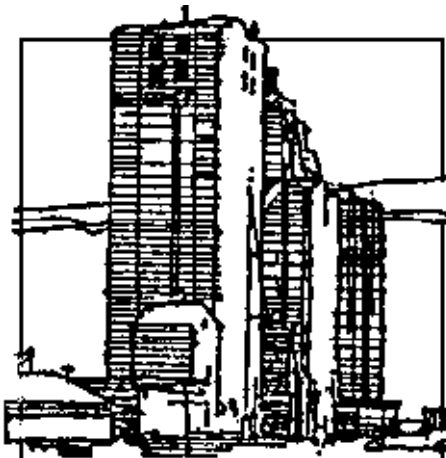
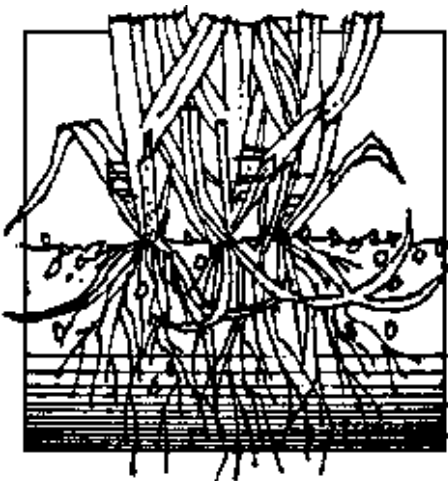


# A Glossary of Agriculture, Environment, and Sustainable Development

**Bulletin 661**

Agricultural Experiment Station, Kansas State University  
Marc Johnson, Director



# **A GLOSSARY OF AGRICULTURE, ENVIRONMENT, AND SUSTAINABLE DEVELOPMENT<sup>1</sup>**

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## **ABSTRACT**

This glossary contains general definitions of over 500 terms related to agricultural production, the environment, and sustainable development. Terms were chosen to increase awareness of major issues for the nonspecialist and were drawn from various social and natural science disciplines, including ecology, biology, epidemiology, chemistry, sociology, economics, anthropology, philosophy, and public health.

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## PREFACE

Agricultural production has increased dramatically in the United States and elsewhere in the past 50 years as agricultural practices have evolved. But this success has been costly: water pollution, soil depletion, and a host of human (and nonhuman) health and safety problems have emerged as important side effects associated with modern agricultural practices. Because of increased concern with these costs, an alternative view of agricultural production has arisen that has come to be known as sustainable agriculture. Sustainable agriculture typically is defined as agricultural practices that ensure long-term productivity with few harmful effects. A similar concept of economic production is called sustainable development.

Kansas State University and many other land-grant universities are increasingly committed to the goal of sustainable agriculture. They support research on practices that reduce pressure on the natural resource base and protect human health and animal welfare. In other words, current agricultural research in the land-grant system centers not only on increasing production but also on finding ways for improving the environmental sustainability of agriculture.

This glossary contains general definitions of over 500 terms related to agricultural production, the environment, and sustainable development. These terms relate not only to important issues surrounding agriculture in the United States, but to agricultural production (and associated) issues worldwide.

Agriculture is after all a global human enterprise that recognizes few spatial and temporal boundaries. Terms were chosen to increase awareness of major issues for the nonspecialist and were drawn from various social and natural science disciplines, including ecology, biology, epidemiology, chemistry, sociology, economics, anthropology, philosophy, and public health. Many of the terms are complex and cannot be defined quite as simply as I have done. You may want to refer to recommended readings identified at the end of this bulletin for more detailed information.

- Abiota**—The nonliving component of an ecosystem, including the soil, water, and air.
- Aborigines**—The original or native inhabitants of a country or region.
- Absorptive capacity**—The maximum amount of waste that can be absorbed by the environment.
- Acceptable daily intake**—A daily exposure level that will not cause adverse health effects.
- Acclimation**—Adaptation to changing or new conditions.
- Acid precipitation**—Rain, snow, fog, or dew containing sulfuric and nitric acids produced by fossil fuel combustion.
- Acquired immunodeficiency syndrome (AIDS)**—A disease caused by the human immunodeficiency virus (HIV), which reduces the body's ability to fight other diseases.
- Active solar heating**—The use of solar panels to collect and concentrate the sun's energy for heating.
- Acute**—A brief but high level of exposure to a hazardous substance or an adverse health effect resulting from a brief exposure to a hazardous substance.
- Adaptation**—Biological modification that allows species to better exist in a specific environment.
- Additives**—Chemicals added to food, often considered to represent a threat to human health.
- Aerosol**—A suspension of particles in the atmosphere.
- Afforestation**—Establishment of forest in an area not previously forested.
- Aflatoxins**—Carcinogenic toxins produced by molds in stored crops.
- Age distribution or structure**—The proportions of a population falling into three distinct groups: preproductive, reproductive, and postproductive. If the population is divided equally among the three groups, the population growth is stable. When a large proportion of the population is in the preproductive stage, the long-term trend is population growth. If a large proportion of the population is in the reproductive stage, a baby boom is experienced.
- Agency**—Extent to which humans are able to create and change the world in which they live.
- Agenda 21**—One of several documents emerging from the Earth Summit in Rio de Janeiro in June 1992. Major issues of environment and development were examined, including poverty, population, and human health.
- Agent orange**—A mixture of several herbicides that is considered to be a carcinogen because it is contaminated with dioxin. The name comes from the orange-banded barrels in which it was marketed.
- Agribusiness**—Industrialized agriculture controlled by corporations.
- Agricultural economy**—An economic system based primarily on crop production.
- Agricultural revolution**—A shift that took place 10,000 to 12,000 years ago and was characterized by the movement of human activity from hunting and gathering to agriculture.
- Agroforestry**—An agricultural system based on the cultivation of trees with other crops.
- AIDS**—See acquired immune deficiency.
- Air pollution**—Contamination of the air with solids, liquids, or gases that may be hazardous to humans or other living organisms. The five primary pollutants are carbon monoxide, hydrocarbons, nitrogen compounds, particulate matter, and sulfur dioxide.
- Alternative agriculture**—Agriculture based on reduced use of chemical fertilizers and pesticides, increased use of crop rotation, and reduced tillage of the soil.
- Alternative crops**—Nontraditional crops that can be grown in an area to diversify rotations and increase income.
- Alternative energy**—Energy produced from sources other than fossil fuels (solar, wind, hydroelectric, geothermal, and biomass).
- Altruism**—Seeking the good for others.
- Amazonia**—The Amazon Basin area of South America, consisting of 5-7 million kilometers of grasslands, wetlands, shrublands, lakes, and tropical forests.
- Ambient**—Surrounding or outside.
- Amoebic dysentery**—A human disease caused by one-celled parasites called amoebae.
- Ancient forests**—Forests that have never been cut and typically consist of trees 250 years of age and older.

