

# Glossary **A**

**absolute location**—the location of a point on Earth’s surface that can be expressed by a grid reference (e.g., latitude and longitude)

**accessibility**—the relative ease with which a place can be reached from other places

**acculturation**—the process of adopting the traits of a cultural group

**acid precipitation (rain or snow)**—precipitation with a pH value of 5.6 or lower (7 is neutral, less than 7 increasing in acidity, and greater than 7 increasing in alkalinity). Precipitation becomes excessively acidic when oxides of sulfur and nitrogen released by combustion of fossil fuels combine with moisture in the atmosphere to form acids.

**aerial photograph**—a photograph of part of Earth’s surface usually taken from an airplane

**African Union (AU)**—an association of African countries promoting economic, social, and political integration and a commitment to democratic principles among the member states

**agribusiness**—the strategy of applying business practices to the operation of specialized commercial farms to achieve efficiency of operation and increased profit margins

**alluvial fan**—a semiconical landform that occurs where a canyon exits a mountain range. It is composed of stream and debris flow materials that are deposited as flow spreads out and slows down once it exits the canyon.

**Antarctic Circle**—latitude 66.5° south that encircles the continent of Antarctica. From this latitude to the South Pole, daylight lasts for 24 hours on the southern summer solstice, usually December 22, whereas on the southern winter solstice, usually June 22, nighttime lasts for 24 hours.

**aquifer**—an underground permeable rock layer within which water is stored and can flow, and from which water can be extracted for use at the surface

**arable land**—an area suitable for growing crops

**archipelago**—a chain or group of islands

**Arctic National Wildlife Refuge (ANWR)**—an area in northeast Alaska. It is managed by the US Fish and Wildlife Service to conserve wildlife, wilderness, and recreational assets and to ensure the nation’s compliance with international treaty obligations affecting mineral resources, water quality, and water quantity in the region.

**artifacts**—the material manifestations of a culture such as tools, clothing, and foods

**assimilation**—the acceptance, by one culture group or community, of cultural traits normally associated with another

**astrolabe**—primarily a historical term identifying an instrument once used to make astronomical measurements to calculate latitude; before the development of the sextant

**atmosphere**—the envelope of gases, aerosols, and other materials that surrounds Earth and is held close by gravity. The gases are dominated by nitrogen (78.1 percent), oxygen (20.9 percent), argon (0.93 percent), and carbon dioxide (0.03 percent) and include much smaller percentages of helium, methane, and hydrogen. Water vapor, clouds, dust, meteor debris, salt crystals, and pollutants also contribute to the atmosphere’s mass, which is concentrated within a layer that extends about twelve miles from Earth’s surface.

**atmospheric pressure cells**—areas of the atmosphere with relatively high or low barometric pressure referred to simply as “highs” and “lows.” Winds on Earth are caused by air movement from areas of high pressure to areas of low pressure. Large areas of permanent high or low pressure existing in bands or belts around Earth influence world climate patterns and ocean currents (e.g., the Siberian High and the Icelandic Low).

## **B**

**balance of power**—a geopolitical term identifying efforts on the part of nations to maintain an equilibrium of economic and military power as a means of checking the predominance of one nation or coalition of nations

**balance of trade**—an economic term identifying the difference in value over a period of time between a country’s imports and exports of goods and services; a favorable balance of trade results in a trade surplus while an unfavorable one results in a trade deficit

**barrier island**—a long, narrow off-shore island built by deposits from wave action and separated from a low-lying coastal mainland by a body of water

**biomes**—very large ecosystems made up of specific plant and animal communities interacting with the physical environment (climate and soil); usually identified with the climate and climax vegetation of large areas of Earth’s surface (e.g., the Equatorial and Tropical Rain Forest Biomes)

## Glossary

**biofuel**—fuel derived directly from organic matter (e.g., a fuel blend made partially from corn or sugarcane)

**biosphere**—the realm of Earth that includes all plant and animal life forms

**birthrate**—see “crude birthrate”

**bitmap**—see “raster image”

**border**—a line separating two political or geographic areas, especially countries (e.g., Germany’s western border with France) or states (e.g., Indiana’s northern border with Illinois)

**boundary**—a line marking the limit or extent within which a system exists or functions, including a social group, a neighborhood, a state, or physical feature

**butte**—an isolated and detached hill with steep sides and a flat top rising from a plain

## C

**capital**—one of the factors of production of goods and services. Capital can be goods (e.g., factories, equipment, highways, information, and communications systems) and/or funds (investment and available money for operating expenses) used to increase production and wealth. Other factors are land, water, and labor.

**carbon cycle**—a complex natural process by which carbon is exchanged among Earth’s physical systems, resulting in carbon’s recycling and reuse throughout the biosphere and all its organisms

**carbon footprint**—the scale and measurable totality of the impact of carbon use by people on the environment

**cardinal directions**—the four main points of the compass: north, east, south, and west

**carrying capacity**—the maximum number of animals and/or people a given area can support at a given time under specified levels of consumption without impairing relevant ecosystems

**cartographer**—a person who designs and creates maps and other geographic representations

**cartography**—the study of making maps

**census**—an official count of a population conducted by a government at set intervals; typically records details and trends among individuals and groups in the population

**Central Business District (CBD)**—the traditional core of a city typically consisting of office buildings, hotels, retail shops, entertainment facilities, and a transportation hub; often called “downtown”

**central place**—a village, town, or city that provides services to a surrounding region functionally tied to it

**central place theory**—the conceptual framework that explains the size, spacing, and distribution of settlements and their economic relationships with their hinterlands

**choropleth map**—shows differences between areas by using colors or shading to represent distinct categories of qualities (such as vegetation type) or quantities (such as the percentage graduating from high school, population density, or birthrate)

**cirque**—a half-open steep-sided hollow excavations at the head of a valley or on a mountainside resulting from glacial erosion; often amphitheater-shaped

