

CHAPTER 1 VOCABULARY - Environmental Issues, Their Causes, and Sustainability

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affluence	wealth that results in high levels of consumption and unnecessary waste of resources, based mostly on the assumption that buying more and more material goods will bring fulfillment and happiness.
biodegradable	Capable of being broken down by decomposers.
biodegradable pollutant	Material that can be broken down into simpler substances (elements and compounds) by bacteria or other decomposers. Paper and most organic wastes such as animal manure are biodegradable but can take decades to biodegrade in modern landfills. Compare <i>nondegradable pollutant</i> .
biodiversity	Variety of different species (<i>species diversity</i>), genetic variability among individuals within each species (<i>genetic diversity</i>), variety of ecosystems (<i>ecological diversity</i>), and functions such as energy flow and matter cycling needed for the survival of species and biological communities (<i>functional diversity</i>).
common–property resource	Resource that is owned jointly by a large group of individuals. One example is the roughly one–third of the land in the United States that is owned jointly by all U.S. citizens and held and managed for them by the government. Another example is an area of land that belongs to a whole village and that can be used by anyone for grazing cows or sheep. Compare <i>open access renewable resource</i> . See <i>tragedy of the commons</i> .
culture	Whole of a society’s knowledge, beliefs, technology, and practices.
developed country	See <i>more–developed country</i> .
developing country	See <i>less–developed country</i> .
doubling time	Time it takes (usually in years) for the quantity of something growing exponentially to double. It can be calculated by dividing the annual percentage growth rate into 70.
ecological footprint	Amount of biologically productive land and water needed to supply a population with the renewable resources it uses and to absorb or dispose of the wastes from such resource use. It is a measure of the average environmental impact of populations in different countries and areas. See <i>per capita ecological footprint</i> .
ecological tipping point	Point at which an environmental problem reaches a threshold level, which causes an often irreversible shift in the behavior of a natural system.
ecology	Biological science that studies the relationships between living organisms and their environment; study of the structure and functions of nature.
economic development	Improvement of human living standards by economic growth. Compare <i>economic growth</i> , <i>environmentally sustainable economic development</i> .
economic growth	Increase in the capacity to provide people with goods and services; an increase in gross domestic product (GDP). Compare <i>economic development</i> , <i>environmentally sustainable economic development</i> . See <i>gross domestic product</i> .
economic resources	Natural resources, capital goods, and labor used in an economy to produce material goods and services. See <i>natural resources</i> .
ecosystem	One or more communities of different species interacting with one another and with the chemical and physical factors making up their nonliving environment.
ecosystem services	Natural services or natural capital that support life on the earth and are essential to the quality of human life and the functioning of the world’s economies. Examples are the chemical cycles, natural pest control, and natural purification of air and water. See <i>natural resources</i> .
energy conservation	Reducing or eliminating the unnecessary waste of energy.