- Animal rights**—The belief that animals have rights similar to those afforded to humans.
- Anthropic**—Relating to the period during which humans have existed on earth.
- Anthropocentric ethic**—The belief that only humans have value and that the environment exists solely for the benefit of humans; nature has no rights.
- Anthropogenic**—Based on human activities; often used to refer to environmental changes caused by human activity.
- Appropriate technology**—Labor-intensive, small-scale, production methods using renewable energy.
- Aquaculture**—The farming of fish for human consumption.
- Aquifer**—A rock, gravel, or sand formation in which water is collected. An aquifer is not an underground lake, but it very much resembles a soaked sponge.
- Aquifer depletion**—Depletion of water of an aquifer resulting from withdrawal that is greater than natural or artificial recharge.
- Arable land**—Land that can be cultivated.
- Arid**—A condition in which less than 10 inches of rain falls each year and the level of evaporation is greater than the level of precipitation.
- Arithmetic growth**—An increase in some phenomenon at a constant rate over a specified time period.
- Artificial fertilizer**—A chemical added to soil to enhance crop production.
- Artificial recharge**—Adding water to an aquifer.
- Assimilative capacity**—The ability of a water body such as a lake or stream to purify itself of pollutants.
- Atmosphere**—The air that surrounds the earth and is bound by the earth's gravitational attraction.
- Atmospheric inversion**—A situation in which a layer of warm air traps pollutants. Basin cities such as Denver and Los Angeles experience this problem.
- Average life expectancy**—The number of years that an average person can expect to live.
- Balance of nature**—An idea popularized by George Perkins Marshall that all life is interrelated and in balance. This idea has been re-jected by modern biological ecology but embraced by proponents of deep ecology.
- Basic needs**—The basic items and services needed by an individual to ensure a reasonable standard of living.
- Bhopal**—Refers to an industrial accident at a Union Carbide factory in Bhopal, India in 1984, resulting in the deaths of close to 4,000 humans and thousands of animals and the injury of 300,000 persons.
- Bioaccumulation**—The accumulation of pollutants in an organism; sometimes referred to as bioconcentration.
- Biocentric ethic**—The idea that nature, not humankind, is the measure of all things.
- Biocide**—An agent that kills many organisms in the environment.
- Biodegradable**—Capable of being broken down into basic elements as a result of bacterial or other microbial action.
- Biodiversity**—The degree of species richness and natural genetic variation.
- Biogas**—Methane gas produced by animal and human dung, crop residues, and other organic matter; can be used as a fuel or fertilizer.
- Biogeochemical cycle**—The cycling of chemicals or nutrients between abiotic and biotic sectors of the biosphere. Elements involved in biogeochemical cycles include carbon, nitrogen, sulfur, and phosphorus.
- Biological amplification**—The accumulation of higher levels of pollutants in organisms higher up in the food chain.
- Biological control**—The use of natural enemies or diseases to control pests.
- Biological diversity**—See biodiversity.
- Biological evolution**—Changes in the gene pool of a species over time.
- Biomass**—All living matter in an area and stored energy in an organic form like wood.
- Biomass energy**—Energy derived from plant matter.
- Biome**—A large ecosystem that has distinct climate, geology, and organisms; e.g., desert, tundra, grassland, savanna, woodland, coniferous forest, temperate deciduous forest, and tropical rain forest.

- Bioregion**—An area defined by natural ecological systems, such as a river watershed.
- Bioremediation**—Restoring a natural area by the addition of living organisms (e.g., plants or bacteria).
- Biosphere**—The natural system of the earth and the atmosphere that supports life.
- Biota**—The plant and animal life of an ecosystem; often referred to as flora and fauna.
- Biotechnology**—Biological manipulation of living organisms to produce foods, drugs, and other products for humans.
- Birth cohort**—A group of people born during a specific time period.
- Birth rate**—The number of live births in a given year divided by the midyear population.
- Bison**—A large grazing animal that once reigned over the grasslands of North America but was slaughtered in great numbers during the 1870s.
- Black Death**—The name for the plague that swept Europe and Asia during the Middle Ages.
- Blocked development**—Economic development in less developed countries that is impeded by developed countries.
- Brandt Commission**—The Independent Commission on International Development held in 1980, which documented the link between environment and development. Members coined the terms North (developed countries) and South (less developed countries) and called for the amortization of old debts among Southern countries.
- Breeder nuclear fission**—A nuclear fission process in which new radioactive fuel is produced. It is considered dangerous because the chain reaction is difficult to control.
- Brundtland Commission**—The World Commission on Environment and Development chaired by Norwegian Prime Minister Gro Harlem Brundtland. The Commission's report, *Our Common Future* (1987), popularized the notion of sustainable development.
- Bubble policy**—A policy that allows polluters to discharge more pollutants at one source, if an equivalent reduction occurs at other sources.
- California condor**—A bird once found in the mountains of California but now virtually extinct.
- Cancer**—The breakdown of the normal process of cell growth in which cancerous cells invade and destroy other cells and tissues. A large proportion of cancers is thought to be linked to environmental factors, including diet, chemicals, and other substances.
- Capital goods**—Accumulated items used to produce other goods and services.
- Capitalism**—An economy based on private enterprise and the use of markets for allocating economic resources.
- Capitalist economy**—An economic system in which the means of production are owned privately.
- Car emissions**—Chemicals produced by the internal combustion engine and considered hazardous. These include carbon monoxide, hydrocarbons, and nitrogen oxides.
- Carbon cycle**—The process by which carbon, the chemical foundation of living organisms, circulates throughout the natural world. This is only one of several different biogeochemical cycles.
- Carbon dioxide**—A gas that is an important part of the carbon cycle. Plants absorb CO<sub>2</sub> during photosynthesis, and plants and animals produce it as an end product of respiration. It plays an important role in controlling the earth's surface temperature.
- Carbon sink**—A part of the biosphere that absorbs more carbon dioxide than it releases; e.g., oceans and rain forests.
- Carbon tax**—A tax imposed on fossil fuels according to the amount of carbon contained in them.
- Carcinogen**—An environmental agent, such as a pesticide, that causes cancer.
- Carnivore**—An animal or plant that feeds on and digests animals.
- Carrying capacity**—The total population that a particular area can support at a subsistence level.
- Cash crop**—Agricultural produce marketed for cash rather than retained for household use.
- Centrally planned economy**—An economy whose investment and production are coordinated by a central government body.
- CFCs**—See chlorofluorocarbons

- Chemical**—An element or compound naturally occurring or created by humans.
- Chernobyl**—A nuclear power plant in the former Soviet Union that suffered a serious accident in 1986. Estimates are that 5,000 to 150,000 people who lived in the area will die prematurely.
- Child labor**—A practice whereby children between the ages of 8 and 15 are forced to work for a living.
- China Syndrome**—The meltdown of a nuclear reactor.
- Chipko movement**—A local movement that began in India in the early 1980s and is opposed to governmental and other deforestation programs.
- Chlorofluorocarbons**—Nontoxic chemicals used as coolants in refrigerators and air-conditioners, as propellants in aerosol cans, and as solvents. They are linked with ozone depletion and global warming.
- Chronic**—A health effect that takes a long time to manifest itself or that persists for some time.
- Circle of poison**—The use of pesticides banned in the developed countries on crops that are produced in less developed countries for export to developed countries.
- Civil suit**—A lawsuit centered on an individual seeking damages for injury or loss.
- Class**—A person's ranking in a social hierarchy; based on access to wealth and other scarce resources.
- Class action suit**—A lawsuit centered on a group seeking damages for injury or loss.
- Class system**—A system of social inequality based on the unequal distribution of economic resources.
- Clean Air Act**—An act passed by the U.S. Congress in 1963 to assure air safe enough to protect the public health.
- Cleanup**—An action taken to deal with the release of a hazardous substance that could affect the environment or human health.
- Clean Water Act**—An act passed by the U.S. Congress in 1972 to protect the nation's water resources, including regulation of pollution and sewage treatment.
- Clear-cutting**—A logging practice in which a majority of the trees in an area are cut.
- Climate**—The long-term average of weather conditions in an area.
- Climate change**—A change in climate caused by human activities or natural phenomena.
- Cognitive process**—A mental process involved in human learning and reasoning.
- Colonialism**—The practice of economic and political domination of less developed countries by developed countries.
- Commodities**—Goods and services that can be bought and sold.
- Common law**—Legal principles based on previous legal decisions.
- Community**—A group interacting at a specific time and place, as well as sharing a similar cultural background.
- Compost**—Decayed organic and animal matter used as fertilizer.
- Conservationists**—Those wanting to preserve natural resources.
- Conservation tillage**—The practice of reducing or eliminating tillage operations and leaving crop residues on the soil to prevent erosion.
- Contagious diseases**—Diseases that are transmitted by physical contact, e.g., tuberculosis and measles. They are the leading causes of death in many less developed countries.
- Contaminant**—Any substance that has an adverse effect on air, water, or soil.
- Contingent valuation**—Valuation of commodities not traded in markets, e.g., clean air, life expectancy, wildlife, and severed limbs.
- Contour plowing**—A soil conservation technique in which cultivation follows the contours of the land.
- Contraception**—A birth control practice, such as use of condoms, intrauterine devices, or the pill.
- Convenience food**—Processed food often containing high levels of fat, sugar, and/or salt; production and marketing are controlled by large transnational corporations.
- Convention**—A multilateral agreement between countries, usually a legal agreement on international environmental issues.