**civilization**—a complex and well-organized political and social order whose status is measured in terms of material, scientific, and artistic advancement

**climate**—long-term trends in weather elements and atmospheric conditions

**climate change**—long-term significant modifications in the average weather conditions of the world’s regions caused either by natural or human-induced processes (e.g., alterations in the physical dynamics of Earth’s atmosphere or human practices such as burning fossil fuels)

**climate graph**—see climograph

**climate variability**—changes in the patterns of weather and climate at both temporal (beyond individual weather events) and spatial scales (globally or in a specific world region)

**climax vegetation**—a stable community of plants established over time and at a point where it can sustain itself

**climograph**—a graphical depiction of average monthly temperatures and precipitation amounts for a particular location

**cognitive map**—see mental map

**colony**—an area of the world under the full or partial political control of another country, typically occupied by settlers from the occupying country

**command economy**—an economy where production, investment, prices, and incomes are determined centrally by the national government (e.g., economies in communist countries—former Soviet Union, People’s Republic of China, Socialist Republic of Vietnam)

**commercial agriculture**—a form of agriculture in which crops are cultivated for sale rather than for personal consumption or subsistence

**commercial economy**—a system promoting profits through efficient methods of production and distribution to ensure the maximum utilization of resources for the benefit of all

**Common Market**—see European Union (EU)

**comparative advantage**—the circumstances (e.g., relative location, access to resources and markets, skilled labor force, quality infrastructure) in which a country, area, or group can produce goods or services at a lower cost than other competitors

**complementarity**—the mutually satisfactory exchange of raw materials, manufactured products, or information between two regions to fill the needs and wants of each

**concentric growth**—refers to the zonal model of urban social or economic growth, which states that a city grows outward from a central area in a series of concentric rings or zones that are occupied by distinctive social groups or land uses

**connectivity**—a geographic concept explaining how physical and cultural features are linked to one another functionally and spatially (e.g., communication networks and transportation systems that join people and places locally, regionally, or globally)

**continental drift**—see plate tectonics

**contour map**—a representation of some part of Earth’s surface using lines along which all points are of equal elevation above or below a fixed datum, usually sea level

**conurbation**—see megalopolis

**cost-distance**—the amount of money necessary for people, objects, or information to travel between two places

**country**—unit of political space, sometimes referred to as a state

**crude birthrate**—the total number of live births in a year for every 1,000 people in a population

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

## Glossary

**cryosphere**—the frozen area of Earth’s surface (e.g., glaciers, ice caps, sea ice) that is an integral part of the planet’s climate system

**culture**—learned behavior of people, which includes their belief systems and languages, their social relationships, their institutions and organizations, and their material goods (e.g., food, clothing, buildings, tools, machines)

**cultural characteristics**—specific behavioral features showing how people within a specific social group think and act (e.g., the celebration of religious or national holidays, the methods of child rearing, clothing styles, food preferences)

**cultural convergence**—the tendency of certain societies to become more similar with time (e.g., an immigrant group gradually loses its traditional identity as it adapts to the culture of the place where it has settled; people across the world gradually disconnect from the traditions of their groups because of the influence of films, television, the Internet, digital phones)

**cultural diffusion**—the spread of cultural elements from one culture to another

**cultural divergence**—the tendencies of certain societies to become less similar with time (e.g., nomadic herders rejecting new grazing practices for their cattle introduced by neighboring groups)

**culture hearth**—the place of origin of a culture group or of a series of material and nonmaterial innovations

**cultural landscape**—the human imprint on the physical environment; the humanized landscape as created or modified by people

## D

**data**—facts and statistics about geographic phenomena gathered for analysis

**database**—a compilation, structuring, and categorization of information (print or electronic) for analysis and interpretation

**data table**—a tool providing a system in tabular form for arranging data for analysis and research purposes (usually on a computer screen)

**deforestation**—the destruction and removal of a forest and its undergrowth by natural or human forces

**delta**—area of marshland formed by deposits of silt at the mouth of some rivers (e.g., Mississippi, Nile, Ganges). Various shapes are associated with the deposition of silt, most commonly triangular (e.g., Nile River) and a bird’s foot (e.g., Mississippi River).

**demographic**—relating to the structure of populations (e.g., a census report identifying a trend toward a longer life expectancy in a country or a declining birthrate in an agricultural region)

**demographic change**—change in population size, composition, rates of growth, density, fertility and mortality rates, and patterns of migration

**demographic transition**—a model showing changes over time in a country’s birth and death rates. The early stages of the model illustrate the high birth and death rates (slow population growth) of a predominately agricultural society; middle stages show declines in both rates (death rate initially and birthrate later, thus causing rapid population growth) as economies change from agriculture to industry; and advanced stages indicate low birth and death rates (slow population growth) typical of industrialized urban societies.

**demography**—the study of population statistics, changes, and trends based on various measures of fertility (adding to a population), mortality (subtracting from a population), and migration (redistribution of a population)

**density**—the population or number of objects per unit area (e.g., per square kilometer or mile)

**dependency ratio**—the ratio consisting (a) of a population under 15 years old and over 64 years old to (b) the percentage of a population between 16 to 64 years of age; typically used to determine how many people are in their most productive years

**depopulation**—a substantial reduction of the numbers of people in a population resulting from a variety of causes (e.g., death from disease, war casualties, emigration)

**deposition**—the final stage in the process of erosion that results in the placement of sediment on a land surface that has been transported by wind, water, or ice

**desalination**—process of converting salty seawater to fresh water

**desertification**—the spread of desert conditions in arid and semi-arid regions resulting from a combination of climatic changes and increasing human pressures (e.g., overgrazing, removal of vegetation, cultivation of marginal land)

**developed country**—an area of the world that is technologically advanced, highly urbanized, wealthy, and has generally evolved through both economic and demographic transitions

