

Third Edition

CONTEMPORARY  
WORLD REGIONAL  
GEOGRAPHY

Global Connections, Local Voices

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**Higher Education****CONTEMPORARY WORLD REGIONAL GEOGRAPHY: GLOBAL CONNECTIONS, LOCAL VOICES, THIRD EDITION**

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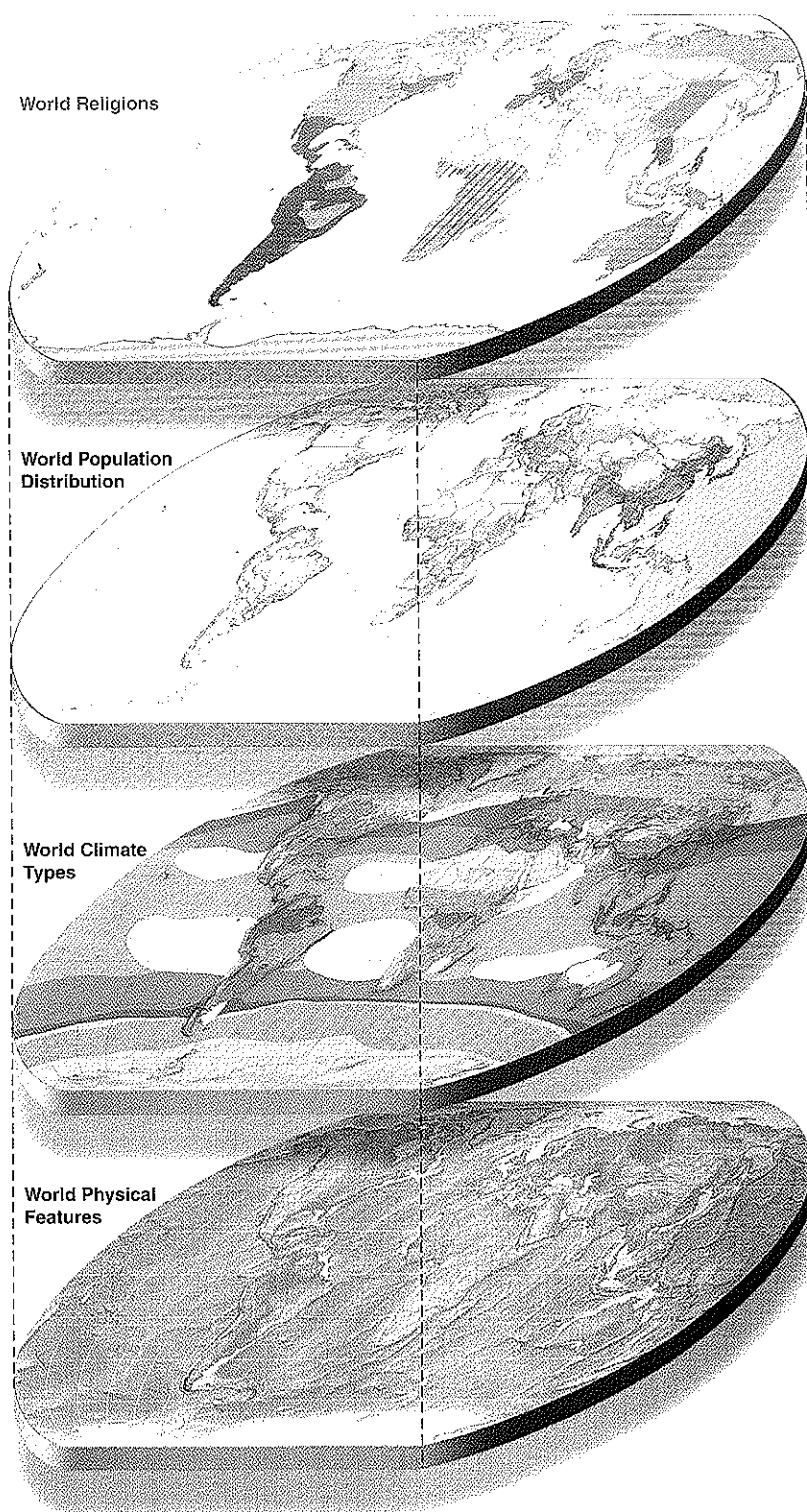
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# CHAPTER 2

## Concepts in World Regional Geography



World Religions			
Buddhism	Christianity	Islam	Other
Chinese religions	Eastern Orthodox	Shia	Animism
Japanese religions	Protestant	Sunni	Hindu
Lamaist Buddhism	Roman Catholic		Judaism
Southern Buddhism			No data

World Population Distribution	
Number of Persons	
(per square mile)	(per square km)
Over 2,500	Over 1,000
1,250–2,500	500–1,000
250–1,250	100–500
62.5–250	25–100
12.5–62.5	5–25
2.5–12.5	1–5
Under 2.5	Under 1

World Climate Types	
Climatic Regions	
<b>A</b>	<b>Am</b> Tropical (permanently) rainy climate
	<b>At</b> Tropical monsoon rain climate (wet and dry with an extremely wet season)
	<b>Aw</b> Tropical summer rain climate (winter-dry)
	<b>As</b> Tropical winter rain climate (summer-dry)
<b>B</b>	<b>BS</b> Steppe climate (semiarid climate)
	<b>BW</b> Desert climate (arid climate)
	<b>BM</b> Marine dry climate
<b>C</b>	<b>Cf</b> Subtropical (permanently) rainy climate
	<b>Cw</b> Subtropical summer rain climate (winter-dry)
	<b>Cs</b> Subtropical winter rain climate (summer-dry)
<b>D</b>	<b>Df</b> Oceanic temperate climate
	<b>Dc</b> Continental temperate climate
<b>E</b>	<b>Eo</b> Oceanic boreal climate
	<b>Ec</b> Continental boreal climate
<b>F</b>	<b>Ft</b> Tundra climate
	<b>Fi</b> Perpetual frost climate

**FIGURE 2.1 World Regional Geography.** Examines spatial patterns and their connections within and between the physical and human worlds at differing spatial scales (e.g., localities, countries, subregions, and the world regions).

## THEMES IN THIS CHAPTER

This chapter introduces integrative themes and concepts used by human and physical geographers in studying regional geography. Many of the maps and diagrams in this chapter introduce global data and global trends. Regional and local details are represented in similar map and graphic form in each of the world regions of Chapters 3 through 12. Major themes include:

**Natural environment:** the essentials of physical geography in a human context; the nature of climatic, landform, and biotic environments and human interactions with them.

**People and land:** population changes and resource questions.

**Political freedom:** nations and nationalism, governments, global governance, and country groupings.

**Economic inequality:** how inequality is measured.

**The global economy:** information and technological concentrations, fragmentation, and localization.

**Relating the geographical study of differences among peoples and places to human development and human rights in a globalizing world with strong local influences.**

**GEOGRAPHY AT WORK:** China's Landscapes and Global Change

**POINT-COUNTERPOINT:** HIV/AIDS

## REGIONAL GEOGRAPHY BASICS

In this chapter we study the concepts that are basic to regional geography in relation to specific issues that we meet daily. Regional geography often begins by first focusing on physical geography: considering how the natural world operates and then identifying what natural resources are available and what natural hazards are present. Human geography then becomes the focus and helps to explain the facets of globalization. Population distribution and dynamics, urbanization, political organization, economic flows, concentrations of wealth and poverty, gender (in)equality, and culture are all important elements that make each world region and locality unique (Figure 2.1).

## NATURAL ENVIRONMENTAL ISSUES

Physical geography is the study of natural environments and their world distribution. In world regional geography, the interactions between people and natural environments are important. Major physical features, such as oceans, seas, mountain ranges, and rivers often form boundaries between countries and world regions because they often directed patterns of movement in the past. For many centuries, human activities relied on natural resources. The growing seasons, water availability, soil types, and minerals influenced the locations of people. Natural environments helped to determine the locations of early culture hearths and concentrations of people, including cities. Today, in a reversal of the idea that physical geography determines human affairs, human beings increasingly influence many of the ways in which natural processes function. For example, natural vegetation has been removed for farms and cities; slopes are graded and mountains tunneled. We now believe that human actions have a great influence on our weather and climate.

Earth's **natural environment** is a dynamic system of interacting events that produce regional differences from high, forested mountains to dry desert areas. Natural processes include:

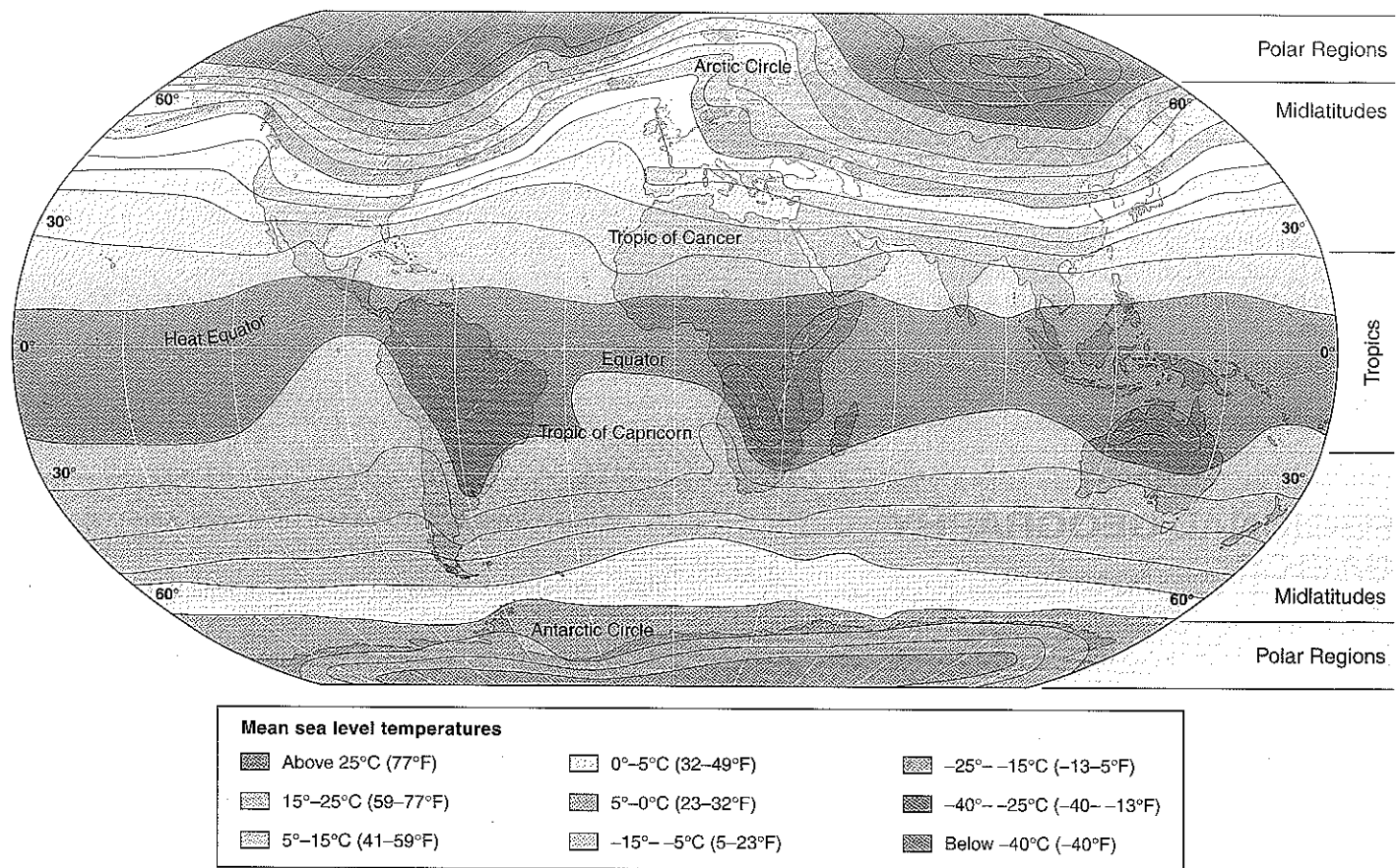
- Atmosphere and hydrosphere interactions that produce weather and longer-term climate changes in climatic environments.
- Lithosphere changes brought about by the workings of Earth's interior. These changes cause huge sections of the crust to collide with one another, producing earthquakes, volcanoes, and mountain systems.
- Earth surface alterations brought about by the interactions of atmosphere, hydrosphere, and lithosphere. These interactions cause rain, glacier ice, wind, and ocean waves and currents that produce landforms such as hills, valleys, cliffs, and beaches on raised continental areas.
- Ecosystem modifications that occur when living organisms, namely plants and animals, respond to and modify local climate, landforms, and soils (biosphere).

## Atmosphere and Hydrosphere Interactions

The **climate** of a place is the long-term atmospheric condition that makes it more or less habitable. It is determined by the transfers of heat and moisture through the atmosphere and oceans (hydrosphere), and by their interaction with the continental surfaces. The transfers are powered by energy from the sun.

### Energy Transfers

Earth's atmosphere filters out elements of solar energy, including ultraviolet radiation, x-rays, and gamma rays that harm living organisms. Mostly visible light rays reach Earth's surface. Absorption of these rays causes rock, soil, and ocean water to be heated and to radiate heat upward. When the heat rays are absorbed in the lower atmosphere by



**FIGURE 2.2 Temperatures at Ground Level.** Isotherms (joining places of equal temperature) for January, during the Northern Hemisphere winter. The heat equator connects points of highest temperature at each meridian of longitude. Compare the Northern and Southern Hemispheres in terms of the extent of very cold temperatures and the position of the warmest band of temperatures. What effect on air temperatures do the oceans have?

water vapor and carbon gases, they raise the temperature of the air. This is known as the **greenhouse effect**, which is a natural process in Earth's atmosphere. Because the sun is more directly overhead for more of the year in tropical regions, its heating impact on the atmosphere is greatest there (Figure 2.2). Tropical areas have an excess of incoming energy over that lost back to space (Figure 2.3). The polar regions, however, have a deficit of energy; in winter, they have several months of almost complete darkness, losing energy to space.

The tropical excesses and polar deficits are compensated by flows of air and ocean water between the two regions. Tropical oceans become huge reservoirs of heat moved poleward by ocean currents to heat the atmosphere of middle latitudes. The air and water cooled in higher latitudes return to the tropics, where they are reheated. This system makes human habitation possible into high-latitude regions.

### Earth's Daily Rotation and Annual Solar Orbit

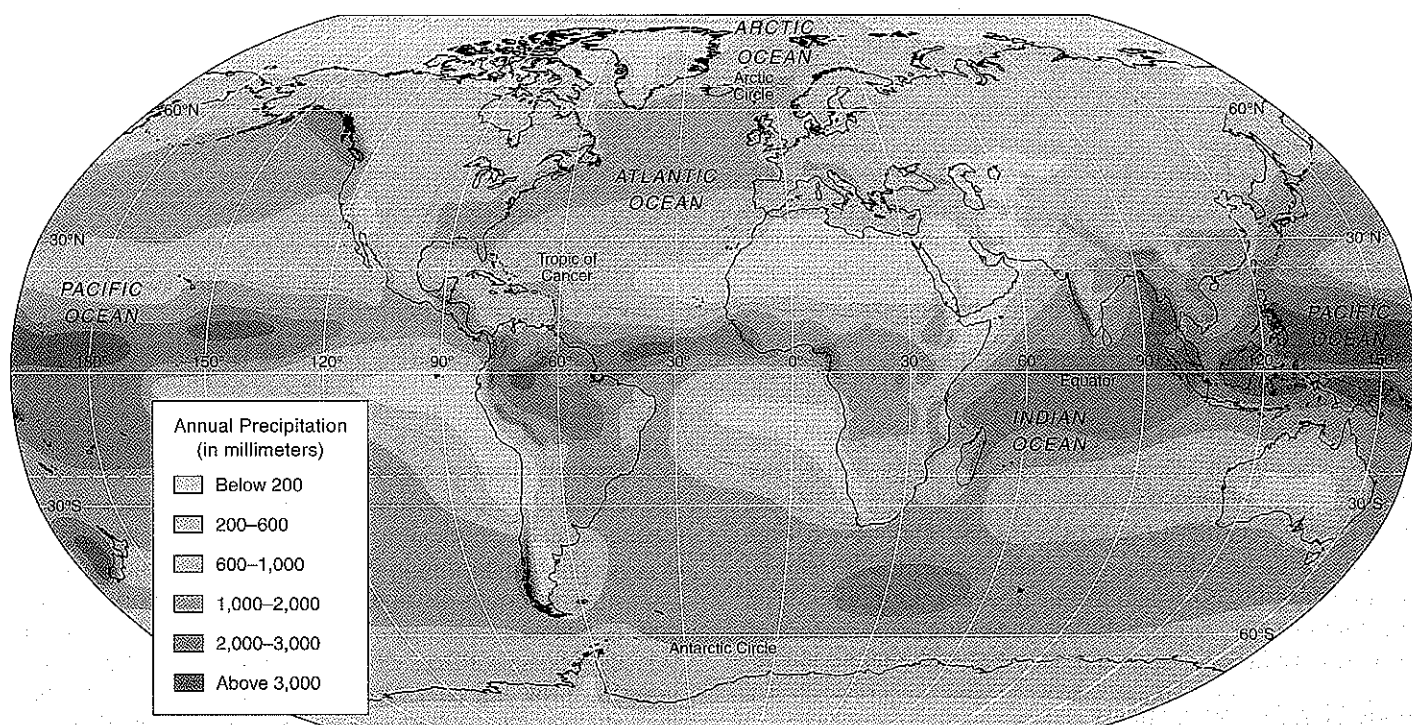
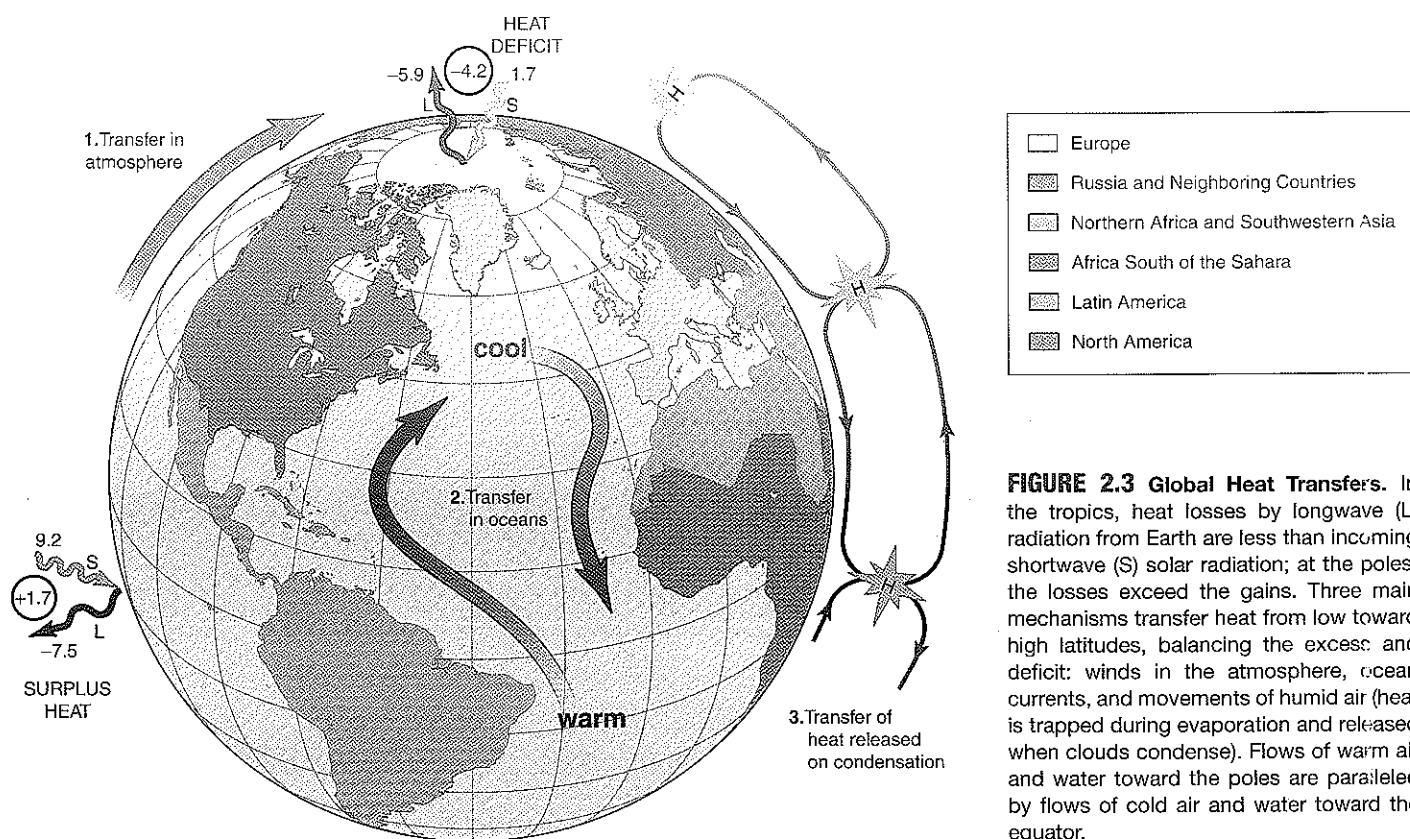
Earth rotates on its axis once a day and revolves in orbit around the sun once a year. The former creates day and night, and the latter seasonal changes. Because of Earth's

axial tilt, the sun is directly overhead at noon at the Tropic of Cancer (Northern Hemisphere summer) between June 19 and 23 and at the Tropic of Capricorn (Southern Hemisphere summer) between December 19 and 23. The seasonal progression of the overhead sun north and south of the equator brings summers of warmer weather and long polar days to each hemisphere, while the winter hemisphere with low sun angles has cooler weather and long polar nights.

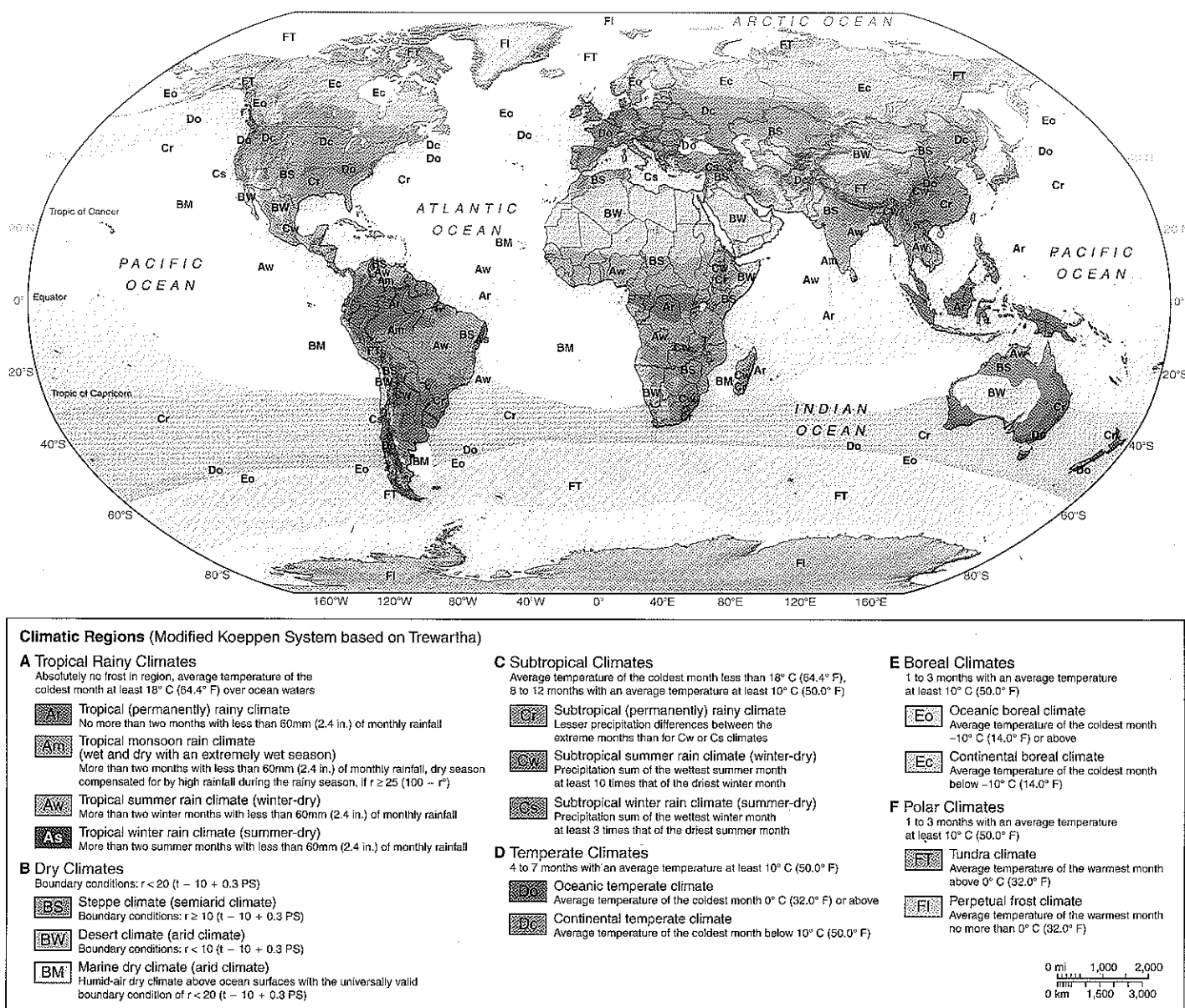
Earth's rotation affects air and water movements—winds and ocean currents—across the surface. The effect bends winds to form circulating weather systems, including cyclones (counterclockwise wind circulation in the Northern Hemisphere, clockwise in the Southern Hemisphere) and anticyclones (clockwise circulation in the Northern Hemisphere, counterclockwise in the Southern Hemisphere). It increases away from the equator toward the poles.