- Conventional agriculture**—Agricultural practices involving the use of chemical fertilizers, pesticides, and machinery.
- Convergence thesis**—The idea that different countries are becoming similar.
- Core countries**—Developed countries having the most technologically advanced, capital-intensive, and high-wage economies, e.g., the United States, Japan, and the western European countries.
- Coronary heart disease**—A disease affecting the heart and/or coronary vein or artery. This is a leading cause of death in the developed countries and linked to overnutrition.
- Cornucopian**—A view that natural resources are unlimited.
- Corporation**—A large private organization with multiple owners.
- Cost-benefit analysis**—Evaluating projects, policies, and programs in terms of economic costs and benefits.
- Cover crops**—Plants used to hold the soil during the fallow season.
- Cowboy economy**—An economy that behaves as if natural resources are infinite in supply and nature can absorb all wastes.
- Criteria pollutants**—Substances that result in the most air pollution: carbon monoxide, sulfur dioxide, particulates, hydrocarbons, nitrogen oxides, ozone, and lead.
- Crop rotation**—An agricultural method in which two or more crops are rotated from year to year to reduce nutrient depletion of the soil and reliance on pesticides.
- Culture**—A commonly held set of beliefs, attitudes, and rules for behavior in a society.
- DC**—See developed country.
- DDT**—See dichlorodiphenyltrichloroethane.
- Death rate**—The number of deaths in a given year divided by the midyear population.
- Debt crisis**—A financial crisis faced by a number of less developed countries who borrowed extensively in the 1970s and early 1980s. Many of these countries have been unable to repay loans or keep up interest payments.
- Debt-for-nature swap**—A method begun in 1987 to help deal with the debt crisis by swapping debt for creation of nature preserves.
- Deep ecology**—The environmental ethic maintaining that all species are of equal value and that humans have no right to reduce life except to satisfy basic needs. This often is identified as a biocentric worldview. It maintains that the anthropocentric worldview is the key cause of environmental problems. Proponents have been involved with radical environmental organizations such as Earth First!, the Sea Shepherd Conservation Society, and People for the Ethical Treatment of Animals.
- Deforestation**—Forest loss; typically defined as a forest losing 40 percent or more of the trees.
- Delaney amendment (Delaney clause)**—An amendment to the Food, Drug, and Cosmetic Act that bans the use of all food additives that are carcinogenic.
- Democracy**—A government in which the political power of elites is minimized and the political power of nonelites is maximized.
- Demographic transition**—The argument that as countries improve their standard of living, birth and death rates converge, and zero population growth is achieved.
- Demography**—The study of the size and composition of human populations, especially fertility, mortality, and migration patterns.
- Dependence**—The asymmetrical relations that characterize interaction patterns between countries occupying different positions in the world economy.
- Dependency theory**—The theory that dependent relations between nations foster positive development in the developed countries but distorted and constrained forms of development in the less developed countries.
- Dependent development**—A type of development characterized by economic growth but high income inequality and a repressive state. It is fostered in less developed countries by transnational corporations.
- Depletion time**—The actual time taken to deplete a nonrenewable resource.
- Desalinization**—The process of removing salt and related minerals from water for human uses.



- Desert**—A biome with limited precipitation (typically less than 10 inches per year) but different temperature ranges. Tropical deserts (Sahara) are hot year round, temperate deserts (Mojave) are hot in the summer and cool in the winter, and cold deserts (Gobi) are hot or warm in the summer and cold in the winter.
- Desertification**—The process by which land becomes desert through climatic change or human actions.
- Detritivore**—An organism that feeds on dead organic matter.
- Developed country**—A country with a technologically advanced, capital-intensive, and high-wage economy.
- Development**—A value-laden notion referring to the extent to which a society is meeting the needs of its people. It typically is defined in economic terms, but encompasses other dimensions as well.
- Dichlorodiphenyltrichloroethane**—A chlorinated, hydrocarbon-based insecticide. It originally was considered safe and effective but proved to have negative human health and environmental consequences. It was banned in the U.S. in 1972.
- Dieback**—A sudden decline in the population of an area after the carrying capacity of the environment is reached.
- Diet transition**—A change in diet that is associated with increased affluence. It typically moves from traditional grains (millet and sorghum) to rice and wheat and on to a combination of meats and grains.
- Dioxins**—Several chemicals created in the production of pesticides that have no industrial use but are hazardous to human health.
- Direct action**—A type of environmental protest practiced by environmental groups such as Greenpeace. It is characterized as nonviolent, passive resistance that forces the opponents to defend their position.
- Direct regulation**—A direct intervention in the market to regulate a hazard.
- Dirty dozen**—A group of 12 chemicals identified by the Pesticide Action Network as dangerous and posing a significant health risk.
- Discount rate**—A rate used in cost-benefit analysis for discounting future values to the present. It typically refers to the value of something in the future when compared with current value.
- Diseases of civilization**—Heart disease and cancer. Affluence increases fat consumption and causes a more sedentary and stressful lifestyle, which put people at risk for these diseases.
- Diversity**—The number of species in an area.
- Dominant social paradigm**—A western worldview maintaining that humans are superior to other creatures, the world provides unlimited resources for humans, and human history is characterized by substantial progress.
- Dose**—The level of exposure to a hazard.
- Dose-response assessment**—The determination of the relationship between dose or exposure and the intensity of the adverse effect.
- Doubling time**—The amount of time required for the population of a country to double.
- Drift net fishing**—The use of huge nets that drift on the water to catch fish.
- Drinking water**—Water fit for human consumption.
- Drip irrigation**—Irrigation using a tape or pipe with small holes that release water near the roots of plants and eliminate runoff.
- Driving forces**—Social forces identified as the sources of environmental problems. Typical forces are population expansion, economic growth, political and economic institutions, technology, and cultural values.
- Drought**—The prolonged absence of natural precipitation.
- DSP**—See dominant social paradigm.
- Dual economy**—An economy with a rich modern sector and a poor traditional sector; often a problem for less developed countries.
- Dust bowl**—An area in the Great Plains that experienced drought and soil erosion in the late 1920s and 1930s.
- Earth Day**—An event established in 1970 by Gaylord Nelson and held every year on April 22 to raise environmental awareness.
- Earth Summit**—The United Nations' Conference on Environment and Development, which took place at Rio de Janeiro, Brazil in June, 1992.
- EC**—See European Community.

- Eco**—A prefix derived from the Greek word for house.
- Ecocide**—A planned effort to exterminate an ecosystem or part of it.
- Ecofeminism**—An environmental position maintaining that environmental problems can be traced to male-dominated institutions emphasizing competition, dominance, and individualism. Environmental problems will be solved only when male-dominated institutions are replaced with egalitarian, cooperative, and nonaggressive institutions.
- Ecological economics**—Nontraditional economics that focus attention not only on allocation and distribution of resources but also on the larger ecosystem or environment. The economy is viewed as a subsystem of the larger and finite ecosystem. Attention centers on the flow of matter and energy from the environment as raw materials and back to the environment as waste.
- Ecological limit**—The carrying capacity of a given area.
- Ecological niche**—The role of a species in an ecosystem.
- Ecology**—The study of the relationship between all living organisms and the environment.
- Economic depletion**—The use of 80 percent of a nonrenewable resource.
- Economic growth**—Growth in the output of an economy. The gross national product (GNP) often is used to measure growth in the economy.
- Economics**—The study of the means by which humans produce, distribute, and consume goods and services.
- Economic system**—A system of ownership, institutions, and allocative and distributive mechanisms of an economy.
- Economy**—A human system by which resources are produced, distributed, and consumed.
- Ecosphere**—Biosphere.
- Ecosystem**—An interacting system of a biological community (biota) and its nonliving environment (abiota).
- Ecotage and ecoterrorism**—Aggressive acts undertaken against corporations and other parties to protect the environment.
- EEC**—See European Economic Community.
- Efficiency**—The amount of product produced per input unit of energy, labor, or material.
- Effluent**—A discharge of waste or other noxious material into the environment.
- Effluent fee**—A fee paid by a polluter to discharge noxious emissions into the air and water.
- Electromagnetic pollution**—Electronic and magnetic fields created by electrical circuits. They may represent human health risks.
- Eleventh commandment**—A commandment put forward by the population control movement that “Thou shall not transgress the carrying capacity of the environment.”
- Emigration**—Population migration away from an area.
- Emission**—The release or discharge of gases or particulate matter into the air.
- Endangered species**—Organisms that are at risk of becoming extinct.
- Endangered Species Act**—An act passed by the U.S. Congress in 1973 to protect species in danger of becoming extinct.
- Energy**—The capacity to do work; usable power.
- Energy conservation**—Elimination of energy waste.
- Energy efficiency**—The amount of fuel needed to sustain a particular level of production or consumption. It typically is defined as annual primary energy consumption per dollar of gross domestic product.
- Entropy**—The measure of the degree of disorder within a system; derived from thermodynamics.
- Environment**—All living and nonliving components by which an organism is surrounded and affected.
- Environmental accounting**—An effort to incorporate into measures of economic output the environmental consequences of economic production, such as soil depletion and air pollution.
- Environmental change**—A human-caused decline in the quantity or quality of a renewable resource.
- Environmental currency**—Monetary values that adequately reflect costs to the environment of human activities, by determining such factors as energy flows.