**developing country**—an area of the world that is changing from uneven growth to more constant economic conditions and that is generally characterized by low rates of urbanization, relatively high rates of infant mortality and illiteracy, and relatively low rates of life expectancy and energy use

**devolution**—the transfer of some powers from the central government to regional and local authorities; often a contentious political process

**diaspora**—the scattering of people from their homeland to distant places in the world

**diffusion**—the spread of people, ideas, technology, and products among places

**digital globe**—a digital model of Earth using advancements in technology for representing the planet more accurately with images that keep changing to meet the user’s requirements

**digital image**—an electronically processed image displayed in an electronic format including photos, maps, graphics, aerial photos, and satellite data

**digital map**—an electronically processed representation of a geographic area or feature rendered from digital data

**distribution**—the arrangement of items over a specified area

**domesticate**—taming animals and cultivating crops for farm production and human use

**doubling time**—the number of years needed to double a population based on its current annual growth rate and a constant rate of natural increase

## E

**earthquake**—vibrations and shock waves caused by the sudden movement of tectonic plates along fracture zones, called faults, in Earth’s crust

**ecology**—the study of the interactions of living organisms between themselves, their habitats, and the physical environment

## Glossary

**economic dependence**—a situation resulting from one country's economic subordination to another more developed country (e.g., a developing country exports raw material to a developed country in exchange for capital, manufactures, and technology from a developed country)

**ecosystem (ecological system)**—a set of connected living parts formed by the interaction of all living organisms (plants, animals, humans) with each other and with the physical and chemical factors of the environment in which they live

**edge city**—a well-developed suburb connected to the central city but with a large business, commercial, entertainment, and transportation base independent of the central city; located in close proximity to the interstate highway system and a major airport

**egocentric stereotype**—tendency to interpret and evaluate people and cultures in terms of oneself and in the exclusive context of one's own experience and culture

**El Niño**—an irregularly occurring and complex series of climate changes (usually in 7-year intervals, with some 3–4 year sub-oscillations) characterized by the appearance of unusually warm, nutrient-poor water affecting ocean currents in the equatorial Pacific region; typically in late December and affecting climate patterns in North America and the Atlantic Ocean (the opposite of La Niña)

**elevation**—height of a point or place above sea level (e.g., Mount Everest has an elevation of 29,028 feet above sea level)

**emigration**—leaving one's own country to settle permanently in another

**empire**—a group of nations, territories, or peoples controlled by a single powerful authority

**environment**—everything in and on Earth's surface and its atmosphere within which organisms, communities, or objects exist

**environmental determinism**—the theory that the physical environment controls various aspects of human behavior and cultural development

**environmental footprint**—see carbon footprint

**environmental hazard**—an extreme and often disastrous natural event that can lead to significant damage in the physical world and likely affect human activity (e.g., severe and prolonged flooding resulting in changes in a river's course and the subsequent dislocation of populations or an extended drought period due to altered weather patterns causing serious food shortages)

**environmental justice**—initiatives seeking to establish equity for groups bearing heavy environmental burdens through no fault of their own (e.g., impoverished communities living without access to clean air, clean water, sanitary conditions, and nutritious food)

**epidemic**—outbreak of a rapidly spreading infectious disease

**equator or latitude 0°**—an imaginary line running east–west around the globe and dividing it into two equal parts known as the Northern and Southern Hemispheres; the places on Earth that always have approximately twelve hours of daylight and twelve hours of darkness

**equilibrium**—the point in the operation of a system when driving forces and resisting forces are in balance

**equinox**—the two days during the calendar year (usually September 23 and March 21) when all latitudes have twelve hours of both daylight and darkness and the sun is directly overhead at the equator

**ethnic enclaves**—areas or neighborhoods within cities that are homogeneous in their ethnic makeup and are usually surrounded by groups of a different ethnic character (e.g., Little Italy, Chinatown)

**ethnocentric stereotype**—process of evaluating other peoples and cultures according to the standards of one's own culture resulting in an exaggeration or misrepresentation of the other culture

**ethnocentrism**—the belief in the inherent superiority of one's own group and culture; a tendency to view all other groups or cultures in terms of one's own

**European Union (EU)**—an association of a number of European countries promoting free trade, cultural and political linkage, and relatively easy access among its nations. Formed in 1957, the European Union was formerly called the European Community.

**eutrophication**—the process in lakes and water bodies characterized by increased amounts of sediments, nutrients, and organic material

**expansionism**—a government's policy to increase its territory or its economic influence

## F

**fauna**—the animal life of an area, region, or time

**fertility rate**—the average number of children a woman will have during her childbearing years (15 to 49 years of age)

**flood plain**—a generally flat valley area bordering a stream or river that is subject to inundation; the most common land area for human settlement

**flora**—the plant life of an area, region, or time

**flowchart**—a chart or diagram showing a series of interconnected events, actions, or items that indicate the progressive development of a theme, product, or other objective

**flow map**—a map with arrows and lines showing how something moves (e.g., migration or raw materials to industrial sites)

**flow pattern**—the regular movement of materials, products, people, and/or ideas along a consistent route or path

**flow resources**—resources that are neither renewable nor nonrenewable but must be used as, when, and where they occur else they are lost (e.g., running water, wind, sunlight)

**force**—the power or energy in a process, such as weather, that results in both movement and friction

**formal region**—a region defined by the uniformity or homogeneity of certain characteristics (e.g., precipitation, landforms, subculture, type of economic production)

**fossil fuel**—energy source formed in past geologic times from organic materials (e.g., coal, petroleum, natural gas)

**free trade**—international exchange of goods exempted from protective regulations, quotas, and tariffs intended to restrain trade with other nations

**friction of distance**—the force that inhibits the interaction of people and places on Earth. The frequency of interaction between people and places depends on the cost of overcoming this force (e.g., moving commodities over land).