### Water Transfers

Oceans are major sources of water that evaporates into the atmosphere, condenses into clouds, and produces rain and snow. Parts of the world with the highest rainfall lie near the equator (Figure 2.4), where warm, humid airstreams collide,







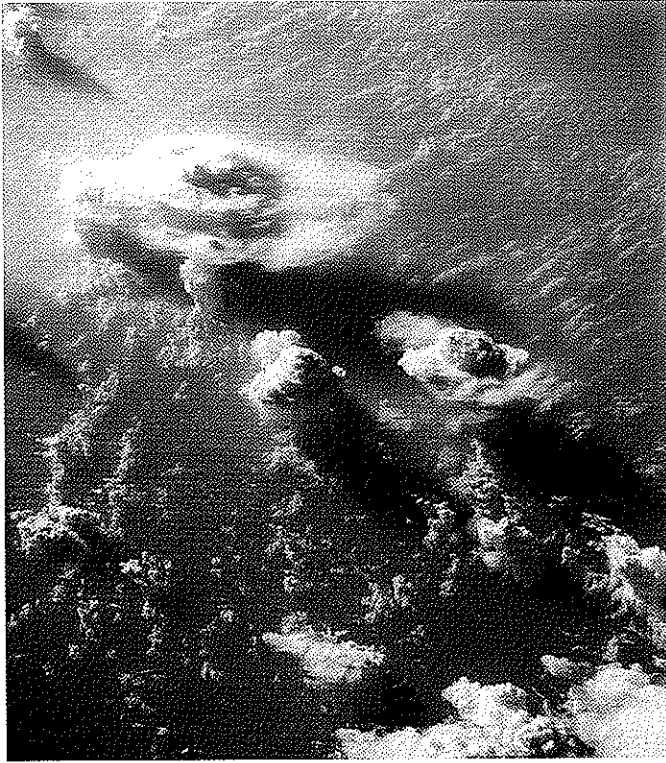
**FIGURE 2.5 World Climate Types.** Included are letters referring to the Köppen classification based on the climate characteristics of natural vegetation zones.

forcing the air to rise and produce frequent rainstorms. Another zone of high rainfall totals is on the ocean-facing west coasts of midlatitude continents, especially where high mountains (as in Canada and Chile) add to the lift caused by the meeting of warm tropical and cold polar air in cyclonic systems. Areas between, including large sectors of oceans, have little, or seasonal, rain.

### World Climatic Environments

The receipt and redistribution of solar energy and the circulation of water from oceans to continents vary in their effects around the world, giving rise to specific weather systems and climatic regions (Figure 2.5).

**Tropical climates** experience high temperatures through the year and have short winters, if any. The main climatic variations in the tropics are seasonal differences of rainfall, as can be seen by referring to Africa. The main tropical climates have a north-south distribution, from the equatorial climate with rain at all seasons, through wet-dry seasonal climates, to very dry climates. Places close to the equator have rain in all months of the year (Ar), although a few months may be drier than the rest. Places farther from the equator but still within the tropics have a marked alternation of dry and wet seasons (Aw, As). Eventually, as distance from the equator increases, the dry season becomes so long that annual water shortages occur, and the climate becomes arid, without appreciable rain-

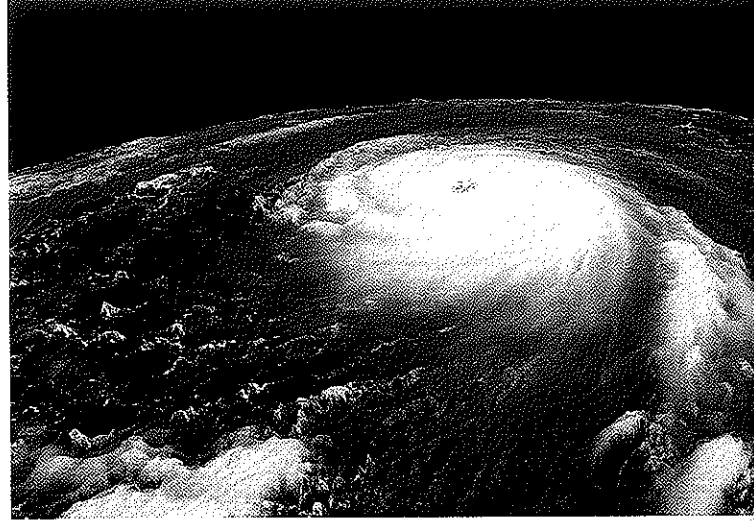


**FIGURE 2.6 Tropical Weather Systems: Thunderstorm Groupings Over Central Africa.** Seen from a space shuttle, several cloud tops amalgamate in fibrous masses of ice that spread outward and downwind. **Photo:** NASA.

fall (BS, BW, BM). The seasonal wet–dry differences are greatest in the monsoon climates of South Asia (Am).

Tropical climates have distinctive weather systems. The frequent rains near the equator, where the effect of Earth's rotation is least and circulating weather systems are rare, come from massive thundercloud developments (Figure 2.6). Tropical cyclones (also called hurricanes and typhoons) cause loss of life and property (Figure 2.7) in places poleward of  $10^\circ$  latitude where circulating systems form.

**Subtropical and temperate climates** have marked seasonal temperature differences between summer and winter. Such differences are greatest in the centers of the North American and Eurasian continents and least where winds blowing from the oceans moderate winter cold and summer warmth over the west-facing coasts of Europe and the Americas. Most precipitation falls on hills and mountains facing west near these coasts and decreases inland to the point where it may become insufficient to support vegetation or agriculture. Subtropical and temperate climates have a west–east distribution, with mild and moist west coasts (Do, Cs), continental interiors (BS, Dc), and east coasts with summer–winter temperature differences (Cr, Dc, Do). Midlatitude weather systems have winds circulating around low atmospheric pressures in frontal cyclones—which bring rain and high winds—and calmer high-pressure anticyclones. The marine west coast climates in North America and Europe benefit from the ocean currents



**FIGURE 2.7 Hurricane Katrina Over the Gulf of Mexico on August 28, 2005.** It passed over southern Florida (on the right) and narrowly missed Cuba and Mexico (foreground) before turning north toward the Mississippi River delta and New Orleans. Several hundred kilometers across, this hurricane shows the typical cloud-free eye of descending air in the center, surrounded by strong winds and swirling clouds. Once over the Gulf of Mexico, it picked up energy from the warm surface waters, intensifying the winds and surge of ocean water. **Photo:** NOAA.

that warm the air above. On the margins with tropical climates, seasonal alternations with arid climates produce long, dry summers. This regime is typical of lands around the Mediterranean Sea and is named after it. In the large northern continents of Asia and North America, interiors are far from the oceans. They experience drier conditions as well as the greatest summer–winter temperature ranges. In higher latitudes, the humid continental winter seasons have a lasting snow cover.

**Polar climates** are extremely cold through the year. Winter conditions dominate the Arctic climates (FT, FI), although short summer spells may melt some of the snow and ice. Truly polar climates are frozen all year. Polar regions have no weather systems of their own but are dominated by dense, cold air that sinks and flows outward to deepen the winters of midlatitude regions. Midlatitude cyclones sometimes invade polar regions, bringing high winds and precipitation. Although expeditions to explore Antarctica and the Arctic Ocean take advantage of the long local summers, temperatures remain low. In winter, there is almost total darkness for several months in polar regions. Such conditions support only sparse human settlement.

### Global Climate Change

Climates change over time—by small amounts over shorter periods and larger over longer periods. A cyclic progression repeats warmer and cooler phases, resulting from changes in Earth's solar orbit shape and the planet's axis angle relative to solar rays. However, human actions may compound the impacts at particularly sensitive moments.



An intensive freeze, the most recent part of the Pleistocene Ice Age, lasted for most of the last 100,000 years. It ended around 10,000 years ago with a period of warming, ice melting, and a sea surface rise of around 100 m (300 ft.) to its present level. During the freeze, huge ice sheets dominated the northern parts of North America and Europe, and sea levels were lowered around the world. After the ice cover retreated, smaller fluctuations of climate brought the warmest conditions around 5,000 years ago. The "Little Ice Age," from approximately A.D. 1430 to 1850, caused upland glaciers to advance several kilometers down valleys and cultivation to retreat from higher areas in midlatitude countries. From the early 1800s, climatic warming resulted in a reversal of those trends.

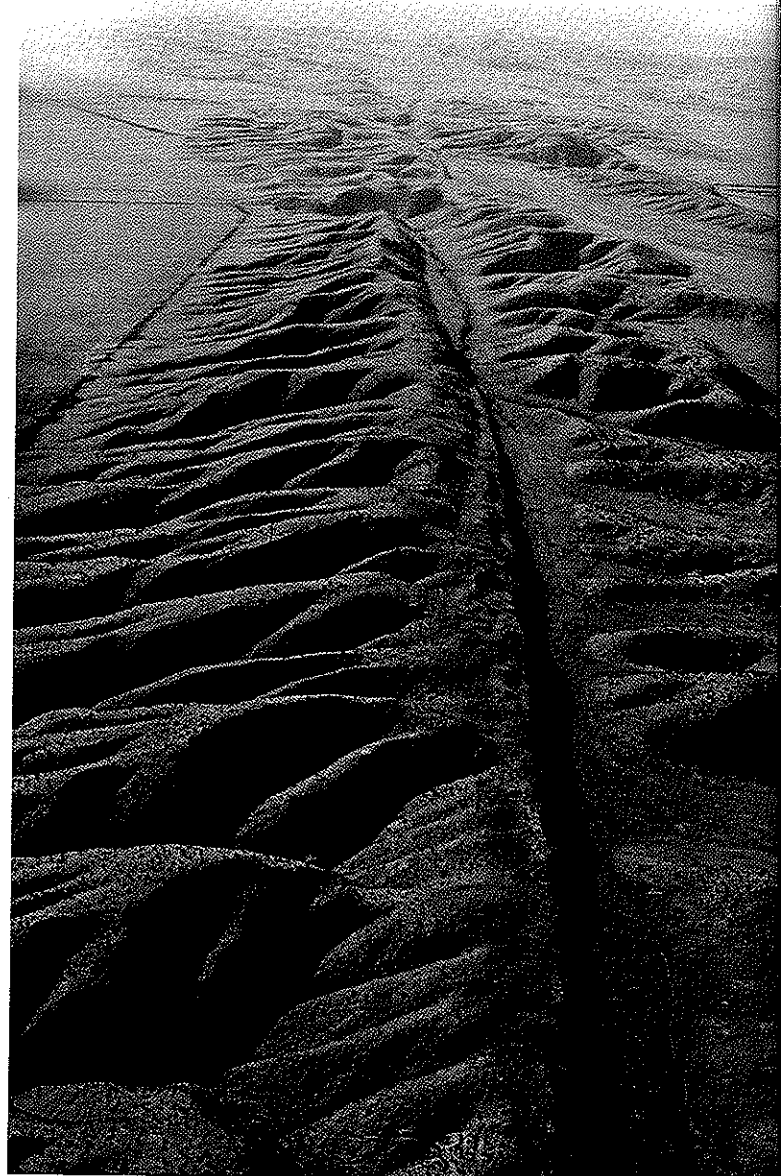
A present concern of **global warming** is that the carbon gases humans emit into the atmosphere by burning coal, oil, and gasoline will add to the gases that trap solar energy in the lower atmosphere and may enhance the greenhouse effect and natural climatic warming. If ice sheet margins melt and the ocean level rises a meter or so within the next 50 years, the low-lying coasts of coral islands, wetlands, and port areas will be at risk. Such changes would have massive impacts on the high proportion of people who live close to the ocean. The precise trends and impacts on specific regions are difficult to predict, however, because interactions among natural processes are so complex. Even where predictable, the huge scale of size and energy involved in such events as the advances and retreats of ice sheets places them outside the realm of human abilities.

## Lithosphere Changes

Earth's surface—the crust—is the outer part of the lithosphere. Seventy-one percent of it is comprised of dense oceanic crust, leaving 29 percent of it continental crust. The natural environment of continental surfaces forms the height and slope of the land, or its **relief** in features such as mountains, valleys, and plains. The interaction of internal Earth-building forces with external Earth-molding influences includes weather and the action of the sea (Figure 2.8).

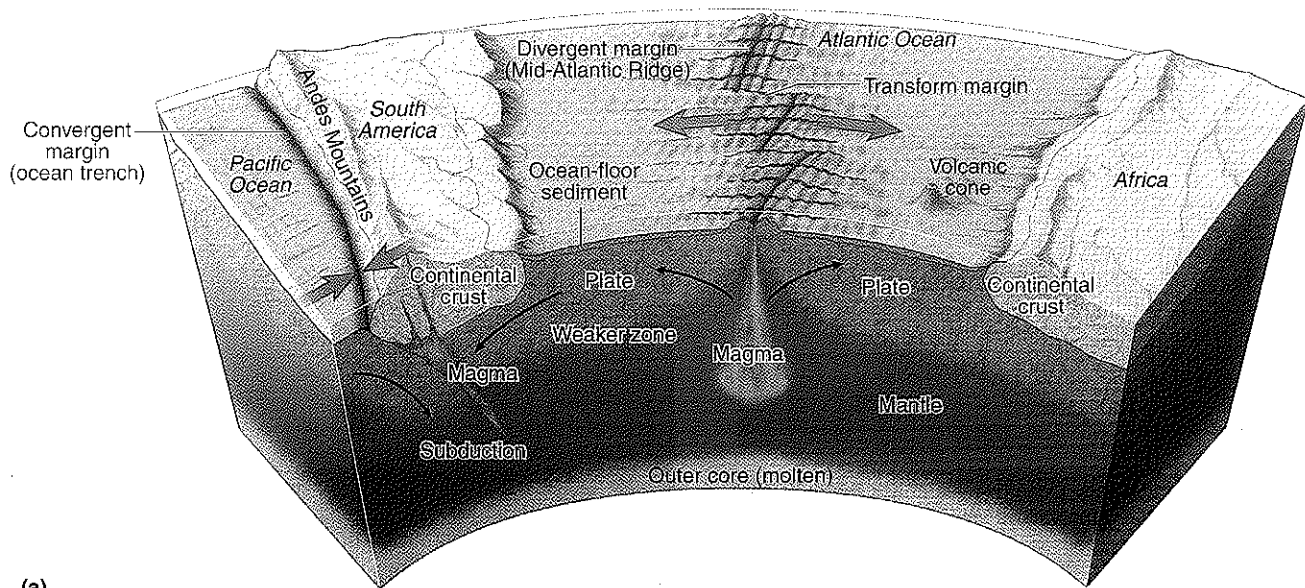
The internal heat of Earth's hot, molten core provides the energy that forces large blocks of surface rock, thousands of kilometers across and around 100 km (65 mi.) thick, known as **tectonic plates**, to crash into each other or move apart (Figure 2.9a). There are six major and several minor plates (Figure 2.9b). Earthquakes and volcanic outbursts of molten rock from beneath Earth's surface concentrate along plate boundaries, signaling where plates collide or move apart. Where plates move horizontally against each other, transform faults such as the San Andreas Fault in California create earthquakes, but few have volcanic eruptions.

The plate movements cause the opening and closing of ocean basins and the raising of mountain systems. Where plates move apart, or diverge, fissures open and rock erupts as molten lava, adding to the edge of a plate where it solidifies. Such divergent plate margins include the Mid-Atlantic

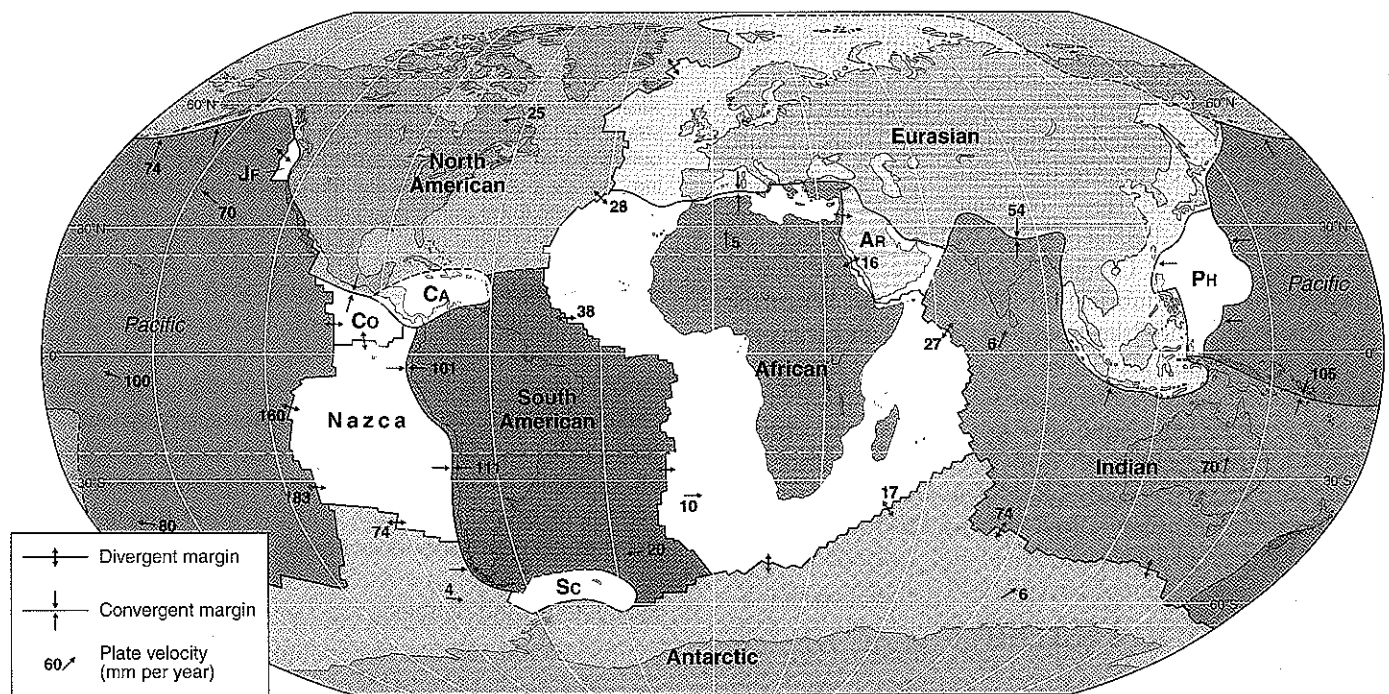


**FIGURE 2.8 Internal and External Earth Forces Mold the Landscape.** The gash across the Carrizo Plain in southern California caused by the transform San Andreas Fault splitting a section of Earth's crustal rocks. Two plates move against each other with the western side moving northward. Rain and rivers etched out the line of weakness along the fault. Continuing movement along the fault offsets the lines of stream valleys on either side. **Photo:** © Brand X/Punchstock.

Ridge, where the eruption of molten lava builds Iceland. Plate collisions occur along convergent margins and often force one plate upward to form mountain systems such as the Andes Mountains of South America. The plate that is forced beneath the raised plate is said to be subducted. The subducted solid rock melts under high temperatures generated by burial and friction. The molten rock produced rises toward the surface under pressure, and erupts to create volcanic mountains and piles of lava such as those forming the Columbia Plateau in the northwestern United States.



(a)



(b)

**FIGURE 2.9 Plate Tectonics, Ocean Basins, and Mountain Ranges.** (a) A diagram that simplifies the plate tectonics relationships of the South Atlantic Ocean area. The large red arrows depict the plate movements: diverging from the Mid-Atlantic Ridge where molten rock (magma) rises and solidifies as new plate; converging where the Pacific Ocean and Andes Mountains meet, where plate material is destroyed and rises as molten magma to form volcanoes. A mid-ocean ridge is associated with diverging plates, and an ocean trench and high fold mountains with convergence. Where a plate is broken horizontally, a transform margin forms. All plate margins are associated with earthquakes and volcanic activity. (b) World map of major and the main minor plates. The minor plates include Nazca, Cocos (Co), Caribbean (CA), Juan de Fuca (Jf), Arabian (Ar), Philippine (PH), and Scotia (Sc). **Source:** (b) Data from NASA.

## Earth Surface Alterations

Once land emerges above sea level, the atmosphere and ocean waves etch the details of surface relief. Changes in the temperature and chemical composition of the atmosphere, together with water from rain and snowmelt, react with the

rocks exposed at the surface and dissolve them or break them into fragments. Small particles are acted on by chemicals in the water. Such changes are called **weathering**. The broken and dissolved rock material forms the mineral basis for soil. On steep slopes, weathered material moves downhill



**FIGURE 2.10 Eroding the Land.** Ocean waves attack the cliffs and form beaches in Oregon. Inland the valleys are caused by a combination of river action and slope processes. **Photo:** © Corbis RF.

under the influence of gravity. Such movement may be rapid in slides, flows of mud, or avalanches, or slow in local heaving and downslope creep of the surface. The mobile fraction of this broken rock material often falls into rivers or onto glaciers and is moved toward the ocean.

The concentrated flows of water or ice and rock particles in rivers and glaciers gouge valleys in the rocks—a process called **erosion**. Glaciers formed of ice move slowly, helped by meltwater lubrication in the summer. When the flows reach a lake or the ocean, they stop and the rock particles drop to the lake or ocean floor in the process of **deposition**. Wind blows fine (dust-size) rock particles long distances, while sand-sized particles are blown around deserts or across beaches to form dunes. Along the coast (Figure 2.10), sea waves and tides fashion eroded cliffs and deposited beach features, often moving the rock particles supplied by river, glacier, or wind.

## Physical and Human Landscapes

In a particular region, the relief features of the land surface are determined by the combination of these internal and external forces, together with modifications brought about by human occupation, as Figure 2.11 shows. The landscape outcome depends on whether the region contains a plate margin, which climatic elements fashioned the surface, how long the natural forces operated without catastrophic changes, and how people affected the surface processes.

## Ecosystem Modifications

Plants and animals are sustained by a combination of energy from the sun's rays, water circulating from oceans to the continents and back again, and nutrient chemicals in the soils. Most plants can capture and store the sun's energy in



**FIGURE 2.11 Landscape Evolution, Western Scotland.** The rocks in this northwestern part of Britain were formed over 400 million years ago and then crushed and raised into mountain ranges by colliding plates as an earlier Atlantic Ocean closed. Rivers wore down the mountains. The Atlantic Ocean opened again some 50 million years ago, raising this area with others along its margins. Within the last million years, the Ice Age covered the higher parts with thick ice that moved outward, forming deep valleys such as the one in this photo. On melting, the ice poured water back into the ocean, raising its level and drowning the lower part of this valley as a sea loch. Rivers eroded the hills, depositing deltas along the edge of the deep water. People altered the rates of natural processes by clearing woodland or erecting buildings. **Photo:** © Michael Bradshaw.

chemical form, combining with the mineral nutrients drawn from soil to produce the foods that animals require. The atmospheric processes that break up surface rocks, the actions of other organisms, and the water flowing through them make the nutrients available to living organisms.

## Ecosystems and Biomes

Plants and animals live in communities, in which they share the physical characteristics of heat, light, water availability, and nutrients. An **ecosystem** is the total environment of such a community and its physical conditions. Ecosystems exist at all geographic scales but for the purposes of this text are discussed in relation to the largest scale, or **biome**. The five main types of biomes are forest, grassland, desert, polar, and ocean. Those on land reflect the major climatic environments, although the natural vegetation and soils of most biome areas have been greatly modified by human activities.

- **Forest biomes** exist in climatic environments where much water is available. Tropical types range from the dense rain forest of equatorial regions, which is characterized by the crowding of great numbers of plant and animal species, to more open forests with fewer species in areas having marked dry seasons. Midlatitude forests include the deciduous forests, typical of the

eastern United States, in which the leaves are shed in winter, and the evergreen forests typical of Canada and western North America. Most midlatitude forests and large areas of tropical forest have been cut for timber or cleared for farming. Some have been replanted.

- **Grassland biomes** occur where longer dry seasons or annual burning by humans restrict tree growth. In the tropics, savanna grasslands are characteristic of much of the seasonal climatic regions, as in Africa with its wide range of large animals from lions to elephants (Figure 2.12). Midlatitude grasslands once occurred in the prairies of North America, the steppes of southern Russia, the pampas of Argentina, and the veldt of Southern Africa. These environments are now dominated by grain farming and grazing.

With its low shrub vegetation, the Arctic tundra occurs where long cold seasons and strong winds prevent tree growth. It does not qualify as grassland but has some similar characteristics and supports grazing animals.

- **Desert biomes** occur in lands dominated by aridity (where evaporation exceeds water supply) and thus support little or no vegetation. Any plants that survive in such conditions have special means for storing water, as in the cactus, or short-flowering, seed-producing regimes. The largest desert area is the zone extending from the Sahara in northern Africa through southwestern Asia to Pakistan. Other deserts occur in central Australia, southwestern North America, and coastal Peru and northern Chile. In midlatitudes, deserts occur far from the oceans in Central Asia, or in the shadow of mountains as in Patagonia (southern Argentina, South America), and in some areas of western North America.

**FIGURE 2.12 World Biome Types: Savanna Grassland.** Tropical savanna grassland, eastern Africa. The grasses grow in areas of moderate rainfall, supporting large numbers of grazing animals, such as zebras and wildebeest. These become food for lions and other carnivores at the end of the food chain. **Photo:** © Jill Wilson.



- **Polar biomes** In polar lands, ice cover and low amounts of solar energy provide little sustenance for living organisms. Coastal areas, however, support a variety of animals from offshore marine resources.
- **Ocean biomes** are differentiated by water temperatures and nutrient availabilities that produce zones of more or less abundant life in tropical, midlatitude, and polar zones. Microscopic plankton plants take advantage of sunlight in the surface waters and form the basis of living systems in the oceans. The richest biomes with the most profuse organisms occur where rising cold water brings nutrients to the surface, as along the west coasts of Africa and North and South America. Fisheries have smaller numbers of a wide range of different species in the tropics and greater numbers of fewer species in midlatitude oceans.

### Soils

**Soils** form as broken rock matter interacts with weather, plants, and animals. The rock materials supply or withhold nutrients. Water from rain and snowmelt makes any nutrients present available to plants; decaying plant and animal matter releases the nutrients back to the soil in mineral form. Soil fertility, based on nutrient content and structure, together with heat and moisture, governs whether a region will produce good crops, support livestock farming, or have little farming potential.

## Human Impacts on Natural Environments

Natural environments operate largely outside human controls, being powered by energy from the sun or Earth's interior. Locally, however, specific human activities change rates of erosion, remove natural vegetation cover, or emit pollutants into the atmosphere and hydrosphere.

Early in human history (see Chapter 1), most livelihoods depended on the local characteristics of weather, rocks and minerals, landforms, water supply, vegetation, animals, and soils. Even at this early stage of low densities of population, human activities locally changed the workings of the natural environment. For example, burning of vegetation in dry seasons around forest margins encouraged the extension of grassland, and the increase of grazing animals—such as the bison in North America that provided meat and hides for Native Americans. Hunting caused the extinction of large mammals such as the mammoth.