- Environmental degradation**—Depletion or destruction of a potentially renewable resource such as soil.
- Environmental ethics**—Moral relations that hold between humans and the natural world.
- Environmental impact assessment**—The process of identifying and assessing environmental impacts associated with a project, policy, or program.
- Environmental impact statement**—A report identifying the likely environmental consequences of some project, policy, or program.
- Environmental movement**—A political movement to reduce resource depletion/destruction and pollution.
- Environmental pathway**—An environmental path of hazard exposure; major pathways include the air, soil, and water.
- Environmental Protection Agency**—A U.S. regulatory agency established in 1970 to control pollution and conduct research on the environment.
- Environmental refugees**—Migrants from an area devastated by natural or technological hazards.
- Environmental services**—The restorative functions of nature, such as conversion of carbon dioxide to oxygen by plants.
- Environmental sociology**—A branch of sociology examining the interaction between humans and the natural environment.
- Environmentalists**—Individuals who attempt to curb resource depletion/destruction and pollution.
- EPA**—See Environmental Protection Agency.
- Epidemiology**—The study of environmental and other factors determining disease. Epidemiologic studies use human population data to examine the distribution and determinants of adverse health conditions.
- Equity**—A pattern of fairness.
- Erosion**—A process by which rock particles and soil are deposited in a new location through water or wind action.
- ESA**—See Endangered Species Act.
- Ethics**—A code of behavior regarding what is appropriate and inappropriate.
- European Community**—A group of 12 countries: Belgium, Denmark, France, Greece, Ireland, Italy, Luxembourg, Netherlands, United Kingdom, Portugal, Spain, and Germany.
- European Economic Community**—An economic union established in 1958 to promote trade in western Europe that currently includes Belgium, Denmark, France, Germany, Great Britain, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, and Spain.
- Evolution**—A process of biological or social change involving adaptation to an ecosystem.
- Exponential growth**—A growth pattern in which some entity doubles in size during a given time period.
- Export of pollution**—Transporting pollutants to another area or country.
- Exposure assessment**—Determination of the extent of contact between an organism and a hazard.
- Extensive agriculture**—Maximizing the amount of land used for agricultural production.
- Externalities**—Beneficial or harmful effects associated with production and consumption of a good that are not included in its market price.
- Extinction**—The disappearance of a species.
- Exxon Valdez**—An oil super tanker that ran aground and spilled 300,000 barrels of oil in Prince William Sound in Alaska in 1989. This is considered to be the worst oil spill in U.S. history.
- Factory farming**—The mechanized, high-tech production of animals for human consumption. Growth hormones and antibiotics used to enhance growth of animals may pose health risks to humans.
- Family planning**—The practice of providing information and contraceptives to help people limit the number of children.
- Famine**—Malnutrition and starvation resulting from a shortage of food.
- FAO**—See Food and Agriculture Organization.
- Fauna**—The animal life of an area.
- Feedlot**—An area containing a high density of animals that are fattened by intensive feeding; high concentrations of wastes make them hazardous.

- Fertilizer**—A substance containing chemical elements needed for plant growth, mainly potassium, phosphorus, and nitrogen.
- First law of thermodynamics**—A law stating that energy is neither created nor destroyed, but it does change form.
- First World**—Countries that were the first to industrialize.
- Fission**—The process of splitting atoms to release energy.
- Flood plain**—A low area along a river considered to be at risk of flooding.
- Flora**—The plant life of an area.
- Fly ash**—An air emission created by the incineration of solid wastes.
- Food and Agriculture Organization**—A United Nations Agency based in Rome and given the charge to improve efficiency of production and distribution of agricultural products.
- Food chain**—A hierarchy of organisms, each feeding on the lower one.
- Food gap**—The difference between what people need to subsist and what is produced by farmers. This occurs in some low-income countries that are unable to produce basic foodstuffs.
- Forest**—A biome with enough precipitation to support various tree species.
- Fossil fuels**—Mineral fuels that occur in rock formations. They include coal, oil, and natural gas and provide a majority of the energy used in the world.
- Free market**—A market in which buyers and sellers are free to contract on whatever terms they like without government interference.
- Friends of the Earth**—An environmental advocacy group founded in 1970 by David Brower.
- Frugivore**—An animal that lives on fruit. Frugivores are typically primates that cannot digest cellulose in leaves.
- Fuelwood crisis**—A shortage of wood for heating and cooking purposes. This is a pressing problem in many less developed countries.
- Fungicide**—A pesticide that kills fungi.
- Fungus**—Parasitic or saprophytic plants lacking the green pigment chlorophyll and thus incapable of photosynthesis.
- Fusion**—The process of combining atomic nuclei in order to release energy.
- G-7**—See Group of 7.
- G-10**—See Group of 10.
- G-15**—See Group of 15.
- G-77**—See Group of 77.
- Gaia hypothesis**—The hypothesis proposed by Lovelock and Margulis that living organisms on earth help regulate and stabilize the climate.
- GATT**—See General Agreement on Tariffs and Trade.
- GDP**—See gross domestic product.
- GEMS**—See Global Environmental Monitoring System.
- General Agreement on Tariffs and Trade**—A multilateral trade agreement regulating the world trade system.
- Genetic diversity**—The genetic variability within a group of related organisms.
- Genetic engineering**—The manipulation of genetic material for economic purposes.
- Geographic Information System**—A computer software mapping system that provides a basis for manipulating, analyzing, and displaying spatial information.
- Geosphere**—The nonliving portion of the earth, excluding the atmosphere, hydrosphere, and biosphere.
- Geothermal energy**—Steam and hot water (created by the earth's molten core) used to produce electricity and considered to be a renewable energy.
- Ghost acres**—The land on which cheap foodstuffs and agricultural products are produced by less developed countries for export to the industrialized countries.
- GIS**—See Geographic Information System.
- Global commons**—Natural systems and resources that do not belong to any one country, e.g., the atmosphere and the oceans.
- Global Environmental Monitoring System**—A global effort to monitor the earth's environment; established in 1972 and operated by the United Nations Environment Programme.
- Global positioning system**—A U.S. Department of Defense satellite network used as a surveying and navigational aid and available to the public.