**frontier**—part of a territory with expanding settlement that is being opened up in advance of full settlement for agricultural and urban development; an area marking the limit of settled land beyond which lies wilderness

**functional region**—the functional unity of a region is often provided by a strong node or center of human population and activity. Regions that are defined by their ties to a central node are classified as nodal or functional regions (e.g., banking linkages between large nodal cities and smaller cities and towns).

## G

**gentrification**—the process in urban areas of upper- or middle-class families moving back into a zone in transition; often surrounds the central business district of a city

**geographic context**—the spatial aspects of human existence (i.e., sensitivity to location, place, scale, patterns of movement, and the use of maps and other graphics) including the locational circumstances of historical and contemporary events

**geographic information system (GIS)**—a geographic database that contains computer hardware and software for creating, storing, retrieving, and analyzing information about the physical and human characteristics of places or areas; a technology-based mapping system

**geographic model**—an idealized and simplified representation of reality representing a spatial concept; a tool for predicting outcomes in geography

**geography**—the study of the physical and human systems across Earth's surface

**geomatics**—the discipline of gathering, storing, processing, and delivering geographic information about Earth's physical and human systems using satellite imagery and other computer-based technologies

**geomorphology**—the science of the processes that develop landforms and the history of landform development

**geopolitics**—the study of the influence of geographic factors (i.e., spatial factors) on a country's politics and foreign policy, especially with respect to disputes over borders and territorial claims

**georeferenced data**—information connected to the location of the physical and human features of a specific place on Earth's surface; often involves computer applications, geographic information systems, and global positioning systems

**geospatial data**—information that identifies the geographic location and characteristics of natural or constructed features and boundaries on Earth; information that describes the distribution of physical and human phenomena on Earth's surface

**geospatial technologies**—computer hardware and software with which users analyze and represent geographic data at infinitely varied levels; includes technologies related to mapping and interpreting physical and human features on Earth's surface (i.e., global positioning systems (GPS), geographic information systems (GIS), remote sensing (RS), and geospatial visualization)

**geospatial visualization**—the process of viewing data that are associated with a particular location as tagged information on maps or satellite imagery (or both) enabling users to discover relationships and correlations between data sets (e.g., the ability to overlay multiple data sets on top of a geospatial map)

**geosphere**—all of solid Earth's dynamic layers including the continental and oceanic crust as well as the various layers of Earth's interior; includes the lithosphere as the outermost layer

**global city**—a world-class city that serves as a strategic command point in the organization of the world's economic system (i.e., finance, banking, trade, markets, and innovation) that has a direct effect on international affairs; provides specialized financial services and information about market conditions and trade flows across the globe; sometimes called an alpha city or a world city

**global economy**—the interdependence of the economies of the world's nations creating an international economic system for the exchange of goods and services

**global positioning system (GPS)**—a satellite-based navigation system that allows land, sea, and airborne users to determine their exact location on Earth's surface

**global warming**—increase in Earth's average temperature in recent decades due to the buildup of certain gases, including carbon dioxide and methane, that are released by human activities

**globalization**—the increasing interconnectedness of different parts of the world resulting in the expansion of cultural, economic, and political activities so that they become worldwide in scope and influence due to technological advances in communication and transportation

**globe**—a scale model of Earth that correctly represents area, relative size and shape of physical features, distance between points, and true compass direction

**greenhouse effect**—the ability of certain gases in the atmosphere to absorb and thus trap heat energy released from Earth's surface

**grid**—a pattern of lines on a chart or map, such as those representing latitude and longitude, that helps determine absolute location and assists in the analysis of distribution patterns

**Gross Domestic Product (GDP)**—the total monetary value of goods and services produced in a country during one year

**Gross National Product (GNP)**—gross domestic product adjusted to include the value of goods and services from other countries subsequently used in producing goods and services in the home country

**ground water**—subsurface water that saturates the soil and bedrock; constitutes most of the world's fresh water

## H

**hemisphere**—half a sphere. Cartographers and geographers, by convention, divide Earth into the Northern and Southern Hemispheres at the equator and the Eastern and Western Hemispheres at the prime meridian (longitude 0°) and 180° meridian.

**hierarchy of settlements**—a division and ranking of places usually according to their size and function (e.g., hamlets, villages, towns, cities, megalopolises)

**hills**—landform features that may have steep slopes but lower elevations and less local relief than mountains (e.g., the Black Hills of South Dakota)

**hinterland**—service area surrounding an urban center that supplies the goods, services, and labor needed in that area

**homogeneous society**—a human community sharing the same customs, values, laws, and organizational structure

**human capital**—the skills and knowledge acquired by an individual through training and experience; viewed in terms of the individual's value to an institution, organization, or country

**human process**—a course or method of operation that produces, maintains, and alters human systems on Earth (e.g., migration or diffusion)

## Glossary

**hurricane**—severe tropical storm or low-pressure cell of limited area or extent in the Atlantic and eastern Pacific with accompanying torrential rains and high-velocity winds usually in excess of 80 miles per hour. These storms are known as typhoons in the western Pacific and cyclones in southern Asia.

**hydroelectric power**—electrical energy generated by the force of falling water that rotates turbines housed in power plants in dams on rivers

**hydrologic cycle**—the continuous circulation of water from the oceans, through the air, to the land, and back to the sea. Water evaporates from oceans, lakes, rivers, and land surfaces and transpires from vegetation. It condenses into clouds in the atmosphere, which may result in precipitation returning water to the land. Water then seeps into the soil or flows out to sea, completing the cycle.