environment	All external conditions, factors, matter, and energy, living and nonliving, that affect any living organism or other specified system.
environmental degradation	Depletion or destruction of a potentially renewable resource such as soil, grassland, forest, or wildlife that is used faster than it is naturally replenished. If such use continues, the resource becomes nonrenewable (on a human time scale) or nonexistent (extinct). See also <i>sustainable yield</i> .
environmental ethics	Human beliefs about what is right or wrong with how we treat the environment.
environmental science	Interdisciplinary study that uses information and ideas from the physical sciences (such as biology, chemistry, and geology) with those from the social sciences and humanities (such as economics, politics, and ethics) to learn how nature works, how we interact with the environment, and how we can to help deal with environmental problems.
environmental scientist	Scientist who uses information from the physical sciences and social sciences to understand how the earth works, learn how humans interact with the earth, and develop solutions to environmental problems. See <i>environmental science</i> .
environmental wisdom worldview	Worldview holding that humans are part of and totally dependent on nature and that nature exists for all species, not just for us. Our success depends on learning how the earth sustains itself and integrating such environmental wisdom into the ways we think and act. Compare <i>frontier worldview</i> , <i>planetary management worldview</i> , <i>stewardship worldview</i> .
environmental worldview	Set of assumptions and beliefs about how people think the world works, what they think their role in the world should be, and what they believe is right and wrong environmental behavior (environmental ethics). See <i>environmental wisdom worldview</i> , <i>frontier worldview</i> , <i>planetary management worldview</i> , <i>stewardship worldview</i> .
environmentalism	Social movement dedicated to protecting the earth's life support systems for us and other species.
environmentally sustainable society	Society that meets the current and future needs of its people for basic resources in a just and equitable manner without compromising the ability of future generations of humans and other species from meeting their basic needs.
exhaustible resource	See <i>nonrenewable resource</i> .
exponential growth	Growth in which some quantity, such as population size or economic output, increases at a constant rate per unit of time. An example is the growth sequence 2, 4, 8, 16, 32, 64, and so on, which increases by 100% at each interval. When the increase in quantity over time is plotted, this type of growth yields a curve shaped like the letter J. Compare <i>linear growth</i> .
free-access resource	See <i>open access renewable resource</i> .
GDP	See <i>gross domestic product</i> .
gross domestic product (GDP)	Annual market value of all goods and services produced by all firms and organizations, foreign and domestic, operating within a country. See <i>per capita GDP</i> . Compare <i>genuine progress indicator (GPI)</i> .
hunter-gatherers	People who get their food by gathering edible wild plants and other materials and by hunting wild animals and catching fish.
input pollution control	See <i>pollution prevention</i> .
J-shaped curve	Curve with a shape similar to that of the letter J; can represent prolonged exponential growth. See <i>exponential growth</i> .
LDC	See <i>less-developed country</i> . Compare <i>more-developed country</i> .
less-developed country	Country that has low to moderate industrialization and low to moderate per capita GDP. Most are located in Africa, Asia, and Latin America. Compare <i>more-developed country</i> .
linear growth	Growth in which a quantity increases by some fixed amount during each unit of time. An example is growth that increases by 2 units in the sequence 2, 4, 6, 8, 10, and so on. Compare <i>exponential growth</i> .

maximum sustainable yield	See <i>sustainable yield</i> .
MDC	See <i>more–developed country</i> .
more–developed country	Country that is highly industrialized and has a high per capita GDP. Compare <i>less–developed country</i> .
multiple use	Use of an ecosystem such as a forest for a variety of purposes such as timber harvesting, wildlife habitat, watershed protection, and recreation. Compare <i>sustainable yield</i> .
natural capital degradation	See <i>environmental degradation</i> .
natural income	Renewable resources such as plants, animals, and soil provided by natural capital.
natural resources	Materials such as air, water, and soil and energy in nature that are essential or useful to humans. See <i>natural capital</i> .
natural services	Processes of nature, such as purification of air and water and pest control, which support life and human economies. See <i>natural capital</i> .
nonpoint sources	Broad and diffuse areas, rather than points, from which pollutants enter bodies of surface water or air. Examples include runoff of chemicals and sediments from cropland, livestock feedlots, logged forests, urban streets, parking lots, lawns, and golf courses. Compare <i>point source</i> .
nonrenewable resource	Resource that exists in a fixed amount (stock) in the earth’s crust and has the potential for renewal by geological, physical, and chemical processes taking place over hundreds of millions to billions of years. Examples include copper, aluminum, coal, and oil. We classify these resources as exhaustible because we are extracting and using them at a much faster rate than they are formed. Compare <i>renewable resource</i> .
nutrient	Any chemical an organism must take in to live, grow, or reproduce.
nutrient cycling	The circulation of chemicals necessary for life, from the environment (mostly from soil and water) through organisms and back to the environment.
open access renewable resource	Renewable resource owned by no one and available for use by anyone at little or no charge. Examples include clean air, underground water supplies, the open ocean and its fish, and the ozone layer. Compare <i>common property resource</i> .
organism	Any form of life.
output pollution control	See <i>pollution cleanup</i> .
per capita ecological footprint	Amount of biologically productive land and water needed to supply each person or population with the renewable resources they use and to absorb or dispose of the wastes from such resource use. It measures the average environmental impact of individuals or populations in different countries and areas. Compare <i>ecological footprint</i> .
per capita GDP	Annual gross domestic product (GDP) of a country divided by its total population at midyear. It gives the average slice of the economic pie per person. Used to be called per capita gross national product (GNP). See <i>gross domestic product</i> . Compare <i>genuine progress indicator (GPI)</i> .
perpetual resource	Essentially inexhaustible resource on a human time scale because it is renewed continuously. Solar energy is an example. Compare <i>nonrenewable resource</i> , <i>renewable resource</i> .
planetary management worldview	Worldview holding that humans are separate from nature, that nature exists mainly to meet our needs and increasing wants, and that we can use our ingenuity and technology to manage the earth’s life–support systems, mostly for our benefit. It assumes that economic growth is unlimited. Compare <i>environmental wisdom worldview</i> , <i>stewardship worldview</i> .
point source	Single identifiable source that discharges pollutants into the environment. Examples include the smokestack of a power plant or an industrial plant, drainpipe of a meatpacking plant, chimney of a house, or exhaust pipe of an automobile. Compare <i>nonpoint source</i> .
pollution	Undesirable change in the physical, chemical, or biological characteristics of air, water, soil, or food that can adversely affect the health, survival, or activities of humans or other living organisms.