### Farming and Erosion

The first farmers settled the lighter soils where there was not much vegetation to clear. From around 1000 B.C., new iron implements made it possible to fell trees on a larger scale and extend farmland into heavy clay soil areas. Both phases of woodland clearance increased soil erosion in uplands and deposition in lowlands. They also changed the species composition



of animals and plants. In Asia and elsewhere, the construction of terraces reduced erosion but extended the cultivated area to steep slopes at the expense of forest cover.

### Desertification

**Desertification** is the destruction of the productive capacity of an area of land. It can occur following natural changes in climate or because of human activities. As a result, deserts, such as the Sahara, are expanding in area. The southern margin of the Sahara has experienced desertification since the 1970s after commercial agriculture had extended into less humid areas and years of drought followed (see Chapter 9). The deaths of cattle and vegetation, and lack of irrigation water, caused many communities to move away from their traditional lands.

Humid areas also experience desertification where vegetation is removed or the soil is stripped away. Environmental contamination, as when mining wastes foul the land or nuclear or other toxic wastes leak, also makes land unusable for many years.

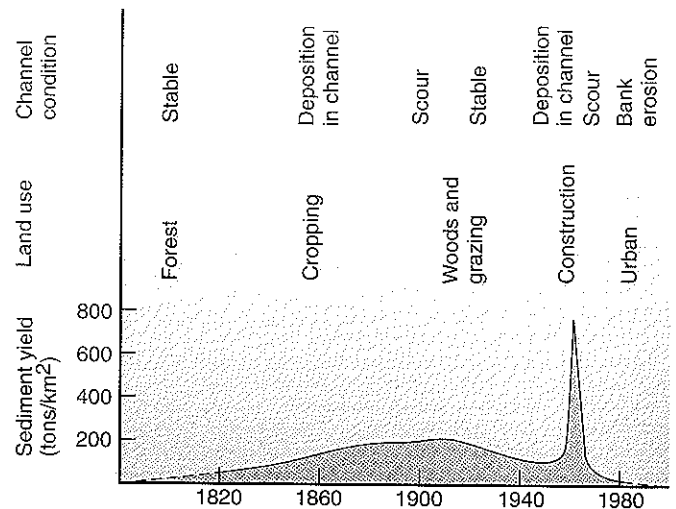
### Industrial Revolution

The industrial revolutions after 1750 intensified the scale of human intervention in natural environments (Figure 2.13). The rate of soil erosion from deforested slopes and plowed fields increased. It affected areas of the world that were opened up for agriculture in the 1800s and 1900s by settlers from the colonizing countries who aimed to produce commercial crops for sale to the materially wealthier countries. City expansion produced surfaces of tile, brick, concrete, and asphalt that caused rain to run off the surface more rapidly, adding to the numbers of floods downstream. Pollution of water and air became a health problem in many industrial cities. Demands for fish by a rising world population led to overfishing of the oceans; increasing demand for timber and land led to the cutting of tropical rain forest. Both overfishing and forest cutting remain major aspects of resource depletion.

### Atmospheric Pollution

Environmental problems built up with the increase of the materials entering the atmosphere from industrial processes. Factories in the industrial countries poured their wastes into the atmosphere and rivers. The carbon gases emitted by burning coal and gasoline exceeded the amounts that natural systems could absorb, and the carbon dioxide content of the atmosphere rose, enhancing the greenhouse effect (see *Geography at Work: China's Landscapes and Global Change*, page 34).

The growth of the "ozone hole" over Antarctica poses another potential problem. Ozone is a gas that forms a protective shield in the upper atmosphere, intercepting incoming harmful ultraviolet rays from the sun. Depletion of the ozone layer increases ultraviolet ray penetration and the risk of skin cancer. In the 1980s, it became clear that chlorine gases, including the human-made chlorofluorocarbons used in refrigeration systems, gradually permeate



**FIGURE 2.13 Human Impacts on the Environment.** A watershed near Washington, D.C., which has been subject to land use changes over the last 200 years. Describe how clearance for farming, land abandonment, and urban expansion affected the sediment flow and hence changed rates of erosion by the rivers of the area. **Source:** Reprinted from "A Cycle of Sedimentation and Erosion in Urban River Channels" by M. G. Wolman from *Geografiska Annaler*, 1967, 49A:385-395. Used by permission of the author.

upward and destroy ozone by chemical reactions. The reactions are most intense during the polar winters over Antarctica: the October measurements (at the end of Antarctic winter) show the greatest depth of ozone depletion, forming a hole in the ozone layer. People living in southern Chile and Argentina, Australia, and New Zealand take steps to mitigate the danger. Elsewhere around the globe, the ozone layer thinned slowly. Governments agreed to end the use of the ozone-depleting gases, and the policy is reducing ozone destruction, although the potential danger will last for several decades.

While global warming and ozone depletion may have worldwide effects, acid rain affects areas up to several hundred kilometers downwind of major urban-industrial areas. In particular, sulfur and nitrogen gases from power stations and vehicle exhaust react with sunlight in the atmosphere and return to the ground as acids. Soils and lakes that are close to the pollution sources and are already somewhat low in plant nutrients suffer first.

The effects of acid rain may be felt in countries beyond the origin of the pollutants. Canadians claim that emissions from Ohio River Valley power plants in the United States affect their eastern forests and lakes; Scandinavians complain about the emissions from western European industrial areas. The phenomenon is a growing menace downwind of new industrial areas in developing countries. However, something of the complexity of human interactions with natural process was demonstrated in the early 2000s by the recovery of European forests, thought to have been affected by acid rain, as global warming brought higher temperatures, more rain, and greener trees.

## Resources and Hazards

Natural resources and hazards are distributed unevenly around the world and have important influences on regional geographic differences. Their study unites physical geography with cultural perceptions of what is useful or harmful to human populations.

### Natural Resources

**Natural resources** are naturally occurring materials that human societies identify as resources by their technological and cultural usefulness and their economic viability. People use resources to maintain their living systems and built environments.

Resources valuable to one society or technology are not always rated highly by others. For example, Stone Age peoples used flint and other hard rocks that flaked with sharp edges to make tools and weapons, but such rocks have few uses today. The clay mineral bauxite was ignored until it was found that refining it produced the strong, lightweight metal aluminum. Among energy resources, emphasis shifted from wood to wind, running water, coal, oil, gas, and nuclear fuels.

Natural resources include fertile soils, water, and minerals in the rocks. **Renewable resources** are naturally replenished. The best example is solar energy, which provides a constant stream of light and heat to Earth. Water is a renewable resource that is recycled from ocean to atmosphere and back to the ground and oceans. Many countries use less than 20 percent of the water falling on their territory, returning much of that to natural systems after use. All renewable resources are, however, ultimately finite in quantity and quality. They may be overused. For example, reaching the limits of water supply affects irrigation-based development in arid countries, such as along the Nile River valley (see Chapter 8) and in the western United States (see Chapter 12).

**Nonrenewable resources** include the fossil fuels (e.g., oil, natural gas, and coal) and metallic minerals available in rocks. Though these are exhaustible, technological advances or new and increased demands, encourage our continued efforts to find new sources, extract sources that were once thought to be uneconomical, and recycle. Such technologies extend the lifetime usefulness of nonrenewable resources.

### Natural Hazards

**Natural hazards** such as volcanic eruptions, earthquakes, hurricanes and other storms, river and coastal floods, and coastal erosion pose difficulties and challenges for human settlement. They interrupt human activities, although they seldom deter humans from settling or developing a region if its resources are attractive. For example, people are drawn to living in California or the major cities of Japan despite the likely occurrence of earthquakes. Similarly, people continue to live and work in areas prone to hurricane damage or river flooding. In areas such as the Mississippi River valley in the United States and the lower Rhine River valley in the Netherlands, protective walls are designed to cope with all but the worst river floods.

Hazards cause loss of life and destruction of property, but the costs of protection against hazards are also high. Most protection is provided in wealthier countries, where hazards cause the least loss of life but the greatest damage to property. Many poorer countries have few resources available to construct protective measures against natural hazards and often suffer major losses of life after floods, hurricanes, or earthquakes. Comparisons between the few people killed when hurricanes strike the United States and the high number killed in the earthquake and resultant tsunami of Southeast Asia and around the Indian Ocean in December 2004 illustrate this point.

### Rio and Kyoto

Concern about global warming has resulted in international conferences aimed at bringing about consensus and collective action to lower the emission of greenhouse gases and other harmful pollutants. Such international cooperation is necessary because air and water are not confined within countries' boundaries. Pollution emitted from one country frequently moves into other countries.

The United Nations Conference on Environment and Development in Rio de Janeiro, Brazil, in 1992, is now commonly known as the "Rio Earth Summit." The Rio conference produced a number of conventions, namely the UN Framework Convention on Climate Change (UNFCCC), the Convention on Biological Diversity (CBD), and the United Nations Convention to Combat Desertification (UNCCD). The UNFCCC established an overall policy framework for addressing climate change and laid the foundation for combating global warming. It went into effect in March 1994 after 50 countries ratified it.

The Rio Earth Summit was followed by another meeting in Kyoto, Japan, in 1997. The resulting **Kyoto Protocol** to the United Nations Framework Convention on Climate Change (UNFCCC) was adopted on December 11th, 1997, and addressed specific targets for reducing the six primary greenhouse gases: carbon dioxide ( $\text{CO}_2$ ), methane ( $\text{CH}_4$ ), nitrous oxide ( $\text{N}_2\text{O}$ ), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride ( $\text{SF}_6$ ). A list of industrialized countries, primarily in Europe but also including the United States, Canada, Japan, Australia, and New Zealand, is known as Annex I countries. According to the Kyoto Protocol, these countries need to reduce their greenhouse gas emissions so that their average yearly emissions for the years 2008 to 2012 are 5 percent less than their emissions in 1990. For the Kyoto Protocol to go into force, two conditions must be met. First, 55 countries must ratify the protocol. Second, the list of at least 55 countries ratifying the protocol must include industrialized countries from Annex I that likewise account for at least 55 percent of the carbon dioxide ( $\text{CO}_2$ ) emissions of those countries listed in Annex I. The highest emitters are the United States and the Russian Federation, respectively accounting for 36.1 and 17.4 percent of the list's  $\text{CO}_2$  emissions. The other countries each emit less than 10 percent, with many below 1 percent.



## GEOGRAPHY *at* WORK

### China's Landscapes And Global Change

Over the past 50 years, population growth together with economic development and industrial technologies such as fossil fuels and synthetic nitrogen fertilizers have been driving unprecedented ecological changes across China's ancient agricultural landscapes. Current research by Erle Ellis and his team of collaborators in China is demonstrating that the environmental impacts of these changes extend far beyond the region's 2 million square kilometers and 800 million people, impacting both global climate and stratospheric ozone. By a multiscale approach integrating regional data on land cover, terrain, and climate with higher-resolution local measurements from historical aerial photographs, high-resolution satellite imagery, household surveys, interviews with village elders, and field measurements of soils and vegetation, Ellis and his collaborators are now measuring these changes with unique precision at five rural field sites selected across environmentally distinct regions of China (Box Figure 1).

In the late 1980s, while finishing his dissertation on the physiology of crop yield at Cornell University, Ellis became convinced that sustainable agricultural development required a more holistic understanding of long-term agricultural productivity. He set out to investigate the ecology of the world's most productive and long-sustained agricultural systems. China stood out as one of the few places where agricultural systems that had sustained high yields continuously for centuries might still be available for study.

In the spring of 1990, Ellis joined a sustainable agriculture delegation to China and was immediately inspired to begin research there. In the absence of postdoctoral opportunities for foreign researchers, he accepted an English teaching position at Nanjing Agricultural University, and spent the year there learning Mandarin, familiarizing himself with China, and searching for the right project and collaborators. Returning to the United States a year later, he applied for and received a (U.S.) National Science Foundation Environmental Biology postdoctoral fellowship to investigate the nitrogen cycles of traditional versus industrial villages in China.

In 1993 Ellis began field research, believing that a traditional agricultural village might still exist in the Tai Lake Region—the area around Tai Lake bounded by Shanghai, Hangzhou, and Changzhou, long one of the most productive agricultural regions of the world and known in China as the “land of fish and rice,” the Chinese equivalent of the “land of milk and honey.” He discovered that the region's traditional agriculture had been transformed since the 1970s into one of the most input-intensive agricultural systems in the world and adapted his study to a comparison of the historic (circa 1930) versus contemporary (1995) state of the same village in Wujin County.

Given that nitrogen limits the productivity of most ecosystems, Ellis had hypothesized that the secret to sustaining high long-term productivity was to overcome nitrogen limitation by planting nitrogen-fixing legume “green manure” crops and by efficient nitrogen recy-



**BOX FIGURE 1** Carrying Out the Humification Study in the Field. To read more about this study, refer to Ellis, E.C., “Long-term Ecological Changes in the Densely Populated Rural Landscapes of China,” in R.S. DeFries et al., eds., *Ecosystems and Land Use Change*, American Geophysical Union, Washington, D.C. (2004).

cling. Historical records confirmed that the region's traditional farmers sustained rice yields for more than 800 years at levels over 50 percent higher than possible without fertilizers. They accomplished this by means of external sources of nitrogen fertility, including sediments harvested from canals and purchased oilcakes (residues from pressing oil from imported soybeans and rapeseed). Nitrogen fixation and recycling proved to be only minor sources of fertility.

His initial hypothesis disproved, Ellis made another discovery. Because of the ready availability of synthetic nitrogen, sediment was now left to fill in village canals and had increased soil nitrogen concentration over time, producing a dramatic net increase in nitrogen storage across the region's rural landscapes. Potentially, this “sink effect” had global implications, helping to explain the “missing sink” for atmospheric carbon dioxide that continues to complicate our understanding of anthropogenic climate change. (Carbon storage is tightly linked to nitrogen storage in soils.)

Ellis's research was pushed in its current direction by the observation that fine-scale local changes in landscape management could have major regional and global consequences that were observable only by detailed site-based measurements. In 2004, in the final year of a five-year NSF project investigating the global impacts of long-term ecological changes across China's densely populated rural landscapes, his work yielded surprising results, including long-term increases in tree cover that parallel major growths in population density, with simultaneous increases in impervious surface areas that rival those of urban areas.

By the end of 2004, 125 countries had ratified the Kyoto Protocol, easily satisfying the protocol's first requirement. However, most of these countries were developing countries, not listed in Annex I. The largest CO<sub>2</sub> emitter, the United States, signaled its intentions not to ratify the treaty. However, most European countries, along with the Russian Federation, Japan, Canada, Australia, and New Zealand,

ratified the treaty. The percentage of total emissions for Annex I countries ratifying the protocol amounted to 61.79 percent, well above the minimum 55 percent required for the protocol to go into effect. The Kyoto Protocol went into effect 90 days later on February 16, 2005. It began a new phase of international relations on greenhouse gas emissions and concern for the environment.

## TEST YOUR UNDERSTANDING

### 2A

#### Summary

Solar energy drives atmospheric and oceanic circulations, in turn setting off a series of weather events that create climatic environments. These can be divided into tropical, midlatitude, and polar variations. Climate change is normal in the natural environment, but human impacts are now powerful enough to influence such changes.

Earth's surface features are produced by the interaction of internal forces that produce volcanoes, earthquakes, and mountain ranges and climatic forces of temperature changes, wind, water, and ice flow. Ecosystems are comprised of plants, animals, and soils that are fueled by solar energy and nutrients from broken rock materials and atmospheric gases. Forest, grassland, desert, polar, and ocean biomes are distinctive ecosystems.

Humans impact the natural world by converting forest and grassland into farmland and urban space, but they also pollute air, water, and soil. Humans also designate natural resources and combat natural hazards.

#### Questions to Think About

- 2A.1** How do (a) natural environments affect human actions and (b) human activities affect natural environments? Refer to recent events to illustrate your answer.

- 2A.2** What causes natural environments to change?

- 2A.3** What are some examples of renewable and nonrenewable resources?

- 2A.4** Analyze a recent natural hazard in terms of its causes, effects, and prospects for future control.

#### Key Terms

natural environment

climate

greenhouse effect

tropical climates

subtropical climates

temperate climates

polar climates

global warming

relief

tectonic plate

weathering

erosion

deposition

ecosystem

biome

forest biome

grassland biome

desert biome

polar biome

ocean biome

soil

desertification

natural resource

renewable resource

nonrenewable resource

natural hazard

Kyoto Protocol

## ISSUES OF PEOPLE AND LAND

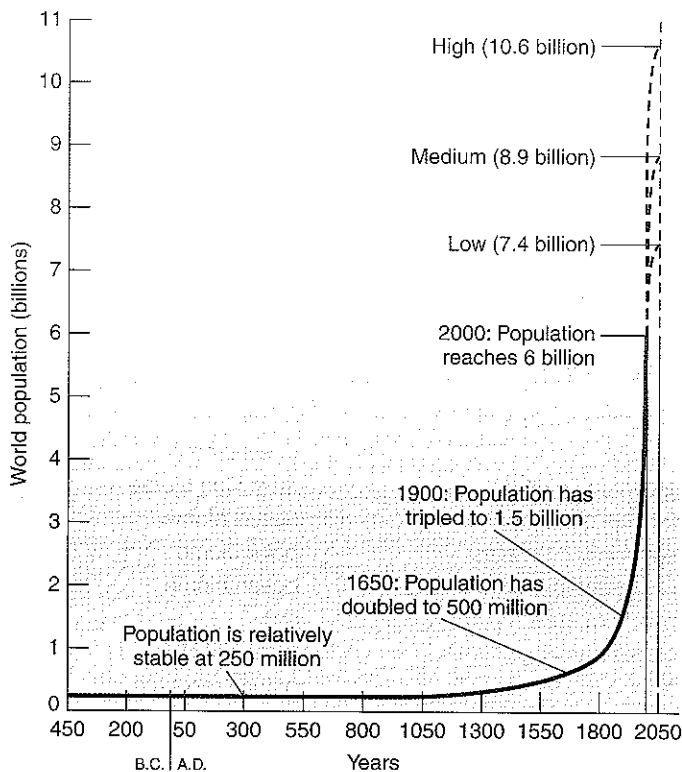
People are central to regional geography. They create, live in the context of, and re-create geographic regions. Population dynamics such as growth, settlement patterns, and migration, along with natural resource distribution and use, are major causes of differences among regions. In late 1999, the world population passed 6 billion, increasing at nearly 80 million people per year (Figure 2.14); by 2007 it reached 6.6 billion. Although the rate of population increase is slowing after 50 years of rapid growth, the world's total population will continue to expand and put pressures on resources. Geographers examine where people live and relate that to the distribution of fresh water and good soil conditions in the context of how they use available natural resources.

### Population Distribution

The world's population is unevenly distributed. With countries and other political units varying in land size, meaningful comparisons between places are commonly measured

by looking at **population density**—the numbers of people per given area (such as square kilometer or square mile) (Figure 2.15). Each given land area on Earth also varies in terms of quality of soil and available resources and thus the amount of people it can support. **Physiological density** measures the population numbers per unit of cultivatable land. **Population-resource ratio** measures the quantity and quality of each area's material resources and technical ability of its population. Data for these latter two measures are not easily available, but these measures emphasize the need to consider population distribution in relation to natural and human resources.

Only 29 percent of Earth's surface is land, and much of that is uninhabitable (desert, ice cap, mountain). The scarce habitable areas vary from low to high densities of people. The highest densities are in fertile lowlands and especially along coasts, where urban areas sprawl over good farmland. It is estimated that 97 percent of world population growth from 2000 to 2050 will be in the larger, more densely populated, and often poorer, countries. For example, 35 percent of the total is expected to be in China and India—already the world's most populous countries. Pakistan, Indonesia,



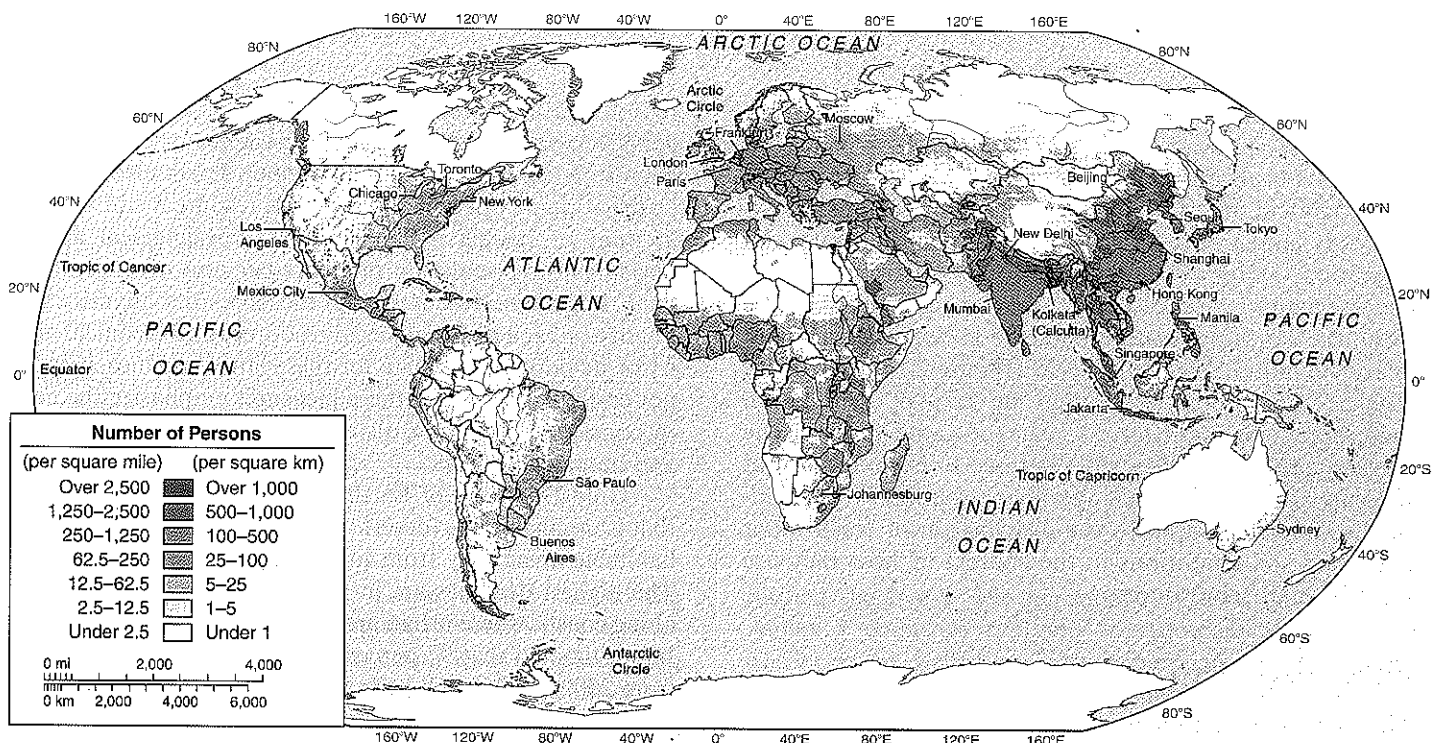
**FIGURE 2.14 World Population Growth.** For most of the human occupation of Earth, population growth was slow compared to the last 300 years. The population took 1,300 years to double from 250 to 500 million, then doubled again in 200 years. In the 1900s, world population quadrupled. The high, medium, and low projections are from the United Nations, 1998. **Source:** United Nations.

Nigeria, Brazil, Bangladesh, Mexico, the Philippines, and the United States are likely to contribute another 25 percent. Reasons for the variable and changing distributions of people are complex and will be explored for each major region in the appropriate chapters.

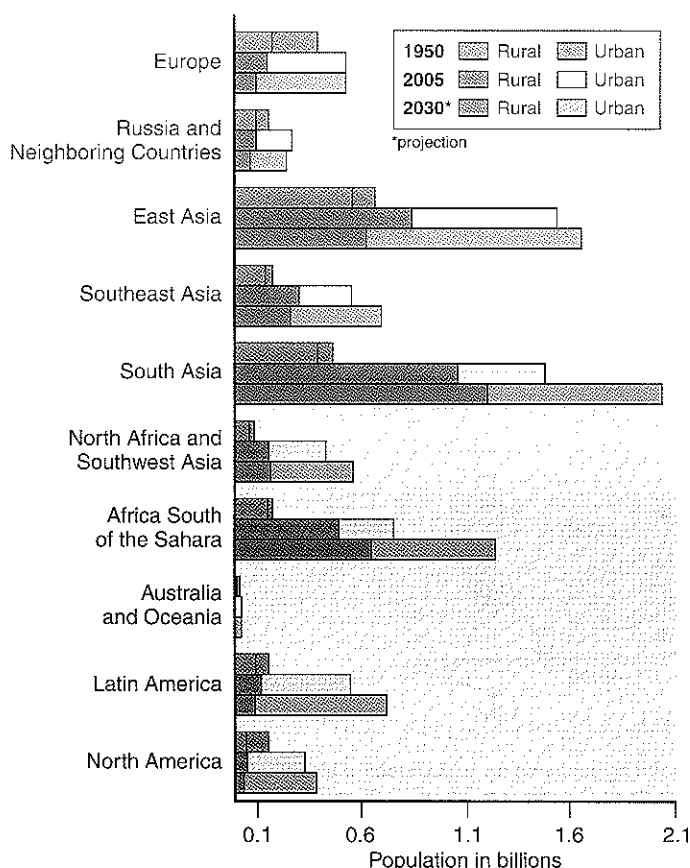
## Urbanization

Over the last two hundred years, people have increasingly moved from **rural** to **urban areas** in a process known as **urbanization**. Those who urbanize usually give up a traditional way of life, often involving farming, and adopt a specialized occupation in a city. In 1950, about 29 percent of the world's population was urbanized, but by the late 2000s the percentage increased to approximately half of the world's population, with more than 70 percent urbanized in the materially wealthier countries.

Industrialization dramatically increased urbanization in world regions such as Europe and North America in the 1800s and early 1900s. In 1950, New York was the world's largest city with just over 12 million people; it was closely followed by Tokyo. Since 1950, urbanization has been more rapid in much of the rest of the world (Figure 2.16). The number of cities with populations over 10 million inhabitants, called **megacities**, increased from two in 1950 to 20 in 2005. Tokyo is now the world's largest urban area with just over 35 million people. It is followed by Mexico City, New York-Newark, São Paulo (Brazil), Mumbai (Bombay,



**FIGURE 2.15 World Population Distribution.** Which world regions have the highest and lowest densities of population? As you read through this chapter, try to explain the differences.



**FIGURE 2.16 Growth in Population and Urbanization.** Identify those world regions that have grown the most in total population and urbanized the most since 1950.

India), Delhi (India), Shanghai (China), Kolkata (Calcutta, India), Jakarta (Indonesia), and Dhaka (Bangladesh). Listings of major city populations and their projected growths are in each regional chapter.