**hydrology**—the study of the movement, distribution, and conservation of water on Earth's surface and in the atmosphere

**hydrosphere**—the water realm of Earth, which includes water contained in the oceans, lakes, rivers, ground, glaciers, and water vapor in the atmosphere

## I

**icon**—a symbolic or graphic representation of a place or physical feature

**immigration**—the process of people entering a new country to establish permanent residence

**imperialism**—a government's policy of imposing its rule and influence over other countries or territories through military force, economic dominance, or diplomacy

**import**—the purchase of goods and services produced and developed in another country

**indigenous**—that which is native to a place (e.g., Native Americans in the Western Hemisphere before the arrival of Europeans or herbs such as oregano and coriander common to southern Europe)

**industrialization**—the growth of machine production and the factory system; the process of introducing manufacturing into countries or regions where most of the people are engaged in primary economic activities

**infant mortality rate**—the annual number of deaths among infants under one year of age for every 1,000 live births; usually provides an indication of the quality of available health care

**infrastructure**—the basic physical and organizational structures and facilities (e.g., bridges, roads, sewage systems, power sources, transportation networks) necessary for the operation and maintenance of a society

**interdependence**—people relying on each other in different places or in the same place for ideas, goods, and services

**intermediate directions**—the points of the compass that fall between north and east, north and west, south and east, south and west (e.g., NE, NW, SE, SW)

**International Date Line**—an imaginary line that roughly follows the 180° meridian in the Pacific Ocean. West of this line the calendar date is one day ahead of the calendar date east of the line. People crossing the date line in a westward direction lose a calendar day, while those crossing eastward gain a calendar day.

**International Monetary Fund (IMF)**—an international association established by the United Nations and based in Washington, DC, to help stabilize world currencies, lower trade barriers, and assist developing nations in paying their debts

**intervening opportunity**—the availability of an opportunity closer at hand that reduces the attractiveness of a similar opportunity at locations farther away, (e.g., shoppers may purchase bread at a local bakery rather than travel to a supermarket in a mall)

**isolationism**—a government's policy officially avoiding economic and political contact with other countries

**isopleth map**—a map using lines joining points of equal value to show variations in that value (e.g., contour lines showing areas with the same elevation or isobars on a weather map connecting points having the same atmospheric conditions)

## L

**La Niña**—a periodic and complex series of climate changes complementary to those of El Niño and characterized by the appearance of cooler-than-usual ocean temperatures occurring at irregular time intervals along the equator between the west coast of South America and the International Date Line (the opposite of El Niño)

**lake desiccation**—the reduction in water level (drying out) of an inland water body

**land degradation**—the physical process that wears down and levels landforms and carries away the loosened debris. This term is also used to define human misuse of the land or the environment (e.g., farming on steep slopes increases erosion).

**land use**—the range of uses of Earth's surface made by humans. Uses are classified as urban, rural, agricultural, forested, etc., with more specific subclassifications useful for specific purposes (e.g., low-density residential, light industrial, nursery crops).

**landform**—the shape, form, or nature of a specific physical feature of Earth's surface (e.g., plain, hill, plateau, mountain)

**landlocked country**—a country that is completely surrounded by the territory of one or more other countries, thus denying direct access to the sea or ocean

**latitude**—assuming that the Earth is a sphere, the angular distance in degrees measured north and south from the equator

**Leadership in Energy and Environmental Design (LEED)**—a “green” certification system developed in the United States providing voluntary guidelines for constructing environmentally sustainable buildings

**legend**—an explanatory description or key to features on a map or chart

**life expectancy**—the average number of years a person can expect to live under current mortality levels in a society. Life expectancy at birth is the most common use of this measure.

**limits to growth**—a geographic model examining the consequences of a rapidly increasing world population and finite supplies of resources to support that population

**linkage**—contact and resulting flow of ideas, information, people, or products between places

**literacy rate**—the percentage of a country's population able to read and write at a competent level

**lithosphere**—the uppermost portion of the solid Earth including soil, land, and geologic formations

**lithospheric plates**—see tectonic plates

**local relief**—in landforms, the difference in elevation between the highest and lowest points in a specified area

**location**—the position of a point on Earth’s surface expressed by means of a grid (absolute) or in relation (relative) to the position of other places

**locational**—understanding the positioning of a place in terms of such features as site characteristics, accessibility, connectivity, etc.

**longitude**—the position of a point on Earth’s surface expressed as its angular distance, east or west, from the prime meridian to 180°

## M

**map**—a graphic representation of a portion of Earth that is usually drawn to scale on a flat surface

**map projection**—a mathematical formula by which the lines of a global grid and the shapes of land and water bodies are transferred from a globe to a flat surface

**maquiladora**—an assembly plant in Mexico run by a foreign company using special duty and tariff privileges for the export of products to other areas of the world

**megacity**—a super-city with a population of more than 10 million people; characterized by its rapid growth, erratic patterns of population distribution, formal and informal economies, and high levels of social fragmentation

**megapolis**—the coalescence of two or more large metropolitan areas into a continuous or almost continuous built-up urban complex, sometimes referred to as conurbation

**mental map**—an individual’s internalized representation of aspects of Earth’s surface; a map that represents the mental image a person has of an area, including knowledge of features and spatial relationships, as well as the individual’s perceptions and attitudes regarding the place; also known as a cognitive map

**meridian**—a north–south line of longitude used to measure both time and distance east and west of the prime meridian or longitude 0° (see prime meridian)

**metadata**—data about data; structured information explaining or describing an information resource; provides facts about the data being documented (i.e., who? what? when? where? why? how?)

**metes and bounds**—a survey system of precisely measuring parcels of land using distances, angles, and directions that result in a legal definition of the property that is typically recorded in county land records

**metropolitan area**—the US Office of Management and Budget’s designation for the functional area surrounding and including a central city; has a minimum population of 50,000; is contained in the same county as the central city; and includes adjacent counties having at least 15 percent of their residents working in the central city’s county

**microclimate**—a small, localized climate area within a larger climate region that has significantly different atmospheric elements. Microclimates can be caused by human intervention or by local landform configurations (e.g., “heat islands” in a central city’s areas of high skyscrapers or sheltered south-facing slopes of hills).