- Global 2000**—A report on global environmental trends that was commissioned by President Carter in 1977 and was published in 1980. The general conclusion of the report was that the world in 2000 would be more crowded, more polluted, and more fragile if global trends continued.
- Global warming**—An increase in the earth's surface temperature caused by the heat trapped in the earth's atmosphere by human-created gases.
- GNP**—See Gross National Product.
- Granivore**—An animal living on a diet of grain or seeds.
- Grassland**—A biome with a moderate level of precipitation and vegetation dominated by grasses.
- Great Plains**—A grassland area in the western U.S., extending from North Dakota south to Texas and from the Rocky Mountains east to western Minnesota and Missouri.
- Green consumerism**—Purchasing environmentally sound products.
- Greenhouse effect**—A rise in the earth's surface temperature caused by heat radiated by the sun that becomes trapped by greenhouse gases.
- Greenhouse gases**—Trace gases that contribute to the greenhouse effect, mainly carbon dioxide, methane, nitrous oxide, and chlorofluorocarbons.
- Greenpeace**—An environmental organization emphasizing sea mammal protection and elimination of toxic pollution.
- Green politics**—Politics centering on issues surrounding environmental problems.
- Green revolution**—The effort organized by the United Nations in the 1960s to increase world food production by introducing high-yield varieties of rice, wheat, and maize and new techniques, including irrigation and use of pesticides.
- Greens**—Political parties with an environmental stance.
- Green tax**—A tax on activities that pollute, deplete, or degrade the environment.
- Gross domestic product**—The value of goods and services produced in the country.
- Gross national product**—The value of goods and services produced in a country plus remittances received from abroad.
- Gross primary production**—The total energy produced by photosynthesis and stored in a given biotic community.
- Groundwater**—The water stored underground in rock and soil.
- Group of 7**—Seven of the largest industrial countries, including Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States.
- Group of 10**—The 10 most influential environmental organizations in the United States. These include the Environmental Defense Fund, Wilderness Society, Sierra Club, National Audubon Society, National Parks and Conservation Association, Natural Resources Defense Council, Defenders of Wildlife, Environmental Policy Institute, National Wildlife Federation, and Izaak Walton League of America.
- Group of 15**—A group of 15 less developed countries that meet to discuss issues of the Third World.
- Group of 77**—A group of less developed countries in the Third World and Eastern Europe, originally including 77 countries but later expanded to include 129.
- Growth mania**—A belief that “bigger is always better.”
- Growth rate**—The annual percentage increase in the gross national product.
- Habitat**—The place where organisms live.
- Habitat loss**—The loss of natural habitat, often by human actions.
- Hamburger connection**—The clearing of land in Central and South America to produce cattle whose meat is exported to U.S. fast-food restaurants.
- Hardwood**—The wood of broad-leaved, flowering trees, e.g., oak, mahogany, and walnut.
- Hazard**—A technology, activity, or substance that has adverse effects on the environment or human health.
- Hazard identification**—The process of determining that a technology, activity, or substance causes adverse health, safety, or environmental consequences.

- Hazardous waste**—Waste possessing chemical, physical, or biological characteristics that represent a threat to either the environment or human health.
- Hegemonic power**—The power exercised by states on an international basis because of their economic and military status.
- HEP**—See human exemptionalism paradigm.
- Herbicide**—A chemical used to control weeds and unwanted plants.
- Herbivore**—An organism that obtains energy from plant consumption. Granivores and frugivores are special types of herbivores.
- Human ecology**—An area of inquiry concerned with the relationship of humans and their activities with the physical environment.
- Human exemptionalism paradigm**—A set of assumptions underlying the belief that humans transcend the environment in which they live. Specifically, given their unique cultural heritage, humans are different from all other species on earth, social and cultural factors determine human society, the larger environment is irrelevant, and all problems are soluble by human ingenuity and technology.
- Hydrocarbons**—Chemicals consisting of hydrogen and oxygen and contributing to air pollution.
- Hydroelectric power**—Electricity created by movement of water.
- Hydrosphere**—The water portion of the planet. Approximately 75 percent of the earth's surface is covered by water.
- Ice Ages**—Periods when ice sheets moved from the polar cap and covered areas of North America, Europe, and Asia.
- Immigration**—Population migration into another area.
- Immiserization**—An economic decline among poor people, making it difficult for them to meet their basic needs for food, health, and shelter.
- Imperialism**—A system in which one country uses the resources of a less powerful country for its own benefit, typically involving economic and political control.
- Incineration**—Burning wastes for purposes of disposal.
- Income**—A gain or benefit expressed in money or in goods and services over a specified time period.
- Index of sustainable economic welfare**—An alternative measure for assessing the strength of an economy and human well-being. Unlike gross national product and similar indicators, it includes measures of environmental degradation.
- Indicator species**—A species that can indicate whether an ecosystem is being degraded.
- Industrial economy**—A production system based on machines to produce things of value.
- Industrialization**—A stage in societal development when resources are shifted from agriculture to manufacturing.
- Infant mortality rate**—The number of infant deaths (children between the ages of 0-12 months) per 1,000 live births.
- Infectious diseases**—See contagious diseases.
- Informal economy**—Business outside of the recognized sector of a country's economy.
- Insecticide**—A chemical substance used to kill insects.
- Integrated pest management**—A management effort combining biological and chemical controls to reduce reliance on synthetic pesticides.
- Intensive agriculture**—A system to maximize output of land through use of chemicals and machinery.
- Intergenerational equity**—A norm that calls for considering the interests of future generations when dealing with natural resources and a healthy environment.
- Internal cost**—The direct cost associated with a product or service that is paid by the producer and/or consumer.
- International regime**—An international agreement between nations.
- International Union for Conservation of Nature and Natural Resources**—A nongovernmental organization founded in 1948 and concerned with threats to the quality of the natural environment, especially wilderness areas and endangered species.

**IPAT**—The model holding that environmental degradation (I) is an interactive function of human population size (P), affluence (A), and technology (T).

**Irrigation**—Artificial watering of crops.

**ISEW**—See index of sustainable economic welfare.

**IUCN**—See International Union for Conservation of Nature and Natural Resources.

**J-shaped curve**—An exponential growth curve.

**Land ethic**—A philosophy developed by Aldo Leopold around the idea that land is more than a commodity and deserves to be treated with respect.

**Landfill**—A dump site in which waste is spread in thin layers and covered with soil.

**Land scarcity**—A situation in which 70 percent or more of the arable land in a country or region is under cultivation.

**LD<sub>50</sub>**—See lethal dose.

**LDC**—See less developed country.

**Leachate**—Liquid that has percolated through soil or solid waste and picked up potentially hazardous materials.

**Leaking underground storage tanks**—Major causes of groundwater pollution in the U.S.

**Less developed country**—A country with a low per capita income and low to moderate industrialization. LDCs include nearly 150 nations and 80 percent of the world's population.

**Lethal dose**—The quantity of a chemical that is lethal to 50 percent of the organisms in a specific test situation.

**Life expectancy**—The number of years that an average person can expect to live.

**Little Ice Age**—A cold period in Asia, Europe, and North America (A.D. 1550 to A.D. 1850). Its end coincided with the beginning of the industrial revolution and an increase of greenhouse emissions.

**Locally unwanted land use**—A land use with adverse environmental consequences, e.g., nuclear power plants, hazardous waste facilities, airports, and refineries.

**Love Canal**—The location of a landfill site near Niagara Falls that was used by Hooker Chemicals and Plastics Company as a dumping site for

thousands of tons of chemical wastes during the 1950s.

**LULU**—See locally unwanted land use.

**LUST**—See leaking underground storage tanks.

**Malnutrition**—Insufficient nutrition.

**Malthusianism**—The belief that population outstrips society's ability to provide for its members. It is based on ideas developed by Thomas Malthus (1766-1834) in *An Essay on the Principles of Population*.

**Marxism**—The theory of Karl Marx that all societies go through a series of economic stages as the production system evolves and increases human control over the environment. The final stage of all societies is socialism.

**Maternal mortality**—Death during childbirth.

**MDC**—See more developed country.

**Methane**—A gas created as a waste product of bacteria living with little oxygen and considered to be a greenhouse gas.

**Migration**—The movement of populations from one area to another.

**Modernization**—The process accompanying industrialization.

**Modernization theory**—A theory holding that less developed countries will follow the course of industrial development experienced by the developed countries.

**Monkey-wrenching**—See ecotage.

**Monoculture**—An agricultural practice in which a single species of plant is cultivated in an area. It requires large amounts of fertilizers and pesticides.

**Montreal Protocol**—A treaty signed in 1987 by 24 countries, which pledged to phase out use of all chlorofluorocarbons by 1999.

**Morbidity**—The incidence of disease in a population.

**More developed country**—A country with high per capita income and a high level of industrialization, e.g., the United States, Canada, Japan, Australia, New Zealand, and the western European countries.

**Mortality**—Deaths in a population.

**Multinational corporation**—A large corporation that owns property and produces and sells products in a large number of countries.