## Population Ups and Downs

**Demography** is the study of population structure and change. Most major world regions have growing populations; but Europe shows little change, while Russia and Neighboring Countries has declining numbers. Growth or decline in the population of a place focuses attention on issues that should be considered as a whole: whether births exceed deaths (natural change); whether immigration exceeds emigration; and the overall balance between natural change and migration.

### Natural Change Elements

- The **crude birth rate (CBR)** is the number of live births per 1,000 inhabitants per year in a given population. It is related closely to the **total fertility rate (TFR)**—the average number of births per woman in her lifetime.

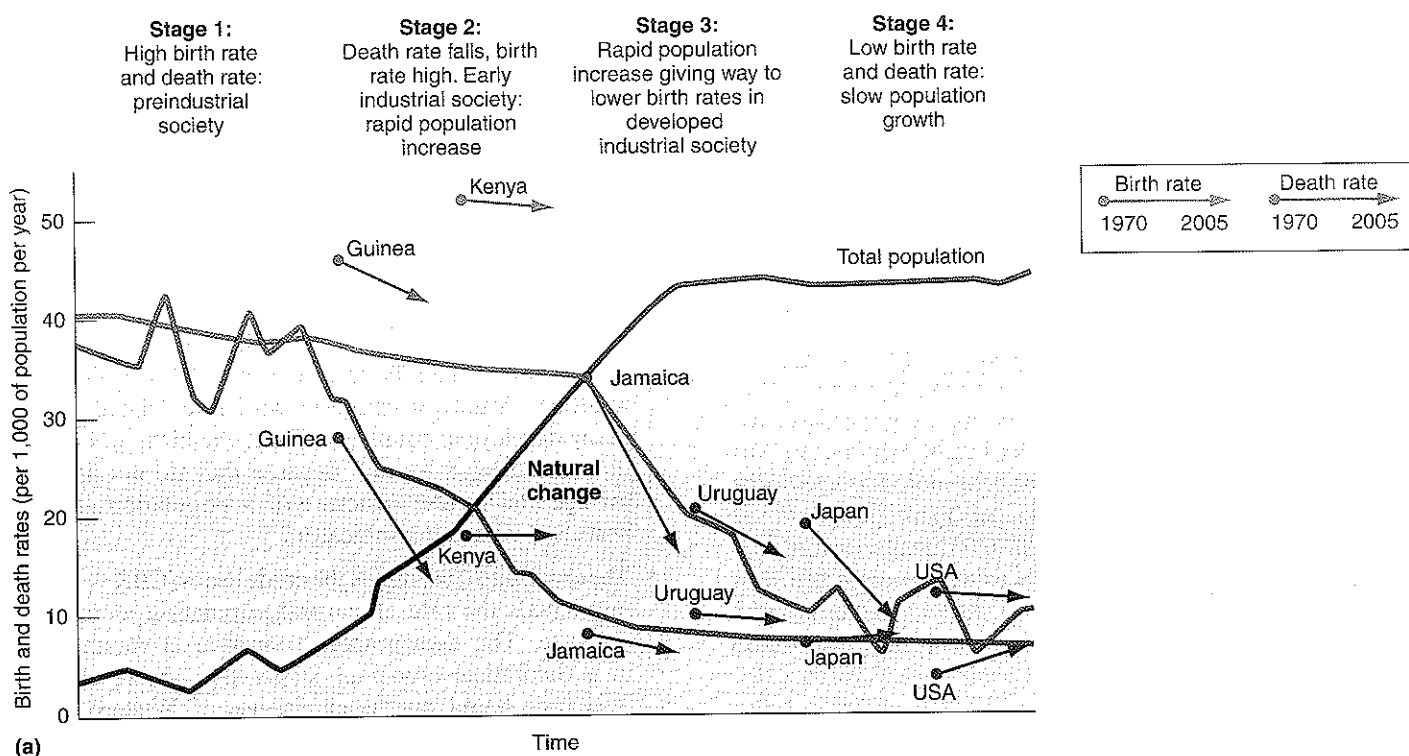
A TFR of 2.1 is known as “zero population growth” because the number of children born only replaces their parents. TFRs of 6 to 7 indicate rapid population growth and are commonly found in developing countries. Many materially wealthier countries have rates of 2 or below, indicating population decline.

- The **crude death rate (CDR)** is the number of deaths per 1,000 inhabitants per year in a given population. **Infant mortality** more specifically counts those who die in the first year of life, and child mortality counts those who die in the first five years of life. Infant mortality rates below 10 (i.e., 10 infants died per 1,000 live births) in wealthier countries compare with rates above 100 in many developing countries. The crude birth and deaths rates are labeled “crude” because they do not account for age and gender structure of a population and are best used with other indicators.
- The crude birth rate minus the crude death ( $CBR - CDR$ ) rate equals the rate of natural population increase or decrease. The **demographic transition** is summed up in a theoretical model of stages that shows changes over time based on the experience of Western countries (Figure 2.17). The model relates birth and death rates to social and economic circumstances. Changing circumstances include rural to urban migration, the transformation of economic activity from an agriculturally based economy to a postindustrial one, the role of women in society, and a maturing of a population (Figure 2.18).

### The Migration Factor

**Migration** is the long-term movement of people into or out of a place. Immigration and emigration can dramatically change the population of a country despite natural increase. For example, immigration is a major cause of population growth in the United States, as natural increase is slow. In the 1990s and 2000s, net immigration accounted for half of the U.S. population growth.

Major migration flows are tied to globalization. In the late 1800s, as trade and European colonization spread, and as refugees from political persecution could escape to new lands, millions of people moved mainly from Europe to the Americas and Australia. In the late 1900s new migration occurred. By 2007, 200 million people lived outside the country of their birth, just 3.0 percent of the world population, but they often played important roles in their host countries. For example, moderate- and low-skilled workers moved from South and Southeast Asia to the Persian Gulf oil countries and Europe, sending their paychecks home. Migrants to urban centers such as London, Paris, Washington, and Toronto are dramatically changing the human geography of these cities. Educated men and women from poorer countries around the world moved to the United States, Europe, and Japan for better-paying jobs, creating a “brain drain” from their home countries. At the same time,



(b)

**FIGURE 2.17 Demographic Transition.** (a) The diagram shows a view of population change, related to social and economic conditions. In Stage 1 birth and death rates are both high, so population increase is low. In Stage 2 the death rate falls, but not the birth rate, giving high rates of natural increase. Eventually, the birth rate falls and population growth reaches a plateau. A Stage 5 might reflect the experience of some countries where death rates are now greater than birth rates, reducing the total population. (b) Bathing an infant in the high Himalaya of Nepal, where birth rates in villages remain high amid persistent poverty. (a) **Source:** 2005 data from Population Data Sheet, Population Reference Bureau; (b) **Photo:** © David Zurick.

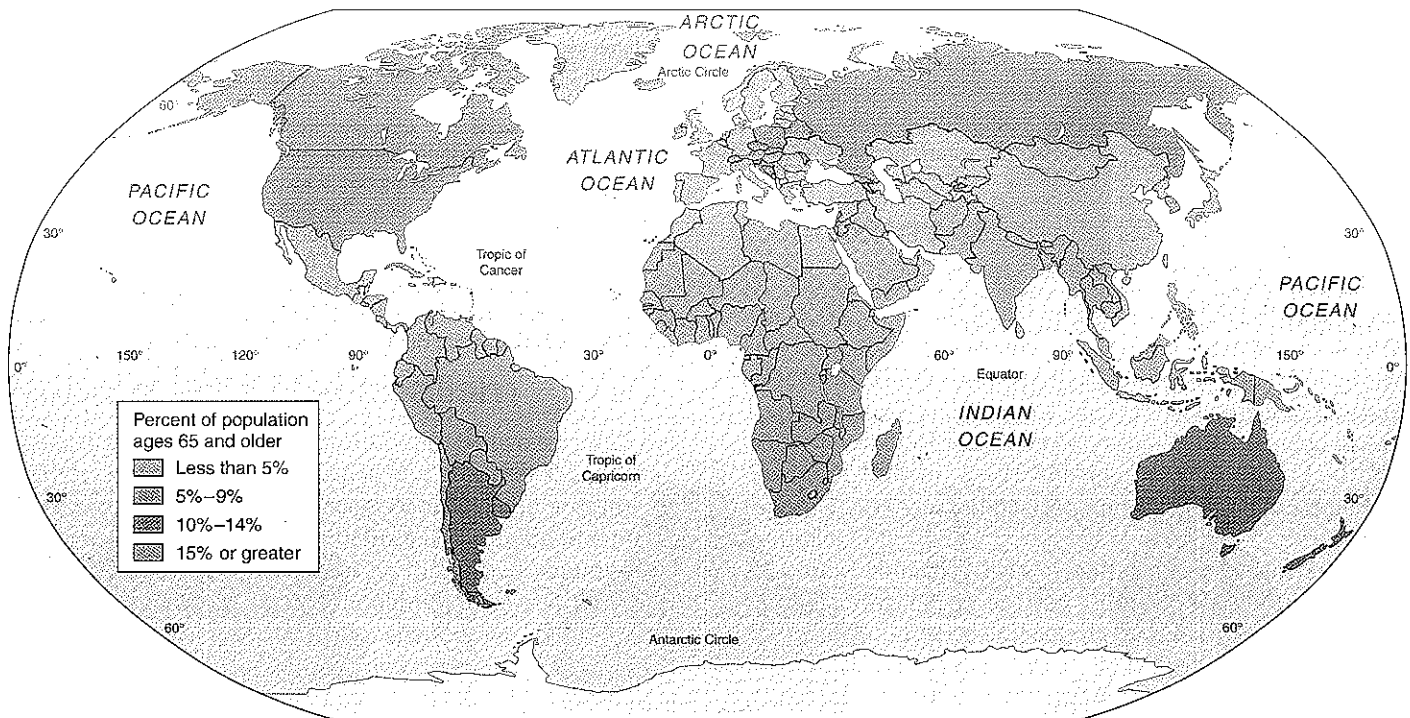
large numbers of refugees from war-torn countries in Africa moved into neighboring countries, often leading to new tensions and problems of accommodating them. European countries became destinations for refugees from Afghanistan, Iraq, Palestine, and Kurdish areas.

### Overall Population Change

- A change of 1 or 2 percent in a country's annual population growth rate will have a dramatic effect over time. **Population doubling time**—the time in years taken to double the number of people in a place—illustrates this effect. A population increase of 1 percent will lead to a population doubling time of 70 years. An increase of

2 percent means a doubling in 35 years; one of 3 percent means a doubling in 23 years. Materially wealthier countries today commonly have below 0.5 percent population increase, while developing countries have rates of 2 to 3 percent. Higher rates of population growth place pressures on resources.

- The composition and history of a country's population is often summarized in an age-sex diagram, also termed a "population pyramid" (Figure 2.19). Immigration or baby booms show up as expansions in particular age and gender groups; deaths in major wars may be reflected in a narrowing of specific cohorts. Longer life spans are reflected by larger numbers at the tops of the pyramids.



**FIGURE 2.18 Aging of the World's Population:** As countries go through the stages of the demographic transition, their percentages of older people tend to increase. **Source:** Data from 2007 World Population Data Sheet. Population Reference Bureau. [http://www.prb.org/pdf07/07WPDS\\_Eng.pdf](http://www.prb.org/pdf07/07WPDS_Eng.pdf)

- Future population projections are notorious for being subject to unexpected events. For example, the growing threat of HIV/AIDS (see “Point–Counterpoint: HIV/AIDS,” page 42), or other deadly diseases, may lower future population totals; new baby booms may raise them.

## How Many People Can Earth Support?

Rising population totals heighten concerns about whether Earth and its resources can support them. In 1798 the English economist Thomas Malthus predicted that world population growth would exceed that of food production and would lead to widespread famine. His prediction was not fulfilled because industrial processes raised agricultural productivity enough to feed the increased population. The debate about whether food production can keep up with population growth continues today. The ability of world regions and the countries in them to support projected growth in population is not easy to determine. A set of questions like the following illustrates the difficulties:

### *Economic questions*

What level of well-being is expected?

What levels of technology will be used in growing food, manufacturing goods, and providing services?

### *Cultural questions*

How will average family sizes change?

What support will be provided for young and old?

Are people willing to adopt new lifestyles that might include vegetarian diets (which are more resource efficient), bicycling to work, and spending more tax money on schools and health care?

Can people be forced into adopting new lifestyles, in part by the pressures of globalization?

### *Political questions*

What sort of political system might resolve conflicts among and within countries?

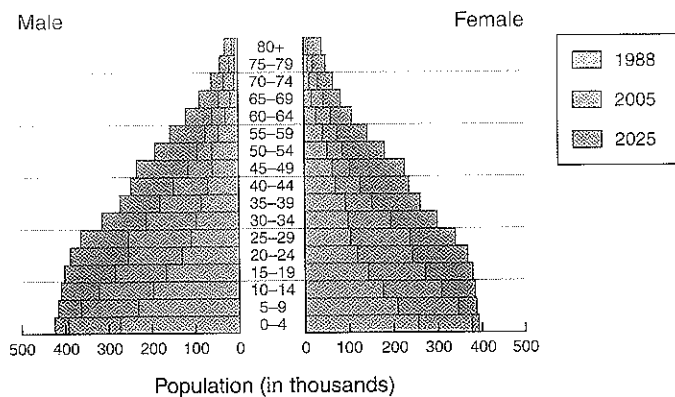
Will organized violence continue to waste human lives and resources?

How will domestic and international trade arrangements work?

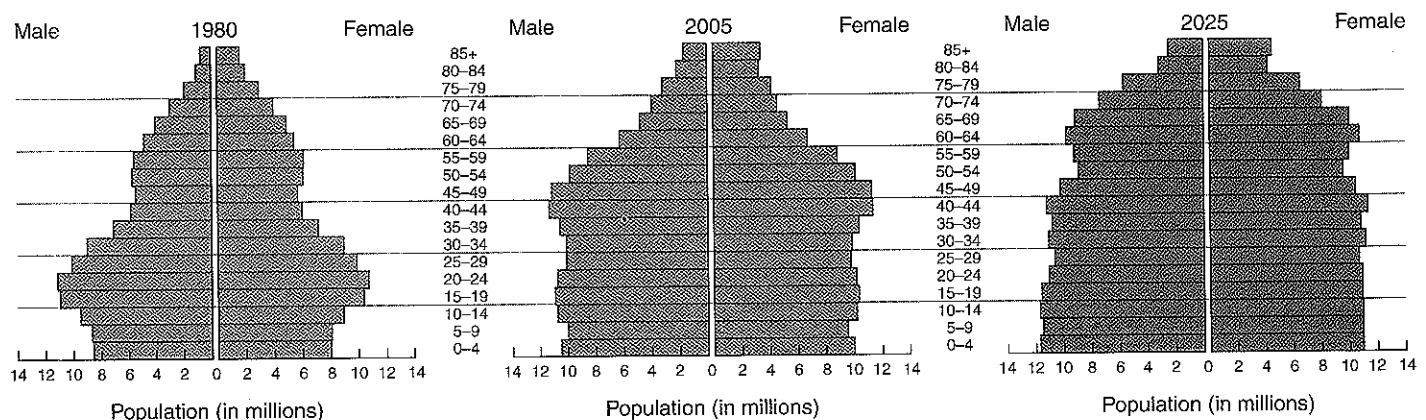
### *Natural environment questions*

Do people consider it important enough to maintain a clean environment with conserved wilderness areas that they will alter their demands for cheap and plentiful food?





(a) Papua New Guinea



(b) United States of America

**FIGURE 2.19 Age-Sex Diagrams (Population Pyramids).** Diagrams for three years are overlaid or set side-by-side to show changes. In each case, the bars represent a five-year age group (male and female). Total numbers of people are used, rather than percentages of each age group, to allow comparisons over time and place. (a) Papua New Guinea. This shows a typical poorer country with large numbers of young people and fewer old—with increasing numbers in middle age groups by 2025. The progressive increases allow the three years to be superimposed. (b) United States, a typical wealthier country with a more even spread of numbers in each age group and a baby boom (1950–1965) moving upward through the age groups. The three years are separated for clarity. These diagrams occur in each subregion of Chapters 3 through 12. **Source:** U.S. Census Bureau, International Data Base.

How much natural-hazard risk can people accept?

What changes will global warming make?

How long will any predictions last, given uncertainties over the use of such resources as fresh water and fish stocks?

The answers to these questions vary according to where a person lives. If all countries consumed resources at the rate of the United States, the world would already be overpopulated. As it is, the United States, with 5 percent of the world's population, consumes nearly half of the world's oil and large proportions of other resources. A cartoon at the time of the 1992 Rio de Janeiro Environmental Summit showed Uncle Sam telling representatives of poorer countries, "It's a deal. You continue to overpopulate the world, while we squander the natural resources."

We all have choices. Do we belong to the "bigger pie" school, which proposes expanding production through applying more technology in such areas as genetically modified foods, additives, plastics, synthetics, and alternative fuels? Or to the "fewer forks" school, which emphasizes environmental considerations and the slowing, stopping, or reversing of population growth? Or to the "better manners" school, which highlights cultural values as a source of

improving the terms on which people interact? Our lifestyle choices concerning transportation, food, and clothing, among many others, will impact future patterns of human and physical geography.

## ISSUES OF POLITICAL FREEDOM

**Political geography** is the study of how governments and political movements (such as nongovernmental organizations, labor unions, and political parties) influence the human and physical geography of the world and its regions. Cultural phenomena, such as religion, and physical features, such as the distribution of fresh water, influence governments and political movements. The world is primarily divided up into **countries** (also called states), which are bordered territories with governments that have political control, or sovereignty, over the internal and external affairs of the territory's contents and inhabitants. Each country is ideally recognized by other countries. The numbers of self-governing countries increased from 62 in 1914 to 74 in 1946 and 193 today.

Country governments promote and protect their peoples in world affairs. Countries tax their citizens to provide public services, including military capabilities, and encourage economic and social welfare. Countries often have systems of regional, state, or local government that carry out some of the governmental responsibilities at different geographic levels. Country governments may also join other country governments in mutual trading or defense agreements. In world regional geography, countries provide the main subunits of study within the world regions.

## Nations and Nationalism

Countries often are called nations but these two terms do not have the same meaning. A **nation** is a group of people who share a common identity, a sense of unity, and a desire for self-governance. Each nation defines its common identity in its own way and is thus called an “imagined community.” Typical imaginations of commonality are shared language, religion, history, and ideology. An **ethnic group** also is defined by a set of shared cultural characteristics, but many ethnic groups have no sense of unity and do not desire to govern themselves. When one becomes politicized and develops these characteristics, it becomes a nation. Thus, some nations are comprised of a single ethnic group, such as the English, Serbs, and Japanese. However, other nations are multiethnic, such as Americans. Many Americans emphasize their different ethnic backgrounds by combining their ethnic and national identities with a hyphen (e.g., Irish-American, Japanese-American, and Italian-American).

**Nationalism** is pride in one’s national identity and the belief that one’s national interests are more important than all other interests. To protect and advance each nation’s interests, nationalists believe that each nation must be able to govern itself, which is best ensured with a separate state (or country). Thus nation and state are linked together into the concept of the nation-state. However, not all nations have their own states, though they may wish to. For example, Basques, Kurds, and Palestinians are all stateless nations and live as minorities in other groups’ nation-states. Consequently, the nationalists in many such groups try to create their own nation-states, but such attempts often result in violence and oppression. Not all violence is begun by the minorities; often it begins with the dominant national groups who see the minorities as threats.

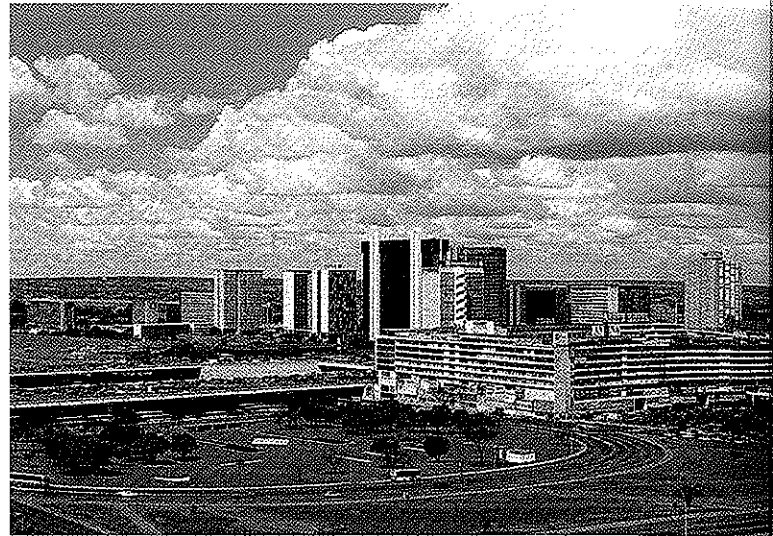
**Indigenous peoples** are the first inhabitants of any given area. Many indigenous groups could not resist the spread of European colonialism throughout the world from the 1500s to the 1900s. Their numbers often declined, or they were exterminated as the colonizers took over their lands. Throughout the world, many indigenous groups remain today, generally as minority populations within individual countries. Forcibly assimilated or excluded from decision making, they often evolved their own cultural and political aspirations as distinct “nations.” Those that still exist are sometimes regarded as more

“primitive” stages of human development and denied human rights and development opportunities. Such indigenous groups compete with other interest groups—as when the Native Americans initially disputed land ownership with European colonists or recently won major rights as the “First Nation” in Canada.

## Governments

Government functions are concentrated in **capital cities**, where the head of state lives and the administrative and government offices are situated. Many capital cities are the largest cities in the country, like London (United Kingdom), Tokyo (Japan), and Nairobi (Kenya). In many federal countries, the establishment of new capital cities avoided jealousies among existing cities. Washington, D.C., Brasília (Brazil; Figure 2.20), Abuja (Nigeria), and Canberra (Australia) are examples.

Some countries have a **unitary government** structure, administering all parts from the center for all aspects of government. Other countries, including most of the world’s largest (Russia, India, Brazil, Nigeria, the United States, and Canada), have a **federal government** structure, dividing the authority for various activities between a central government and partitions called states or provinces. In the United States, for example, the federal government has responsibility for external relations, defense, and interstate relations, while the states have authority for education, local roads, and physical planning.



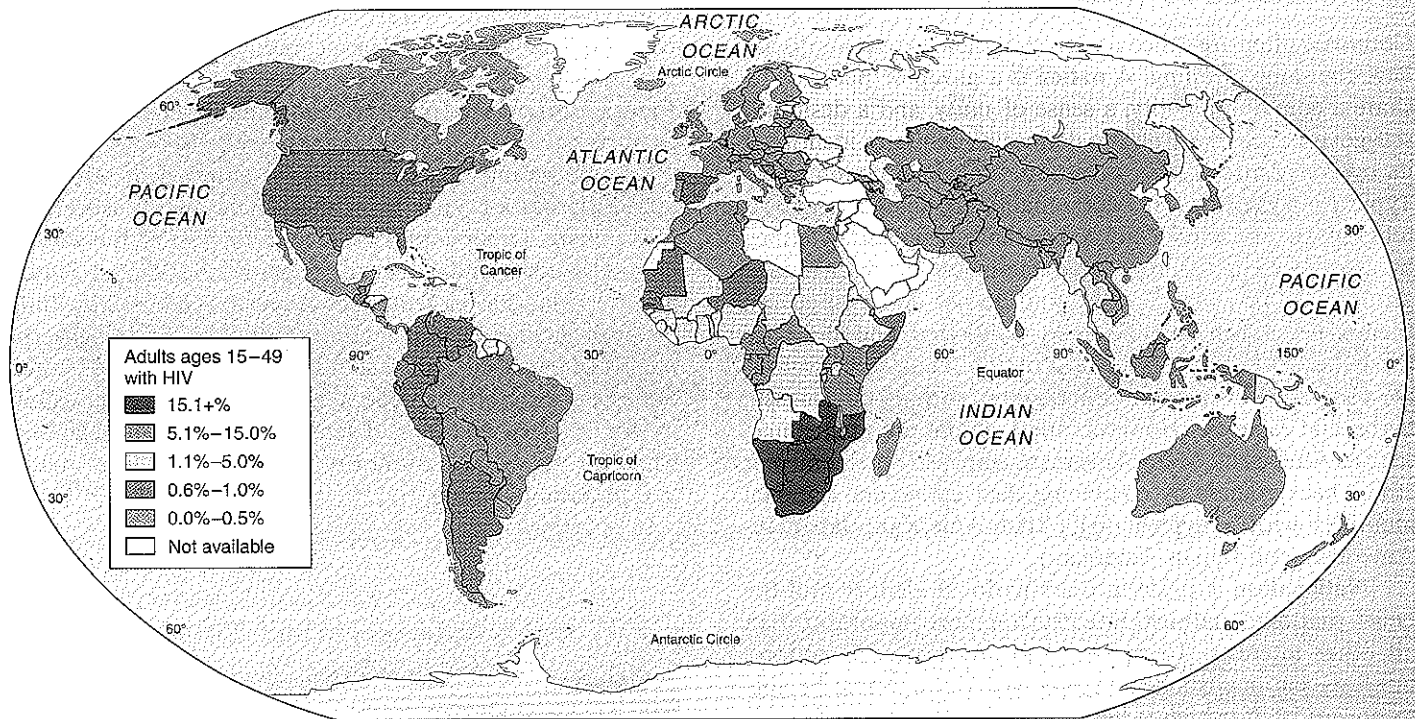
**FIGURE 2.20 Brasília, the Planned Capital City of Brazil.** The central avenue lined by public buildings with the parliament at the far end. The planners added residential wings on each side. Affluent residential districts surround the artificial lake in the distance. Many poorer workers live in linked satellite towns. **Source:** © Digital Vision/PunchStock.

## HIV/AIDS

HIV/AIDS is a major threat to world health and especially to millions of people in poorer countries, where 90 percent of infections occur, (Box Figure 1). First recognized in wealthier countries, HIV/AIDS is now a major plague in Southern Africa and is being recognized in the rest of the poorer world. HIV (human immunodeficiency virus) gives rise to AIDS (acquired immunodeficiency syndrome). People contract HIV through unprotected sexual contact with HIV carriers or through contact with HIV-contaminated blood or body fluids (but current medical research suggests not by other contacts with HIV carriers).

HIV infections can be passed from mother to baby. Patients become prone to many other sexually transmitted diseases and to other serious illnesses such as tuberculosis (TB). Medical treatments available are complex and expensive, needing close monitoring. They do not cure HIV but can prolong life. By 2006, 35 million people had contracted HIV and 25 million had died of AIDS.

