in counties that are losing population?

 [Explore](http://mysoclab.com) population density in your local community and in counties across the United States on [mysoclab.com](http://mysoclab.com)

Source: U.S. Census Bureau (2011).

where the U.S. population is moving and the places left behind (notice the gains in the Western states and along the East coast, and the heavy losses in the Plains States in the middle of the country).

Migration is sometimes voluntary, as when people leave a small town and move to a larger city. In such cases, “push-pull” factors are typically at work; a lack of jobs “pushes” people to move, and more opportunity elsewhere “pulls” them to a larger city. Migration can also be involuntary, as during the forced transport of 10 million Africans to the Western Hemisphere as slaves or when Hurricane Katrina forced tens of thousands of people to flee New Orleans.

## Population Growth

Fertility, mortality, and migration all affect the size of a society’s population. In general, rich nations (such as the United States) grow as much from immigration as from natural increase; poorer nations (such as Pakistan) grow almost entirely from natural increase.

To calculate a population’s natural growth rate, demographers subtract the crude death rate from the crude birth rate. The natural growth rate of the U.S. population in 2009 was 5.6 per 1,000 (the crude birth rate of 13.4 minus the crude death rate of 7.8), or about 0.6 percent annual growth.

Global Map 22–1 shows that population growth in the United States and other high-income nations is well below the world average of 1.2 percent. Earth’s low-growth continents are Europe (currently showing no growth) and North America (0.6 percent). Close to the global average are Oceania (1.1 percent), Asia (1.2 percent), and Latin America (1.3 percent). The highest-growth region in the world is Africa (2.4 percent).

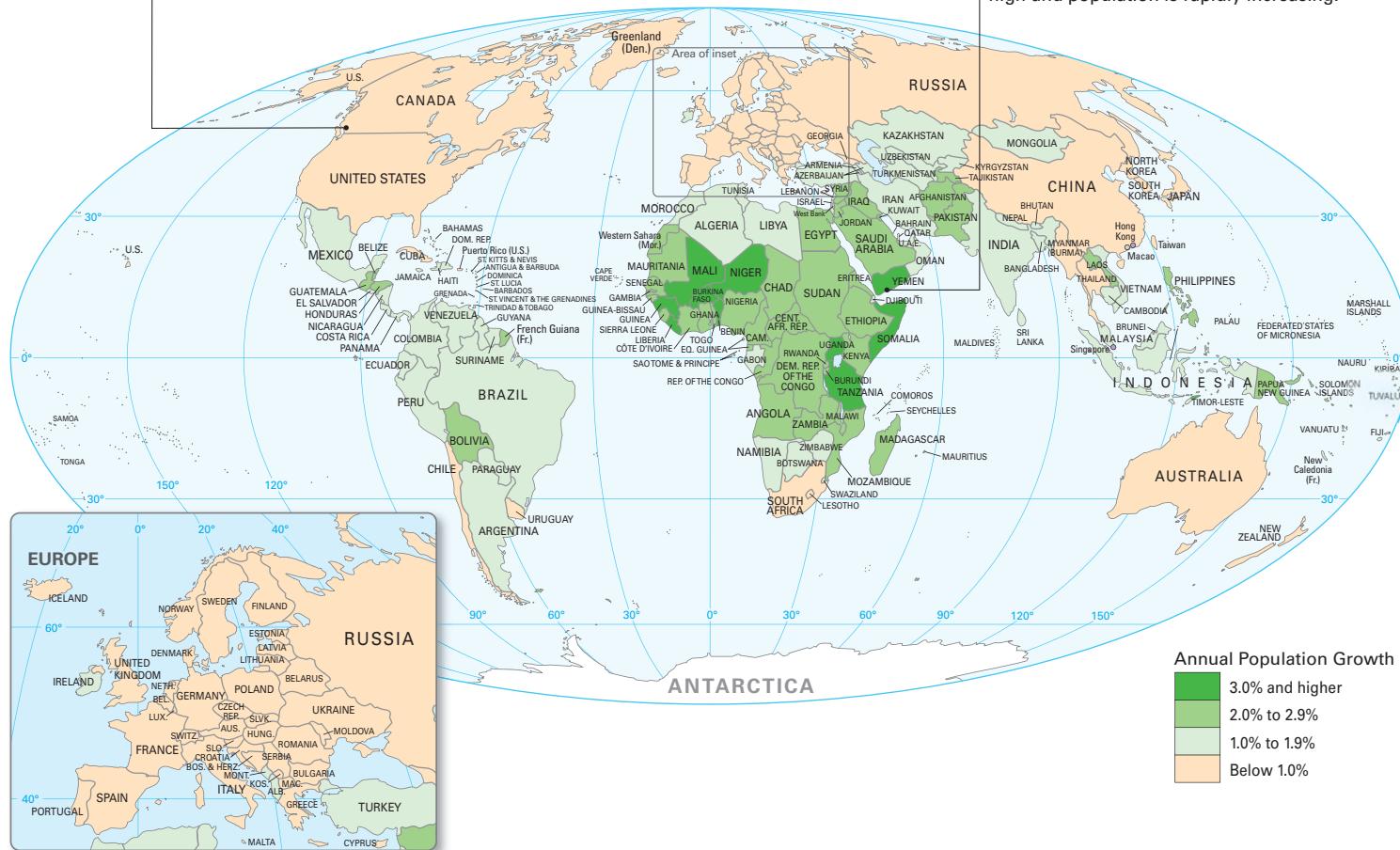
A handy rule of thumb for estimating a nation or region’s growth is to divide the number 70 by the population growth rate; this yields the *doubling time* in years. Thus an annual growth rate of 2 percent (found in the Latin American nations of Bolivia, Honduras, and Belize) doubles a population in thirty-five years, and a 3 percent growth rate (found in the African nations of Niger, Mali, and Somalia) drops the doubling time to just twenty-three years. The rapid population growth of the poorest countries is deeply troubling because these countries can barely support the populations they have now.

## Population Composition

Demographers also study the makeup of a society’s population at a given point in time. One variable is the *sex ratio*, *the number of males for every 100 females in a nation’s population*. In 2009, the sex ratio in the United States was 97 (97.4 males for every 100 females). Sex ratios

Amélie Bouchard, age 34, lives in Canada, a nation with a low birth rate and slowly increasing population.

Amat Al-Sharifi, age 35, has four children and lives in Yemen, a country where the birth rate is high and population is rapidly increasing.



## Window on the World

GLOBAL MAP 22-1 Population Growth in Global Perspective

The richest countries of the world—including the United States, Canada, and the nations of Europe—have growth rates below 1 percent. The nations of Latin America and Asia typically have growth rates around 1.5 percent, a rate that doubles a population in forty-seven years. Africa has an overall growth rate of 2.4 percent (despite only small increases in countries with a high rate of AIDS), which cuts the doubling time to twenty-nine years. In global perspective, we see that a society's standard of living is closely related to its rate of population growth: Population is rising fastest in the world regions that can least afford to support more people.

Source: U.S. Census Bureau (2011).

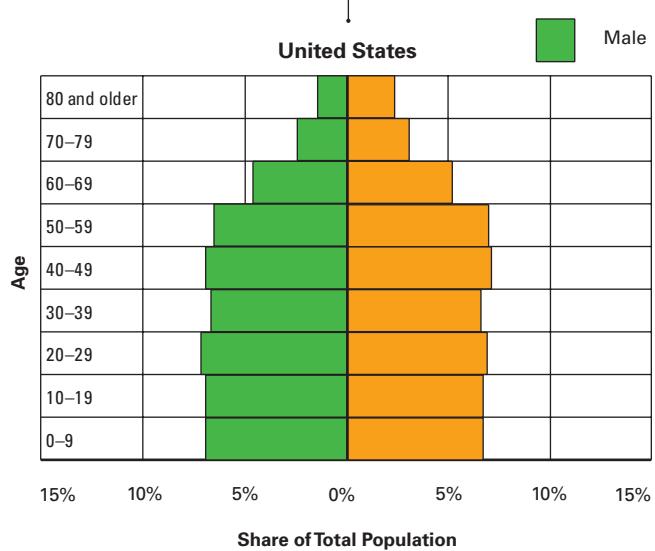
are usually below 100 because, on average, women outlive men. In places such as Plainville, Kansas, which has an aging population, the sex ratio is only 89, or 89 males for every 100 females. In India, however, the sex ratio is 108 because, not only is the population much younger, but also many parents value sons more than daughters and may either abort a female fetus or, after birth, give more care to their male children, raising the odds that a female child will die.

A more complex measure is the **age-sex pyramid**, a graphic representation of the age and sex of a population. Figure 22-2 on page 516 presents the age-sex pyramids for the populations of the United States and Mexico. Higher mortality with advancing age gives these figures a rough pyramid shape. In the U.S. pyramid, the bulge in the middle reflects high birth rates during the *baby boom* from the mid-1940s to

the mid-1960s. The contraction for people in their twenties and thirties reflects the subsequent *baby bust*. The birth rate of 13.4 in 2009 is almost half what it was (25.3) at the height of the baby boom in 1957.

Comparing the U.S. and Mexican age-sex pyramids reveals different demographic trends. The pyramid for Mexico, like that of other lower-income nations, is wide at the bottom (reflecting higher birth rates) and narrows quickly by what we would call middle age (due to higher mortality). In short, Mexico is a much younger society, with a median age of twenty-seven compared to thirty-seven in the United States. With a larger share of females still in their child-bearing years, Mexico's crude birth rate (19) is considerably higher than our own (13.4), and its annual rate of population growth (1.1 percent) is almost twice the U.S. rate (0.6 percent).

- The population pyramid for high-income nations has a more “boxy” shape due to relatively low birth and death rates.



- Lower-income nations have a more pronounced pyramid shape due to relatively high birth and death rates.

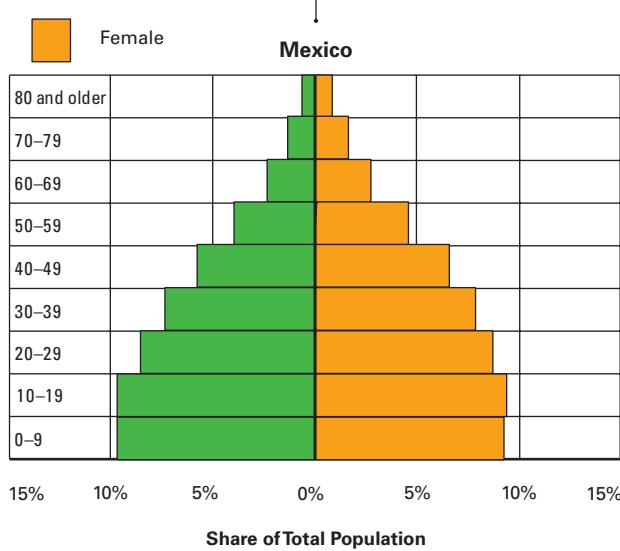


FIGURE 22–2 Population Age-Sex Pyramids for the United States and Mexico, 2011

By looking at the shape of a country’s population pyramid, you can tell its level of economic development and predict future levels of population increase.

Source: U.S. Census Bureau (2011).

## History and Theory of Population Growth

### Analyze

In the past, people wanted large families because human labor was the key to productivity. In addition, until rubber condoms were invented in the mid-1800s, prevention of pregnancy was uncertain at best. But high death rates from infectious diseases put a constant brake on population growth.

A major demographic shift began about 1750 as the world’s population turned upward, reaching the 1 billion mark by 1800. This milestone (which took all of human history to reach) was repeated barely a century later in 1930, when a second billion people were added to the planet. In other words, not only was population increasing, but the *rate* of growth was accelerating as well. Global population reached 3 billion by 1962 (just thirty-two years later) and 4 billion by 1974 (only twelve years after that). The rate of world population increase has slowed recently, but our planet passed the 5 billion mark in 1987, the 6 billion mark in 1999, and now stands at 6.9 billion (2010). In no previous century did the world’s population even double; in the twentieth century, it *quadrupled*.

Currently, the world is gaining 83 million people each year; 97 percent of this increase is in poor countries. Experts predict that Earth’s population will reach 7 billion very soon and will climb more slowly to about 9 billion by 2050 (United Nations Population Reference Division, 2009). Given the world’s troubles feeding the present population, such an increase is a matter of urgent concern.

### Malthusian Theory

The sudden population spurt 250 years ago sparked the development of demography. Thomas Robert Malthus (1766–1834), an English economist and clergyman, warned that population increase would soon lead to social chaos. Malthus (1926, orig. 1798) calculated that population would increase in what mathematicians call a *geometric progression*, illustrated by the series of numbers 2, 4, 8, 16, 32, and so on. At such a rate, Malthus concluded, world population would soon soar out of control.