- Mutagen**—An environmental agent that causes genetic mutations or defects.
- NAAQS**—See National Ambient Air Quality Standards.
- NAFTA**—See North Atlantic Free Trade Agreement.
- Natality**—The birth rate of a population.
- National Ambient Air Quality Standards**—Regulations established by the Clean Air Act prescribing levels of pollution that may not be exceeded during a specified time in a defined area.
- National Audubon Society**—An organization founded in 1905 to protect bird populations but now concerned with broader environmental issues.
- National Environmental Policy Act**—A federal environmental law (1969) that requires all federal agencies to file environmental impact statements, sometimes referred to as “the environmental Magna Carta.”
- National Institute of Occupational Safety and Health**—A U.S. federal agency that conducts health and safety research.
- National Wildlife Federation**—An organization founded in 1936 as an environmental advocacy and educational group.
- Natural hazard**—A natural event that damages the environment and humans, e.g., floods, volcanoes, and earthquakes.
- Natural pollutants**—Pollutants created through natural processes, e.g., ozone, dust, and gas of volcanic origin.
- Natural resources**—Substances and processes used by people that they cannot create.
- Natural Resources Defense Council**—An organization founded in 1970 to protect natural resources.
- Natural sciences**—Sciences that examine the physical environment, e.g., astronomy, biology, chemistry, geology, physics, oceanography, and meteorology.
- Neo-Malthusian**—The idea that human populations grow until they reach the carrying capacity of the environment.
- NEP**—See new environmental paradigm.
- NEPA**—See National Environmental Policy Act.
- Net economic welfare**—The gross national product adjusted by subtracting the “bads” such as pollution and by adding the value of beneficial, nonmarket activities such as leisure.
- Net primary production**—The total energy produced by photosynthesis and stored in a biotic community (gross primary production) minus energy consumed by photosynthetic organisms.
- New environmental paradigm**—A new set of assumptions about the nature of the relationship between humans and the larger environment. This paradigm holds that humans, despite their exceptional characteristics, represent one among many species on earth; human activities are determined not only by social and cultural factors but by the environment; and humans are dependent on a finite environment.
- New international economic order**—A list of demands made by the Group of 77 nations in the 1970s regarding changes in the structure of North-South economic relations.
- New social movements**—Recent social movements whose origins, political tactics, and goals differ substantially from those of the traditional class and economic-based, social movements, e.g., the environmental movement, the women’s movement, and the gay rights movement.
- Newly industrializing countries**—Countries that have been industrialized only recently, e.g., South Korea, Taiwan, and Singapore.
- NGO**—See nongovernmental organization.
- NIABY**—See not in anybody’s backyard.
- NIMBY**—See not in my backyard.
- NIMTOF**—See not in my term of office.
- NIOSH**—See National Institute of Occupational Safety and Health.
- Nongovernmental organization**—An international nonprofit organization that is not affiliated with any government but is concerned with problems of global and local environment and development.
- Nonpoint source pollution**—Pollution from many different sources.
- Nonrenewable resource**—A resource that cannot be replenished.



**Nontransmissible disease**—A disease that is not caused by organisms and cannot be transmitted through human contact, e.g., cancer and heart disease.

**Noosphere**—That part of the biosphere that is affected by human activities.

**NOPE**—See not on our planet.

**North or Northern**—Industrialized countries located mainly in the Northern Hemisphere and referred to as the First World, including Canada, the U.S., western European countries, the former Soviet Union, Japan, Australia, and New Zealand. The term was coined by members of the Brandt Commission in 1980.

**North Atlantic Free Trade Agreement**—A treaty freeing trade restrictions between Canada, the U.S., and Mexico.

**Not in anybody's backyard**—The idea that hazardous activities and substances should not be located in anybody's backyard.

**Not in my backyard**—The idea that hazardous activities and substances should not be located in my backyard.

**Not in my term of office**—The idea that hazardous activities and substances should not be located in the area during a politician's term of office.

**Not on our planet**—The idea that hazardous activities and substances should not be located on earth.

**Noxious**—Physically harmful to living organisms.

**Nuclear energy**—The energy produced through nuclear fission or nuclear fusion.

**Nuclear winter**—The theory that nuclear war would lower the global temperature by adding smoke, dust, and other materials to the atmosphere and reducing incoming solar energy.

**Ocean dumping**—Dumping hazardous wastes and other substances in the oceans.

**Occupational Safety and Health Act**—A U.S. federal statute establishing health and safety regulations in the workplace.

**OECD**—See Organization for Economic Cooperation and Development.

**Ogallala Aquifer**—An underground water source that stretches from Texas to South Dakota and is used for irrigation in the Great Plains. Depletion is thought to have profound

implications for agriculture because of the large quantities of grain produced in the area.

**Old-growth forests**—Forests consisting of trees 250 years or older in age.

**Omnivore**—An animal that eats both plants and animals. Humans are good examples.

**OPEC**—See Organization of Petroleum Exporting Countries.

**Organic agriculture**—The practice of growing crops without chemical fertilizers and pesticides, but otherwise similar to alternative agriculture.

**Organic beef**—Beef from cattle raised without antibiotics, growth hormones, or synthetic chemicals.

**Organic farming**—Farming without the use of artificial fertilizers or pesticides.

**Organic fertilizer**—Organic matter added to the soil to increase production, e.g., manure, plants plowed into the soil, and compost.

**Organization for Economic Cooperation and Development**—An organization founded in 1961 to further economic development and consisting of 13 European countries plus the U.S., Canada, Japan, Australia, and New Zealand.

**Organization of Petroleum Exporting Countries**—An organization created in 1960 and consisting of 13 countries that control 60 percent of the world's oil reserves.

**OSHA**—See Occupational Safety and Health Act.

**Overconsumption**—A situation in which some people consume resources at levels beyond their needs, often at the expense of those who cannot meet their basic needs.

**Overgrazing**—Grazing by animals on vegetation at a rate greater than the ability of vegetation to regenerate itself.

**Overnutrition**—Excessive food consumption, especially red meat, fats, sugars, and processed foods. This is a problem in developed countries that contributes to high rates of nontransmissible diseases, such as coronary heart disease and cancer.

**Overpopulation**—More organisms in a population than the existing resources can support.

**Overshoot**—Population growing beyond the carrying capacity of the environment.

- Ozone**—The gaseous form of oxygen.
- Ozone depletion**—Depletion of the ozone layer in the earth's upper atmosphere primarily by accumulation of human-produced gases such as chlorofluorocarbons. This allows increased amounts of ultraviolet light to reach the earth and damage both plants and animals.
- Ozone layer**—A layer of ozone in the earth's upper atmosphere that acts as a protective shield by filtering out ultraviolet light.
- Pacific Rim**—The 34 countries and 23 islands in and around the Pacific Ocean with an area of 70 million square miles and a population of 2.4 billion people.
- Paradigm**—A set of assumptions about the nature of reality. Such assumptions limit what is seen.
- Parasite**—An organism living in or on another organism.
- Particulate matter**—Tiny solid particles, such as dust or soot, suspended in the air and representing a human health risk.
- Passive solar heating**—Heating a building through the direct absorption of the sun's energy.
- Pathogen**—A causal agent of a disease.
- Periphery**—The lowest position in the three-strata hierarchy (periphery, semiperiphery, and core) characterizing the world economic system. The vast majority of less developed countries fall into this category.
- Perpetual resource**—A resource that is inexhaustible, e.g., solar energy.
- Pest**—An organism that is detrimental to agricultural production.
- Pesticide**—A chemical that destroys or suppresses pests. Pesticides are classified by the type of pest against which they are active: insecticides (ants, termites, etc.); herbicides (broadleaved weeds, grasses, algae); fungicides (mildew, molds, plant diseases, etc.); acaricides (mites, ticks); rodenticides (rats, gophers, ground squirrels); avicides (birds); piscicides (fish); molluscicides (snails, slugs); and nematocides (nematodes or nonsegmented soil worms).
- Pesticide resistance**—A situation in which pests are not affected by a particular pesticide.
- Pesticide treadmill**—A situation in which more pesticides are applied to maintain previous levels of production because their effectiveness has been decreased by development of resistance in pests.
- Petrochemicals**—Substances created during the refinement of oil and used in the production of plastics, paints, and other products.
- Photosynthesis**—A process whereby radiant energy of the sun is taken in by green plants and converted into chemical energy.
- Photovoltaic cell**—A cell that converts sunlight into electricity.
- Physical quality of life**—A measure of economic welfare that is more sophisticated than the gross national product. It is based on three variables: percent of population literate, infant mortality rate, and average life expectancy after age 1.
- PIBBY**—See place in blacks' backyard.
- PITBY**—See put in their backyard.
- Place in black's backyard**—The idea that hazardous activities and substances should be located in areas inhabited by blacks.
- Point source pollution**—Pollution that can be linked to a single source.
- Politics**—An activity by which people try to control decisions about the distribution of resources and other matters affecting their welfare.
- Pollutant**—Any substance that contaminates the environment.
- Pollution**—A negative change in the quality of some part of the biosphere. Pollution is a problem when pollutants are emitted at rates greater than the rate at which they can be recycled, absorbed, or otherwise rendered harmless. The consequences often include threats to humans and other organisms.
- Pollution prevention**—A measure to reduce emissions of noxious wastes into the air and water.
- Population density**—The number of persons per unit of land area.
- Population explosion**—Acceleration of the rate of population growth, especially after 1800 in industrialized countries and in the 20th century in less developed countries.