For geographers, one of the major issues arising from a study of the HIV/AIDS pandemic (a pandemic is a disease that has a long-term presence around the world) is the difference between materially wealthy and poor countries. There are different experiences and attitudes in wealthy and poor countries.



**BOX FIGURE 1 HIV Incidence Worldwide.** Source: Data from *Population Bulletin*, Volume 62, No. 3, September 2007. *World Population Highlights: Key Findings from PRB's World Population Data Sheet*. A publication of the Population Reference Bureau. Map is on p.6. <http://www.prb.org/pdf07/62.3Highlights.pdf>

## Political Worlds and Global Governance

### Global Governance

No global government exists, and any vision of a worldwide government remains a long way off. However, the term **governance** is increasingly used to include bodies that seek to legislate for and regulate aspects of human activities that are outside the powers of sovereign countries. An evolving global governance complex links countries, international institutions such as the United Nations, and public and private networks of transnational agencies. Much of this complex forms an extension of country government activities into the wider world, but other networks also function across country borders, some with little consultation with governments.

The United Nations is the largest and most influential institution of global governance (Figure 2.21), but many others have important functions. Countries pay dues to the United Nations, and these are used in its various programs and specialized agencies. Apart from the Security Council and the groups of military peacekeepers that are drawn from member countries, the United Nations does not have specific programs in the security field. Its greatest strengths are in coordinating aspects of human welfare, economic development, and care for the environment. Worldwide organizations linked to the United Nations are designed to promote the economic development of poorer countries (International Monetary Fund, World Bank) or to liberalize trade among countries (World Trade Organization). Although the United Nations' members include almost all

## MATERIALLY WEALTHY COUNTRY

Retroviral drugs are having a significant effect in delaying the onset of AIDS, giving a sense that the disease is on the wane.

The greater investment in health care facilities makes the vital monitoring centers widely available.

Education programs are effective, together with provision of syringes for drug users, although few countries impose HIV/AIDS tests.

HIV/AIDS is not regarded as a major socioeconomic threat, although more significance is given to the worldwide situation. Cash invested in HIV/AIDS programs increased by 28 times from 1996 to 2005, from US \$300 million to US \$8.3 billion. UNAIDS estimated a need for US \$22.1 billion in 2008.

Most countries are now open in reporting cases of HIV/AIDS.

## MATERIALLY POOR COUNTRY

The drugs are designed in materially wealthy countries for the strains of HIV that are common there, and those produced by multinational pharmaceutical companies are too expensive for wider use in poor countries. However, Brazilian and Indian producers sell them more cheaply, and the MNCs reduced the price when faced with the terrible outcome of no action.

Monitoring centers are few and far between. Access is being improved in middle-income countries such as Botswana and South Africa, but not in the poorest countries.

Some countries did not take the threat seriously until the later 1990s, by which time HIV/AIDS was a major cause of death and social disruption. People avoid voluntary involvement because of stigma and social penalties. Botswana, with the highest rate of infection, reduced such high-profile testing to a routine action during doctor visits.

The high incidence could lead to economic collapse in South Africa, which has more cases than any other country (5.5 million HIV-positive citizens out of a total population of 47 million). The adult population (15 and older) is expected to decline by 6 million by 2015. More countries are devising national plans to combat the disease, but much of the funding available has strings attached (e.g., the U.S. does not contribute to family planning programs that "promote" abortions or to some NGOs such as the Global Fund to Fight AIDS, TB, and malaria).

Many countries resist full reporting. There is particular difficulty in many Arab countries, where activities contributing to the spread of HIV/AIDS are illegal or not admitted and so there is little detailed monitoring. It is clear that there is a high incidence among sex workers and drug users.

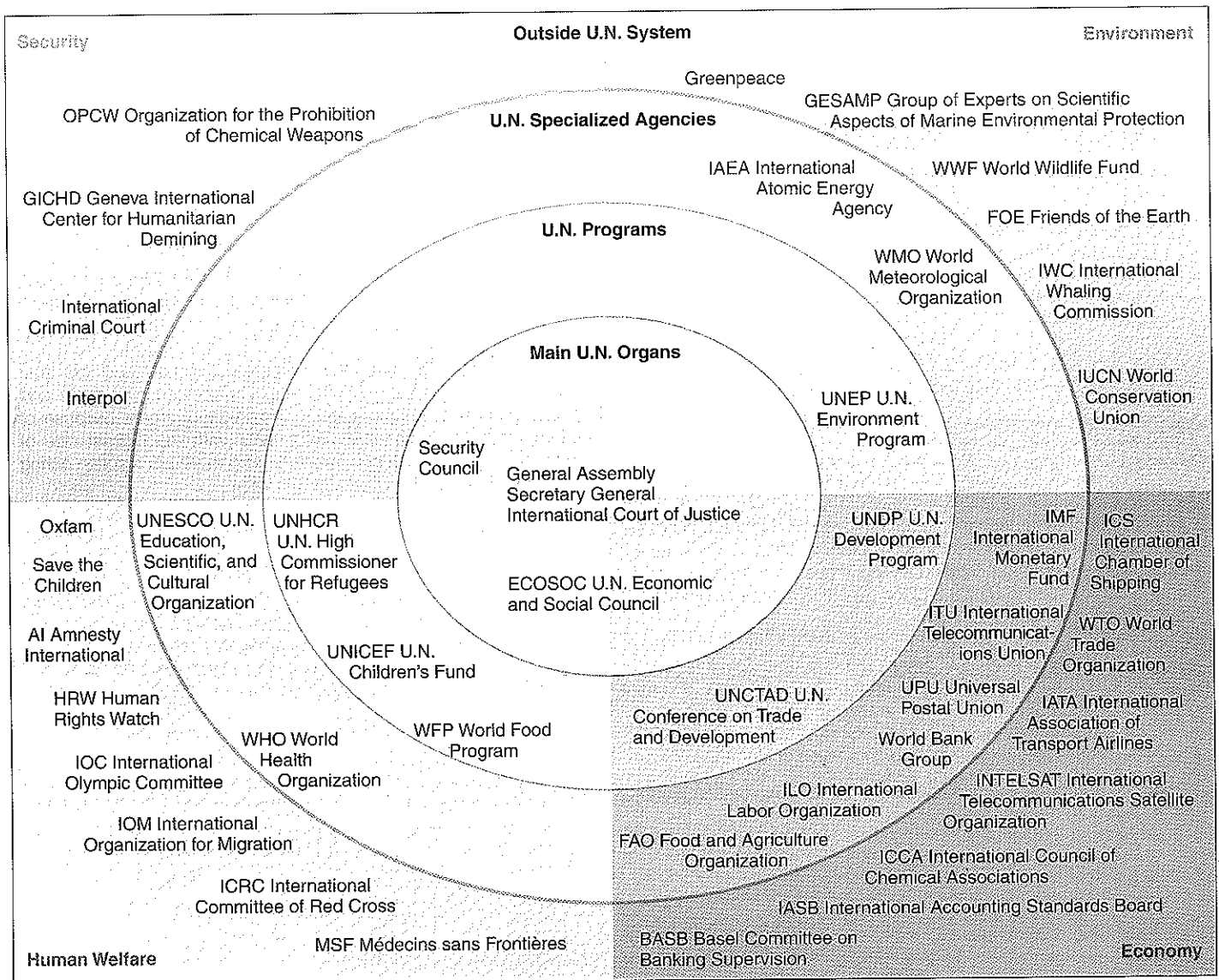
the world's countries, it fails to prevent all civil wars, nuclear testing, or drug, weapons, and slave trafficking. The difficulties in obtaining agreement from all or a majority of UN members resulted in the United States, supported by other wealthier countries, intervening in the affairs of Kosovo, Afghanistan, and Iraq in the last decade.

### Nongovernmental Organizations

Increasingly, **nongovernmental organizations (NGOs)** such as aid bodies have assumed responsibilities for government-like activities, including disaster relief. They might also be called "private voluntary organizations" or "civil society organizations." They include any group of people engaging in collective action in a noncommercial, nonviolent manner that is not on behalf of a government. Many NGOs have

local or country bases, but the largest engage in international activities. Many international NGOs are contracted to supply aid by governments and international agencies irrespective of country borders. Well-known NGOs, such as the International Red Cross, Oxfam, Save the Children, Greenpeace, and *Médécins sans Frontières* (Doctors without Borders), are better known than many smaller countries. NGOs such as Amnesty International and Greenpeace assume advocacy roles, campaigning against human rights and environmental abuses, respectively.

Many NGOs work in fields similar to those of the United Nations, which gives a consultation status to NGOs at three spatial levels. "General status" is held by the largest NGOs with global influence and extensive memberships; "special status" is given to NGOs with regional or specialist



**FIGURE 2.21 Global Government.** The complexity of international organizations; those listed are part of a larger total. The diagram places the organizations in relation to their positions inside and outside the United Nations. Those around the edges are separate international organizations. Countries relate to the complexity of the range of organizations in different ways; small countries find it difficult to send representatives to all bodies.

functions; "roster status" is for NGOs with small memberships but highly specialized roles. NGOs working or consulting with the United Nations rose from under 500 in 1970 to over 2,000 today.

### Country Groupings for Trade or Defense

Countries make agreements with other countries to foster security through common trading and defense interests. However, closer political integration among groups of countries is difficult to achieve. No example exists of sovereign countries joining each other and remaining together in a new larger federated country.

Governments have a major influence on the conduct of world trade. They may encourage their people to export

goods or they may control certain imports by charging taxes, or tariffs, on them. During the later 1900s, widespread political will among countries sought to free world trade from barriers. The General Agreement on Tariffs and Trade (GATT) was established in 1948 to encourage countries to lower their tariffs. After 1993, the World Trade Organization took over the role of preventing discrimination among trading partners, but its rules appear to many to support the wealthier countries.

Most progress on liberalizing trade has been made at the world regional level in free-trade areas, the members of which impose common tariff rates on imports. The largest trading group at present is the European Union (EU—see Chapter 3). The North American Free Trade Agreement (NAFTA—see



Chapter 12) may extend to much of Latin America (see Chapter 11). Even more ambitious is the prospect of the Asia-Pacific Economic Cooperation Forum (APEC; see Chapters 5, 6, 11, and 12) that has pledged itself to free internal trade among its wealthier countries by 2010 and among other countries by 2020. Such groupings of regional interests are considered in each chapter of this text.

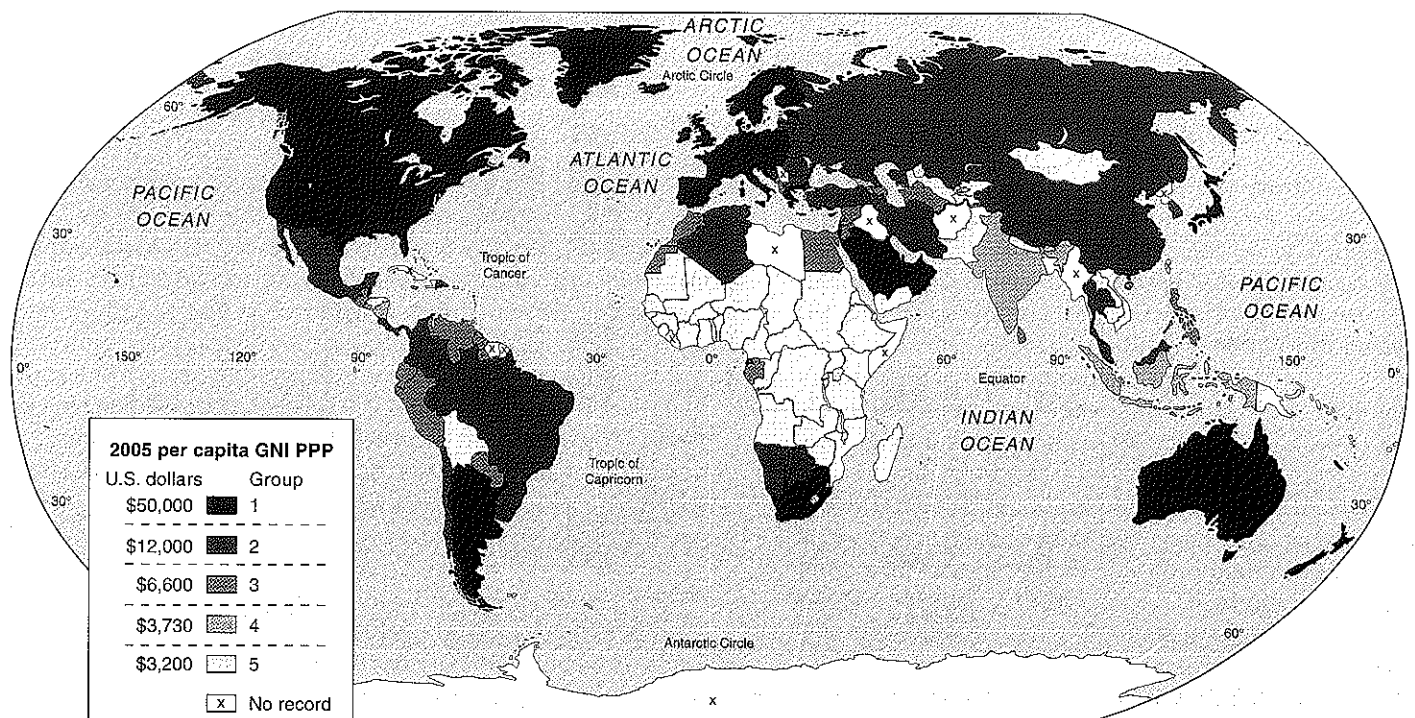
The Cold War period generated defense agreements on both sides. The North Atlantic Treaty Organization (NATO) linked North America and western Europe in a common response to a perceived military threat from the Soviet Union (see Chapter 3). The Soviet Union established the Warsaw Pact to unite the countries of eastern Europe in the Soviet defense bloc.

In the 1990s, the end of the Cold War led to shifting emphases among regional groupings of countries. The Warsaw Pact ended after 1991, and NATO extended its agreements to some of the former Soviet bloc countries, despite resistance from Russia. Since the late 1990s, the European Union became a more significant political force and developed its own military capability despite objections from the United States and Russia. The Association of South East Asian Nations (ASEAN) began with political objectives during the Cold War (opposing Communist countries such as Vietnam), but afterward shifted to increasingly economic objectives (and admitted Vietnam as a member).

## ISSUES OF ECONOMIC INEQUALITY

Material wealth and poverty are the subjects of economics—how resources are utilized and scarce goods are produced, distributed, and consumed. **Economic geographers** study these issues and the spatial patterns that result. They study the impacts of peoples and their decisions on the distribution of resource usage, the flows of capital, and the human production of material wealth and poverty. The spatial distribution of wealth depicted in the World Bank map (Figure 2.22) demonstrates the pattern of economic inequality. Perched near the top of the global economic pyramid, some Americans see the issues of poverty and deprivation as quite distant. However, the huge numbers of materially poor people constitute the greatest economic problem facing our world today.

In contrast to the large numbers of poor people in the world, there are relatively few extremely wealthy people. It was estimated that in 2001, the world had 7.2 million very wealthy people (0.0012 percent of the world's total population)—up from 5.2 million in 1997. Each owned investable assets of more than \$1 million, and together they controlled one-third of the world's wealth. The 1997 estimate listed 425 billionaires, of whom 274 were in the United States. From 1997 to 2000, the numbers of millionaires rose sharply



**FIGURE 2.22 Major Income Groups of Countries.** A World Bank division based on GNI PPP per capita for each country. How do the five categories relate to the major world regions? **Source:** Data (for 2005) from *World Development Indicators*, World Bank.



in the United States and Europe, less rapidly in Asia, and hardly at all in Latin America, the Arab world, or Africa. Since 2000, however, many of those enriched by high-tech-related and overvalued stocks lost considerable material wealth, showing how volatile the system can be.

## Measuring Wealth and Poverty

In attempting to give more precise meanings to material wealth and poverty, specific indicators form a common basis for comparing and understanding differences among groups of people.

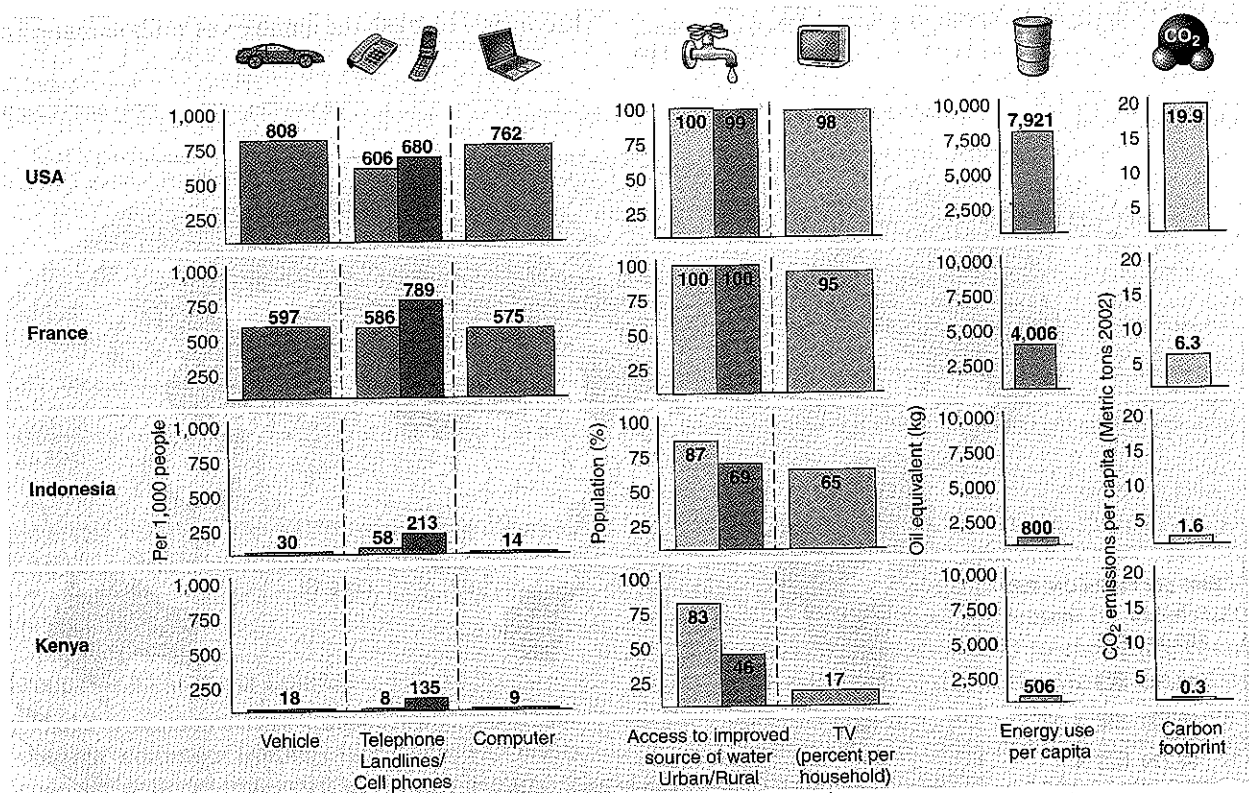
Ownership of consumer goods is a vivid indicator of differences in material wealth among countries (Figure 2.23). However, poor people's luxuries, such as clean drinking water, food, clothing, and shelter, are often wealthier people's normal expectations. We have placed consumer goods alongside access to clean water and energy sources to add a further dimension.

Economic development is commonly measured by two statistics of income that are widely reported. **Gross domestic product (GDP)** is the total value of goods and services produced within a country in a year. Gross national product

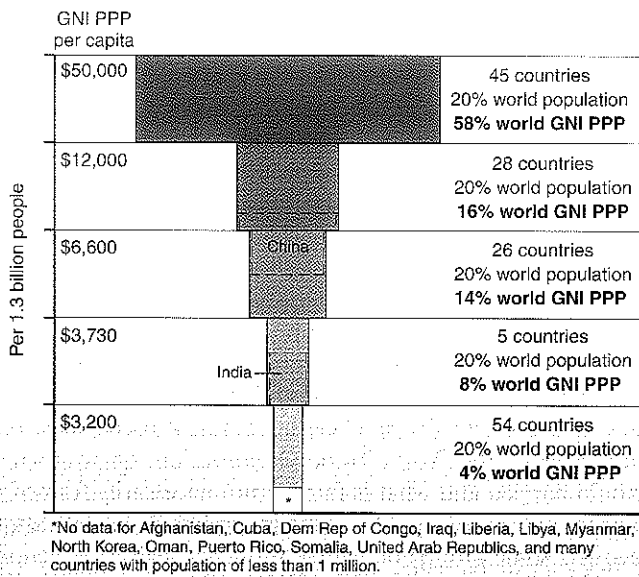
(GNP), now called **gross national income (GNI)**, adds the role of foreign transactions to GDP. Per capita figures of the country's total annual income are averages of GDP or GNI per person in the population, not personal incomes.

The divisions shown on the World Bank map (see Figure 2.22) are based on GNI per capita, with countries divided into five income groups: low, lower middle, middle, upper middle, and high.

The **purchasing power parity (PPP)** estimates of GNI and GDP are more meaningful comparisons of living costs among countries. Because prices in India, for example, are much lower for equivalent items you might buy in the United States, US \$440 will buy as much in India as US \$2,230 does in the United States. To illustrate this idea, *The Economist* devised a "Big Mac index" based on exchange rates against the U.S. dollar. In July 2007, the burgers that sold for an average of \$3.41 in the United States would cost \$5.20 in Switzerland, \$4.01 in the United Kingdom, \$3.61 in Brazil, \$2.29 in Japan, \$2.22 in South Africa, \$2.03 in Russia, and \$1.45 in China. Countries with high incomes and high living costs have a lower PPP estimate of income than the GDP or GNI based on exchange rates; materially poorer countries often have



**FIGURE 2.23 Consumer Goods, Water Access, and Energy Use.** The ownership of consumer goods is shown as the number of goods per thousand people (e.g., 808 people per thousand have a vehicle in the United States). Access to clean water is given as a percentage of the urban and rural populations. TV ownership is given as a percentage of homes. Energy use is annual kilograms of oil equivalent per capita. Carbon dioxide emissions are in annual metric tons per capita. How do these items demonstrate differences in affluence among the United States, other materially wealthy countries (France), middle-income countries (Indonesia), and poor countries (Kenya)? This type of diagram occurs in each of the regional chapters, 3–12, enabling comparisons. **Source:** Data for 2004 from *World Development Indicators*. World Bank, 2007.



**FIGURE 2.24 Distribution of World Incomes.** The 2005 world population was divided into five groups of 1.3 billion people each. Gross National Income Purchasing Power Parity (GNI PPP) forms the basis of comparison of these groups. Each country's position is shown in the regional chapters, 3 through 12. The United States is in the top group and has 5 percent of world population and 23 percent of GNI PPP. **Source:** Data (for 2005) from *World Development Indicators*, World Bank and Population Reference Bureau.

higher estimates. For example, in 2005 Switzerland had a GNI per capita income of \$55,320 but a GNI per capita PPP estimate of \$37,080; Mexico had comparable values of \$7,310 and \$10,030. Figure 2.24 shows that, in the wealthiest countries, almost 60 percent of world material wealth is produced by only 20 percent of the world's population. In the poorest countries 60 percent of the population produces only 26 percent of world wealth.

The United Nations' **human development index (HDI)** is a broader estimate of human well-being, incorporating statistics calculated from life expectancy, education attainment, and health, as well as income. Materially poorer countries investing heavily in education and health care, such as Costa Rica and Sri Lanka, provide a better quality of life for their people and have a higher HDI than GDP (merely based on a country's income) rank. By contrast, many of the oil-rich Persian Gulf countries have high income rankings based on oil exports but lower HDI rankings because of poor provision of schooling, especially for girls, and health care—although both are improving.

As the emphasis in thinking about economies shifted toward the needs of the poorest people, the United Nations introduced the **human poverty index (HPI)**. Linked to the HDI, this is a composite index based on factors that strike balances between individual material poverty and public provision for such needs, and between relevant and available data. For example, life expectancy indicates health vulnerability; the percentage of illiterate adults indicates restrictions on entry to better jobs and full community life; and a

combination of percentages of people without access to health care or safe water and of malnourished children under age 5 indicates a lack of decent living standards. The HPI records the proportions of populations affected by such deprivations. Values range from around 10 percent in Cuba, Chile, and Costa Rica to over 50 percent in many African countries and Cambodia in Southeast Asia. Differences also occur within countries: in China, the coastal regions have HPI values of 18 percent, while areas in the remote interior have values of 44 percent.

## Economic Worlds

The workings of economic processes and strategies for economic organization are often related to political systems that have produced a number of geographic outcomes.

### Raw Materials, Manufacturing, Services, and Outsourcing

Three major groups of industries exist for the production and distribution of goods.

- The **primary production** of raw materials from natural sources includes minerals, oil, gas, timber, and fish. Farm products come from domesticated plants and animals subject to soil and climate conditions. The industries producing these goods provide livelihoods for many people, with the highest proportions in materially poor countries.
- The modern materially wealthy countries achieve their prominence through **secondary production** or manufacturing and construction. Extra value and profit come from using raw materials to produce clothes, furniture, food and drink products, pharmaceuticals, railroads, engines, trucks, cars, airplanes, consumer electrical goods, and many other products. The cost of the raw materials is a relatively small factor; even when combined with the costs of building factories and equipping them with machinery, the wages of factory workers, and the cost of getting the products to those who want to buy them, the value of the final goods brings greater profits than primary products.

The expansion of manufacturing since 1800 created huge industrial areas dominated by towns, factories, and railroad transportation in Europe and North America. As railroads and larger merchant ships supported demand, sales grew and products became more complex. In 1913 Henry Ford built his factory to produce Model-T Ford cars at Dearborn, Michigan. The assembly of many components into the finished cars was backed by the production of most of the components on the Dearborn site. The next phase was to outsource the component manufacturing to other companies in the local area and later across the United States and the world. Today, for example, Boeing aircraft are assembled in Seattle and Airbus aircraft in Toulouse, France, but wings and tailplanes for both are

made elsewhere in the United States and Europe, while parts of the hydraulic system for the landing gear and the electronics systems are sourced across the world. Since the 1990s there has been an increase in the rate at which manufacturing operations that could be carried out by low-cost labor has moved to materially poorer countries in Asia and Latin America. These movements began with textiles and clothing products and then involved electronic goods.