Food production would also increase, Malthus explained, but only in *arithmetic progression* (as in the series 2, 3, 4, 5, 6, and so on) because even with new agricultural technology, farmland is limited. Thus Malthus presented a distressing vision of the future: people reproducing beyond what the planet could feed, leading ultimately to widespread starvation and war over what resources were left.

Malthus recognized that artificial birth control or abstinence might change his prediction. But he considered one morally wrong and the other impractical. Famine and war therefore stalked humanity in Malthus’s mind, and he was justly known as “the dismal parson.”

**Evaluate** Fortunately, Malthus’s prediction was flawed. First, by 1850, the European birth rate began to drop, partly because children were becoming an economic liability rather than an asset and partly because people began using artificial birth control. Second, Malthus underestimated human ingenuity: Modern drip-irrigation techniques, advanced fertilizers, and effective pesticides increased farm production and saved vital resources far more than he could have imagined (Yemma, 2011).

Some people criticized Malthus for ignoring the role of social inequality in world abundance and famine. For example, Karl Marx (1967, orig. 1867) objected to viewing suffering as a “law of nature” rather than the curse of capitalism. More recently, “critical demographers” have claimed that saying poverty is caused by high birth rates in low-income countries amounts to blaming the victims. On the contrary, they see global inequality as the real issue (Horton, 1999; Kuumba, 1999).

Still, Malthus offers an important lesson. Habitable land, clean water, and fresh air are limited resources, and greater economic productivity has taken a heavy toll on the natural environment. In addition, medical advances have lowered death rates, pushing up world population. Common sense tells us that no level of population growth can go on forever. People everywhere must become aware of the dangers of population increase.

**CHECK YOUR LEARNING** What did Malthus predict about human population increase? About food production? What was his overall conclusion?



This street scene in Old Delhi, India, conveys the vision of the future found in the work of Thomas Robert Malthus, who feared that population increase would overwhelm the world's resources. Can you explain why Malthus had such a serious concern about population? How is demographic transition theory a more hopeful analysis?

## Demographic Transition Theory

A more complex analysis of population change is **demographic transition theory**, a *thesis that links population patterns to a society's level of technological development*. Figure 22–3 shows the demographic consequences at four levels of technological development.

Preindustrial, agrarian societies (Stage 1) have high birth rates because of the economic value of children and the absence of birth control. Death rates are also high because of low living standards and limited medical technology. Deaths from outbreaks of disease cancel out births, so population rises and falls only slightly over time. This was the case for thousands of years in Europe before the Industrial Revolution.

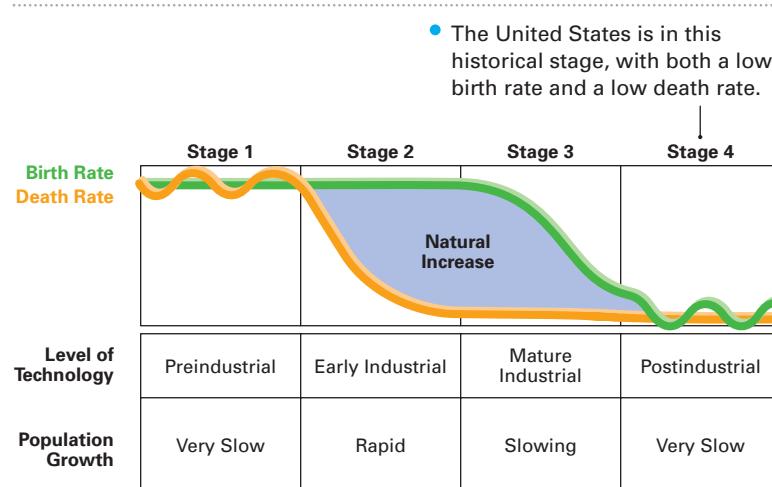
Stage 2, the onset of industrialization, brings a demographic transition as death rates fall due to greater food supplies and scientific medicine. But birth rates remain high, resulting in rapid population growth. It was during Europe's Stage 2 that Malthus formulated his ideas, which accounts for his pessimistic view of the future. The world's poorest countries today are in this high-growth stage.

In Stage 3, a mature industrial economy, the birth rate drops, curbing population growth once again. Fertility falls because most children survive to adulthood and because high living standards make raising children expensive. In short, affluence transforms children from economic assets into economic liabilities. Smaller families, made possible by effective birth control, are also favored by women working outside the home. As birth rates follow death rates downward, population growth slows further.

Stage 4 corresponds to a postindustrial economy in which the demographic transition is complete. The birth rate keeps falling,

partly because dual-income couples gradually become the norm and partly because the cost of raising children continues to increase. This trend, linked to steady death rates, means that population grows only very slowly or even decreases. This is the case today in Japan, Europe, and the United States.

 **Evaluate** Demographic transition theory suggests that the key to population control lies in technology. Instead of the runaway population increase feared by Malthus, this theory sees technology slowing growth and spreading material plenty.



**FIGURE 22–3 Demographic Transition Theory**

Demographic transition theory links population change to a society's level of technological development.

 **Watch** the video “Population Growth and Decline” on [mysoclab.com](http://mysoclab.com)

Demographic transition theory is linked to modernization theory, one approach to global development discussed in Chapter 12 (“Global Stratification”). Modernization theorists are optimistic that poor countries will solve their population problems as they industrialize. But critics, notably dependency theorists, strongly disagree. Unless there is a redistribution of global resources, they maintain, our planet will become increasingly divided into industrialized “haves,” enjoying low population growth, and nonindustrialized “have-nots,” struggling in vain to feed more and more people.

**CHECK YOUR LEARNING** Explain the four stages of demographic transition theory.

## Global Population Today: A Brief Survey

What can we say about population in today’s world? Drawing on the discussion so far, we can identify important patterns and reach several conclusions.

### The Low-Growth North

When the Industrial Revolution began in the Northern Hemisphere, the population increase in Western Europe and North America was a high 3 percent annually. But in the centuries since, the growth rate has steadily declined, and in 1970, it fell below 1 percent. As our postindustrial society settles into Stage 4, the U.S. birth rate is at about the replacement level of 2.1 children per woman, a point demographers term **zero population growth**, *the rate of reproduction that maintains population at a steady level*. In 2010, eighty-three nations, almost all of them high-income countries, were at or below the point of zero population growth.

Among the factors that serve to hold down population in these postindustrial societies are a high proportion of men and women in the labor force, rising costs of raising children, trends toward later marriage and singlehood, and widespread use of contraceptives and abortion.

In high-income nations, then, population increase is not the pressing problem that it is in poor countries. On the contrary, many



Fertility in the United States has fallen during the past century and is now quite low. But some categories of the U.S. population have much higher fertility rates. One example is the Amish, a religious society living in rural areas of Ohio, Pennsylvania, and other states. It is common for Amish couples to have five, six, or more children. Why do you think the Amish favor large families?

governments in high-income countries, including Italy and Japan, are concerned about a future problem of *underpopulation* because declining population size may be difficult to reverse and because the swelling ranks of the elderly can look to fewer and fewer young people for support (Population Reference Bureau, 2010; United Nations Development Programme, 2010; El Nasser & Overberg, 2011).

### The High-Growth South

Population is a critical problem in poor nations of the Southern Hemisphere. No nation of the world lacks industrial technology entirely; demographic transition theory’s Stage 1 applies today to remote rural areas of low-income nations. But much of Latin America, Africa, and Asia is at Stage 2, with a mix of agrarian and industrial economies. Advanced medical technology, supplied by rich countries, has sharply reduced death rates, but birth rates remain high. This is why lower-income countries now account for about 82 percent of Earth’s people and 97 percent of global population increase.

In some of the world’s poorest countries, such as the Democratic Republic of the Congo in Africa, women still have, on average, more than six children during their lifetimes. But in most poor countries, birth rates have fallen from about six children per woman (typical in 1950) to about three. But this level of fertility is still high enough to make global poverty much worse. This is why leaders in the battle against global poverty point to the importance of reducing fertility rates in low-income nations.

Notice, too, that a key element in controlling world population growth is improving the status of women. Why? Because of this simple truth: Give women more life choices and they will have fewer children. History has shown that women who are free to decide when and where to marry, bear children as a matter of choice, and have access to education and to good jobs will limit their own fertility (Axinn & Barber, 2001; Roudi-Fahimi & Kent, 2007).

### The Demographic Divide

High- and low-income nations display very different population dynamics, a gap that is sometimes called the *demographic divide*. In Italy, a high-income nation with very low growth, women average just 1.4 children in their lifetimes. Such a low birth rate means that the number of annual births is less than the number of deaths. This means that at the moment, Italy is actually *losing* population. Looking ahead to 2050, and even assuming some gains from immigration, Italy’s population is projected to be about the same as it is today. But the share of elderly people in Italy—now 20 percent—will only increase as time goes on.

How different the patterns are in a low-income nation such as the Democratic Republic of the Congo. There, women still average six to seven children, so even with a high mortality rate, this nation’s population will more than double by 2050. The share of elderly people is extremely low—about 3 percent—and half that country’s people are below the age of sixteen. With such a high growth rate, it is no surprise that the problem of poverty is bad and getting worse: About three-fourths of the people are undernourished (Population Reference Bureau, 2010).



The parents had argued for hours. But Yang, the father, was determined, and Jianying, the mother, was exhausted. Finally, Yang wrested the baby from Jianying's arms. The decision was made; the girl had to go. Yang put several extra layers of clothing on his daughter and lay the newborn in a cardboard box lined with blankets. Next to her, he placed a small bottle of milk. Then Yang lifted the box and carried it off into the dark night toward the distant village, leaving behind his wife sobbing, "Yang, I beg you, bring back my baby!"

Yet in her heart, she too knew that this must be done. Half an hour later, Yang arrived in the village and found his way to the local school. He kissed his daughter goodbye and set her makeshift crib on the steps of the school, knowing that when dawn broke she would be found by school officials and cared for. With tears in his eyes, Yang said a quick prayer to his ancestors to keep the baby safe from harm. Then he turned and again disappeared into the night, knowing that he would never see or hear from her again.

This story may be heartbreak, but it is one that has occurred tens of thousands of times in China. What would prompt parents to give up a child? Why would a father abandon his daughter in a public place? The answer lies in China's population control policy and the nation's cultural traditions.

Back in the 1970s, the high Chinese birth rate was fueling a rapid population increase. Government leaders could see that the country's economic development depended on controlling population growth. As a result, they passed a law stating that a family can have only one child. Couples who follow the one-child policy can expect rewards such as a better job, a higher salary, and maybe even a larger apartment. On the other hand, parents who violate the law by having a second child face a stiff fine, and their second child may not be eligible for educational and health care benefits.

The government actively promotes the one-child message in the mass media, in popular songs, and in the schools. But

education is not the government's only tactic; enforcement officials can be found in most neighborhoods and workplaces. Most Chinese willingly comply with the policy, praising it as good for the country. Those who find it to be heavy-handed government regulation of people's personal lives must face the consequences.

Modern China is determined to control population increase. But China is also a country steeped in a tradition of male dominance. If government rules permit only one child, most families would prefer a boy. Why? Parents see boys as a better investment because sons will carry on the family name and will honor the obligation to care for their aging parents. On the other hand, girls will end up caring for their *husbands'* parents, leading most Chinese to see raising daughters as a waste of precious resources. The Chinese government has expanded women's rights and opportunities, but patriarchal traditions are deeply rooted in the country's history, and attitudes change slowly.

Around the world, the one-child policy has attracted both praise and condemnation. On the positive side, analysts agree that it has succeeded in its goal of reducing the rate of population increase. This trend, in turn, has helped raise living standards and lifted China to the ranks of middle-income nations. Many one-child families are happy with the added income from women who now work outside the home, and parents now have more to spend on a child's schooling.



China's one-child policy is advertised on billboards throughout the country.

But the one-child policy also has a dark side, which is shown in the story that began this box. Since the law was passed, as many as 1 million girls have "disappeared." In some cases, parents who learn the woman is carrying a female fetus may choose abortion so they can "try again." In other cases, family members decide to kill a female infant soon after birth. In still other cases, girls survive but are never recorded in the birth statistics, so that parents can try again to have a son. Such girls grow up as "noncitizens" who can never go to school or receive treatment at a local health clinic. Finally, some parents, like those described earlier, give up or abandon their daughter in the hope that the child may find a home elsewhere.

China's one-child policy has certainly held population increase in check. Between 2010 and 2025, China's population is projected to increase by about 10 percent, below the figure of 13 percent for the United States. But China's population control policy has had a dramatic toll on the country's female population. In one recent year, the nation's birth records showed almost 1 million fewer girls than boys. The Chinese population is now about 250 million lower than it would have been without the one-child policy, but the country's population is also steadily becoming more and more male.

### What Do You Think?

1. Point to the reasons China's one-child policy has attracted praise and also blame. On balance, do you think this is a good policy? Can you think of a better way to control population? Explain.
2. What about cases where parents think they can afford additional children? Should family size be a couple's decision? Or does government have a responsibility to look out for the entire country's well-being?
3. Do you now understand why almost all of the babies U.S. parents adopt from China are girls?