pollution cleanup	Device or process that removes or reduces the level of a pollutant after it has been produced or has entered the environment. Examples include automobile emission control devices and sewage treatment plants. Compare <i>pollution prevention</i> .
pollution prevention	Device, process, or strategy used to prevent a potential pollutant from forming or entering the environment or to sharply reduce the amount entering the environment. Compare <i>pollution cleanup</i> .
poverty	Inability of people to meet their basic needs for food, clothing, and shelter.
precautionary principle	When there is significant scientific uncertainty about potentially serious harm from chemicals or technologies, decision makers should act to prevent harm to humans and the environment. See <i>pollution prevention</i> .
recycle	To collect and reprocess a resource so that it can be made into new products; one of the three R's of resource use. An example is collecting aluminum cans, melting them down, and using the aluminum to make new cans or other aluminum products. See <i>primary recycling</i> , <i>secondary recycling</i> . Compare <i>reduce</i> and <i>reuse</i> .
renewable resource	Resource that can be replenished rapidly (hours to several decades) through natural processes as long as it is not used up faster than it is replaced. Examples include trees in forests, grasses in grasslands, wild animals, fresh surface water in lakes and streams, most groundwater, fresh air, and fertile soil. If such a resource is used faster than it is replenished, it can be depleted and converted into a nonrenewable resource. Compare <i>nonrenewable resource</i> and <i>perpetual resource</i> . See also <i>environmental degradation</i> .
resource	Anything obtained from the environment to meet human needs and wants. It can also be applied to other species.
reuse	To use a product over and over again in the same form. An example is collecting, washing, and refilling glass beverage bottles. One of the 3 Rs. Compare <i>reduce</i> and <i>recycling</i> .
rule of 70	Doubling time (in years) = $70/(\text{percentage growth rate})$. See <i>doubling time</i> , <i>exponential growth</i> .
social capital	Result of getting people with different views and values to talk and listen to one another, find common ground based on understanding and trust, and work together to solve environmental and other problems.
solar energy	Direct radiant energy from the sun and a number of indirect forms of energy produced by the direct input of such radiant energy. Principal indirect forms of solar energy include wind, falling and flowing water (hydropower), and biomass (solar energy converted into chemical energy stored in the chemical bonds of organic compounds in trees and other plants)—none of which would exist without direct solar energy.
species	Group of similar organisms, and for sexually reproducing organisms, they are a set of individuals that can mate and produce fertile offspring. Every organism is a member of a certain species.
stewardship worldview	Worldview holding that we can manage the earth for our benefit but that we have an ethical responsibility to be caring and responsible managers, or stewards, of the earth. It calls for encouraging environmentally beneficial forms of economic growth and discouraging environmentally harmful forms. Compare <i>worldview</i> , <i>environmental wisdom worldview</i> , <i>planetary management worldview</i> .
sustainability	Ability of earth's various systems, including human cultural systems and economies, to survive and adapt to changing environmental conditions indefinitely.
sustainable living	Taking no more potentially renewable resources from the natural world than can be replenished naturally and not overloading the capacity of the environment to cleanse and renew itself by natural processes.
sustainable yield (sustained yield)	Highest rate at which a potentially renewable resource can be used indefinitely without reducing its available supply. See also <i>environmental degradation</i> .
tragedy of the commons	Depletion or degradation of a potentially renewable resource to which people have free and unmanaged access. An example is the depletion or more factors or processes so that the of commercially desirable fish species in the open ocean beyond areas controlled by coastal countries. See <i>common-property resource</i> , <i>open access renewable resource</i> .