- The service industries of the **tertiary production** sector grew on the backs of the manufacturing companies and from government decisions to provide health services, education, and a wide range of other services. This sector also includes retail and wholesale trade, finance and legal industries, business services, the media, and information technology. Major manufacturing companies diversified into service provision, partly to enhance the sales of their own products. During the second half of the 1990s, all of these areas experienced a huge growth of employment in the materially wealthy urban-industrial countries, with increasing emphasis on high-end business services (lawyers, accountants, IT specialists). The trend was further displayed in separation of a **quaternary production** sector of information-based services (legal, financial, media, Internet). However, as these areas became more complex, the headquarters' offices of many large corporations first outsourced routine paperwork to "office factories" and then sent many activities to low-cost countries, encouraged and enabled by IT, falling telecommunications costs, and low wages. The growth of the call center industry is one outgrowth of this trend, but higher-level business services, from logging insurance claims to making awards, are also moving abroad. At present, this is particularly important in India.

### Free-Market Capitalism

Since the 1990s, following the end of the Cold War and the collapse of the Soviet Union's Communist political-economic system, the **free-market, or capitalist, system** has dominated the world. The free-market system entails the economic decision-making capacities of individual purchasers of goods, who may choose what they want from a range of products. Those who provide for these wants—and sometimes create them through advertising—invest financial capital with the aim of making profits. They "buy" labor and machinery to produce salable goods at the lowest cost. Competition among small firms, large corporations, and countries is an essential feature of the system.

This system marked Western countries for over 200 years and involves the private and corporate organization of investment, production, and marketing. The expansion of trade among resource and market areas further strengthened the Western countries' economies and their multinational corporations. Western countries produced and marketed sophisticated goods at high prices and bought

low-priced raw materials and cheap products from the materially poorer countries.

Free-market capitalists face the challenge that affects all economic systems. Fallible humans invest, run companies, and generally perform roles to the best of their ability. Sometimes the investments produce profits, but not always. Sometimes managers take advantage of weaknesses in the system by fixing prices with their competitors or by dishonest accounting. Even in countries with well-regulated economies, major corporations may crash in scandal and create personal catastrophes for employees, suppliers, and customers.

In theory, governments intervene in free-market economies mainly to regulate the terms of trade and ensure fairness among producers. In practice, government-based decisions, and those of the World Trade Organization, on what trade should happen and what is fair are not necessarily framed or carried out in the public interest. Political considerations favoring some groups of people influence legislative actions. For example, the goal of borders open to trade may be contradicted by placing protective taxes on imported goods. Furthermore, the governments of many wealthier countries provide social services and infrastructure (roads, airports, harbors, water supplies, waste disposal) that give businesses and people in those countries many cost advantages compared with the poorer countries. As a result of such government intervention, capitalist countries become less free-market.

### Central Planning

The basis of economic opposition to the free-market Western countries during the Cold War was the Communist centrally planned economic system adopted by the former Soviet Union, its satellite countries, the People's Republic of China, and linked countries such as Cuba. This system places planning and decision-making responsibilities in the central government, on the grounds that the whole country's interests come first and the central ministries know what is best for the people. They plan the production of goods considered essential—whatever the cost and whether or not the goods meet consumer demands. Central governments provide welcome medical care and education and develop strong military defenses.

Those in command of centralized policymaking, however, often made large-scale mistakes, handicapped even more than in the free markets by a lack of information or by personal bias or interest. Many leaders feared to change past policies, even if inefficient or oppressive, while regional bureaucrats often obeyed central commands despite knowing the policies would fail. Overproduction of some goods and underproduction of others led to these countries failing to produce the consumer goods available in most Western free-market countries. Incomes for most families remained modest, while members of the Communist Party hierarchy became relatively wealthy elites.

In the 1980s, comparisons with materially wealthy Western countries via growing global information exchanges fueled dissatisfaction in the Soviet Union. In 1991 the Soviet Union broke up, causing the collapse of economic relation-

ships with the former countries of the Soviet bloc in eastern Europe and others worldwide. These countries entered the global free-market capitalist economic system as separate entities. Already, since 1978, the People's Republic of China had increased trade with other countries and encouraged investment from them. This brought China high levels of economic growth that continued into the 2000s. However, most former Communist countries—and those aligned with them—encountered a traumatic transition to the totally different free-market, now global, economic system.

## The Global Economy

Growing trends toward global exchanges and institutions are occurring.

### Global Economic Organizations

The global economic system that emerged after 1990 is marked by institutions of economic governance. The World Bank and International Monetary Fund (IMF), both based in the United States, lend to materially poor countries. Such loans often demand openness to external investment and foreign goods along with reductions of government bureaucracy and related jobs. Private commercial banks and non-governmental aid agencies tend to follow the same guidelines for assigning priorities to funding projects in poorer countries. Following the demands places pressures on internal social programs as the government bureaucracy is reduced.

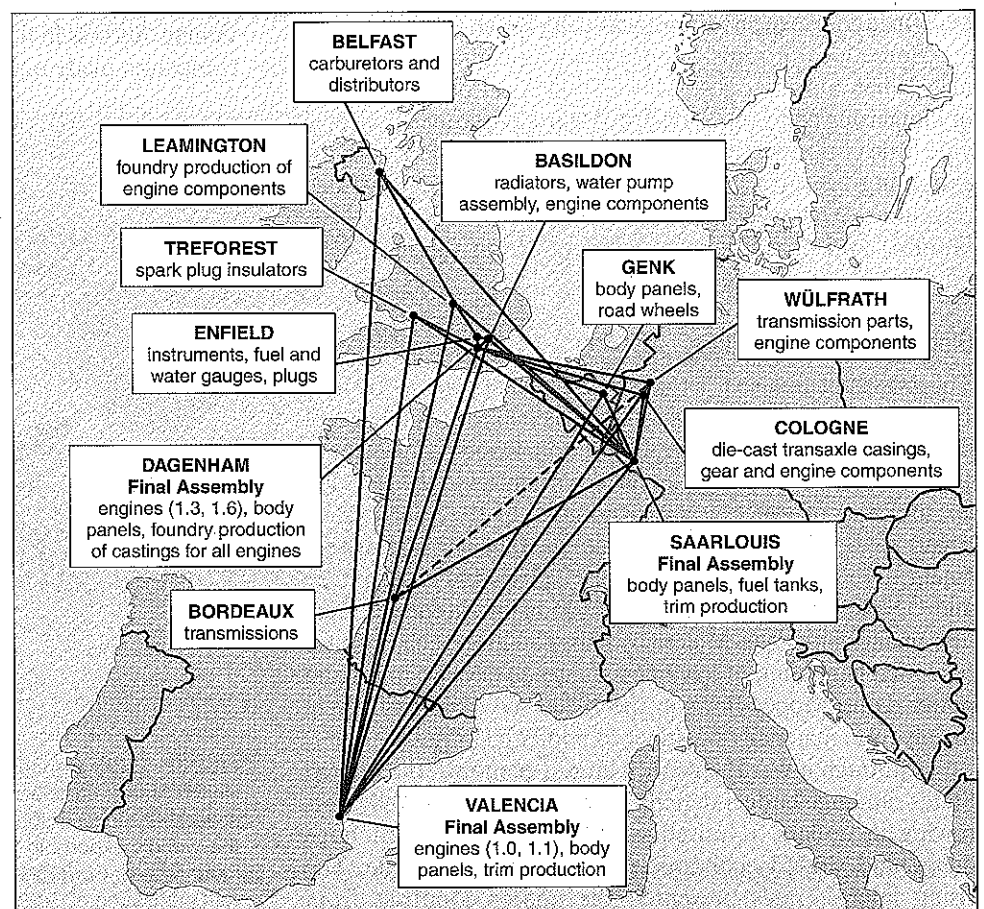
The World Trade Organization's (WTO) role is to ease trade among countries by negotiating reductions in import and export duties. Its basic role is to spread the economic benefits of trade that are slowed by duties. Currently there are 150 member countries of the WTO, each of whom has the power to veto decisions of the organization. However, the WTO garners criticism by appearing to favor the world's more materially wealthy countries in permitting them to discriminate against imports, such as agricultural products and textile manufactures, from impoverished

countries. Powerful members of the WTO, such as the United States and the European Union, use the organization as an arena to play out their disagreements concerning agricultural markets in the Caribbean, genetically modified foods, and U.S. concerns over European beef.

### Multinational Corporations

**Multinational corporations (MNCs)** make goods or provide services for profit in several countries but direct operations from a headquarters in one country. The term "transnational corporation" (TNC) is often used instead to refer to corporations that are no longer rooted in a single country. The greater ease of travel and telecommunications contacts, together with the Internet transfer of information, encouraged MNCs to expand in numbers and operations. For example, in the early 1990s, an estimated 37,000 TNCs had 170,000 foreign affiliates. In 2004, the number had grown to 70,000 with 690,000 foreign affiliates. They are a major force in globalization trends.

Multinational corporations place production facilities in countries outside their homelands to take advantage of markets, cheaper labor, land, and energy and sometimes of less stringent worker safety and environmental laws. For example, auto manufacturers spread the manufacture of components across several countries to ensure supplies during labor strikes and to react to local needs (Figure 2.25).



**FIGURE 2.25 Multinational Corporation's International Linkages.** The European distribution of factories includes makers of parts and final assembly locations for the Ford Fiesta in the late 1980s. **Source:** From *Global Shift* by Peter Dicken. Copyright 2003 by Guilford Publications, Inc. Reproduced with permission of Guilford Publications, Inc.

The earliest MNCs were in the United States, which had 60 percent of them in 1962. Though the United States is still home to the largest MNCs, it only has just over 3,000 MNCs in total. Denmark has the most with over 9,000. South Korea has 7,000 and Japan over 4,000. Of the top 100 nonfinancial MNCs with the most assets outside their home countries in 2003, 56 were based in Europe, 25 in the United States, and 9 in Japan. The ten largest MNCs in 2003 in descending order were General Electric, Vodafone, Ford, General Motors, BP (British Petroleum), ExxonMobil, Shell, Toyota, Total, and French Telecom. On average, the world's 40 largest MNCs have 55 percent of their employees and 59 percent of their sales abroad. Sixty percent of all international trade is actually trade within MNCs.

Multinational corporations are not only manufacturers. MNCs in service (tertiary sector) industries spread since the 1970s, and, by the early 2000s, over 40 percent of foreign direct investments to countries were directed at them. These services include tourism and travel, data processing, advertising, market research, banking, and insurance. Some manufacturing corporations, such as the Ford Motor Company and General Motors, diversified into financial loans and credit cards.

MNCs wield considerable power in the countries where they operate. Some MNCs act as uncaring monolithic institutions without concern for the best interests of the people they employ in either home or adopted countries. However, other MNCs transfer wealth and technology to poorer countries, provide jobs where none existed in rural areas, and pay better wages and provide better employee benefits and prospects than local companies.

Some local groups oppose globally connected companies. When outside corporations force local people to work in dangerous conditions, destroy their environment, or provide little compensation and local development in return for extracting resources, local groups may respond in armed rebellions. The resultant closed mines (as in Papua New Guinea) and disruptions of oil production (as in coastal Nigeria) are in no one's interest.

### Global Financial Services

The growth of financial services to the global scale in the later 1900s simultaneously enabled and was enabled by global economic activity. Starting with the Bretton Woods agreement in 1944, the exchange rate system linked currencies to the U.S. dollar, the value of which was fixed to gold. In 1971, this system began to break down and a floating exchange rate system emerged. In the mid- and late 1970s, oil producers raised prices, and U.S. dollars accumulated in foreign banks, in turn creating new financial markets. Materially poor countries such as Brazil borrowed large sums at low interest rates to develop roads and power dams. Money flows in the 1970s and early 1980s were mainly from materially wealthier to poorer countries.

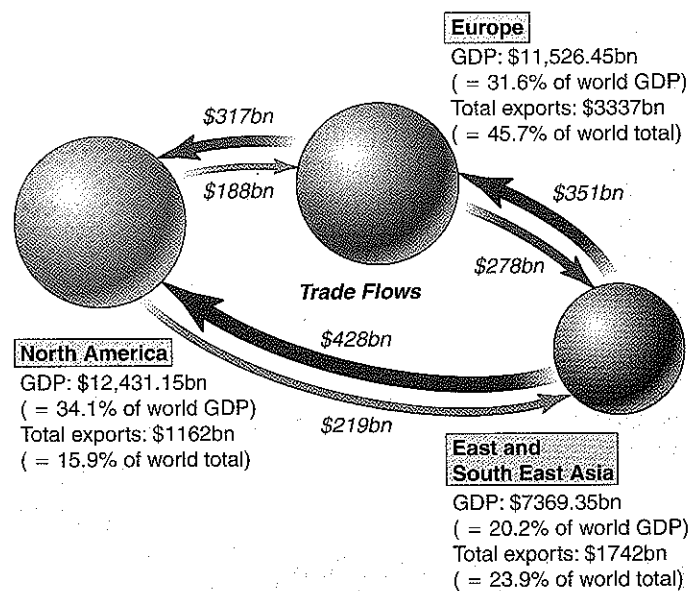
Although it was the world's largest economy, the United States ran huge budget deficits in the 1980s, financed by borrowing in dollars. It raised world interest rates, left huge debts, and slowed economic development worldwide. The rising interest rates prevented the poorer countries from

repaying their debts. During the late 1980s and 1990s, foreign investment supplied by the wealthier countries such as the United States, Japan, and the countries of western Europe was nearly all used in those countries (Figure 2.26).

In the late 1990s, the financial flows slowed for a while when the loans, particularly from Japanese and South Korean banks for construction projects, could not be repaid. In 1997 and 1998, several Asian countries faced economic, political, and social crises as a result; funds from international agencies used to shore up their economies were not available for investment elsewhere, causing countries such as Brazil and Russia to suffer economic slowdowns. Although the Asian countries' economies returned to growth by the early 2000s, many social and political impacts remained. The global economic system became associated with uncertainty. In the mid-2000s, excessive borrowing by Americans and the American government weakened the American dollar as fear grew that massive American debt threatened the world economy.

### Global Information Services

In the 1990s, the rapid expansion of Internet-, telephone-, and computer-linked services fueled the growth of information services. E-commerce (electronic commerce) is the trade-based sector of such services. The largest volumes of e-commerce transactions are business-to-business ("B2B"). Large corporations, such as General Motors, work with their suppliers over the World Wide Web. Business-to-consumer ("B2C") facilities include retail sales, bidding (such as for airline tickets), and auctioning. Success in the initial stages of this area was varied; few companies made rapid trading profits, and many went out of



**FIGURE 2.26 Concentrations of World GDP and Exports.** The United States, European Union countries, and East and Southeast Asia collectively account for 85.9 percent of world GDP and 85.5 percent of the world's exports in the early 2000s. **Source:** From *Global Shift* by Peter Dicken. Copyright 2007 by Guilford Publications, Inc. Reproduced with permission of Guilford Publications, Inc.



business after initial high share valuations. Although some new car sales, for example, took place over the Internet, most people with access to the Internet in the United States used it as a source of information before going to their local auto outlet to buy.

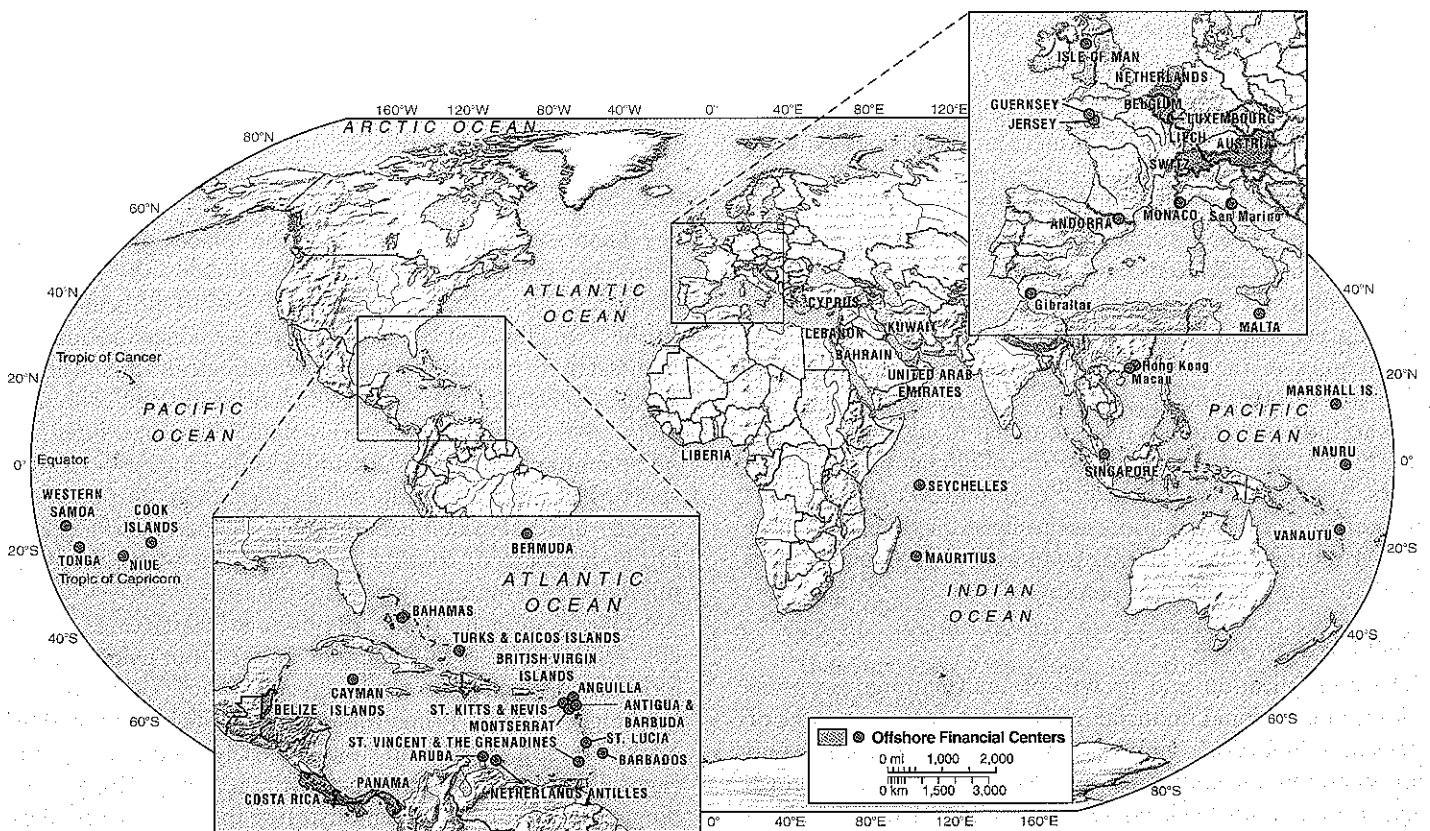
### Outsourcing, Offshoring, and Offshore Financial Centers

As globalization is breaking down barriers, corporations are cutting operating costs and lowering their tax obligations by engaging in outsourcing and offshoring and using offshore financial centers. **Outsourcing** occurs when a business or government agency contracts with a company to produce a good or perform a service that it once produced or performed for itself. It occurs both inside and outside of countries. **Offshoring** refers to the shifting of a job to another country, often overseas. A single job can be outsourced and offshored at the same time. However, many companies simply move jobs to branch offices overseas, meaning that such jobs are offshored but not outsourced. In 1983, for example, American Airlines established Caribbean Data Services in Bridgetown, Barbados, to process the paperwork related to its tickets and boarding passes. It became the largest single employer in Barbados. In Montego Bay, Jamaica, the Jamaica Digiport Interstate Communications System links clients in Canada, the United States, and the United Kingdom. U.S. insurance companies process claims in Ireland. India, with its large population of English speakers, is growing as one of the world's major call centers for multinational

corporations. Some Indian companies even train their staff to respond in American accents.

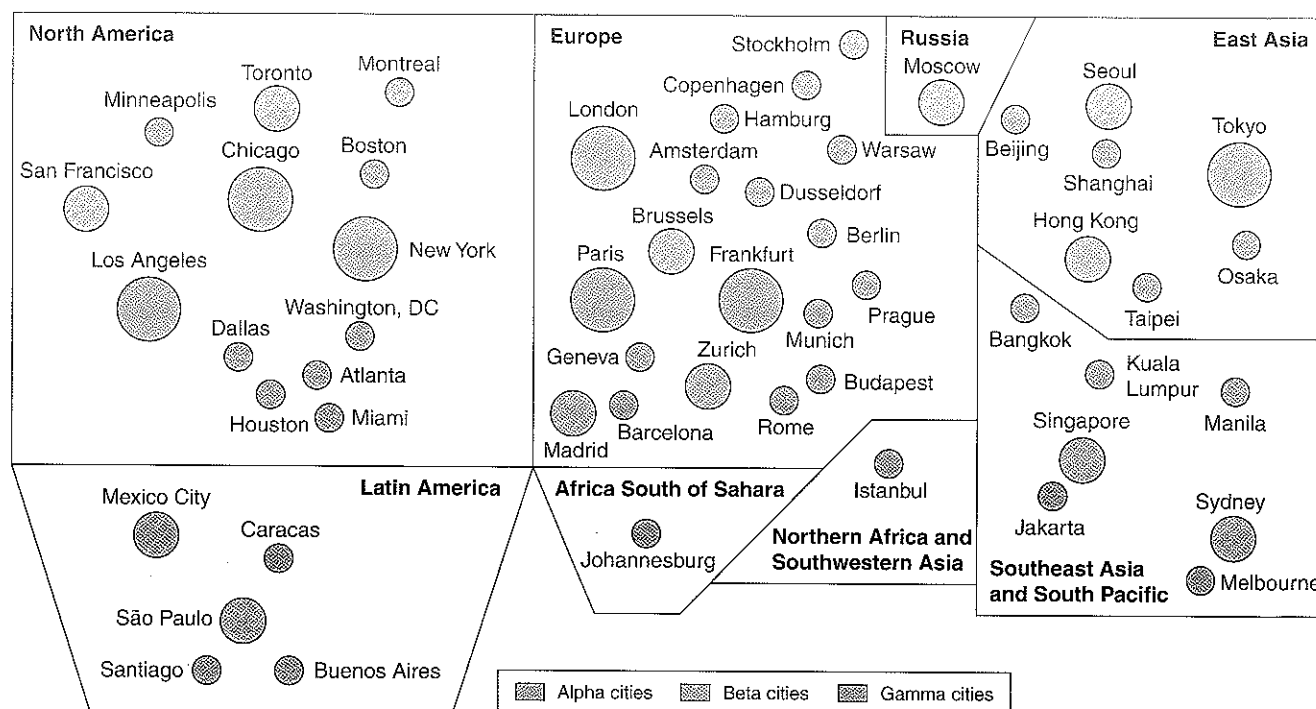
One of the fears of globalization is that more and more jobs will be lost overseas. However, outsourcing hit a peak in 2004 and has generally declined since. Low wages is an attraction, but local workers' knowledge of a local market is still important to maximizing profits, in turn minimizing the number of jobs that American companies are exporting. At the same time, foreign companies are employing American workers to produce and sell their products in the United States because American workers better understand American consumer choices and demands. Moreover, low wages is not the only goal of outsourcing. For example, as demand for environmentally friendly front-loading washing machines increased in the United States, Whirlpool found it more cost effective to pay \$32 per hour to German workers than \$23 to American workers to make these machines because German factories were already tooled for such machines and German workers already had the knowledge to build them. It shows that knowledge, experience, and infrastructure are as important as low wages in minimizing costs.

Individuals and businesses also save money by moving their financial assets to **offshore financial centers (OFC)**. The term comes from the fact that many of these places are small islands in the Caribbean and the South Pacific, though some of them are mainland countries like Switzerland, Luxembourg, Costa Rica, and Kuwait (Figure 2.27). OFCs attract



**FIGURE 2.27 Offshore Financial Centers (OFCs).** By offering low tax rates, few regulations, and secrecy, OFCs attract assets from individuals and businesses.





**FIGURE 2.28 Global City-Regions.** Major world cities and their immediate regions are the centers of global economic activities. This threefold classification is based on four categories of international business services: advertising, accounting, banking, and law. Each of the four is given a 1–3 value for a maximum score of 12; values of 10–12 are “alpha,” 7–9 are “beta,” and 4–6 are “gamma.”  
**Source:** Globalization World Cities Study Group and Network, University of Loughborough, U.K.

individuals and businesses with low tax rates, few regulations, and secrecy. A U.S. government report in 2004 revealed that 61 percent of American companies paid no federal income taxes during the profitable years 1996–2000, mostly by moving their profits to OFCs. Not surprisingly, for example, the American toolmaker, Stanley Works, moved its headquarters to Bermuda in 2002. However, many companies have less than their nameplate in the lobby of another business. For example, fewer than 3 percent of companies in the Virgin Islands have any presence there. The loss of taxes and opportunities for criminals and terrorists to hide their monies has prompted many countries like the United States to pressure OFCs to tighten their financial laws. Many have complied. For example, 30 out of 37 offshore banks in Vanuatu ceased to exist on the island after the government required banks to have a permanent office with at least one full-time employee.

### Global City-Regions

The multiplication and growth of multinational corporations, international financial institutions, dense networks of telecommunications, information-processing facilities, and international airline routes, together with the rising significance of quality business services, placed a new focus on some of the world's largest cities. New York, for example, is the center of a region with 18 million people and has an economic product greater than countries such as Canada or

Brazil; its businesses receive 40 percent of their revenues from foreign sources. Foreign banks with New York offices rose from 47 in 1970 to over 200 in the early 2000s; over half of the U.S. law firms with overseas business are based in New York.

Such cities greatly impact the places immediately surrounding them as well as cross-border links to other countries. Their geographic scale of size and influence merits the term **global city-regions**. They have concentrations of high-salaried people, high-end technological and business services, specialized workplaces, expensive hotels and homes, major sports stadia, and concert halls. They have high-rise office and apartment blocks and a wide range of arts and sporting facilities. At the same time, their corporations employ increasing numbers of foreign experts and a growing underclass of poorly paid support workers, often migrants from materially poorer countries.

One approach to identifying and classifying global city-regions focuses on the importance of four categories of global corporate services (accountancy, advertising, banking, and law). Prime centers in all categories are New York, London, Paris, and Tokyo, closely followed by Chicago, Los Angeles, Frankfurt, Milan, Hong Kong, and Singapore. Figure 2.28 demonstrates the uneven distribution of these cities—the “control centers” of the global economy. The “top 10” global cities are in the United States, western Europe, and East Asia.