Sources: Hesketh, Lu, & Xing (2005), Baochang et al. (2007), Yardley (2008), McGurn (2011), and El Nasser & Overberg (2011).

In sum, a demographic divide now separates rich countries with low birth rates and aging populations from poor countries with high birth rates and very young populations. Just as humanity has devised ways to reduce deaths around the world, it must now bring down pop-

ulation growth, especially in poor countries where projections suggest a future as bleak as that imagined by Thomas Malthus centuries ago.

China, described in the Thinking About Diversity box, stands out as a nation that has taken a strong stand on reducing pop-

ulation increase. That country's controversial one-child policy, enacted back in the 1970s, has reduced China's population by about 250 million.

## Urbanization: The Growth of Cities

### Understand

**October 8, Hong Kong.** The cable train grinds to the top of Victoria Peak, where we behold one of the world's most spectacular vistas: the city of Hong Kong at night! A million bright, colorful lights ring the harbor as ships, ferries, and traditional Chinese junks slowly slip by. Day or night, few places match Hong Kong for sheer energy: This small city is as economically productive as the state of Wisconsin or the nation of Finland. We could sit here for hours entranced by the spectacle of Hong Kong.

Throughout most of human history, the sights and sounds of great cities such as Hong Kong, Paris, and New York were simply unimaginable. Our distant ancestors lived in small, nomadic groups, moving as they depleted vegetation or hunted migratory game. The tiny settlements that marked the emergence of civilization in the Middle East some 12,000 years ago held only a small fraction of Earth's people. Today, the largest three or four cities of the world hold as many people as the entire planet did back then.

**Urbanization** is the concentration of population into cities. Urbanization redistributes population within a society and transforms many patterns of social life. We will trace these changes in terms of three urban revolutions: the emergence of cities 10,000 years ago, the development of industrial cities after 1750, and the explosive growth of cities in poor countries today.

### The Evolution of Cities

Cities are a relatively new development in human history. Only about 12,000 years ago did our ancestors begin living in permanent settlements, which set the stage for the *first urban revolution*.

#### The First Cities

As explained in Chapter 4 ("Society"), hunting and gathering forced people to move all the time; however, once our ancestors discovered how to domesticate animals and cultivate crops, they were able to stay in one place. Raising their own food also created a material surplus, which freed some people from food production and allowed them to build shelters, make tools, weave cloth, and take part in religious rituals. The emergence of cities led to both higher living standards and job specialization.

The first city that we know of was Jericho, which lies to the north of the Dead Sea in what is now the West Bank. When first settled some 10,000 years ago, it was home to only 600 people. But as the centuries passed, cities grew to tens of thousands of people and became the centers of vast empires. By 3000 B.C.E., Egyptian cities flourished, as did cities in China about 2000 B.C.E. and in Central and South America about 1500 B.C.E. In North America, however, only a few Native American societies formed settlements; widespread urbanization had to await the arrival of European settlers in the seventeenth century.

### Preindustrial European Cities

European cities date back some 5,000 years to the Greeks and later the Romans, both of whom created great empires and founded cities across Europe, including Vienna, Paris, and London. With the fall of the Roman Empire, the so-called Dark Ages began as people withdrew into defensive walled settlements and warlords battled for territory. Only in the eleventh century did Europe become more peaceful; trade flourished once again, allowing cities to grow.

Medieval cities were quite different from those familiar to us today. Beneath towering cathedrals, the narrow and winding streets of London, Brussels, and Florence teemed with merchants, artisans, priests, peddlers, jugglers, nobles, and servants. Occupational groups such as bakers, carpenters, and metalworkers clustered together in distinct sections or "quarters." Ethnicity also defined communities as residents tried to keep out people who differed from themselves. The term "ghetto" (from the Italian *borghetto*, meaning "outside the city walls") was first used to describe the neighborhood in which the Jews of Venice were segregated.

### Industrial European Cities

As the Middle Ages came to a close, steadily increasing commerce enriched a new urban middle class, or *bourgeoisie* (French, meaning "townspeople"). With more and more money, the bourgeoisie soon rivaled the hereditary aristocracy.

By about 1750, the Industrial Revolution triggered a *second urban revolution*, first in Europe and then in North America. Factories unleashed tremendous productive power, causing cities to grow bigger than ever before. London, the largest European city, reached 550,000 people by 1700 and exploded to 6.5 million by 1900 (A. F. Weber, 1963, orig. 1899; Chandler & Fox, 1974).

Cities not only grew but changed shape as well. Older winding streets gave way to broad, straight boulevards to handle the increasing flow of commercial traffic. Steam and electric trolleys soon crisscrossed the expanding cities. Because land was now a commodity to be bought and sold, developers divided cities into regular-sized lots (Mumford, 1961). The center of the city was no longer the cathedral but a bustling central business district filled with banks, retail stores, and tall office buildings.

With a new focus on business, cities became more crowded and impersonal. Crime rates rose. Especially at the outset, a few industrialists lived in grand style, but most men, women, and children barely survived by working in factories.

Organized efforts by workers to improve their lives eventually brought changes to the workplace, better housing, and the right to vote. Public services such as water, sewer systems, and electricity further improved urban living. Today, some urbanites still live in poverty, but a rising standard of living has partly fulfilled the city's historical promise of a better life.

### The Growth of U.S. Cities

Most of the Native Americans who inhabited North America for thousands of years before the arrival of Europeans were migratory people who formed few permanent settlements. The spread of villages and towns came after European colonization.

## Colonial Settlement, 1565–1800

In 1565, the Spanish built a settlement at Saint Augustine, Florida, and in 1607, the English founded Jamestown, Virginia. The first lasting settlement came in 1624, when the Dutch established New Amsterdam, later renamed New York.

New York and Boston (founded by the English in 1630) started out as tiny villages in a vast wilderness. They resembled medieval towns in Europe, with narrow, winding streets that still curve through lower Manhattan and downtown Boston. When the first census was completed in 1790, as Table 22–1 on page 522 shows, just 5 percent of the nation's people lived in cities.

## Urban Expansion, 1800–1860

Early in the nineteenth century, as cities along the East Coast grew bigger, towns sprang up along the transportation routes that opened the American West. By 1860, Buffalo, Cleveland, Detroit, and Chicago were changing the face of the Midwest, and about one-fifth of the U.S. population lived in cities.

Urban expansion was greatest in the northern states; New York City, for example, had ten times the population of Charleston, South Carolina. The division of the United States into the industrial-urban North and the agrarian-rural South was one major cause of the Civil War (Schlesinger, 1969).

## The Metropolitan Era, 1860–1950

The Civil War (1861–65) gave an enormous boost to urbanization as factories strained to produce weapons. Waves of people deserted the countryside for cities in hopes of finding better jobs. Joining them were tens of millions of immigrants, mostly from Europe, forming a culturally diverse urban mix.

In 1900, New York's population soared past the 4 million mark, and Chicago, a city of only 100,000 people in 1860, was closing in on 2 million. Such growth marked the era of the **metropolis** (from the Greek, meaning “mother city”), *a large city that socially and economically dominates an urban area*. Metropolises became the economic centers of the United States. By 1920, urban areas were home to a majority of the U.S. population.

Industrial technology pushed the urban skyline ever higher. In the 1880s, steel girders and mechanical elevators allowed buildings to rise more than ten stories high. In 1930, New York's Empire State Building was hailed as an urban wonder, reaching 102 stories into the clouds.

## Urban Decentralization, 1950–Present

The industrial metropolis reached its peak about 1950. Since then, something of a turnaround—termed *urban decentralization*—has occurred as people have left downtown areas for outlying **suburbs**, *urban areas beyond the political boundaries of a city*. The old industrial cities of the Northeast and Midwest stopped growing, and some lost considerable population in the decades after 1950. At the same time, suburban populations increased rapidly. The urban landscape of densely packed central cities evolved into sprawling suburban regions.

## Suburbs and Urban Decline

Imitating the European aristocracy, some of the rich had town houses in the city as well as large country homes beyond the city limits. But



In recent decades, many U.S. cities in the Sunbelt have spread outward in a process called urban sprawl. Los Angeles, for example, now covers about 500 square miles, and even with a vast system of freeways, people moving around the city often find themselves stuck in slow-moving traffic. What are other disadvantages of urban sprawl?

not until after World War II did ordinary people find a suburban home within their reach. With more and more cars in circulation, new four-lane highways, government-backed mortgages, and inexpensive tract homes, the suburbs grew rapidly. By 1999, most of the U.S. population lived in the suburbs and shopped at nearby malls rather than in the older and more distant downtown shopping districts (Pederson, Smith, & Adler, 1999; Macionis & Parrillo, 2010).

As many older cities of the Snowbelt—the Northeast and Midwest—lost higher-income taxpayers to the suburbs, they struggled to pay for expensive social programs for the poor who remained. Many cities fell into financial crisis, and urban decay became severe. Soon the inner city came to be synonymous with slums, crime, drugs, unemployment, poverty, and minorities.

The urban critic Paul Goldberger (2002) points out that the decline of central cities has also led to a decline in the importance of public space. Historically, the heart of city life was played out on the streets. The French word for a sophisticated person is *boulevardier*, which literally means “street person”—a term that has a negative meaning in the United States today. The active life that once took place on public streets and in public squares now takes place in shopping malls, the lobbies of cineplex theaters, and gated residential communities—all privately owned spaces. Further reducing the vitality of today's urban places is the spread of television, the Internet, and other media that people use without leaving home.

## Postindustrial Sunbelt Cities

As older Snowbelt cities fell into decline, Sunbelt cities in the South and the West began to grow rapidly. The soaring populations of cities such as Los Angeles and Houston reflect a population shift to the Sunbelt, where 60 percent of U.S. people now live. In addition, most of today's immigrants enter the country in the Sunbelt region. In 1950, nine of the ten biggest U.S. cities were in the Snowbelt; today, seven of the top ten are in the Sunbelt (U.S. Census Bureau, 2011).

**TABLE 22-1** Urban Population of the United States, 1790–2040

Year	Population (in millions)	Percentage Living in Cities
1790	3.9	5.1%
1800	5.3	6.1
1820	9.6	7.3
1840	17.1	10.5
1860	31.4	19.7
1880	50.2	28.1
1900	76.0	39.7
1920	105.7	51.3
1940	131.7	56.5
1960	179.3	69.9
1980	226.5	73.7
2000	281.4	79.0
2020 (projected)	290.7	84.9
2040 (projected)	342.6	88.8

Sources: United Nations (2009) and U.S. Census Bureau (2010).

Unlike their colder counterparts, Sunbelt cities came of age after urban decentralization began. So although cities like Chicago have long been enclosed by a ring of politically independent suburbs, cities like Houston have pushed their boundaries outward to include suburban communities. Chicago covers 227 square miles; Houston is more than twice that size, and the greater Houston urban area covers almost 9,000 square miles—an area the size of the state of New Hampshire.

The great sprawl of Sunbelt cities has drawbacks. Many people in cities such as Atlanta, Dallas, Phoenix, and Los Angeles complain that unplanned growth results in traffic-clogged roads, poorly planned housing developments, and schools that cannot keep up with the inflow of children. Not surprisingly, voters in many communities across the United States have passed ballot initiatives seeking to limit urban sprawl (Lacayo, 1999; Romero & Liserio, 2002; W. Sullivan, 2007).

### Megalopolis: The Regional City

Another result of urban decentralization is urban regions or regional cities. The U.S. Census Bureau (2010) recognizes 374 *metropolitan statistical areas* (MSAs). Each includes at least one city with 50,000 or more people. The bureau also recognizes 579 *micropolitan statistical areas*, urban areas with at least one city of 10,000 to 50,000 people. *Core-based statistical areas* (CBSAs) include both metropolitan and micropolitan statistical areas.

The biggest CBSAs contain millions of people and cover large areas that extend into several states. In 2009, the largest CBSA was New York and its adjacent urban areas in Long Island, western Connecticut, northern New Jersey, and eastern Pennsylvania, with a total population of more than 22 million. Next in size is the CBSA in southern California that includes Los Angeles, Riverside, and Long Beach, with a population of almost 18 million.

**metropolis** a large city that socially and economically dominates an urban area

**suburbs** urban areas beyond the political boundaries of a city

**megalopolis** a vast urban region containing a number of cities and their surrounding suburbs

As regional cities grow, they begin to overlap. In the early 1960s, the French geographer Jean Gottmann (1961) coined the term **megalopolis** to designate *a vast urban region containing a number of cities and their surrounding suburbs*. Along the East Coast, a 400-mile megalopolis stretches all the way from New England to Virginia. Other supercities cover the eastern coast of Florida and stretch from Cleveland west to Chicago.