**migration**—the act or process of people moving from one place to another with the intent of staying at the destination permanently or for a relatively long period of time

**mitigation**—the process of reducing the severity of an extreme physical or human condition in a stressed environment (e.g., building levees along a river bank to diminish flooding, developing public policy on urban land-use issues in congested neighborhoods to discourage gang activity)

**model**—see geographic model

**monoculture**—the practice of growing one or more cash crops for export to one or more countries

**monsoon**—a wind system that changes direction seasonally, producing distinct wet and dry seasons; used especially to describe the low-sun and high-sun seasonal wind systems of South, Southeast, and East Asia

**moraine**—ridge composed of an unsorted mixture of boulders, sand, silt, and clay that is deposited in contact with a glacier; usually reflect a period when the glacier has remained stationary as opposed to advancing or retreating

**mortality rate**—see crude death rate

**mountains**—high elevation landform features composed mostly of steep slopes and large amounts of local relief within a specified area (e.g., the Alps of Europe)

**multiculturalism**—a pluralistic society in which there are a number of subcultures

**multinational corporation (MNC)**—corporation or enterprise that manages the production of goods or delivers services in several countries in various world locations; often with budgets that exceed those of many countries

**multinational organizations**—organizations of nations aligned around a common economic or political cause (e.g., Organization of Petroleum Exporting Countries (OPEC) or the Organization of American States (OAS))

## N

**nation**—a cultural concept for a group of people bound together by a strong sense of shared values and cultural characteristics including language, religion, and common history

**natural hazard**—an event in the physical environment, such as a hurricane or earthquake, that is destructive to human life and property

**natural increase**—see natural population increase

**natural population increase**—the changes in population size, expressed as a percentage, attributable solely to fertility (addition by births) and mortality (subtraction by deaths) excluding migration

**natural vegetation**—plants originally found together in an area. Little of the world’s vegetation is entirely unmodified by human activities.

**network**—a pattern of links between points along which movement can take place (e.g., streams, roads, or communication modes)

**nitrogen cycle**—a complex and continuous natural process by which nitrogen is recycled in the ecosystem (i.e., nitrates from the soil are absorbed by plants that are eaten by animals that die and decay, returning the nitrogen back to the soil)

**node**—a central point, such as a neighborhood, a market area, or a temple or parish church, where cultural and economic functions are coordinated; a strategic point in a built-up area around which the movement of people and goods occurs (e.g., a transportation complex, an agricultural service area, an industrial park)

**nomads**—a group of people without permanent residence who move from place to place usually on a seasonal basis in search of grasslands and water for their animals (e.g., cattle, horses, sheep, camels)

**nongovernmental organizations (NGOs)**—independent organizations that pursue activities to promote the interests of underserved populations, protect the environment, provide basic social services, relieve suffering, or undertake community development; not part of the local, state, or federal government; often international in scope

**nonrenewable resource**—a finite resource that cannot be replaced once it is used (e.g., petroleum, minerals)

## Glossary

**North America Free Trade Agreement (NAFTA)**—an agreement made by the United States, Canada, and Mexico to remove barriers to free trade through the gradual elimination of tariffs, various fees, and import quotas among the three participants

**North Pole**—the geographic point farthest north on Earth; the northern end of Earth's axis. On globes and most maps, it is that place in the Northern Hemisphere where meridians converge.

**no-till farming**—a method of farming using methods where the soil is unplowed or unturned before planting crops, thus reducing erosion of both soil and nutrients while increasing organic matter in the soil; also called zero tillage

## O

**oasis**—a fertile place in the desert where underground water rises to ground level

**oblate spheroid**—the shape of Earth, which is larger in circumference around the Equator than the poles

**ocean currents**—the regular and consistent horizontal flow of water in the oceans, usually in response to persistent patterns of circulation in the atmosphere

**Organization of African Unity (OAU)**—promotes harmony and solidarity among the African states and acts as a collective voice for the African continent on such issues as human rights

**Organization of American States (OAS)**—promotes social and economic development in the Western Hemisphere through cooperation among member nations

**Organization of Petroleum Exporting Countries (OPEC)**—an international cartel of twelve nations designed to promote collective pricing of petroleum, unified marketing policies, and regulation of petroleum extraction; controls most of the world's oil reserves

**orographic**—the study of the physical geography of mountains and mountain ranges

**outsourcing**—procuring services or products, such as the parts used in manufacturing a motor vehicle, from an outside supplier or manufacturer to cut costs; often a corporate practice in the developed world to have work done in developing countries where labor costs are lower

**overpopulation**—a situation in which the existing population is too large to be adequately supported by available resources at current levels of consumption. This should not be confused with dense population.

**ozone layer**—a layer in the stratosphere at an altitude of 12–21 miles that has a high concentration of ozone and protects the lower atmosphere and Earth's surface by absorbing much of the ultraviolet radiation that reaches Earth from the sun

## P

**Pacific Rim**—countries bordering the Pacific Ocean

**pandemic**—a disease that spreads throughout an entire population and in many different countries; can extend worldwide

**parallel**—an east–west line of latitude used to measure angular distance north and south of the equator or latitude 0°

**perceptual region**—an area of Earth, such as the Middle West, identified by expressions of feelings, attitudes and images

**photosynthesis**—a chemical process by which green plants and some other organisms use sunlight, water, and carbon dioxide and turn these natural elements into food and oxygen

**physical feature**—an aspect of a place or area that derives from Earth's processes and the natural environment

**physical process**—a course or method of operation that produces, maintains, or alters Earth's physical systems, such as glacial processes eroding and depositing landforms

**physiography**—the study of Earth's surface and its physical features, including relationships between air, land, and water

**physiological population density**—the relationship between the total population of a country and the quantity of land classified as arable or permanent pasture

**places**—locations having distinctive characteristics that give them meaning and character and distinguish them from other locations

**plains**—landform features characterized by a maximum of gentle slopes and minimum local relief within a specified area (e.g., the pampas of Argentina)

**plantation agriculture**—a type of agriculture involving large landholdings that produce cash crops such as tea, rubber, coffee, sugarcane, or cocoa

**plateaus**—landform features characterized by high elevation and gentle upland slopes

**plate tectonics**—the theory that Earth's surface is composed of rigid slabs or plates (see tectonic plates). The divergence, convergence, and side-by-side slipping of the different plates are thought to be responsible for present-day configurations of continents, ocean basins, and major mountain ranges and valley systems.