- Postconsumer recycling**—The reuse of materials from residential or commercial waste.
- Postindustrial society**—A modern economy dominated by services and information, rather than industry.
- Poverty**—A low standard of living in terms of other people (relative poverty) or in terms of basic needs (absolute poverty).
- Power dependency relations**—Relations between individuals, groups, or countries characterized by dominant/subordinate positions.
- PQLI**—See physical quality of life.
- Private good**—A good that, when consumed by one person, cannot be consumed by another and whose supply can be restricted to one consumer.
- Productivity**—The amount of real output produced by input units of labor and capital.
- Proximate causes**—Those human activities that directly cause some environmental problem. For instance, fossil fuel consumption causes increased levels of carbon dioxide, which, in turn, contribute to global warming.
- Public good**—A commodity or service that is available to everyone in an area, that cannot be withheld from nonpayers, and whose consumption by one person does not diminish that by others.
- Push-pull hypothesis**—The argument that certain conditions (such as poverty) push people out (emigration), whereas other conditions in the area pull or attract people (immigration).
- Put in their backyard**—The idea that hazardous activities and substances should be located in others' areas.
- Quality of life**—The extent to which basic human needs (including health, education, shelter, and food) are being met.
- Radical ecology**—A variety of philosophic positions that deny the possibility of slowing environmental problems through economic and political reforms, e.g., deep ecology, ecofeminism, and social ecology.
- Radon**—A naturally occurring radioactive gas that is linked to lung cancer.
- Rain forest**—A dense forest located in areas receiving 80 inches or more of rain each year.
- Rangeland**—An area that provides vegetation for grazing animals.
- Real gross national product**—The gross national product adjusted for inflation.
- Reclamation**—The process of restoring natural areas damaged by human activities, e.g., strip-mining.
- Recyclable**—Still retaining useful properties after serving a primary function and, thus, capable of being used again.
- Recycling**—The reuse of scarce raw materials, especially paper, glass, and metals.
- Recycling in your backyard**—Engaging in recycling.
- Red tides**—Sudden increases in red algae in areas along seacoasts. They usually are attributed to human activities that create imbalances in nutrient cycles.
- Reforestation**—Replacing forests.
- Regime**—A set of principles, norms, rules, and procedures governing negotiations and other interactions between international participants.
- Renewable resource**—A resource considered to be inexhaustible.
- Replacement fertility rate**—The rate at which the number of people born equals the number of people dying, resulting in a constant population size.
- Resistance**—The ability of an organism to live in the presence of environmental stress, pathogens, or pests. Natural resistance of crops can be increased through breeding to reduce use of pesticides and irrigation. However, resistance acquired by weeds and insects can be a problem—see pesticide resistance and pesticide treadmill.
- Resource depletion**—Using a resource at a nonreplacement rate.
- Resource mobilization theory**—A theory arguing that social movements arise and act when resources are available.
- Resources**—Things obtained from the biosphere by humans to meet their basic needs and wants.
- Rest of the world**—The belief that hazardous activities and substance should be located somewhere else.

- Rio Conference**—The United Nations Conference on Environment and Development, which took place at Rio de Janeiro, Brazil in June, 1992.
- Riparian rights**—A legal principle holding that users of land adjoining a river have the rights to the water, as long as plenty of water is left for those downstream.
- Risk**—The expected frequency and magnitude of undesirable effects (death, disease, and injury to humans and threats to the environment) resulting from exposure to hazards.
- Risk assessment**—An estimation of the probability and magnitude of adverse health and environmental effects of hazards.
- Risk-benefit analysis**—A comparison of the risks and benefits associated with a particular hazard to determine its acceptability.
- Risk characterization**—An overall summary of what is known about the likelihood and magnitude of adverse health, safety, and environmental consequences.
- Risk communication**—A process of providing the public with information about the risks associated with particular products, substances, activities, and technologies.
- Risk evaluation**—A determination of the acceptability of an identified health, safety, or environmental risk.
- Risk management**—A process of reducing or controlling unacceptable risks.
- Risk perception**—Human perception of health, safety, or environmental risks.
- RIYBY**—See recycling in your backyard.
- ROW**—See rest of the world.
- Runoff**—The part of irrigation or precipitation that runs off of land and into surface water and often carries pollutants.
- S-curve**—A curve describing population growth. Population increases until it reaches the carrying capacity of the ecosystem and then levels off.
- Safe**—Having acceptable risk.
- Sahel**—The arid region south of the Sahara Desert in West Africa in which food shortages often occur because of infrequent seasonal rains.
- Salinization**—A process by which the salt content of the soil is increased. It typically is attributed to irrigation practices and often makes land useless for crop production.
- Saprophyte**—An organism (especially a plant) that lives on dead or decaying organic matter.
- Savanna**—A biome similar to grasslands, but receiving more precipitation and containing more trees.
- Science**—An effort to understand physical or social phenomena through replicable procedure and observation.
- Scrubber**—An antipollution device that removes acid gasses and particulates from exhausted air.
- Second law of thermodynamics**—A law holding that, when energy is converted from one form to another, some of the energy is degraded or lost.
- Second World**—Centrally planned economies, i.e., those of Eastern Europe from 1948 to 1990.
- Secondary air pollutants**—Substances created when primary pollutants combine with one another and other substances. For instance, the primary pollutant sulfur dioxide reacts with oxygen and moisture to form sulfuric acid.
- Secondary forest**—A forest that has resulted from replacement of original trees by new species.
- Semiperiphery**—The middle position in the three-strata world economic system; partially industrialized countries such as Brazil, Taiwan, the former Eastern Bloc nations, and related countries fall in this category.
- Sex ratio**—The number of males relative to females.
- Sierra Club**—An environmental organization founded by John Muir in 1892 that promotes public education, litigation, and outings and conferences.
- Sink**—A part of an environmental system that absorbs substances generated. The ocean acts as a sink for atmospheric carbon dioxide.
- SLAPP**—See strategic lawsuit against public participation.
- SLAPP BACK**—See strategic lawsuit against public participation.

**Slash-and-burn cultivation**—A form of agriculture in which land is cleared and farmed for a short time; then the process is repeated on a new piece of land when the original land is depleted.

**Smog**—Hazy, unhealthy air polluted by smoke, chemical fumes, or dust.

**Social construction of reality**—A process in which people's experience of reality is determined by the meaning they attach to that reality.

**Social ecology**—A radical ecological position championed by Murray Bookchin and maintaining that environmental problems can be traced to a hierarchical political/economic system that dominates humans and nature. It calls for a decentralized, democratic, and agricultural-based society.

**Social evolution**—A process of increasing societal complexity that results from industrialization.

**Social movement**—A large number of people acting together to pursue some shared objective.

**Social sciences**—Sciences concerned with the study of human behavior, including anthropology, economics, psychology, geography, political science, and sociology.

**Social structure**—Patterned social regularities that emerge over time and typically represent the interests of those controlling available resources.

**Socialist economy**—An economic system in which the means of production are owned publicly.

**Soft energy paths**—Alternative energy sources.

**Soil erosion**—The process by which productive topsoil is eroded by wind or water action.

**Solar pond**—A group of black plastic bags filled with water and laid out in large areas. Heat trapped in the bags produces steam that turns turbines and produces electricity.