### Edge Cities

Urban decentralization has also created *edge cities*, business centers some distance from the old downtowns. Edge cities—a mix of corporate office buildings, shopping malls, hotels, and entertainment complexes—differ from suburbs, which contain mostly homes. The population of suburbs peaks at night, but the population of edge cities peaks during the workday.

As part of expanding urban regions, most edge cities have no clear physical boundaries. Some do have names, including Las Colinas (near the Dallas–Fort Worth airport), Tyson’s Corner (in Virginia, near Washington, D.C.), and King of Prussia (northwest of Philadelphia). Other edge cities are known only by the major highways that flow through them, including Route 1 in Princeton, New Jersey, and Route 128 near Boston (Garreau, 1991; Macionis & Parrillo, 2010).

### The Rural Rebound

The 2010 census showed that 83.7 percent of the country’s 309 million people were living in urban places. Over the course of U.S. history, as shown in Table 22–1, the urban population of the nation has increased steadily. Immigration has played a part in this increase because most newcomers settle in cities. At the same time, there has been considerable migration from rural areas to urban places, typically by people seeking greater social, educational, and economic opportunity.

However, between 2000 and 2010, two-thirds of the rural counties across the United States gained population, a trend analysts have called the “rural rebound.” Most of this gain resulted from the migration of people from urban areas. This trend has not affected all rural places: Many small towns in rural areas (especially in the Plains States) are struggling to stay alive. But even there, losses slowed during the 1990s.

The greatest gains have come to rural communities that offer scenic and recreational attractions, such as lakes, mountains, and ski areas. People are drawn to rural communities not only by their natural beauty but also by their slower pace of life: less traffic, less crime, and cleaner air. A number of companies have relocated to rural counties, which has increased economic opportunity for the rural population (K. M. Johnson, 1999; Johnson & Fuguit, 2000; D. Johnson, 2001).

## Urbanism as a Way of Life

### Analyze

Early sociologists in Europe and the United States focused their attention on the rise of cities and how urban life differed from rural life. We briefly examine their accounts of urbanism as a way of life.

### Ferdinand Tönnies: *Gemeinschaft* and *Gesellschaft*

In the late nineteenth century, the German sociologist Ferdinand Tönnies (1855–1937) studied how life in the new industrial metropolis dif-

**Gemeinschaft** a type of social organization in which people are closely tied by kinship and tradition

**Gesellschaft** a type of social organization in which people come together only on the basis of individual self-interest

fered from life in rural villages. From this contrast, he developed two concepts that have become a lasting part of sociology's terminology.

Tönnies (1963, orig. 1887) used the German word **Gemeinschaft** ("community") to refer to *a type of social organization in which people are closely tied by kinship and tradition*. The **Gemeinschaft** of the rural village joins people in what amounts to a single primary group.

By and large, argued Tönnies, **Gemeinschaft** is absent in the modern city. On the contrary, urbanization creates **Gesellschaft** ("association"), *a type of social organization in which people come together only on the basis of individual self-interest*. In the **Gesellschaft** way of life, individuals are motivated by their own needs rather than by a desire to help improve the well-being of everyone. By and large, city dwellers have little sense of community or common identity and look to others mainly when they need something. Tönnies saw in urbanization a weakening of close, long-lasting social relations in favor of the brief and impersonal ties or secondary relationships typical of business.

### Emile Durkheim: Mechanical and Organic Solidarity

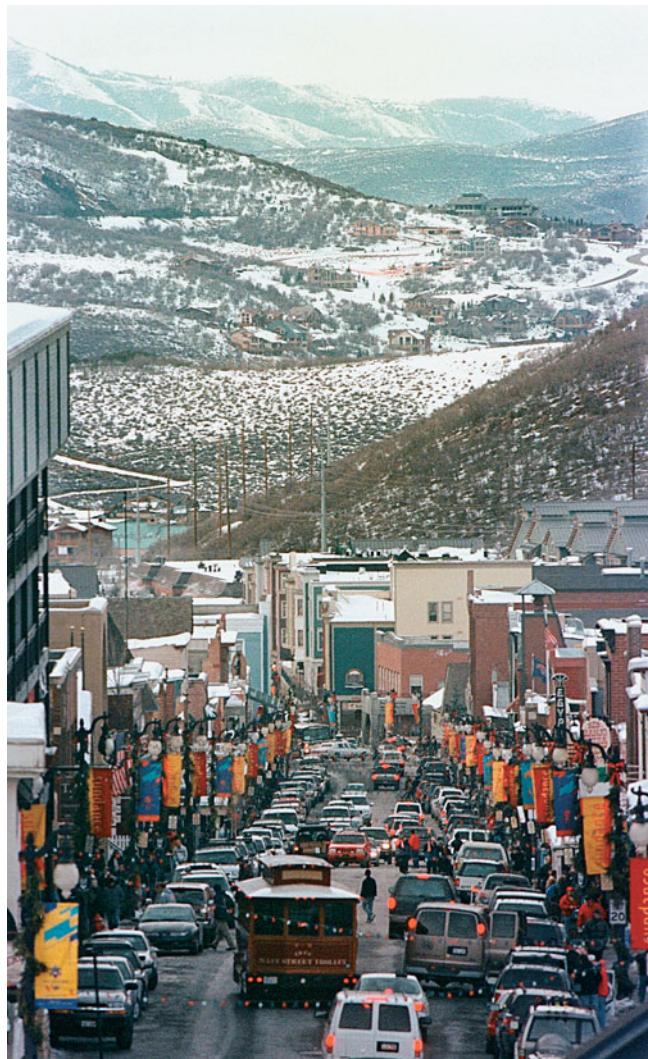
The French sociologist Emile Durkheim (see Chapter 4, "Society") agreed with much of Tönnies's thinking about cities. However, Durkheim countered that urbanites do not lack social bonds; they simply organize social life differently than rural people.

Durkheim described traditional, rural life as *mechanical solidarity*, social bonds based on common sentiments and shared moral values. With its emphasis on tradition, Durkheim's concept of mechanical solidarity bears a striking similarity to Tönnies's **Gemeinschaft**. Urbanization erodes mechanical solidarity, Durkheim explained, but it also generates a new type of bonding, which he called *organic solidarity*, social bonds based on specialization and interdependence. This concept, which parallels Tönnies's **Gesellschaft**, reveals an important difference between the two thinkers. Both thought the growth of industrial cities weakened tradition, but Durkheim optimistically pointed to a new kind of solidarity. Where societies had been built on *likeness* (mechanical solidarity), Durkheim now saw social life based on *difference* (organic solidarity).

For Durkheim, urban society offered more individual choice, moral tolerance, and personal privacy than people find in rural villages. In sum, Durkheim thought that something is lost in the process of urbanization, but much is gained.

### Georg Simmel: The Blasé Urbanite

The German sociologist Georg Simmel (1858–1918) offered a microanalysis of cities, studying how urban life shapes the everyday experience of individuals. According to Simmel, individuals perceive the city as a crush of people, objects, and events. To prevent being overwhelmed by all this stimulation, urbanites develop a *blasé attitude*, tuning out much of what goes on around them. Such detachment does not mean that city dwellers lack compassion for



The rural rebound has been most pronounced in towns that offer spectacular natural beauty. There are times when people living in the scenic town of Park City, Utah, cannot even find a parking space.

others; they simply keep their distance as a survival strategy so that they can focus their time and energy on the people and things that really matter to them.

### The Chicago School: Robert Park and Louis Wirth

Sociologists in the United States soon joined the study of rapidly growing cities. Robert Park, a leader of the first U.S. sociology program at the University of Chicago, sought to add a street-level perspective by getting out and studying real cities. As he said of himself, "I suspect that I have actually covered more ground, tramping about in cities in different parts of the world, than any other living man" (1950:viii). Walking the streets, Park found the city to be an organized mosaic of distinctive ethnic communities, commercial centers, and industrial districts. Over time, he observed, these "natural areas" develop and change in relation to one another. To Park, the city was a living organism—a human kaleidoscope.



*Peasant Dance* (left, c. 1565), by Pieter Breughel the Elder, conveys the essential unity of rural life forged by generations of kinship and neighborhood. By contrast, Lily Furedi's *Subway* (right) communicates the impersonality common to urban areas. Taken together, these paintings capture Tönnies's distinction between *Gemeinschaft* and *Gesellschaft*.

Pieter Breughel the Elder (c. 1525/30–1569), *Peasant Dance*, c. 1565, Kunsthistorisches Museum, Vienna/Superstock. Lily Furedi, American. *Subway*. Oil on canvas, 99 × 123 cm. National Collection of Fine Arts, Washington, D.C./Smithsonian Institute.

Another major figure in the Chicago School of urban sociology was Louis Wirth (1897–1952). Wirth (1938) is best known for blending the ideas of Tönnies, Durkheim, Simmel, and Park into a comprehensive theory of urban life.

Wirth began by defining the city as a setting with a large, dense, and socially diverse population. These traits result in an impersonal, superficial, and transitory way of life. Living among millions of others, urbanites come into contact with many more people than residents of rural areas. So when city people notice others at all, they usually know them not in terms of *who they are* but *what they do*—as, for instance, the bus driver, the florist, or the grocery store clerk. Specialized urban relationships are pleasant for all concerned, but self-interest rather than friendship is usually the main reason behind the interaction.

The impersonal nature of urban relationships, together with the great social diversity found in cities today, makes city dwellers more tolerant than rural villagers. Rural communities often jealously enforce their narrow traditions, but the heterogeneous population of a city rarely shares any single code of moral conduct (T. C. Wilson, 1985, 1995).

**Evaluate** In both Europe and the United States, early sociologists presented a mixed view of urban living. Rapid urbanization troubled Tönnies, and Wirth saw personal ties and traditional morality lost in the anonymous rush of the city. Durkheim and Park emphasized urbanism's positive face, pointing to more personal freedom and greater personal choice.

One problem with all these views is that they paint urbanism in broad strokes that overlook the effects of class, race, and gender. There are many kinds of urbanites—rich and poor, black and white, Anglo and Latino, women and men—all leading distinctive lives (Gans, 1968). As the Thinking About Diversity box explains, the share of minorities in the largest U.S. cities increased sharply during the 1990s. We see social diversity most clearly in cities where various

categories of people are large enough to form distinct, visible communities (Macdonald & Parrillo, 2010).

**CHECK YOUR LEARNING** Of these urban sociologists—Tönnies, Durkheim, Park, and Wirth—which were more positive about urban life? Which were more negative? In each case, explain why.

## Urban Ecology

Sociologists (especially members of the Chicago School) developed **urban ecology**, *the study of the link between the physical and social dimensions of cities*. One issue of interest to urban ecologists is why cities are located where they are. Broadly speaking, the first cities emerged in fertile regions where the ecology favored raising crops. In addition, preindustrial people were concerned with defense, so they built their cities on mountains (ancient Athens was perched on an outcropping of rock) or surrounded by water (Paris and Mexico City were founded on islands). With the coming of the Industrial Revolution, economic considerations gained importance, which explains why all the major U.S. cities were situated near rivers or natural harbors that facilitated trade.

Urban ecologists also study the physical design of cities. In 1925, Ernest W. Burgess, a student and colleague of Robert Park, described land use in Chicago in terms of *concentric zones*. City centers, Burgess observed, are business districts bordered by a ring of factories, followed by residential rings with housing that becomes more expensive the farther it is from the noise and pollution of the city's center.

Homer Hoyt (1939) refined Burgess's observations, noting that distinctive districts sometimes form *wedge-shaped sectors*. For example, one fashionable area may develop next to another, or an industrial district may extend outward from a city's center along a train or trolley line.

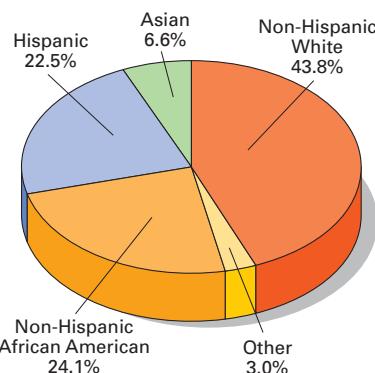
Chauncy Harris and Edward Ullman (1945) added yet another insight: As cities decentralize, they lose their single-center form in



**A**ccording to the latest data from the Census Bureau, minorities—Hispanics, African Americans, and Asians—are now a majority of the population in about half of the 100 largest U.S. cities, up from one-third in 1990.

What accounts for the change? One reason is that large cities have been losing their non-Hispanic white population. By 2000, Santa Ana, California, for example, lost 38 percent of its 1990 white population; the drop was 40 percent in Birmingham, Alabama, and a whopping 53 percent in Detroit, Michigan. The white share of the population of all 100 of the largest cities fell from 52.1 percent in 1990 to 43.8 percent in 2000, as the figure shows.