**pollution**—the direct or indirect process resulting from human action by which any part of the environment is made potentially or actually unhealthy, unsafe, or hazardous to the welfare of the organisms that live in it

**population density**—the number of individuals occupying an area derived from dividing the number of people by the area they occupy (e.g., 2,000 people divided by ten square miles = 200 people per square mile)

**population pyramid**—a bar graph showing the distribution by gender and age of a country's population

**population structure**—the age and gender makeup of a population, usually depicted on population pyramids

**prevailing winds**—the direction from which the wind usually blows at a particular location (e.g., the westerlies in the middle latitudes of North America)

**primary economic activity**—the production of naturally existing or culturally improved resources (e.g., agriculture, ranching, forestry, fishing, extraction of minerals and ores)

**primate city**—the most important city in a country that often has a population three or four times the size of the second-ranked city

**prime meridian (Greenwich meridian)**—0°; the standard meridian from which longitude is measured. The prime meridian crosses Greenwich in London, England, the site of the Royal Naval Observatory.

**principal meridians**—the prime meridian (Greenwich meridian) and the International Date Line



## Glossary

**principal parallels**—the Equator, the Tropics of Cancer and Capricorn, and the Arctic and Antarctic Circles

**pull factors**—in migration theory, the social, political, economic, and environmental attractions of new areas that draw people away from their previous locations

**push factors**—in migration theory, the social, political, economic, and environmental forces that drive people from their previous locations to search for new ones

## R

**rain shadow**—areas on leeward sides of mountain ranges characterized by much lower precipitation and humidity than the windward (rainy) side

**raster image**—(also called a bitmap) a way to represent digital images using bits of information that translate into a rectangular array of pixels when displayed

**rectangular land survey system**—method used in the United States to identify land parcels for deeds for land usually in rural and undeveloped areas by dividing a district into 24-square-mile quadrangles and then subdividing each into six-mile square parts called townships

**region**—an area with one or more common physical or cultural characteristics or features that give it a measure of homogeneity and make it different from surrounding areas

**regionalization**—the partitioning of areas on Earth using a variety of criteria for the purpose of organizing elements in a complex space

**relative humidity**—the amount of moisture actually in the air compared to the amount the air can hold at a given time at the same temperature (e.g., 85 percent)

**relative location**—the location of a place or region in relation to other places or regions (e.g., northwest or downstream)

**remote sensing**—information gathering about Earth's surface from a distance (usually referring to the use of aerial photography or satellite images)

**renewable resource**—a resource that can be regenerated if used carefully (e.g., fish or timber)

**resource**—an aspect of the physical environment that people value and use to meet a need for fuel, food, industrial product, or something else of value

**resource base**—the available resources in a given area at a given time

**rural**—relating to or characteristic of the countryside rather than cities

## S

**salinization**—the process by which high salt content in soils is formed in arid areas where evaporation rates are high

**satellite image**—an image produced by a variety of sensors (e.g., radar, microwave detectors, scanners) that measure and record electromagnetic radiation. The collected data are turned into digital form for transmission to ground receiving stations. The data can be reconverted into imagery in a form resembling a photograph.

**scale**—on maps, the relationship or ratio between a linear measurement on a map and the corresponding distance on Earth's surface (e.g., the scale 1:1,000,000 means one unit [mile or kilometer] on the map represents 1,000,000 similar units on Earth's surface); also refers to the size of places or regions being studied

**scientific method**—a technique of advancing knowledge through the use of a question using systematic observation, measurement, experiment resulting in the formulation, testing, and modification of hypotheses

**secondary economic activity**—the conversion of raw materials from the primary economic sector into finished industrial products (e.g., manufactured goods, oil refining, construction, ship building)

**sequent occupance**—the settlement of an area by successive groups, each creating a distinctive cultural landscape

**service industry**—a business that provides assistance to a customer rather than manufactured goods (e.g., medical services in hospitals, teaching activities in schools, selling such items as clothing and books in stores, an attorney representing a client in court, driving a truck, delivering mail)

**settlement pattern**—the spatial distribution and arrangement of human habitations, including rural and urban centers

**shifting cultivation**—a system of agriculture in which a field or plot is cleared, cropped, and harvested and after a few years, with initial fertility exhausted, abandoned in favor of a new field; also known as slash-and-burn, milpa, or swidden

**silting**—the buildup of sediments at points along the course of a river where the flow velocity decreases (e.g., upstream of a dam)

**site**—the specific place where something is located, including its physical setting (e.g., on a floodplain)

**situation**—the general location of something in relation to other places or features of a larger region (e.g., in the center of a group of cities or New York City's situation as a port of entry on the Atlantic coast, adjacent to heavy and light industries, transportation networks, productive agricultural lands, and major market areas)

**smog**—a mixture of chemical pollutants and particulate matter in the lower atmosphere, usually found in highest concentrations in urban-industrial areas

**soil**—unconsolidated material found at the surface of Earth that is divided into layers (or horizons) characterized by the accumulation or loss of organic and inorganic compounds. Soil types and depths vary greatly over Earth's surface and are influenced by climate, organisms, rock type, local relief, time, and human activity.

**soil creep**—the slow and gradual down-slope movement of masses of soil due to gravity in combination with freeze-thaw and wet-dry cycles

**solar radiation**—energy received from the sun upon which all life on Earth depends

**South Pole**—the geographical point farthest south on Earth; the southern end of Earth's axis. On globes and most maps, that place in the Southern Hemisphere where meridians converge.