**Solar power**—The use of solar energy for heating purposes or for generating electricity.

**Solid waste disposal**—The final placement of waste that cannot be recycled or salvaged.

**Source reduction**—Controlling waste by chang-

ing use at the level of production, for instance, reducing the waste stream by stopping use of unnecessary packaging.

**South or Southern**—Less developed countries located in the Southern Hemisphere and often referred to as the Third World.

**Special risk group**—A group that is at high risk because of sensitivity or exposure to hazards. Children often are identified as a special risk group because of their high sensitivity to pesticides and other hazardous substances.

**Species**—A group of similar organisms that are capable of reproducing with one another.

**Standard of living**—The quality of life or the extent to which basic human needs are met. Various indicators have been used to determine it, including infant mortality, life expectancy, literacy, and economic output measures such as gross national product.

**Steady state economy**—An economy with a constant population size and stock of capital goods.

**Stockholm Conference**—The 1972 United Nations Conference on the Human Environment. Many scholars assert that this conference was the springboard for the modern environmental movement.

**Strategic lawsuit against public participation**—A lawsuit used increasingly by corporations to stifle environmentalists. SLAPP BACK refers to environmental organizations filing lawsuits against those who filed the original SLAPPs.

**Stratification**—A hierarchical system based on unequal distribution of resources or other things that humans value.

**Stratosphere**—The upper atmosphere.

**Subsistence economy**—An economy in which production meets a population's minimum needs but produces no surplus.

**Succession**—A sequential change in vegetation often in response to environmental change.

**Superfund**—An economic fund of the Environmental Protection Agency earmarked for cleaning up major hazardous waste sites.

**Surplus**—Production of goods and services beyond the minimum needed to sustain life.

- Sustainable agriculture**—Agricultural practices that ensure long-term productivity with few harmful effects.
- Sustainable development**—The perspective emphasizing the need to reconcile present and future economic needs through environmental management.
- Swidden agriculture**—Another term for slash-and-burn agriculture.
- Technology**—A set of standardized operations that yields predetermined results.
- Teratogen**—A substance that causes birth defects.
- Tertiary sector**—The part of the economy that produces services and information.
- Third World**—Less developed countries that have low per capita incomes, large agricultural sectors, and a shortage of most kinds of capital.
- Third World debt**—See debt crisis.
- Three Mile Island**—A nuclear power accident that occurred at the Three Mile Island plant in Pennsylvania on March 29, 1979.
- Three R's**—Reduce, reuse, and recycle.
- Tillage**—The use of mechanized means to loosen soil and improve growing conditions for crops.
- TNC**—See transnational corporation.
- Topsoil**—The top layer of the soil that contains large amounts of organic matter. It often is viewed as a transitional region between the living and nonliving segments of the larger biosphere.
- Toxic chemicals**—Chemicals that can cause harm to humans and the environment.
- Toxic wastes**—Wastes that can cause harm to humans and the environment and can be found in the air, water, or soil.
- Toxicology**—The study of the harmful effects of hazardous substances on humans and other organisms.
- Toxin**—A hazardous substance produced by a living organism.
- Trace gases**—Gases that occur in only small amounts.
- Traditional agriculture**—Farming based on practices such as crop rotation, use of animal manures instead of chemical fertilizers, and use of animal power.
- Tragedy of the commons**—The tendency for people to overuse and degrade resources to which they have free access, because it is in their individual short-term interest to use them in an unconstrained fashion.
- Transfrontier pollution**—Pollution that moves across national boundaries through natural forces such as rivers and air currents.
- Transmissible disease**—A disease caused by a living organism transferred from one person to another through physical contact.
- Transnational corporation**—A firm with substantial operations in many countries but controlled from its home country.
- True costs**—Market and nonmarket costs associated with the production and use of goods and services. Market costs fail to account for environmental degradation and related externalities.
- 2,4-D**—An herbicide used to kill weeds and considered to be a carcinogen and a mutagen.
- UNCED**—See United Nations Conference on Environment and Development.
- UNDP**—See United Nations Development Programme.
- UNEP**—See United Nations Environment Programme.
- Unequal exchange**—A pattern describing trade relations between two or more countries when one country benefits more than another.
- Uneven development**—The tendency for some areas of a country or region to prosper, while other areas stagnate.
- United Nations Conference on Environment and Development**—The Earth Summit held in Rio in 1992.
- United Nations Development Programme**—A program with the stated purpose of enhancing development worldwide.
- United Nations Environment Programme**—A program conceived at the 1972 Stockholm Conference with the purpose of raising environmental consciousness on a global level.
- Urbanization**—The process by which an increasing share of the population of a country lives in cities.

**Value added**—A means of increasing the value of agricultural commodities by improvements (e.g., breeding wheat with high protein content) or processing (e.g., grinding wheat into flour).

**Vegetarian**—A person who does not eat meat.

**Water pollution**—Degradation of the natural quality of water.

**Water table**—The level below the surface at which the ground is saturated with water.

**WCED**—See World Commission on Environment and Development.

**Wetlands**—Several different types of habitats containing water, e.g., marshes, swamps, and bogs. They act as filters for rivers and streams and minimize the effects of flooding by storing water.

**WHO**—See World Health Organization.

**Why in my backyard**—The question of why hazardous activities and substances are placed in a particular location.

**Wilderness**—An area uninhabited by humans.

**Wildlife**—All undomesticated organisms in an area, especially animals.

**WIMBY**—See why in my back yard.

**Wind power**—The generation of electricity through wind, a renewable source.

**World Bank**—The popular name for the International Bank for Reconstruction and Development, which was established in 1947. It encourages private (rather than public) investment.

**World Commission on Environment and Development**—Committee chaired by Norwegian Prime Minister Gro Harlem Brundtland and also known as the Brundtland Commission. The Commission's report, *Our Common Future* (1987), popularized the notion of sustainable development.

**World economic system**—A capitalist world economy consisting of a three-tiered hierarchy of countries, including a periphery, semiperiphery, and a core. Centrality in the economic system is determined by control of economic and political resources.

**World Environment Day**—June 5 of each year; designated by the 1972 UN Conference on the Human Environment as a day to focus on environmental problems.

**World Health Organization**—A United Nations agency established in 1948 to promote cooperation among nations in controlling disease.

**World Resources Institute**—Policy research center set up in 1982 to address environmental issues on a global level.

**World-systems theory**—A theory that views the countries of the world as arranged in a hierarchical system and linked through a capitalist economy characterized by patterns of dependence. This hierarchy consists of core, semiperipheral, and peripheral positions.

**Worldview**—A set of beliefs and perceptions regarding the manner in which the world operates.

**Worldwatch Institute**—A research organization founded in 1974 to track global problems.

**World Wildlife Fund**—An organization founded in the U.S. in 1961 and working globally to protect endangered wildlife and wetlands.

**WRI**—See World Resources Institute.

**WWF**—See Worldwide Wildlife Fund.

**WWI**—See Worldwatch Institute.

**Yes, in my backyard-for a price**—Acceptance of the location of hazardous activities and substances in an area for a price.

**YIMBY-FAP**—See yes, in my backyard-for a price.

**Zero discharge**—The complete prevention of pollutants from entering ecosystems.

**Zero population growth**—A lack of population growth caused by a balance among births, deaths, and migration.

**Zero Population Growth**—An organization founded in 1968 to inform people about problems associated with global population growth.

**ZPG**—See zero population growth.

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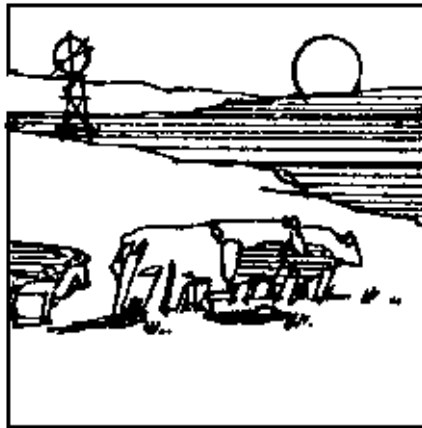
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