But an even bigger reason for the minority-majority trend is the increase in immigration. Immigration, coupled with higher birth rates among new immigrants, resulted in a 43 percent gain in the Hispanic population (almost 4 million people) of the largest 100 cities between 1990 and 2000. The Asian population



**Population Profile for the 100 Largest U.S. Cities, 2000**

Racial and ethnic minorities make up a majority of the population of this country's 100 largest cities.

Source: U.S. Census Bureau (2001).

also surged by 40 percent (more than 1.1 million people). The African American population was steady over the course of the 1990s. Political officials and other policymakers have been watching these figures closely, for the future vitality of the largest U.S. cities depends on meeting the needs and welcoming the contributions of the swelling minority populations.

### What Do You Think?

1. Why are the minority populations of large U.S. cities increasing?
2. What positive changes and what challenges does a minority majority bring to a city?
3. Before Hurricane Katrina (2005), African Americans represented 60 percent of the population of New Orleans; afterward, the share was about 40 percent. What difference might this change make in the city's immediate future?

Sources: Schmitt (2001) and U.S. Census Bureau (2010).

favor of a *multicentered model*. As cities grow, residential areas, industrial parks, and shopping districts typically push away from one another. Few people wish to live close to industrial areas, for example, so the city becomes a mosaic of distinct districts.

*Social area analysis* investigates what people in particular neighborhoods have in common. Three factors seem to explain most of the variation: family patterns, social class, and race and ethnicity (Shevky & Bell, 1955; Johnston, 1976). Families with children look for areas with single-family homes or large apartments and good schools. The rich seek high-prestige neighborhoods, often in the central city near cultural attractions. People with a common race or ethnic heritage tend to cluster in distinctive communities.

Brian Berry and Philip Rees (1969) tie together many of these insights. They explain that distinct family types tend to settle in the concentric zones described by Burgess. Specifically, households with many children tend to live in the outer areas of a city, while “young singles” cluster toward the city’s center. Social class differences are primarily responsible for the sector-shaped districts described by Hoyt—for instance, the rich occupy one “side of the tracks” and the poor the other. And racial and ethnic neighborhoods are found at various points throughout the city, consistent with Harris and Ullman’s multicentered model.

### Urban Political Economy

In the late 1960s, many large U.S. cities were rocked by riots. In the wake of this unrest, some analysts turned away from the ecological approach to a social-conflict understanding of city life. The *urban*

*political economy* model applies Karl Marx’s analysis of conflict in the workplace to conflict in the city (Lindstrom, 1995).

Political economists reject the ecological approach’s view of the city as a natural organism with particular districts and neighborhoods developing according to an internal logic. They claim that city life is defined by larger institutional structures, especially the economy. Capitalism, which transforms the city into real estate traded for profit and concentrates wealth and power in the hands of the few, is the key to understanding city life. From this point of view, for example, the decline in industrial Snowbelt cities after 1950 was the result of deliberate decisions by the corporate elite to move their production facilities to the Sunbelt (where labor is cheaper and less likely to be unionized) or to move them out of the country entirely to low-income nations (Molotch, 1976; Castells, 1977, 1983; Lefebvre, 1991; Jones & Wilson, 1999).

● **Evaluate** The fact that many U.S. cities are in crisis, with widespread poverty, high crime, and barely functioning schools, seems to favor the political economy model over the urban ecology approach. But one criticism applies to both: They focus on U.S. cities during a limited period of history. Much of what we know about industrial cities does not apply to preindustrial U.S. towns in our own past or to the rapidly growing cities in many poor nations today. It is unlikely that any single model of cities can account for the full range of urban diversity.

 **Read** “Life and Death in the City: Neighborhoods in Context” by John Logan on [mysoclab.com](http://mysoclab.com)



The Industrial Revolution created great cities across the United States. In recent decades, however, the movement of industry abroad has brought decline to Detroit and other older cities in the “Rustbelt.” From this abandoned warehouse, we see the headquarters of General Motors, which, in 2009, declared bankruptcy. What do you see as the future of such cities?

**CHECK YOUR LEARNING** In your own words, explain what the urban ecology theory and the urban political economy theory teach us about cities.

## Urbanization in Poor Nations

### Understand

**November 16, Cairo, Egypt.** People call the vast Muslim cemetery in Old Cairo the “City of the Dead.” In truth, it is very much alive: Tens of thousands of squatters have moved into the mausoleums, making this place an eerie mix of life and death. Children run across the stone floors, clotheslines stretch between the monuments, and an occasional television antenna protrudes from a tomb roof. With Cairo’s population increasing at the rate of 1,000 people a day, families live where they can.

As noted earlier, twice in its history, the world has experienced a revolutionary expansion of cities. The first urban revolution began about 8000 B.C.E. with the first urban settlements and continued until permanent settlements were in place on several continents. About 1750, the second urban revolution took off; it lasted for two centuries as the Industrial Revolution spurred rapid growth of cities in Europe and North America.

A third urban revolution is now under way. Today, approximately 75 percent of people in industrial societies are already city dwellers. But extreme urban growth is occurring in low-income nations. In 1950, about 25 percent of the people in poor countries lived in cities. In 2008, the world became mostly urban for the first time in history with more than half of humanity living in cities (Population Reference Bureau, 2010).

Not only are more of the world’s people urban; more and more cities are passing the 10 million mark. In 1975, only three cities in the world, Tokyo, New York, and Mexico City, had populations exceeding

10 million, and all these cities were in high-income nations. In 2010, twenty-one cities had passed this mark, and only five of them were in high-income nations. By 2025, eight more “megacities” will be added to the list and none of these eight will be in a high-income nation (five will be in Asia, two in Latin American, and one in Africa) (Brockhoff, 2000; United Nations, 2010).

This third urban revolution is taking place in the developing world because many poor nations have entered the high-growth Stage 2 of the demographic transition. Falling death rates have fueled population increases in Latin America, Asia, and especially Africa. For urban areas, the rate of increase is *twice* as high because in addition to natural increase, millions of people leave the countryside each year in search of jobs, health care, education, and conveniences such as running water and electricity.

Cities do offer more opportunities than rural areas, but they provide no quick fix for the massive problems of escalating population and grinding poverty. Many cities in less economically developed nations—including Mexico City, Egypt’s Cairo, India’s Kolkata (formerly Calcutta), and Manila in the Philippines—are simply unable to meet the basic needs of much of their populations. All these cities are surrounded by wretched shantytowns—settlements of makeshift homes built from discarded materials. As noted in Chapter 12 (“Global Stratification”), even city dumps are home to thousands of poor people, who pick through the piles of waste hoping to find enough to eat or sell to make it through another day.

## Environment and Society

### Analyze

The human species has prospered, rapidly expanding over the entire planet. An increasing share of the global population now lives in cities, complex settlements that offer the promise of a better life than that found in rural villages.

But these advances have come at a high price. Never before in history have human beings placed such demands on the planet. This disturbing development brings us to the final section of this chapter: the interplay between the natural environment and society. Like demography, **ecology** is another cousin of sociology, formally defined as *the study of the interaction of living organisms and the natural environment*. Ecology rests on the research of natural scientists as well as social scientists. This text focuses on the aspects of ecology that involve familiar sociological concepts and issues.

The **natural environment** is *Earth’s surface and atmosphere, including living organisms, air, water, soil, and other resources necessary to sustain life*. Like every other species, humans depend on the natural environment to survive. Yet with our capacity for culture, humans stand apart from other species; we alone take deliberate action to remake the world according to our own interests and desires, for better and for worse.

Why is the environment of interest to sociologists? Environmental problems, from pollution to acid rain to global warming, do not arise from the natural world operating on its own. Such problems result from the specific actions of human beings, which means they are *social problems*.

## The Global Dimension

The study of the natural environment requires a global perspective. The reason is simple: Regardless of political divisions among nations, the planet is a single **ecosystem**, a system composed of the interaction of all living organisms and their natural environment.

The Greek meaning of *eco* is “house,” reminding us that this planet is our home and that all living things and their natural environment are interrelated. A change in any part of the natural environment ripples throughout the entire global ecosystem.

Consider, from an ecological point of view, our national love of hamburgers. People in North America (and, increasingly, around the world) have created a huge demand for beef, which has greatly expanded the ranching industry in Brazil, Costa Rica, and other Latin American nations. To produce the lean meat sought by fast-food corporations, cattle in Latin America feed on grass, which uses a great deal of land. Latin American ranchers get the land for grazing by clearing thousands of square miles of forests each year. These tropical forests are vital to maintaining Earth’s atmosphere. Deforestation ends up threatening everyone, including people in the United States enjoying their hamburgers (N. Myers, 1984a).

## Technology and the Environmental Deficit

Sociologists point to a simple formula:  $I = PAT$ , where environmental impact ( $I$ ) reflects a society’s population ( $P$ ), its level of affluence ( $A$ ), and its level of technology ( $T$ ). Members of societies with simple technology—the hunters and gatherers described in Chapter 4 (“Society”)—hardly affect the environment because they are few in number, are poor, and have only simple technology. On the contrary, nature affects their lives as they follow the migration of game, watch the rhythm of the seasons, and suffer from natural catastrophes such as fires, floods, droughts, and storms.

Societies at intermediate stages of technological development, being both larger and richer, have a somewhat greater capacity to affect the environment. But the environmental impact of horticulture (small-scale farming), pastoralism (the herding of animals), and even agriculture (the use of animal-drawn plows) is limited because people still rely on muscle power for producing food and other goods.

Humans’ ability to control the natural environment increased dramatically with the Industrial Revolution. Muscle power gave way to engines that burn fossil fuels: coal at first and then oil. Such machinery affects the environment

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The environmental movement has gained the support of a number of well-known and influential people. Former president Bill Clinton recently thanked actor Matt Damon for his help in the effort to provide clean water to people around the world. Are you involved in any efforts to protect the natural environment?

in two ways: We consume more natural resources, and we release more pollutants into the atmosphere. Even more important, armed with industrial technology, we are able to bend nature to our will, tunneling through mountains, damming rivers, irrigating deserts, and drilling for oil in the arctic wilderness and on the ocean floor. This explains why people in rich nations, who represent just 23 percent of humanity, account for half of the world’s energy use (World Bank, 2011).

Not only do high-income societies use more energy, but also they produce 100 times more goods than people in agrarian societies do. Higher living standards in turn increase the problem of solid waste (because people ultimately throw away most of what they produce) and pollution (industrial production generates smoke and other toxic substances).

From the start, people recognized the material benefits of industrial technology. But only a century later did they begin to see the long-term effects on the natural environment. Today, we realize that the technological power to make our lives better can also put the lives of future generations at risk.

Evidence is mounting that we are running up an **environmental deficit**, *profound long-term harm to the natural environment caused by humanity’s focus on short-term material affluence* (Bormann, 1990). The concept of environmental deficit is important for three reasons. First, it reminds us that environmental concerns are *sociological*, reflecting societies’ priorities about how people should live. Second, it suggests that much environmental damage—to the air, land, and water—is *unintended*. By focusing on the short-term benefits of, say, cutting down forests, strip mining, or using throwaway packaging, we fail to see their long-term environmental effects. Third, in some respects, the environmental deficit is *reversible*. Societies have created environmental problems but can also undo many of them.

## Culture: Growth and Limits

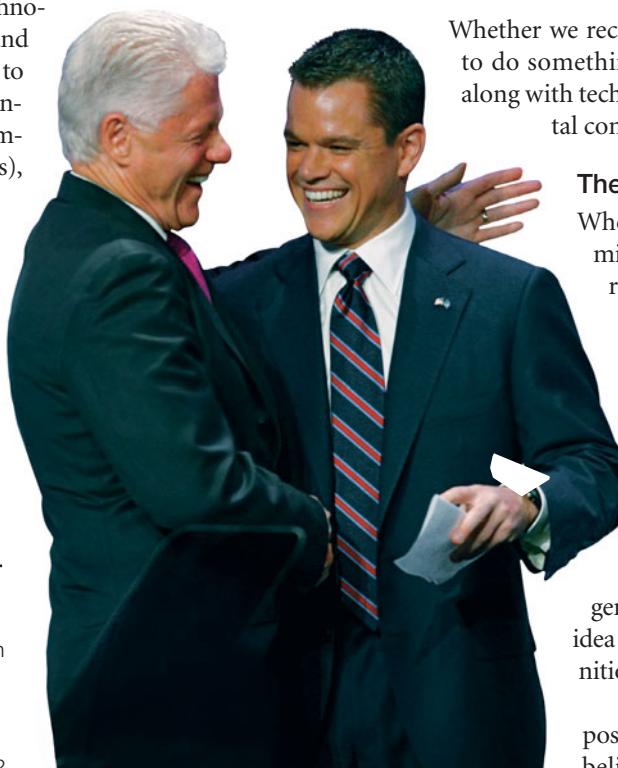
Whether we recognize environmental dangers and decide to do something about them is a cultural matter. Thus along with technology, culture has powerful environmental consequences.