## Regional Emphases

Although the free-market capitalist economic system prevailed globally after 1991, its geographic influences and benefits were not evenly distributed. Instead of a single path toward a global economy, distinctive regional variants of capitalist economies developed. The "Asian Way" builds on family linkages connected to government-business liaisons, rather than on the independently verified banking and legal systems that are basic to free-market capitalist economies in Europe and the United States (see Chapters 5 and 6). The "European Way" (Chapter 3) makes much of providing social welfare to support those who are not able to benefit from or exploit the capitalist system. Countries in Latin America moved out of self-sufficient and inwardly focused economic systems and into the world system with some pain (see Chapter 10). The former Communist countries of the Soviet bloc struggled to construct new economic identities (see Chapters 3 and 4). And on a much smaller scale, groups of peoples living in such isolated areas as the Amazon rain forest and Papua New Guinea, as well as increasing numbers in African rural areas, engaged little, if at all, with the global economy. Some local voices were not heard.

## ISSUES OF CULTURAL FREEDOM AND DISCRIMINATION

**Cultural geography** is the study of spatial variations in cultural characteristics, such as material traits, social structures, and belief systems. The culture of a group of people is basic to how they create and re-create the regional distinctiveness that in turn affects their lives and those of their descendants. Some aspects of cultural identity, such as the Muslim religion, operate worldwide; others are more national in character or local in nature. For example, Belgians are part of a broader European group while simultaneously having Flemish and Walloon (French) subtypes.

The most important thing to understand about culture is that it is learned behavior. Culture consists of a combination of traditions and behavior practices that are transmitted from generation to generation as well as adaptations, variations, and new ideas or innovations more recently acquired or accepted by various groups of people. Cultural identification is not mutually exclusive. One may be part of many different culture groups at the same time. Biology and genetics do not determine any element of culture, but some focus on gender and racial features when deciding who does and does not belong to their group.

## Languages

A **language** is a means of communication among people, including speech, writing, and signing. It grows out of historic experiences and traditions and often is chosen as the

basis of a shared identity for some cultural groups. For example, the French-speaking Québécois people in Québec, Canada, and the Welsh speakers in the United Kingdom increased their focus on language to achieve greater political recognition.

Language is an important factor in geographic diversity. Regional and internal country variations occur. In India, for example, each state designates its own official language(s). In northern India, many local languages give way to Hindi and the state-designated languages, while in southern India colonially imposed English becomes more significant as a common language alongside the multitude of state and local languages.

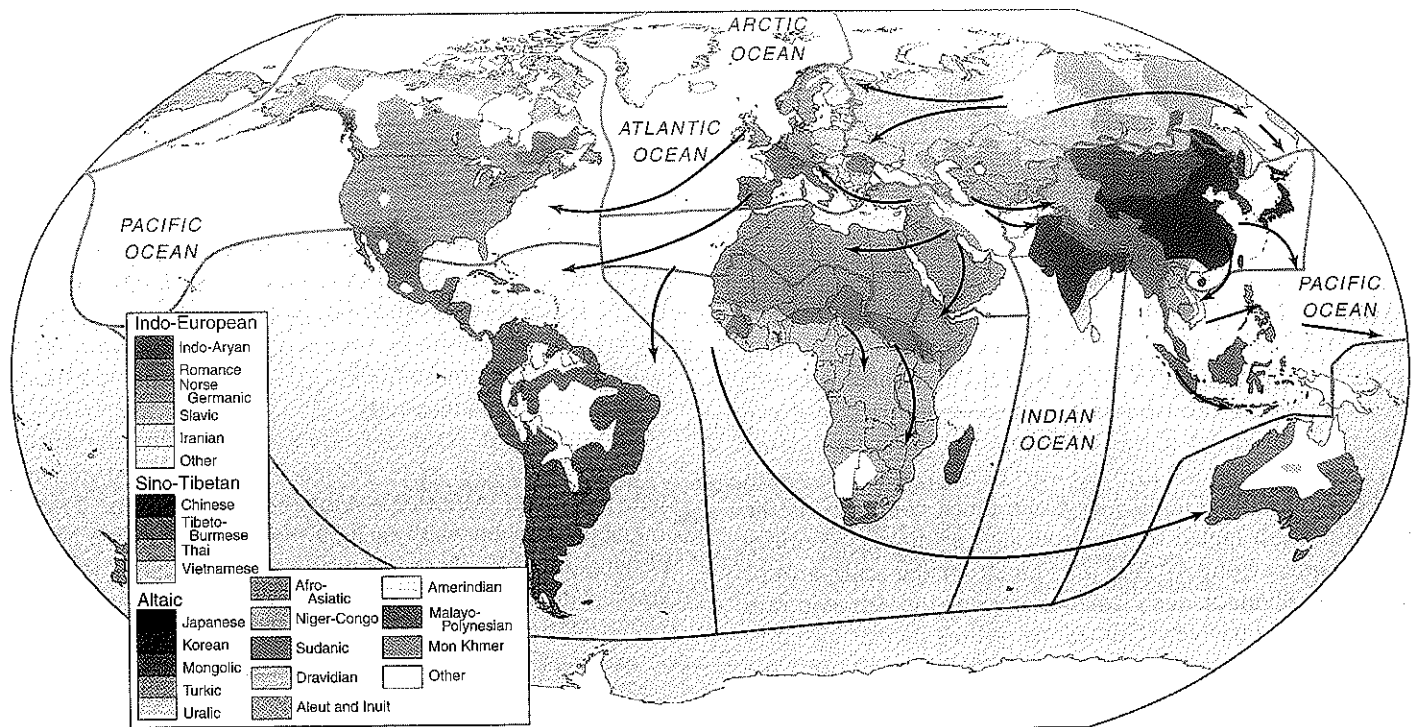
Thousands of languages are spoken around the world, many by small groups of people in isolated environments such as South America's Amazon River basin. Twelve languages dominate with each having over 100 million people speaking them. Six of these (English, French, Spanish, Russian, Arabic, and Mandarin Chinese) are official languages of the United Nations chosen at the end of World War II by the victorious allies.

Related languages can be grouped in families (Figure 2.29). For example, the Indo-European family includes most of the languages of South Asia (such as Hindi), the Slavic languages of eastern Europe and Russia (like Polish and Russian), and the languages of southern, western, and northern Europe. Some European languages, especially Spanish, Portuguese, English, French, and Dutch, spread worldwide with colonization from around A.D. 1450, dominating the Americas and the South Pacific and becoming important in many parts of Africa and Asia.

Other major groups include

- The Sino-Tibetan language family: languages of China (such as Mandarin in the north) and southeast Asia.
- The Altaic family: languages of Central Asia that diffused westward to Hungary and Finland and eastward to Japan and Korea.
- The Afro-Asiatic family, which dominates northern Africa and the Arabian peninsula and includes languages like Arabic and Hebrew.
- The Niger-Congo family: many languages spoken in Africa South of the Sahara, like Shona (Zimbabwe).
- The Malayo-Polynesian family, occurring through Malaysia, Indonesia, the Philippines, and the South Pacific.
- Smaller family groups: the pre-European languages of the Americas (Aleut, Inuit, Amerind) and of Cambodia (Mon Khmer).

Globalization marginalizes and extinguishes some languages and strengthens others. English is increasingly used in communications among scientists throughout the world, in international air traffic control, in computer software, and in the entertainment industry, where films and TV programs in English are dominant. It remains a common



**FIGURE 2.29 Cultural Geography: World Language Families.** How do the language families relate to major world regions? The arrows show some diffusion routes.

language in ex-colonies of Britain where there are rivalries among local languages. In the early 2000s, English met growing competition from Japanese, German, and Chinese to be the dominant computer language.

## Religions

Religion also becomes the focus of strong group loyalties and exclusive attitudes, which in turn creates geographic variations. Each **religion** is an organized set of practices that professes to explain our existence and purpose on Earth. Some also project a system of values and faith in and worship of a divine being or beings. Regional emphases, such as social and legal practices, and visual features, such as building designs, often reflect religious allegiance (Figure 2.30). Religions play a significant role in transferring cultural values and practices from one generation to the next.

### Major World Religions

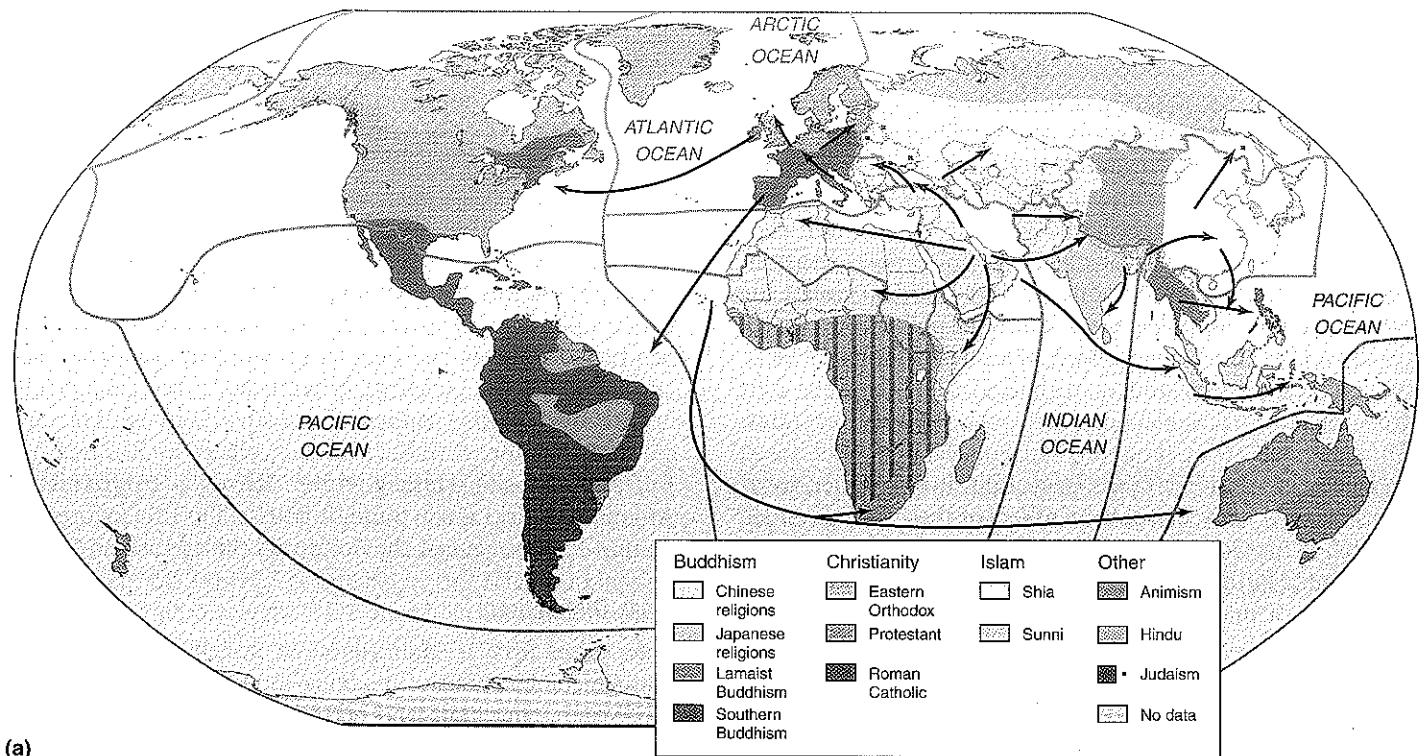
The religions claiming the largest numbers of adherents are Christianity, Islam, Hinduism, and Buddhism: they each claim around one-fifth of the world's population. Judaism has a smaller number of adherents but widespread influence. Christianity, Islam, and Buddhism actively seek to expand their membership through conversion: they are **universalizing**, or global, **religions**. Hinduism and Judaism are mainly a matter of birth, closely tied to family and region: they are **ethnic religions**. People practicing ethnic religions do not actively seek converts because they see their religions as appropriate only for their own ethnic groups. Hinduism

began in South Asia and is still mostly found there. Buddhism originated from Hinduism but primarily spread to East and Southeast Asia, where it is practiced alongside many older local religions.

Judaism, Christianity, and Islam, the world's most influential monotheistic religions, all originated in the same world region (see Chapter 8), and all consider the city of Jerusalem to be very sacred. Christianity and Islam were created from the already existing structure of Judaism. All three believe in the same God. Jews and Muslims both look back to "Father" Abraham, and Muslims recognize Abraham, Moses, and Jesus as prophets. Jesus of Nazareth grew up as a Jew, and Christians use the same sacred writings as Jews in their Old Testament.

Christianity is the main religion of Europe and former European colonies in the Americas, Africa South of the Sahara, and the South Pacific. Islam is dominant throughout the Arab world of Northern Africa and Southwestern Asia and extends eastward to Central Asia and through Pakistan and Bangladesh to Indonesia (the most populous Muslim country).

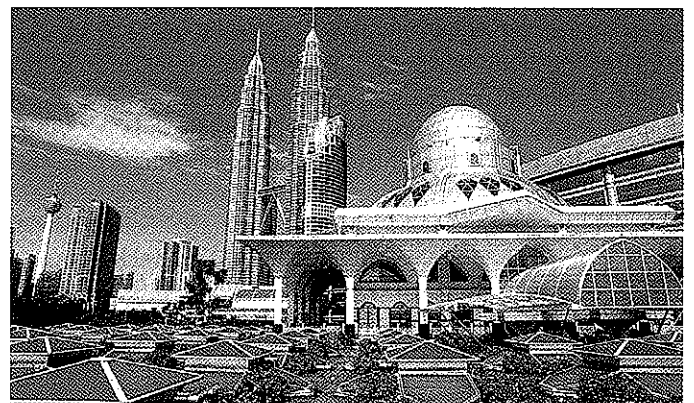
The Jewish faith has a different spatial distribution than other major religions. Jews live in a **diaspora**, which is a dispersed community comprised of close-knit groups. The Jewish diaspora was created after Roman armies destroyed Jerusalem in A.D. 73 and forced Jews to migrate to all corners of the known world. Numerous episodes of oppression against Jewish minority communities occurred. The most extreme anti-Jewish action took place during the Nazi holocaust in Europe in the early 1940s. In 1948, the country of



(a)



(b)



(c)

**FIGURE 2.30 Cultural Geography: World Religions.** (a) The map shows the geographical dominance of Christianity, Islam, Hinduism, and Buddhism. They also have the highest numbers of adherents. The Jewish religion is spread around the world, mainly in cities. Older and local religious practices remain in localized areas. The map shows the most important religions. Many places have mixtures of allegiance to different religions—sometimes working together, at other times in conflict. (b)–(c) Symbols of the main religions: (b) Hindu Temple, Bali, Indonesia. (c) Asy-Syakirin Mosque with the Petronas Towers, Kuala Lumpur, Malaysia: religious and secular symbols. **Photos:** (b) © Paul A. Souders/Corbis; (c) © Tibor Bognár/Corbis.

Israel was established as a common homeland for many Jews (see Chapter 8). Today most Jews live in the United States or Israel.

Major religions originated in specific world regions, although many spread out from their earlier centers. Internal divisions are also geographically significant. In Christianity, for example, the rift between Roman Catholicism and the Orthodox churches set apart the cultures of western and eastern Europe. Protestantism grew out of Roman Catholicism in northern Europe after A.D. 1500. Overseas explorations from the 1400s led

to Christian missionary expansion outside Europe. Today some 60 percent of world Christians are Roman Catholics, 25 percent belong to Protestant groups, and 10 percent are Eastern Orthodox.

### Religion and Society

Religious adherence often motivates believers to advocate certain social, economic, and political policies because religions have very specific views on such issues as abortion, sexuality, family life, gender roles, education, the natural environment, crime, punishment, and the appropriateness

of certain activities and professions. For example, many Roman Catholic and Muslim leaders officially oppose population policies aimed at reducing births—although individual families increasingly make their own choices. Some religious views argue that humans are either part of or stewards of the natural environment and, therefore, should conserve it; they conflict with other religious views that argue that Earth was created for human use.

Religious differences between peoples may result in conflicts, especially when one group's actions violate or offend another group's beliefs. Those in political power or those seeking it often stereotype other religions, emphasize religious differences, and exacerbate tensions between religious groups to advance their own political agendas. Though most Jews, Christians, Muslims, Hindus, Buddhists, and peoples of other faiths peacefully live together, local conflicts exist between some members of these groups. Since the end of the Cold War in the early 1990s, religious extremists of most faiths have helped to make religious intolerance the source of many regional and global conflicts.

## Race, Class, and Gender

Status—and the ability to effect or suppress changes—varies greatly throughout world regions. In many cultures, status is inherited through the family, as in the caste groups of India or the aristocracies of Europe. In other cultures, status may be achieved by creating financial wealth, political allegiance, media prominence, or sporting performance. While many of the world's wealthier countries increasingly base status on achievement (called meritocracy), some people have a greater chance of achieving higher status than others by virtue of their birth into wealthy families, their gender, their upbringing, or their education. Throughout the world, race, class, and gender influence access to position in society.

### Race and Ethnicity

An ethnic group is a culture group. Its members identify a common origin (real or imaginary) and are set apart by religion, language, national origin, or physical attributes. Such groups may be called tribes, clans, or segregated minorities.

The physical attributes of ethnicity are based on the imaginary concept of **race**, which is assumed by many to be based on essential biological differences. However, characteristics such as skin color, eye shape, or hair type vary as much within identified "races" as between them. Although race and racism are often at the center of human conflicts, the most basic human biological features, DNA and blood type, demonstrate little variation across the human species, which is a single reproducing group. However, cultural status is given to body features as a means of defining what are essentially ethnic "them-us" differences.

Examples of cultural racism include South Africa, where the minority white population operated a supremacist apartheid policy until 1993, separating whites, blacks, and other "colored" peoples into segregated neighborhoods. The coun-

try is now reversing this policy (see Chapter 9). In the United States, most African Americans, a minority ethnic group identified mostly by skin color, still struggle against discrimination from people of European origin. Even in Brazil, where European, African, Native American, and Asian peoples mix freely, most wealthy people are of European origin.

In many countries, ethnicity forms the basis of opposing political groups. This is particularly true of African, Latin American, and many Asian countries. Often tribal differences were highlighted and used by colonial powers, playing one group off against another. Since independence, however, the new rulers took up one-party rule and increased the perceived differences by rewarding those in their own ethnic groups and penalizing others. This process led to armed conflicts in such places as Rwanda and Burundi, Bosnia-Herzegovina, Kosovo, Afghanistan, Angola, and Sri Lanka. Saddam Hussein in Iraq favored the Sunni Muslims against the dominant Shia Muslims.

### Class Distinctions

**Class** arises from a stratification of society that is imposed through combinations of religious, economic, and social criteria. Wealth, education, and perceived birthright are common bases for class distinctions in all countries. In the United Kingdom, the royal family is at the top of a hierarchy of hereditary dukes, earls, and knights. In India, the caste system and, increasingly, education define position in society. In Communist countries, the expectation of a classless society is contradicted by the status and privileges given to members of the Communist Party. Most Americans identify general class differences on the basis of material possessions and appearances. Their classes are based on economics: a lower-middle class of factory and shop workers, an upper-middle class of managers and professionals, and a group of exceptionally wealthy financiers, property owners, and sports and media stars.

### Gender Inequalities

**Gender**—the cultural implications of one's sex—is also responsible for differences and inequalities of opportunity within and among societies that affect geographic differences. Males dominate most societies and have a history of denying full rights to women. Although major changes occurred in the 1900s, particularly in extending voting franchises to women, some countries still deny women the human rights defined by the United Nations.

In the late 1990s, the Taliban in Afghanistan became notorious for taking women out of education, confining them to the home, and selling some of them into slavery. In Africa, female genital mutilation, or "cutting," continues in some societies. In Iran and northern Nigeria, women—but not men—can be stoned to death for adultery. Illiteracy among women is still much higher than among men in most of Africa and Asia because more men than women receive an education. Few European countries allowed women to vote in elections until the 1900s, with Switzerland delaying this until 1971 and one of its cantons until 1990. Some demographers and human rights



organizations argue there may be as many as 100 million fewer women than men in the world due in large part to cultural preferences and practices favoring male children.

Women hold as much as half of the jobs in countries like the United States. However, in spite of having roughly half of the master's degrees awarded, they are obstructed by a "glass ceiling." Consequently, women hold less than 8 percent of the top managerial positions, and their salaries are on average 72 percent of those of their male counterparts. Though sex discrimination is not allowed in many countries, most workplaces are male-structured, providing few child-care facilities, flex-time or part-time work schedules, or extended leaves to take care of family matters. Where these shortcomings exist, women still find it difficult to advance.

The *United Nations Human Development Report* for 1995 included a gender-related development index (GDI) for the first time. The GDI focuses on the same criteria as the HDI (see page 47) but reflects inequalities between men and women. Of the 177 countries in the HDI rankings in 2005, only 140 received GDI rankings. Norway ranked number 1 in both HDI and GDI. The United States HDI rank was number 10, but its GDI rank was two places higher at number 8. Sri Lanka's GDI ranking was seven places higher than its HDI ranking, representing the greatest movement upward. Saudi Arabia's, Peru's, and Belize's GDI rankings were five places below their HDI rankings, representing the greatest movement downward.

Some aspects of women's inequality are gradually being tackled. The high rates of female illiteracy in poorer countries have major implications for future population resource issues. Better education gives women confidence, enables them to take jobs, improves their self-esteem, and increases their role in decision making. It also impacts such matters as how many children are wanted in a family because their education is perceived as vital but is expensive. In many places, male attitudes and cultural traditions still prevent women from controlling how many children they have. It is clear that many women prefer smaller families, but fears raised in earlier periods of higher infant and child mortality still encourage larger families.

Despite their low status in most societies, women now play major roles in the expanding world economy. In materially poor countries, women comprise around 80 percent of the labor force in export-oriented electronics, apparel, and textile industries. Nevertheless, despite the role that women play, the United Nations estimates that sex discrimination costs Asia US \$42 to \$47 billion per year. The education gap costs another US \$16 to \$30 billion per year. If women had the same employment opportunities and wages as men, GDP would be 9 percent higher in the United States, 13 percent higher in the euro zone, and 16 percent higher in Japan.

Wealthier countries, including the industrializing countries of East Asia, experienced greater household prosperity through dual incomes as females entered the paid labor force. Women's employment prospects in Africa and Latin America, however, deteriorated as the result of measures imposed to solve the debt crises in those countries. In Russia, the wide involvement of female labor under the former Soviet Union's Communist regime yielded in the 1990s to a greater focus on male employment.

### Cultures and Regions

Cultural differences give character and identity to the world's major regions, countries, and smaller regions within them. Many existing cultural characteristics can be traced back through human history to "cultural hearths" where the development of agricultural technology, religion, language, and social forms originated under specific environmental conditions (see Chapter 1, pp. 6). Current world geography considers how older cultural forms and practices are reshaped by newer ones to continually re-create new places and regions. For example, North America and its modern cultures are products of European, Asian, African, and Latin American elements that continually interact to produce and reproduce a unique world region. Mexico and Central America emerged from Mayan and Aztec cultures that were reshaped by European colonization and then by interaction with North America. China and its cultures are a mixture of ancient, modern Communist, and recent economic forces. All places and regions reflect similar kinds of interactions.

## TEST YOUR UNDERSTANDING

**2B**

### Summary

Issues of people and land focus on population distribution and how populations grow or decline. The number of people Earth could support is subject to complex factors.

Political freedom depends on how countries are governed, the role of nationalism in their policies, and attitudes toward indigenous peoples. Countries where political power is concentrated in the hands of a few rulers often adopt harsh policies toward their peoples.

In the 1990s, economic systems were dominated by the free market. Inequality among peoples focuses on the continuing

material poverty of so many and the huge material wealth of a few. The global economy spreads world trade through multinational corporations and involves global movements of capital and information. NGOs have local, countrywide, and global roles. Some are well known for bringing aid to needy places across country boundaries and for pursuing human rights and environmental issues. Global city-regions are hubs of international economic activities.

Issues of cultural freedom and discrimination are increasingly significant in world geography. Languages unite or separate peoples and are a major feature of nationalist claims. Religions are fundamental to world regional divisions and foster

(Continued)

both togetherness and conflicts. Race, ethnicity, class, and gender affect status in society, and such issues underlie many local conflicts. Cultural differences trace back to early human history in distinctive cultural hearths.

### Questions to Think About

- 2B.1** Compare major political systems. How do they affect economic policies?
- 2B.2** How is globalization affecting—and affected by—the roles played by multinational corporations, nongovernmental organizations, and intergovernmental organizations (like the EU or the UN)?
- 2B.3** In what ways do languages and religions define cultural groups? What effect may differences have on human rights?
- 2B.4** How are gender issues determined by cultural expectations?

### Key Terms

population density	economic geographer
physiological density	gross domestic product (GDP)
population–resource ratio	gross national income (GNI)
rural area	purchasing power parity (PPP)
urban area	human development index (HDI)

urbanization	human poverty index
megacity	primary production
demography	secondary production
crude birth rate	tertiary production
total fertility rate	quaternary production
crude death rate	free-market capitalist system
infant mortality	multinational corporation (MNC)
demographic transition	outsourcing
migration	offshoring
population doubling time	offshore financial center
political geography	global city–region
country	cultural geography
nation	language
ethnic group	religion
nationalism	universalizing religion
indigenous people	ethnic religion
capital city	diaspora
unitary government	race
federal government	class
governance	gender
nongovernmental organization (NGO)	

## WORLD REGIONS, HUMAN DEVELOPMENT, AND HUMAN RIGHTS

Dividing the world into regions leads geographers to consider how some places experience different living conditions than others. The answers to this investigation vary from place to place and depend on such factors as

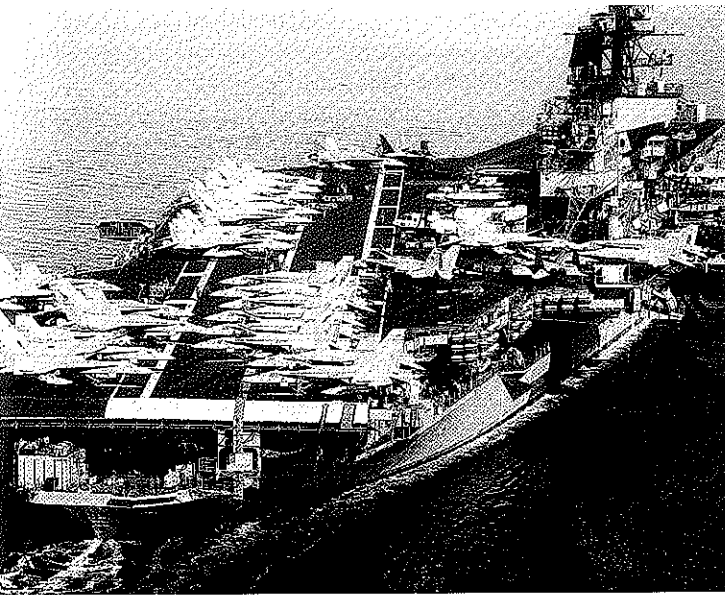
- The complex interactions of people with the natural environment.
- Considerations of the historic growth of population numbers and cultural expressions.
- The evolution of political systems.
- The growth of economic output.
- How different views of human rights affect those living in different parts of the world.