**Southern Cone Common Market**—a regional trade association involving several Latin American countries working together to reduce tariffs and increase economic cooperation among its members; often called the Common Market of the South

**sovereignty**—the power and authority a state has governing a carefully defined territory and the population and resources within that space

**spatial**—pertains to space on Earth's surface

## Glossary

**spatial change**—modifications occurring in physical and human arrangements on Earth's surface

**spatial data**—information used to pose, analyze, and resolve problems about patterns on Earth's surface that reflect physical and human processes

**spatial distribution**—the spread and placement of physical and human phenomena on Earth's surface

**spatial organization**—the arrangement and positioning of various physical and human phenomena on Earth's surface

**spatial patterns**—the systematic arrangement of various physical and human phenomena on Earth's surface

**spatial processes**—a systematic and sequential series of changes affecting physical and human activity on Earth's surface

**spatial scale**—the absolute or relative size and extent of various phenomena on Earth's surface

**stereotype**—an oversimplified and generally inaccurate image of a place or a region (e.g., "All deserts are hot." or "Asian capitals are dirty and overcrowded."); see egocentric stereotype and ethnocentric stereotype

**subsistence agriculture**—a form of farming with an emphasis on self-support in which crops or livestock are cultivated for personal consumption rather than for sale

**supranational organizations**—corporations and international agencies that have power or influence transcending national boundaries or governments

**sustainability**—the integration of physical systems with human patterns of activity to assure continuity

**sustainable development**—the capacity of a country to balance economic, social, and institutional needs as population and societal needs change

**sustainable environment**—human use of resources designed to reduce stress on the physical environment

**system**—a collection of entities that are linked and interrelated (e.g., hydrologic cycle, cities, and transportation modes)

**systemic**—of or pertaining to a system as a whole

## T

**tariff**—an official schedule of taxes imposed by a government on imports or exports

**technological hazards**—disastrous events attributed to a failure of technology or a technological product (e.g., radioactive materials released from a nuclear power plant explosion or soil contamination from a chemical dump)

**technology**—application of scientific knowledge to meet the goals, goods, and services needed and desired by people

**tectonic plates**—sections of Earth's rigid crust that move as distinct units on a plastic-like mantle on which they rest. As many as twenty different plates have been identified, but only seven are considered to be major (e.g., Eurasian Plate and the South American Plate).

**tectonic process**—a physical process within Earth (e.g., volcanic activity, folding, faulting) that creates physical features, such as mountains, on the surface

**terraces**—the step-like flat surfaces created on steep hill slopes for the purpose of farming land that would be subject to erosion under normal cultivation practices

**tertiary economic activity**—the provision of services to the general population (e.g., banking, retailing, education)

**thematic map**—a map representing a specific spatial distribution, theme, or topic (e.g., population density, cattle production, climates of the world)

**threshold**—in physical and environmental processes, the point in the operation of a system when a jump or relatively great change occurs in response to a minor input (e.g., massive flooding in a region resulting from a brief but intense summer storm); in an economic context, the minimum population needed for a service (e.g., auto dealer) to locate in a central place

**time zone**—a division of Earth, usually of longitude 15°, within which the time at the central meridian of the division represents the whole division; a range of longitudes where a common standard time is used

**time–distance**—the amount of time necessary to travel between two places

**time–distance decay**—diminishing acceptance of an idea or innovation as time and distance increase from its point of origin

**topographic map**—a detailed map on a large scale (e.g., 1:25,000 or 1:50,000) illustrating selected physical and human features of a place (see also contour map)

**topography**—the examination of the arrangement of the physical and human features of an area at any scale

**tornado**—a small but intense funnel-shaped low-pressure cell with very low barometric pressure, strong and violent updrafts, and high-velocity converging winds

**transregional alliances**—political and economic alliances between or among nation states that transcend traditional cultural regions (e.g., Organization of African Unity)

**travel effort**—the difficulty involved in people moving from one place to another as measured in time, monetary cost, or physical distance

**Tropic of Cancer**—latitude 23.5° north; the farthest north the sun is directly overhead during the year, usually June 22

**Tropic of Capricorn**—latitude 23.5° south; the farthest south the sun is directly over head during the year, usually December 22

## U

**urban heat island**—a phenomenon of urban settlements where relatively warmer atmospheric temperatures prevail in the most heavily built-up areas and decrease outward toward the fringes

**urbanization**—a process by which there is an increase in the percentage of people living and working in urban places as compared to rural places

## V

**vector image**—type of remotely sensed or digitally drawn imagery resulting in either a point, line, or area (polygon) of information that is based on and stored as a mathematical formula (e.g., a mountain top or building [point], a river or a street [line], a lake or recreational park [area])

**volcanism**—a process resulting in the upward movement and expulsion of molten (melted) material from within Earth onto the surface where it cools and hardens (e.g., this process created the Hawaiian Islands)

## W

**watershed**—the drainage area of a river and its tributaries

**weathering**—the breaking down, disintegration, or dissolving of Earth's surface and subsurface rocks and minerals by physical, chemical, and organic processes

**Weber's Least Cost Theory**—a model developed by Alfred Weber, a 19th-century German theoretician, establishing that a site chosen for an industry should be located in a place that will reduce costs and maximize profits (i.e., a site that provides the combined lowest cost, accessibility to materials, availability of supplies, a competent workforce, cost-effective transportation, and markets)

**World Bank**—an international organization supported by the world's developed countries with the mission to aid developing countries in the process of economic emergence with loans, advice, and research

## Z

**zonation**—the division of a large area into smaller areas based on certain predetermined characteristics (e.g., areas of a country where large numbers of tornadoes occur; sections of a state with high unemployment rates; parts of a city with heavy concentrations of high-rise apartment buildings and condominiums)

**zoning**—a system of sectioning areas within cities, towns, and villages for specific land-use purposes through local ordinances (e.g., residential, light manufacturing, commercial uses)