### The Logic of Growth

When you turn on the television news, you might hear a story like this: “The government reported bad economic news today, with the economy growing by only half a percent during the first quarter of the year.” If you stop to think about it, our culture defines an economy that isn’t growing as “stagnant” (which is bad) and an economy that is getting smaller as a “recession” or a “depression” (which is *very* bad).

What is “good” is *growth*—the economy getting bigger and bigger. More cars, bigger homes, more income, more spending—the idea of *more* is at the heart of our cultural definition of living well (McKibben, 2007).

One of the reasons we define growth in positive terms is that we value *material comfort*, believing that money and the things it buys



improve our lives. We also believe in the idea of *progress*, thinking the future will be better than the present. In addition, we look to *science* to make our lives easier and more rewarding. In simple terms, “having things is good,” “life gets better,” and “people are clever.” Taken together, such cultural values form the *logic of growth*.

An optimistic view of the world, the logic of growth holds that more powerful technology has improved our lives and new discoveries will continue to do so in the future. Throughout the history of the United States and other high-income nations, the logic of growth has been the driving force behind settling the wilderness, building towns and roads, and pursuing material affluence.

However, “progress” can lead to unexpected problems, including strain on the environment. The logic of growth responds by arguing that people (especially scientists and other technology experts) will find a way out of any problem that growth places in our path. For example, before the world runs short of oil, we will come up with hydrogen, solar, or nuclear engines or some other as yet unknown technology to meet the world’s energy needs.

Environmentalists counter that the logic of growth is flawed because it assumes that natural resources such as oil, clean air, fresh water, and topsoil will always be plentiful. We can and will exhaust these *finite* resources if we continue to pursue growth at any cost. Echoing Malthus, environmentalists warn that if we call on Earth to support increasing numbers of people, we will surely deplete finite resources, destroying the environment—and ourselves—in the process.



The most important insight sociology offers about our physical world is that environmental problems do not simply “happen.” Rather, the state of the natural environment reflects the ways in which social life is organized—how people live and what they think is important. The greater the technological power of a society, the greater that society’s ability to threaten the natural environment.

### The Limits to Growth

If we cannot invent our way out of the problems created by the logic of growth, perhaps we need another way of thinking about the world. Environmentalists therefore counter that growth must have limits. Stated simply, the *limits-to-growth thesis* is that humanity must put in place policies to control the growth of population, production, and use of resources in order to avoid environmental collapse.

In *The Limits to Growth*, a controversial book that was influential in launching the environmental movement, Donella Meadows and her colleagues (1972) used a computer model to calculate the planet’s available resources, rates of population growth, amount of land available for cultivation, levels of industrial and food production, and amount of pollutants released into the atmosphere. The authors concede that any long-range predictions are speculative, and some critics think they are plain wrong (Simon, 1981). But right or wrong, the conclusions of the study call for serious consideration. First, the authors claim that we are quickly consuming Earth’s finite resources. Supplies of oil, natural gas, and other energy sources are declining and will continue to drop, a little faster or slower depending on the conservation policies of rich nations and the speed with which other nations such as India and China continue to industrialize. Within the next 100 years, resources will run out, crippling industrial output and causing a decline in food production.

This limits-to-growth theory shares Malthus’s pessimism about the future. People who accept it doubt that current patterns of life are sustainable for even another century. Perhaps we all can learn to live with less. This may not be as hard as you might think: Research shows, for example, that an increase in material consumption in recent decades has not brought an increase in levels of personal happiness (D. G. Myers, 2000). In the end, environmentalists warn, either make fundamental changes in how we live, placing less strain on the natural environment, or widespread hunger and conflict will force change on us.

### Solid Waste: The Disposable Society

Across the United States, people generate a massive amount of solid waste—about 1.3 billion pounds *every day*. Figure 22–4 shows the average composition of a typical community’s trash.

As a rich nation of people who value convenience, the United States has become a *disposable society*. We consume more products than virtually any other nation, and many of these products have throwaway packaging. For example, fast food is served with cardboard, plastic, and Styrofoam containers that we throw away within minutes. Countless other products, from film to fishhooks, are elaborately packaged to make the products more attractive to the customer and to discourage tampering and theft.

Manufacturers market soft drinks, beer, and fruit juices in aluminum cans, glass jars, and plastic containers, which not only consume finite resources but also generate mountains of solid waste. Then there are countless items intentionally designed to be disposable: pens, razors, flashlights, batteries, even cameras. Other products, from light bulbs to automobiles, are designed to have a limited useful life and then become unwanted junk. As Paul Connett (1991) points out, even the words we use to describe what we throw away—*waste, litter, trash, refuse, garbage, rubbish*—show how little we value what we cannot immediately use. But this was not always the case, as the Seeing Sociology in Everyday Life box on page 530 explains.

Living in a rich society, the average person in the United States consumes about 500 times more energy, plastics, lumber, water, and other resources than someone living in a low-income country such as Bangladesh or Tanzania and nearly twice as much as people in some other high-income countries such as Sweden and Japan. This high level of consumption means not only that we in the United States use a disproportionate share of the planet's natural resources but also that we generate most of the world's refuse.

We like to say that we throw things "away." But most of our solid waste never goes away. Rather, it ends up in landfills, which are, literally, filling up. Material in landfills can pollute underground water supplies. Although in most places, laws now regulate what can be discarded in a landfill, the U.S. Environmental Protection Agency (2011) has identified 1,290 dump sites across the United States containing hazardous materials that are polluting water both above and below the ground. In addition, what goes into landfills all too often stays there, sometimes for centuries. Tens of millions of tires, diapers, and other items we bury in landfills each year do not decompose but will remain as an unwelcome legacy for future generations.

Environmentalists argue that we should address the problem of solid waste by doing what many of our grandparents did: Use less and turn "waste" into a resource. Part of the solution is *recycling*, reusing resources we would otherwise discard. Recycling is an accepted practice in Japan and many other nations, and it is becoming more common in the United States, where we now reuse about one-third of waste materials (U.S. Environmental Protection Agency, 2010). The share is increasing as laws require the recovery and reuse of certain materials such as glass bottles and aluminum cans and as the business of recycling becomes more profitable.

## Water and Air

Oceans, lakes, and streams are the lifeblood of the global ecosystem. Humans depend on water for drinking, bathing, cooking, cleaning, recreation, and a host of other activities.

According to what scientists call the *hydrologic cycle*, Earth naturally recycles water and refreshes the land. The process begins as heat from the sun causes Earth's water, 97 percent of which is in the oceans, to evaporate and form clouds. Because water evaporates at lower temperatures than most pollutants, the water vapor that rises from the seas is relatively pure, leaving various contaminants behind. Water then falls to the Earth as rain, which drains into streams and rivers and finally returns to the sea. Two major concerns about water, then, are supply and pollution.

### Water Supply

Less than one-tenth of 1 percent of Earth's water is suitable for drinking. It is not surprising, then, that for thousands of years, water rights have figured prominently in laws around the world. Today, some regions of the world, especially the tropics, enjoy plentiful fresh water, using a small share of the available supply. However, high demand, coupled with modest reserves, makes water supply a matter of concern in much of North America and Asia, where people look to rivers rather than rainfall for their water. In China, aquifers are dropping rapidly. In the Middle East, water supply is reaching a critical level. Iran is rationing water in its capital city. In Egypt, the Nile River provides just one-sixth as much water per person as it did in 1900. Across northern Africa and the Middle East, as many as 1 billion people may

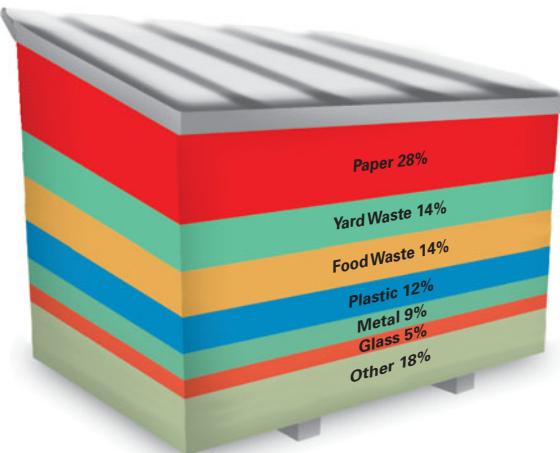


FIGURE 22-4 Composition of Community Trash

We throw away a wide range of material, with paper the single largest part of our trash.

Source: U.S. Environmental Protection Agency (2010).

lack the water they need for irrigation and drinking by 2030. From another angle, by this time the world will be able to provide 40 percent less water than the planet requires (United Nations Environmental Programme, 2008; Walsh, 2009).

Rising population and the development of more complex technology have greatly increased the world's appetite for water. The global consumption of water (now estimated at almost 4,000 cubic kilometers, or 141 trillion cubic feet per year) has doubled since 1950 and is rising steadily. As a result, even in parts of the world that receive plenty of rainfall, people are using groundwater faster than it can be replenished naturally. In the Tamil Nadu region of southern India, for example, so much groundwater is being used that the water table has fallen 100 feet over the last several decades. Mexico City—which has sprawled to some 1,400 square miles—has pumped so much water from its underground aquifer that the city has sunk 30 feet during the past century and continues to drop about 2 inches per year. Farther north in the United States, the Ogallala aquifer, which lies below seven states from South Dakota to Texas, is now being pumped so rapidly that some experts fear it could run dry in just a few decades.

In light of such developments, we must face the reality that water is a valuable and finite resource. Greater conservation of water by individuals—the average person in the United States consumes about 100 gallons of water a day, which amounts to about 3 million gallons over a lifetime—is part of the answer. However, households around the world account for just 10 percent of water use. It is even more crucial that we curb water consumption by industry, which uses 20 percent of the global total, and farming, which consumes 70 percent of the total for irrigation.

Perhaps new irrigation technology will reduce the future demand for water. But here again, we see how population increase, as well as economic growth, strains our ecosystem (United Nations World Water Assessment Programme, 2009; U.S. Geological Survey, 2009; Solomon, 2010).

### Water Pollution

In large cities from Mexico City to Cairo to Shanghai, many people have no choice but to drink contaminated water. Infectious diseases such as



## Why Grandma Macionis Had No Trash

**G**randma Macionis, we always used to say, never threw anything away. Not food, not bottles or cans, not paper. Not even coffee grounds. Nothing.

Grandma was born and raised in Lithuania—the “old country”—where life in a poor village shaped her in ways that never changed, even after she came to the United States as a young woman and settled in Philadelphia.

In her later years, when I knew her, I can remember the family traveling together to her house to celebrate her birthday. We never knew what to get Grandma, because she never seemed to need anything. She lived a simple life and had simple clothes and showed little interest in “fancy things.” She had no electric appliances. She used her simple tools until they wore out. Her kitchen knives, for example, were worn narrow from decades of sharpening. The food that was left over from meals was saved. What could not be saved was recycled as compost for her vegetable garden.

After opening a birthday present, she would carefully save the box, refold the wrapping paper, and roll up the ribbon—all of these things meant as much to her as whatever gift they contained.

We all knew her routines and we smiled together as we watched her put everything away, knowing she would find a way to use each item again and again.

As strange as Grandma sometimes seemed to her grandchildren, she was a product of her culture. A century ago, in fact, there was little “trash.” If socks wore thin, people mended them, probably more than once. When they were beyond repair,

they were used as rags for cleaning or sewn with bits of other old clothing into a quilt. Everything had value—if not in one way, then in another.

During the twentieth century, as women joined men in working outside the home, income went up. Families began buying more appliances and other “timesaving” products. Before long, few people cared about the kind of recycling that Grandma practiced. Soon cities sent crews from block to block to pick up truckloads of discarded material. The era of “trash” had begun.



Grandma Macionis, in the 1970s, with the author.

### What Do You Think?

1. Just as Grandma Macionis was a product of her culture, so are we. Do you know people who have plenty but never seem to think they have enough?
2. What cultural values make people today demand timesaving products and “convenience” packaging?
3. Do you think recent decades have brought a turnaround so that people are now more aware of a need to recycle? How does today's recycling differ from that practiced by Grandma Macionis?

typhoid, cholera, and dysentery, all caused by waterborne microorganisms, spread rapidly through these populations. Besides ensuring ample supplies of water, then, we must also protect the *quality* of water.

Water quality in the United States is generally good by global standards. However, even here the problem of water pollution is steadily growing. Across the United States, rivers and streams absorb hundreds of millions of pounds of toxic waste each year. This pollution results not just from intentional dumping but also from the runoff of agricultural fertilizers and lawn chemicals.

A special problem is *acid rain*—precipitation made acidic by air pollution—which destroys plant and animal life. Acid rain begins with power plants burning fossil fuels (oil and coal) to generate electricity; this burning releases sulfuric and nitrous oxides into the air. As the wind sweeps these gases into the atmosphere, they react with the air to form sulfuric and nitric acids, which turns atmospheric moisture acidic.