In a globalizing world, the issues arising from these studies become more obvious and urgent. In this chapter we have highlighted a series of geographically related analyses of population, resources, political freedoms, wealth and pov-

erty, cultural freedoms, and environmental concerns. They all affect human development and human rights.

### Human Development

Through history, the differences among places led some countries that were well endowed with natural resources and strong leadership to assume positions of dominance and superiority. For example, the Chinese long believed they were the only civilized people and all others were barbarians. They spread their culture widely in East Asia, but held back from wider geographic control after the 1400s. During the next centuries, European countries claimed they were taking their form of civilization and modern ways to parts of the world that they often colonized. Their activities increased differences among places. The histories of today's materially poorer regions, especially their experiences of European colonialism since A.D. 1500, are basic to an understanding of the geographic differences among countries. In the later 1900s, the United States and the Soviet Union contested world economic, military, and political dominance, each believing that their systems were superior. After 1991, the breakup of the Soviet Union left the United States as the only "superpower" (Figure 2.31).



**FIGURE 2.31 U.S. Military Might.** The armament in planes and missiles on a single U.S. aircraft carrier is greater than that of most countries. Photo: © Corbis RF.

Despite the homogenizing effects of globalization, the world remains full of differences and inequalities. The material wealth of many Americans sharply contrasts with the poverty of some parts of that country and the extreme material poverty of millions in Africa and Asia. Such differences have led to studies of how some regions and countries move ahead and others fall behind in terms of their level of **development**. The process of enhancing human capabilities and improving quality of life through such means as education, health care, and access to adequate clean water and energy supplies is known as **human development**. Although this definition refers to all levels of well-being, most concern is given to the possibilities of helping materially poor people in “less developed” or “underdeveloped” countries and regions to catch up with the wealthier countries. **Sustainable human development** involves economic growth that does not deplete renewable resources for the future. It thus considers both human and natural resources, drawing together studies of human and physical geography.

## Issues of Human Development

The United Nations Human Development Program and recent World Bank publications focus on the eradication of material poverty. In 2000, the United Nations and other global organizations formulated the Millennium Development Goals, to be achieved by 2010–2015 (Table 2.1).

It is encouraging that the last 50 years saw major reductions of income poverty in large parts of the world, improvements in human development indicators—particularly in health and education—and the wider spread of law and fair

administration of justice. However, it remains challenging that so many people in the world remain materially poor.

A study of approaches to development includes not only the theories about how it has taken or may take place and an understanding of strategies adopted to make it happen, but also insight into the ideologies that decide the purposes of development. Several phases of ideas can be described.

### “Developed Countries Thought They Knew Best”

In the 1950s and 1960s, development was framed by the Cold War between the Western, democratically oriented, capitalist countries, often called the **First World**, and the single-party, central-planning, Communist countries, often called the **Second World**. Both sides believed that they understood how economic growth worked, though both had opposing ideas, methods, and interests. The **Third World** emerged with the independence of many former colonial countries, many of which were materially poor and were labeled as Third World together with other materially poor countries. Countries of the First and Second Worlds competed with each other to aid the Third World countries, and both pressured these countries to adopt their respective systems.

Two main approaches to development were adopted. For the first, it was suggested that **modernization** from traditional (i.e., underdeveloped) to new economic processes (i.e., developed) would take place as agriculture-based societies transitioned to industrial production and mass consumption of manufactured goods. In the second approach, a movement from dispersed rural to urban “growth pole” living in an industrializing world would bring improved access to jobs, education, health care, and other services. These approaches mirrored what the First and Second Worlds experienced. However, outcomes in Third World countries were patchy, resulting in geographically uneven development among and within countries. The formula worked in a few countries, particularly those such as Japan and South Korea that had

**TABLE 2.1 Millennium Development Goals**

In 2000, many target dates were set between 2010 and 2020, but lack of progress to 2005 suggests that the goals will take much longer to achieve.

Goal 1	Eradicate extreme poverty and hunger.
Goal 2	Achieve universal primary education.
Goal 3	Promote gender equality and empower women.
Goal 4	Reduce by two-thirds the under-five mortality rate.
Goal 5	Reduce the maternal mortality rate by three-quarters.
Goal 6	Stop and reverse the spread of HIV/AIDS, malaria, and other diseases.
Goal 7	Ensure environmental sustainability, which includes access to fresh water and sanitation.
Goal 8	Develop a global partnership for development.

U.S. help in war recovery investment. Other Asian countries, such as Malaysia, Thailand, and Singapore, also invested in manufacturing and service industries and experienced rapid economic growth. Larger countries, such as Mexico, Brazil, India, and China, possessed internal resources and a potentially large market for home-produced goods, but economic growth focused on a few urban areas. The smallest countries often lacked both resources and large markets. Most developing countries established only a few, often low-technology industries making goods for internal consumption.

### "History Provides the Key"

In the 1960s and 1970s, descriptive studies of historical experiences, mainly focused on events before independence, shifted some emphasis to understanding how colonialism contributed to underdevelopment and dependency of poorer countries on the colonial powers. Such studies provided generalized patterns (or models) of the processes involved in colonization and integration with Western countries.

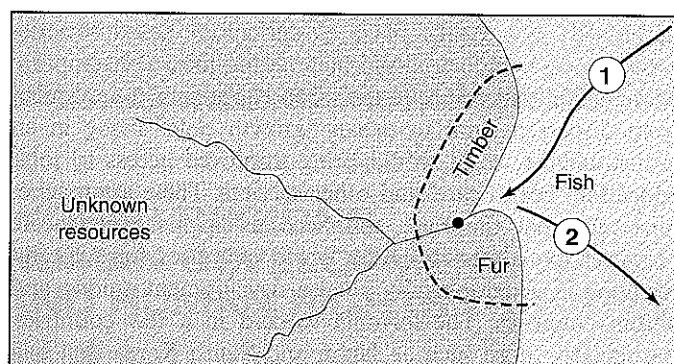
One set of studies found that most materially wealthier places got wealthier, while few poorer places experienced material improvements. As worldwide trade developed after the late 1400s, many European merchants enhanced their

own positions at the expense of other parts of the world. They removed valued commodities from around the world to build their own wealth. This trend continued after the 1800s as they purchased low-value raw materials from abroad and sold back high-value manufactured goods. A core-periphery model was developed to show how the rich became richer and the poor became poorer.

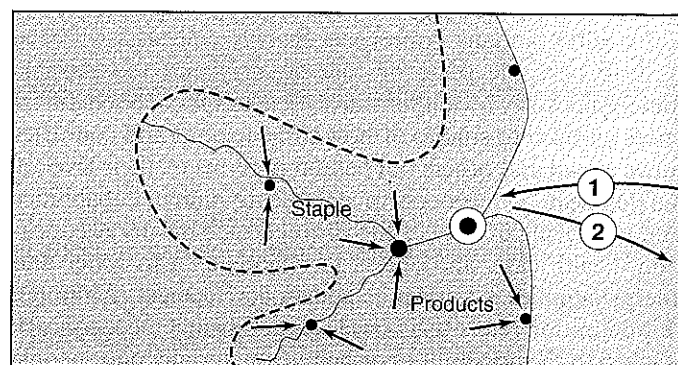
A second set of studies focused on the transportation relationships between the expanding merchant-based societies of Europe and the "new" lands that were settled, appropriated, and developed as a result of expansionist activities from the late 1400s. Figure 2.32 is one such model of this type.

### "Third World Answers Back"

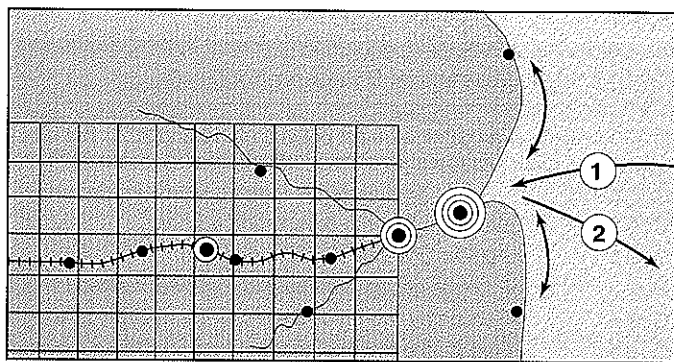
In the 1960s and 1970s, it became clear that the West's modernization programs were not bringing economic development to all countries. At the same time, resentment of previous colonial domination and ideas from the apparently successful Communist countries led many in the Third World to believe that they had been unjustly made dependent on Western countries. Certainly, rural peasant farmers were tied to centers of global trade through local market



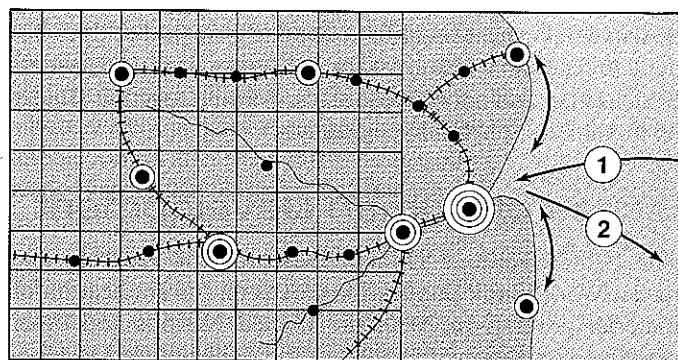
New land, ocean transport



River transport



Rail transport



Road/rail transport

**FIGURE 2.32 Colonial Settlement Patterns.** The sequence of stages provides a general picture of how places such as Australia and Argentina grew with settlement from Europe. Other former colonies did not go through all the stages. At first, imports from the home country (1) are paid for by exports (2). Early settlement relates to river transportation; and later to railroads, which establish new patterns of movements and economic development. City growth is shown by numbers of circles.

towns and international ports. A wish emerged to be independent, self-sufficient, and released from involvement in the West-dominated world economy. An emphasis was then placed on home-based manufacturing (**import substitution**), local trade barriers, restrictions on foreign corporations, and the formation of trading groups of countries with similar concerns. By the 1990s, however, it became clear that though isolation from the world economy might have some internal cultural and political value, it did not provide equality with Western countries.

### "Bottom-Up, Not Top-Down"

Since the 1970s, greater emphasis has been placed on self-reliance and the local characteristics of places rather than on general "one size fits all" plans that ignore geographic differences. One of the barriers to development in materially poor countries has been the structure of their economies. Like Western countries, materially poor countries have a **formal economy** in which jobs pay taxable salaries and people own title deeds to their homes and the land on which they stand. However, alongside the formal economy is a much larger **informal economy** in which people cannot use their homes or land as collateral for loans, primarily because they do not own property. The informal economy is not open to investment, whether local, national, or global. Consequently, people in the informal economy, often the majority of populations, are denied enterprise opportunities and stay trapped in poverty.

As an alternative to traditional trade and investment, rural development became a focus for grassroots movements, which tried to re-establish local communities and strengthen their abilities to maintain themselves and combat external pressures. Basic needs programs sought to increase the availability of food, clothing, and housing, but they worked slowly and isolated communities from urban areas. In some countries, such as China, Cuba, and Tanzania, socialist influences tried to link culture, history, and local institutions to an integrated approach that drew on both human and natural resources. In other instances, environmental consciousness encouraged the sustainability of production. A human rights and justice strategy freed women from virtual slavery in many places. Such ideas, however, are difficult to maintain in the face of external economic and political pressures to produce goods for export and to welcome foreign direct investments.

One of the new approaches set up microcredit banks. It built on the experience of the Grameen ("Village") Bank in Bangladesh, which grew out of a program of small individual loans by Professor Mohammad Yunus beginning in 1974 and was formally established in the mid-1980s. Small amounts of money enabled craft workers and others to establish small businesses that helped them to emerge from poverty. By 2007, the Bangladeshi Grameen Bank had 2,431 branches across Bangladesh,

with 23,345 staff serving 7.21 million borrowers in 78,659 villages, which represent more than 94 percent of Bangladesh's villages. Of the borrowers, 97 percent were women and 99 percent of the loans were repaid on time. In 2006, the Grameen Bank received the Nobel Peace Prize for its success in creating social and economic development from the local level. Grameen Bank's methods are now applied in numerous other countries, including the United States and Canada.

### "Structural Adjustment"

In the 1990s, the uneven and often unsatisfactory results of Western modernization efforts led to new approaches. With Asian countries achieving economic growth through export-based manufacturing, major global agencies such as the World Bank and the United Nations and many nongovernmental organizations insisted that countries engage in **structural adjustment**, that is, open their trade by exporting manufactured goods and allowing foreign investment. It required the downsizing of internal bureaucracies and central government planning. Copying the Asian Way, however, proved no easier than copying Western experiences. Also, many local businesses could not compete when their countries opened their economies to global trade.

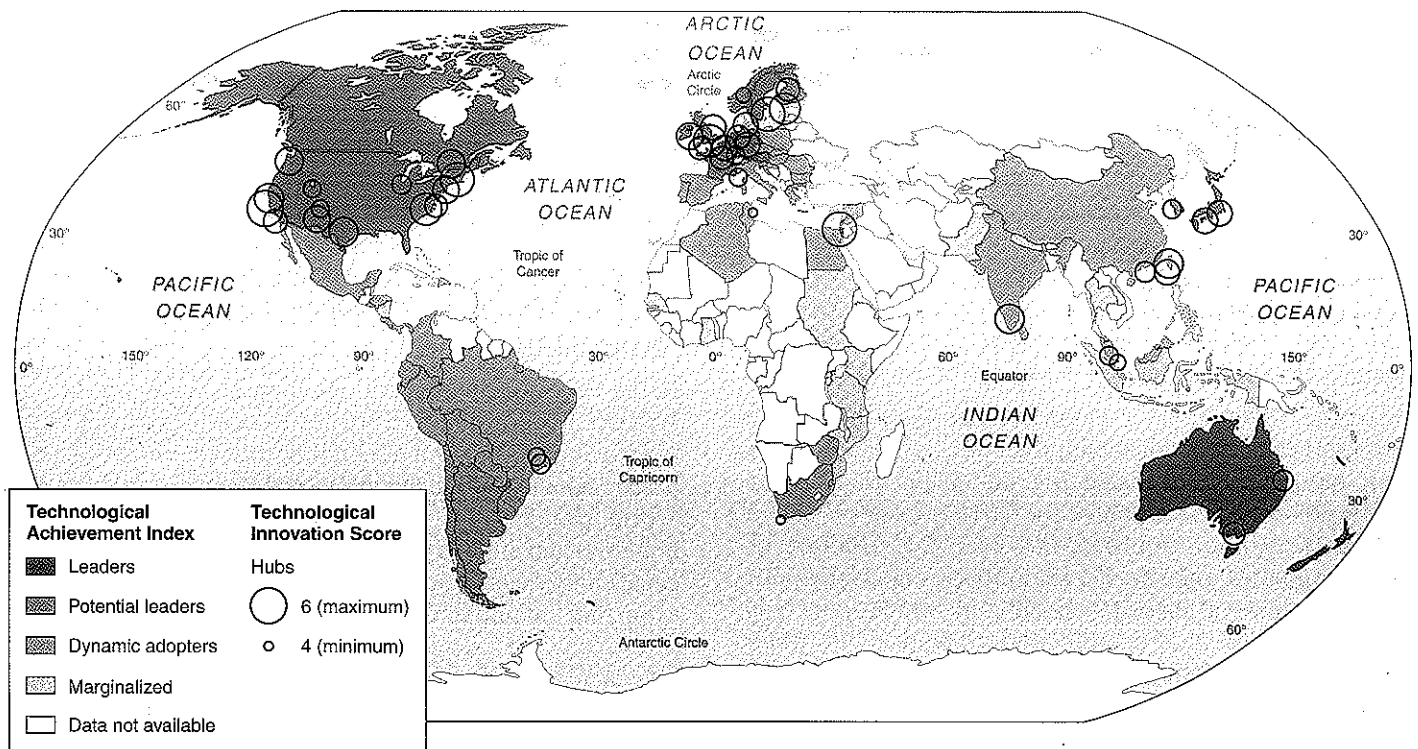
### Technological Innovation

In the 1990s, a new division of the world emerged from technological innovation and transfer (Figure 2.33). Around 15 percent of Earth's population living in Canada and the United States, western and northern Europe, Italy, Japan, South Korea, Taiwan, and Australia is responsible for nearly all the technological innovations and their applications. A further 50 percent of the world's population is able to adopt some technologies in production and consumption. The remaining 35 percent of the world's population lies outside these two zones, is "technologically disconnected," and is often caught in a trap of poverty, disease, low agricultural productivity, and environmental decline: these people need technological solutions they cannot afford. Such technological divisions create dependencies and exclusions that make it difficult to promote local cultural and environmental distinctiveness.

### Globalization and Development

As friction of distance ceases to determine the economic costs of locating production facilities around the world, low labor costs are increasingly significant. Fewer controls on trade and money movements allow MNCs to choose their places of investment worldwide. Better communications by satellite TV and the Internet enable wider global information transfer, including the marketing of global corporation products. The speed and flow of transactions between financial markets in New York, Tokyo, and London are





**FIGURE 2.33 Global Hubs of Technological Innovation.** In 2000, *Wired* magazine consulted local sources in government, industry, and the media to find the locations that matter most in the new digital geography. Each was rated from 1 to 4 in four categories, giving maximum scores of 16 and minimum of 4: the ability of area universities and research facilities to train skilled workers or develop new technologies, the presence of established companies and multinational corporations to provide expertise and economic stability, the population's entrepreneurial drive to start new ventures, and the availability of venture capital to ensure that the ideas make it to market. Forty-six locations were identified as technology hubs, shown on the map as black circles. The hubs with the highest scores include: Silicon Valley (California), Boston (Massachusetts), Stockholm (Sweden), Israel, Durham-Raleigh-Chapel Hill (North Carolina), and London (U.K.). Ten others in the top 40 occur in the United States, 12 in Europe, and 8 in East and Southeast Asia. **Source:** *United Nations Human Development Report*, 2001.

expanding to include global city-regions in countries that are experiencing economic growth (see Figure 2.28).

Though some underdeveloped countries are trying to develop according to their own local traditions, some people argue that globalization is undermining these efforts because they believe that globalization is homogenization, making everyone and every place the same. Some see it mostly as Americanization as McDonald's, Coca Cola, blue jeans, and WalMart are imposing themselves around the globe. Others include Europe and see it more broadly as Westernization. However, though American products and values are spreading, McDonald's, for example, adapts its menus for each country and even has Muslim prayer rooms in Indonesia. At the same time, the United States has become more open to other countries and their cultural practices. Americans now like Japanese karaoke and sudoku and will certainly adopt and adapt other cultural products and practices as they flow into the United States. Though globalization has homogenization effects, it is also flexible, open, and complex, in turn creating new differences among places and spatial inequalities of uneven development. For example, Western food, clothing, and music spread through outlets in the cities of

non-Western countries and are used primarily by urban elites. This process widens differences within cultures and countries. Though globalization may have homogenizing effects, it also leads to localization and fragmentation as locals interpret, adapt to, and oppose global forces in their own ways.

The growing influence of multinational corporations and the increasing focus of economic activity in global city-regions highlight new geographic patterns of flow among people, finances, goods, and ideas. Any global convergence of economy and culture is paralleled by the divergence of dispersed manufacturing around the world. Despite wider availability, Internet access also highlights the differences between wealthier and poorer places: the New York-New Jersey urban area has more telephone lines than the whole of Africa.

Tourism, the world's leading industry of the early 2000s, provides one of the most significant connections between globalization and development. As a strategy for modernization, many "underdeveloped" countries have turned to tourism and have created destinations, such as resorts, for those traveling by jet airplanes and cruise ships. Though these tourist destinations produce much-needed income for countries, they also have negative side effects and exacerbate

differences among and within countries. For example, locals are frequently marginalized, even displaced, from these sanitized resorts. Many lose their homes to high-rise hotels, golf courses, and Disney-like historic reconstructions. Many also lose their way to make a living as their authentic goods are replaced by imported food and plastic trinkets.

### Responsible Development

The term “responsible growth” appeared by 2004. Arising from the Johannesburg World Summit on Sustainable Development held in August 2002, a consensus emerged directing world leaders to new development paths that build on the UN Millennium Development Goals (see Table 2.1) and connect economic growth, environmental sustainability, and social equity. In this view, directed at the initial period to 2015 and on toward 2050, poverty reduction is not an end in itself, but is a precondition for peaceful coexistence and ecological survival.

## Issues of Human Rights

### Defining Human Rights

In the late 1700s, the concept of **human rights** emerged in part from revolutions in Europe and the United States that emphasized, for example, “Liberté, Égalité, Fraternité” in France. This concept was enshrined in the U.S. Bill of Rights. Stressed again after World War II by the United Nation’s Declaration of Human Rights (Table 2.2), international agreements and actions often refer to them. However, few countries fully implemented the UN list, and some groups claim that the imposition of human rights legislation impinges on their traditional rights.

Human rights fall into three different categories. The United States and western Europe have long argued for **political rights** (the right to vote and participate in one’s own government). Others, including the former Communist governments, argue for **social rights** (the right to have a job and earn a living with basic material standards). People in materially poorer countries argue for **cultural rights** (the right to protect one’s cultural traditions, often in response to Western

ideals and practices). An example of cultural rights involves Western medicine patents, where people in other countries have to pay royalties for a medicine they had discovered hundreds of years before the institution of patenting systems.

Agreement on the nature of human rights and justice is not global. Muslim countries in particular debate the largely secular basis of the United Nations list that conflicts with their religious beliefs and fierce legal provisions. Saudi Arabia refuses to attend UN conferences on such topics on the grounds that it has a God-given right to gender discrimination. As another example, Western countries criticized the Taliban government in Afghanistan and other strict Muslim regimes for oppressing women and carrying out amputation punishments for “minor” crimes. Yet Muslims claim that their strict rules protect women, while many Western governments allow men the freedom to mistreat and degrade women. Different cultural definitions of human rights contribute to differences among people’s expectations.

### Human Rights and Justice Systems

Most of the human rights listed in Table 2.2 relate to personal and group justice and are potentially subject to legislation. Threats to personal security, injustices, and discrimination by gender, race, ethnicity, national origin, religion, or age are problems that supporters of human rights wish to end. Government policies and courts of justice legislate for and enforce some rights. In some cases, one person’s right is another’s restriction.

The death penalty is the ultimate act against a human’s right to life. Some Asian countries impose it on drug smugglers; some U.S. states impose a death penalty on murderers. Slavery is another restriction of basic human rights and was mostly abandoned in the 1800s, although cases still emerge in countries such as Sudan and Côte d’Ivoire. Long-term imprisonment for political views was common in the Soviet Union and under the South African apartheid regime until the early 1990s. It continues in China, Myanmar, and many other countries. Amnesty International is an NGO that monitors such actions. Imprisonment for long periods without accusation or trial occurs in many countries and in 2001 was extended in the United States and United Kingdom as part of antiterrorism policies. Most justice systems are based within countries, but, at the global and world regional levels, new courts are taking up international issues, particularly of human rights and war crimes.

**TABLE 2.2 United Nations Declaration of Human Rights**

Freedom from discrimination because of gender, race, ethnicity, national origin, or religion
Freedom from want and a decent standard of living
Freedom to develop and realize one’s human potential
Freedom from fear of threats to personal security in arbitrary arrest or violence
Freedom from injustice
Freedom of thought and speech to participate in decision making and forming associations
Freedom for decent work without exploitation

## Human Development and Human Rights

Although having different emphases and emerging from different sources, human development and human rights reinforce each other. Human rights add to the development agenda by drawing attention to those who are accountable for respecting rights and adding social justice to economic principles. This shifts priorities toward the most deprived and excluded. At the same time, human development brings

a long-term perspective to fulfilling the rights by assessing the workings of socioeconomic contexts and institutional constraints. It highlights the resources and policies needed to overcome the remaining gaps.

In the 2000s, geographic differences continue in many areas of discrimination, poverty, personal insecurity, injustice, and abuses of free speech. For example, internal armed conflicts affect many parts of the world, holding back human development, abusing human rights, and creating increased numbers of dispossessed refugees. The moves toward democracy in Africa and eastern Europe with multiparty elections brought some advances in human development and human rights. These trends, however, also led to new conflicts in some countries over previously suppressed ethnic demands.

## THE REST OF THE BOOK

Chapters 3 through 12 each discuss a major world region. For comparisons among them, each chapter has a similar structure and uses similar maps and diagrams that have been introduced in this chapter.

- At the start, a statement is made about the region's distinctiveness in the world.
- A study of the natural environment focuses on climates, landforms, vegetation, and soils, leading to a discussion of environmental issues and problems.
- A section on cultural history outlines the origins of present human geographic patterns.
- Global forces affecting the region and how places in the region deal with them are identified.
- Each region is then divided into subregions for more detailed consideration of the political, ethnic, and economic aspects.
- In each regional study, boxes focus on specific localities, highlighting concerns that stimulate debates, and illustrating the research being carried out by geographers.

Our final Chapter 13 seeks to bring together some conclusions arising from the world regional studies in the global and local contexts. We trust that this will show how geographers are realistically facing our present and future worlds.

## TEST YOUR UNDERSTANDING

**2C**

### Summary

Human development and human rights are connected. Much was achieved in improving the well-being of peoples during the 1900s, but many needs remain. Although many attempts have been made to understand how human development may occur, the geographic situations are too varied to make it possible to devise a single solution. Changing emphases on the country and global trends lead to a better understanding of the top-down and bottom-up issues. Human rights provide a facet that highlights shortfalls in development.

### Questions to Think About

- 2C.1** How have the varied elements contributing to development emerged from the experiences of different countries?
- 2C.2** How important is it that one-third of the world's population is poor? What can be done about it?

### Key Terms

development  
human development  
sustainable human development  
First World  
Second World  
Third World  
modernization  
import substitution

formal economy  
informal economy  
structural adjustment  
human rights  
political rights  
social rights  
cultural rights