This is a clear case of one type of pollution causing another: Air pollution (from smokestacks) ends up contaminating water (in lakes and streams that collect acid rain). Acid rain is truly a global phenomenon because the regions that suffer the harmful effects may be thousands of miles from the source of the original pollution. For instance, British power plants have caused acid rain that has devastated forests and fish in Norway and Sweden, up to 1,000 miles to the northeast. In the United States, we see a similar pattern as midwestern smokestacks have harmed the natural environment of upstate New York and New England.

### Air Pollution

Because we are surrounded by air, most people in the United States are more aware of air pollution than contaminated water. One of the unexpected consequences of industrial technology, especially the factory and the motor vehicle, has been a decline in air quality. In London in the mid-twentieth century, factory smokestacks, automobiles, and coal fires used to heat homes all added up to probably the worst urban air quality the world has ever known. The fog that some British jokingly called “pea soup” was in reality a deadly mix of pollutants: In 1952, an especially thick haze that hung over London for five days killed 4,000 people.

Air quality improved in the final decades of the twentieth century. Rich nations passed laws that banned high-pollution heating, including the coal fires that choked London. In addition, scientists devised ways to make factories and motor vehicles operate much more cleanly. In fact, today's vehicles produce only a fraction of the pollution that spewed from models of the 1950s and 1960s. And cleaner air has improved human health: Experts estimate that improvement in U.S. air quality over the past several decades has added almost half a year to the average life span (Chang, 2009).

If high-income countries can breathe a bit more easily than they once did, the problem of air pollution in poor societies is becoming more serious. One reason is that people in low-income countries still rely on wood, coal, peat, and other “dirty” fuels to cook their food and heat their homes. In addition, nations eager to encourage short-

Water is vital to life, and it is also in short supply. The state of Gujarat, in western India, has experienced a long drought. In the village of Natwarghad, people crowd together, lowering pots into the local well, taking what little water is left.

term industrial development may pay little attention to the longer-term dangers of air pollution. As a result, many cities in Latin America, Eastern Europe, and Asia are plagued by air pollution as bad as London's "pea soup" back in the 1950s.

## The Rain Forests

**Rain forests** are *regions of dense forestation, most of which circle the globe close to the equator*. The largest tropical rain forests are in South America (notably Brazil), west-central Africa, and Southeast Asia. In all, the world's rain forests cover some 1.5 billion acres, or 4.7 percent of Earth's total land surface.

Like other global resources, rain forests are falling victim to the needs and appetites of the surging world population. As noted earlier, to meet the demand for beef, ranchers in Latin America burn forested areas to increase their supply of grazing land. We are also losing rain forests to the hardwood trade. People in rich nations pay high prices for mahogany and other woods because, as the environmentalist Norman Myers (1984b:88) puts it, they have "a penchant for parquet floors, fine furniture, fancy paneling, weekend yachts, and high-grade coffins." Under such economic pressure, the world's rain forests are now just half their original size, and they continue to shrink by at least 1 percent (50,000 square miles) annually, which amounts to about an acre every second. Unless we stop this loss, the rain forests will vanish before the end of this century, and with them will go protection for Earth's biodiversity and climate (Rainforest Foundation, 2009; United Nations Development Programme, 2010).

## Global Warming

Why are rain forests so important? One reason is that they cleanse the atmosphere of carbon dioxide (CO<sub>2</sub>). Since the beginning of the Industrial Revolution, the amount of carbon dioxide produced by humans, mostly from factories and automobiles, has risen sharply. Much of this carbon dioxide is absorbed by the oceans. But plants also take in carbon dioxide and expel oxygen. This is why rain forests are vital to maintaining the chemical balance of the atmosphere.

The problem is that production of carbon dioxide is rising while the amount of plant life on Earth is shrinking. To make matters worse, rain forests are being destroyed mostly by burning, which releases even more carbon dioxide into the atmosphere. Experts estimate that the atmospheric concentration of carbon dioxide is now 40 percent higher than it was 150 years ago and rising rapidly (Gore, 2006; Adam, 2008; National Oceanic & Atmospheric Administration, 2011).

High above Earth, carbon dioxide acts like the glass roof of a greenhouse, letting heat from the sun pass through to the surface while preventing much of it from radiating away from the planet. The result of this *greenhouse effect*, say ecologists, is **global warming**, *a rise in Earth's average temperature due to an increasing concentration of carbon dioxide in the atmosphere*. Over the past century, the global tempera-



ture has risen about 1.3° Fahrenheit (to an average of 58° F). Scientists warn that it could rise by 5° to 10° F during this century. Already, the polar ice caps are melting, and over the last century, the average level of the oceans has risen about six inches. Scientists predict that increasing average temperatures could melt so much ice that the sea level would rise enough to cover low-lying land all around the world: Water would cover all of the Maldives Islands in the Indian Ocean, most of Bangladesh, and much of the coastal United States, including Washington, D.C., right up to the steps of the White House. Such a change would create perhaps 100 million "climate change refugees." On the other hand, this same process of rising temperatures will affect other regions of the world very differently. The U.S. Midwest, currently one of the most productive agricultural regions in the world, would likely become more arid (Gillis, 2011; McMahon, 2011; Reed, 2011).

Some scientists point out that we cannot be sure of the consequences of global warming. Others point to the fact that global temperature changes have been taking place throughout history, apparently having little or nothing to do with rain forests or human activity. A few are optimistic, suggesting that higher concentrations of carbon dioxide in the atmosphere might speed up plant growth (since plants thrive on this gas), and this increase would correct the imbalance and push Earth's temperature downward once again. But the consensus among scientists is now clear: Global warming is a serious problem that threatens the future of all of us (Kerr, 2005; Gore, 2006; International Panel on Climate Change, 2007; Singer, 2007).

## Declining Biodiversity

Our planet is home to as many as 30 million species of animals, plants, and microorganisms. As rain forests are cleared and humans extend their control over nature, several dozen unique species of plants and animals cease to exist each day, reducing the planet's *biodiversity*.

But given the vast number of living species, why should we be concerned by the loss of a few? Environmentalists give four reasons. First, our planet's biodiversity provides a varied source of human food. Using agricultural high technology, scientists can "splice" familiar crops with more exotic plant life, making food more bountiful as

well as more resistant to insects and disease. Certain species of life are even considered vital to the production of human food. Bees, for example, perform the work of pollination, a necessary stage in the growth of plants. The fact that the bee population has declined by one-third in the United States and by two-thirds in the Middle East is cause for serious concern. Thus sustaining biodiversity helps feed our planet's rapidly increasing population.

Second, Earth's biodiversity is a vital genetic resource used by medical and pharmaceutical researchers to produce hundreds of new compounds each year that cure disease and improve our lives. For example, children in the United States now have a good chance of surviving leukemia, a disease that was almost a sure killer two generations ago, because of a compound derived from a tropical flower called the rosy periwinkle. The oral birth control pill, used by tens of millions of women in this country, is another product of plant research involving the Mexican forest yam. Because biodiversity itself allows our ecosystem to control many types of diseases, it is likely that if biodiversity declines, the transmission of disease will increase.

Third, with the loss of any species of life—whether it is the magnificent California condor, the famed Chinese panda, the spotted owl, or even a single species of ant—the beauty and complexity of our natural environment are diminished. There are clear warning signs of such loss: Three-fourths of the world's 10,000 species of birds are declining in number.

Finally, unlike pollution, the extinction of any species is irreversible and final. An important ethical question, then, is whether we who live today have the right to impoverish the world for those who live tomorrow (E. O. Wilson, 1991; Keesing et al., 2010; Capella, 2011).

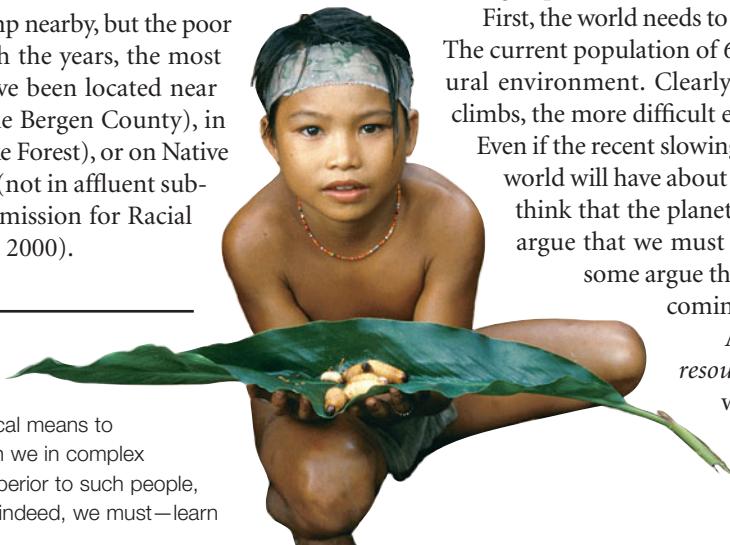
## Environmental Racism

Conflict theory has given rise to the concept of **environmental racism**, *patterns of development that expose poor people, especially minorities, to environmental hazards*. Historically, factories that spew pollution have stood near neighborhoods of the poor and people of color. Why? In part, the poor themselves were drawn to factories in search of work, and their low incomes often meant they could afford housing only in undesirable neighborhoods. Sometimes the only housing that fit their budgets stood in the very shadow of the plants and mills where they worked.

Nobody wants a factory or dump nearby, but the poor have little power to resist. Through the years, the most serious environmental hazards have been located near Newark, New Jersey (not in upscale Bergen County), in southside Chicago (not wealthy Lake Forest), or on Native American reservations in the West (not in affluent suburbs of Denver or Phoenix) (Commission for Racial Justice, 1994; Bohon & Humphrey, 2000).

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Members of small, simple societies, such as the Mentawi in Indonesia, live in harmony with nature; they do not have the technological means to greatly affect the natural world. Although we in complex societies like to think of ourselves as superior to such people, the truth is that there is much we can—indeed, we must—learn from them.



## Looking Ahead: Toward a Sustainable Society and World

### Evaluate

The demographic analysis presented in this chapter reveals some disturbing trends. We see, first, that Earth's population has reached record levels because birth rates remain high in poor nations and death rates have fallen just about everywhere. Reducing fertility will remain a pressing need throughout this century. Even with some recent decline in the rate of population increase, the nightmare Thomas Malthus described is still a real possibility, as the Sociology in Focus box explains.

Further, population growth remains greatest in the poorest countries of the world, which cannot meet the needs of their present populations, much less future ones. Supporting 83 million additional people on our planet each year, 81 million of them in economically less developed countries, will require a global commitment to provide not just food but housing, schools, and employment as well. The well-being of the entire world may ultimately depend on resolving the economic and social problems of poor, overly populated countries and bridging the widening gulf between "have" and "have-not" nations.

Urbanization is continuing, especially in poor countries. For thousands of years, people have sought out cities in the hope of finding a better life. But the sheer numbers of people who live in today's megacities—including Mexico City, São Paulo (Brazil), Lagos (Nigeria), Mumbai (India), and Manila (Philippines)—have created urban problems on a massive scale.

Around the world, humanity is facing a serious environmental challenge. Part of this problem is population increase, which is greatest in poor countries. But part of the problem is the high levels of consumption in rich nations such as our own. By increasing the planet's environmental deficit, our present way of life is borrowing against the well-being of our children and their children. Globally, members of rich societies, who currently consume so much of Earth's resources, are mortgaging the future security of the poor countries of the world.

The answer, in principle, is to create an **ecologically sustainable culture**, *a way of life that meets the needs of the present generation without threatening the environmental legacy of future generations*. Sustainable living depends on three strategies.

First, the world needs to *bring population growth under control*. The current population of 6.9 billion is already straining the natural environment. Clearly, the higher the world's population climbs, the more difficult environmental problems will become. Even if the recent slowing of population growth continues, the world will have about 9 billion people by 2050. Few analysts think that the planet can support this many people; most argue that we must hold the line at about 7 billion, and some argue that we must *decrease* population in the coming decades (Smail, 2007).

A second strategy is to *conserve finite resources*. This means meeting our needs with a responsible eye toward the future by using resources efficiently, seeking alternative sources of energy, and in some cases, learning to live with less.



**Nushawn:** I'm telling you, there are too many people already! Where is everyone going to live?

**Tabitha:** Have you ever been to Kansas? Or Wyoming? There's plenty of empty space out there.

**Marco:** Maybe now. But I'm not so sure about our children—or their children. . . .

**A**re you worried about the world's increasing population? Think about this: By the time you finish reading this box, more than 1,000 people will have been added to our planet. By this time tomorrow, global population will have risen by more than 220,000. Currently, as the table shows, there are more than four births for every two deaths on the planet, pushing the world's population upward by 83 million annually. Put another way, global population growth amounts to adding another Germany to the world each year.

It is no wonder that many demographers and environmentalists are deeply concerned about the future. Earth has an unprecedented population: The 2.9 billion people we have added since 1974 alone exceed the planet's total in 1900. Might Thomas Robert Malthus, who predicted

that overpopulation would push the world into war and suffering, be right after all? Lester Brown and other *neo-Malthusians* predict a coming apocalypse if we do not change our ways. Brown admits that Malthus failed to imagine how much technology (especially fertilizers and altering plant genetics) could boost the planet's agricultural output. But he maintains that Earth's rising population is rapidly outstripping its finite resources. Families in many poor countries can find little firewood, members of rich countries are depleting the oil reserves, and everyone is draining our supply of clean water and poisoning the planet with waste. Some analysts argue that we have already passed Earth's "carrying capacity" for population and we need to

hold the line or even reduce global population to ensure our long-term survival.

But other analysts, the *anti-Malthusians*, sharply disagree. Julian Simon points out that two centuries after Malthus predicted catastrophe, Earth supports almost six times as many people who, on average, live longer, healthier lives than ever before. With more advanced technology, people have devised ways to increase productivity and limit population increase. As Simon sees it, this is cause for celebration. Human ingenuity has consistently proved the doomsayers wrong, and Simon is betting it will continue to do so.

### Join the Blog!

Where do you place your bet? Do you think Earth can support 8 or 10 billion people? What do you think should be done about global population increase? Go to MySocLab and join the Sociology in Focus blog to share your opinions and experiences and to see what others think.

Sources: Brown (1995), Simon (1995), Scanlon (2001), Smail (2007), Population Reference Bureau (2011), and U.S. Census Bureau (2011).

**Global Population Increase, 2010**

	Births	Deaths	Net Increase
Per year	140,213,443	56,897,968	83,315,475
Per month	11,684,454	4,741,497	6,942,956
Per day	384,146	155,885	228,262
Per hour	16,006	6,495	9,511
Per minute	267	108	159
Per second	4.4	1.8	2.6

A third strategy is to *reduce waste*. Whenever possible, simply using less is the best solution. Learning to live with less is not likely to come easily, but keep in mind the research that suggests that as our society has consumed more and more, people have not become any happier (D. G. Myers, 2000). Recycling programs, too, are part of the answer, and recycling can make everyone part of the solution to our environmental problems.

In the end, making all these strategies work depends on a basic change in the way we think about ourselves and our world. Our *egocentric* outlook sets our own interests as standards for how to live, but a sustainable environment demands an *ecocentric* outlook that helps us see how the present is tied to the future and why everyone must work together. Most nations in the southern half of the world are *underdeveloped*, unable to meet the basic needs of their people. At the same time, most countries in the northern half of the world are *overdeveloped*, using more resources than the planet can sustain over time. The changes needed to create a sustainable ecosystem will not come easily, and they will be costly. But the price

of not responding to the growing environmental deficit will certainly be greater (Kellert & Bormann, 1991; Brown et al., 1993; Population Action International, 2000; Gore, 2006).

Finally, consider that the great dinosaurs dominated this planet for some 160 million years and then perished forever. Humanity is far younger, having existed for a mere 250,000 years. Compared to the rather dimwitted dinosaurs, our species has the gift of great intelligence. But how will we use this ability? What are the chances that our species will continue to flourish 160 million years—or even 160 years—from now? The answer depends on the choices that will be made by one of the 30 million species living on Earth: human beings.



If human ingenuity created the threats to our environment that we now face, can humans also solve these problems? In recent years, a number of designs for small, environmentally friendly cars show the promise of new technology. But do such innovations go far enough? Will we have to make more basic changes to our way of life to ensure human survival in the centuries to come?

# Seeing Sociology in Everyday Life

## CHAPTER 22 Population, Urbanization, and Environment

### • Why is the environment a social issue?

As this chapter explains, the state of the natural environment depends on how society is organized, especially the importance a culture attaches to consumption and economic growth.

**Hint** If expansion is “good times,” then contraction is a “recession” or perhaps even a “depression.” Such a worldview means that it is normal—or even desirable—to live in a way that increases stress on the natural environment. Sustainability, an idea that is especially important as world population increases, depends on learning to live with what we have or maybe even learning to live with less. Although many people seem to think so, it really doesn’t require a 6,000-pound SUV to move around urban areas. Actually, it might not require a car at all. This new way of thinking requires that we do not define social standing and personal success in terms of what we own and what we consume. Can you imagine a society like that? What would it be like?

We learn to see economic expansion as natural and good. When the economy stays the same for a number of months, we say we are experiencing “stagnation.” How do we define a period when the economy gets smaller, as happened during the fall of 2008?





What would it take to convince members of our society that smaller (rather than bigger) might be better? Why do we seem to prefer not just bigger cars but also bigger homes and more and more material possessions?

## Seeing Sociology in *Your* Everyday Life

1. Here is an illustration of the problem of runaway growth (Milbrath, 1989:10): “A pond has a single water lily growing on it. The lily doubles in size each day. In thirty days, it covers the entire pond. On which day does it cover half the pond?” When you realize the answer, discuss the implications of this example for population increase.
2. Each of us generates in our minds a “mental map” of cities in which we have lived. Draw a mental map of a city familiar to you with as much detail of specific places, districts, roads, and transportation facilities as you can. After you complete the map, look at what you considered to be important and try to recognize what you left out. One good way to do this is compare your map to a street map or, better yet, compare it to a map drawn by someone else. If you make comparisons, try to account for the differences.
3. Do you think that the world’s increasing population is a problem or not? What about the state of our planet’s natural environment? Go to the “Seeing Sociology in *Your* Everyday Life” feature on mysoclab.com for additional discussion of these issues and suggestions for ways you can become more engaged in promoting a more secure world.

## Demography: The Study of Population

Demography analyzes the size and composition of a population and how and why people move from place to place. Demographers collect data and study several factors that affect population.

### Fertility

- Fertility is the incidence of childbearing in a country's population.
- Demographers describe fertility using the **crude birth rate**.

### Mortality

- Mortality is the incidence of death in a country's population.
- Demographers measure mortality using both the **crude death rate** and the **infant mortality rate**.

### Migration

The **net migration rate** is the difference between the in-migration rate and the out-migration rate.

 Explore the Map on [mysoclab.com](http://mysoclab.com)



### Population Growth

In general, rich nations grow almost as much from immigration as from natural increase; poorer nations grow almost entirely from natural increase.

### Population Composition

Demographers use **age-sex pyramids** to show the composition of a population graphically and to project population trends. [pp. 512-15](#)

 Watch the Video on [mysoclab.com](http://mysoclab.com)

## History and Theory of Population Growth

- Historically, world population grew slowly because high birth rates were offset by high death rates.
- About 1750, a demographic transition began as world population rose sharply, mostly due to falling death rates.
- In the late 1700s, Thomas Robert Malthus warned that population growth would outpace food production, resulting in social calamity.
- Demographic transition theory** contends that technological advances gradually slow population increase.
- Currently, the world is gaining 83 million people each year, with 97% of this increase taking place in poor countries. World population is expected to reach about 9 billion by 2050.

[pp. 516-20](#)

### demographic transition theory

(p. 517) a thesis that links population patterns to a society's level of technological development

### zero population growth

(p. 518) the rate of reproduction that maintains population at a steady level

**demography** (p. 512) the study of human population

**fertility** (p. 512) the incidence of childbearing in a country's population

**crude birth rate** (p. 512) the number of live births in a given year for every 1,000 people in a population

**mortality** (p. 513) the incidence of death in a country's population

**crude death rate** (p. 513) the number of deaths in a given year for every 1,000 people in a population

**infant mortality rate** (p. 513) the number of deaths among infants under one year of age for each 1,000 live births in a given year

**life expectancy** (p. 513) the average life span of a country's population

**migration** (p. 513) the movement of people into and out of a specified territory

**sex ratio** (p. 514) the number of males for every 100 females in a nation's population

**age-sex pyramid** (p. 515) a graphic representation of the age and sex of a population

## Urbanization: The Growth of Cities

The **first urban revolution** began with the appearance of cities about 10,000 years ago.

- By about 2,000 years ago, cities had emerged in most regions of the world except North America and Antarctica.
- Preindustrial cities have low-rise buildings; narrow, winding streets; and personal social ties. [p. 520](#)

A **second urban revolution** began about 1750 as the Industrial Revolution propelled rapid urban growth in Europe.

- The physical form of cities changed as planners created wide, regular streets to facilitate commerce.
- The emphasis on business, as well as the increasing size of cities, made urban life more impersonal. [p. 520](#)

A **third urban revolution** is now occurring in poor countries. Today, most of the world's largest cities are found in less developed nations. [p. 526](#)

In the United States, urbanization has been going on for more than 400 years and continues today.

- Urbanization came to North America with European colonists.
- By 1850, hundreds of new cities had been founded from coast to coast.
- By 1920, a majority of the U.S. population lived in urban areas.
- Since 1950, the decentralization of cities has resulted in the growth of suburbs and edge cities and a "rebound" in rural population.
- Nationally, Sunbelt cities—but not the older Snowbelt cities—are increasing in size and population.

**urbanization** (p. 520) the concentration of population into cities

**metropolis** (p. 521) a large city that socially and economically dominates an urban area

**suburbs** (p. 521) urban areas beyond the political boundaries of a city

**megalopolis** (p. 522) a vast urban region containing a number of cities and their surrounding suburbs

[pp. 520-22](#)



## Urbanism as a Way of Life

Rapid urbanization during the nineteenth century led early sociologists to study the differences between rural and urban life. These early sociologists included, in Europe, Tönnies, Durkheim, and Simmel, and in the United States, Park and Wirth.

**Ferdinand Tönnies** built his analysis on the concepts of **Gemeinschaft** and **Gesellschaft**.

- **Gemeinschaft**, typical of the rural village, joins people in what amounts to a single primary group.
- **Gesellschaft**, typical of the modern city, describes individuals motivated by their own needs rather than by a desire to help improve the well-being of the community.

**Emile Durkheim** agreed with much of Tönnies's thinking but claimed that urbanites do not lack social bonds; the basis of social solidarity simply differs in the two settings. He described

- **mechanical solidarity**—social bonds based on common sentiments and shared moral values. This type of social solidarity is typical of traditional, rural life.
- **organic solidarity**—social bonds based on specialization and interdependence. This type of social solidarity is typical of modern, urban life.

**Georg Simmel** claimed that the overstimulation of city life produced a blasé attitude in urbanites.

**Robert Park**, at the University of Chicago, claimed that cities permit greater social freedom.

**Louis Wirth** saw large, dense, heterogeneous populations creating an impersonal and self-interested, though tolerant, way of life. **pp. 522-24**

 **Read the Document** on [mysoclab.com](http://mysoclab.com)

**Gemeinschaft** (p. 523) a type of social organization in which people are closely tied by kinship and tradition

**Gesellschaft** (p. 523) a type of social organization in which people come together only on the basis of individual self-interest

**urban ecology** (p. 524) the study of the link between the physical and social dimensions of cities

## Environment and Society

The state of the **environment** is a social issue because it reflects how human beings organize social life.

- Societies increase the **environmental deficit** by focusing on short-term benefits and ignoring the long-term consequences brought on by their way of life. **pp. 526-27**
- The more complex a society's technology, the greater its capacity to alter the natural environment.
- The *logic-of-growth thesis* supports economic development, claiming that people can solve environmental problems as they arise.
- The *limits-to-growth thesis* states that societies must curb development to prevent eventual environmental collapse. **pp. 527-28**

**Environmental issues** include

- **Disposing of solid waste**—54% of what we throw away ends up in landfills, which are filling up and can pollute groundwater.
- **Protecting the quality of water and air**—The supply of clean water is already low in some parts of the world. Industrial technology has caused a decline in air quality.
- **Protecting the rain forests**—Rain forests help remove carbon dioxide from the atmosphere and are home to a large share of this planet's living species. Under pressure from development, the world's rain forests are now half their original size and are shrinking by about 1% annually.
- **Environmental racism**—Conflict theory has drawn attention to the pattern by which the poor, especially minorities, suffer most from environmental hazards. **pp. 528-32**



**ecology** (p. 526) the study of the interaction of living organisms and the natural environment

**natural environment** (p. 526) Earth's surface and atmosphere, including living organisms, air, water, soil, and other resources necessary to sustain life

**ecosystem** (p. 527) a system composed of the interaction of all living organisms and their natural environment

**environmental deficit** (p. 527) profound long-term harm to the natural environment caused by humanity's focus on short-term material affluence

**rain forests** (p. 531) regions of dense forestation, most of which circle the globe close to the equator

**global warming** (p. 531) a rise in Earth's average temperature due to an increasing concentration of carbon dioxide in the atmosphere

**environmental racism** (p. 532) patterns of development that expose poor people, especially minorities, to environmental hazards

**ecologically sustainable culture** (p. 532) a way of life that meets the needs of the present generation without threatening the environmental legacy of future generations