

MASTER GLOSSARY

Term	Definition
2030 Agenda for Sustainable Development	an international plan of action developed by the United Nations in 2015 to build on the Millenium Development Goals with the 17 Sustainable Development Goals. Generally, the agenda seeks to address global challenges like poverty and promote sustainable development for the betterment of people and the planet.
8-hour ozone attainment	a standard measurement of air quality that requires ozone levels to be less than 85 parts per billion (ppb) when averaged over 8-hour time blocks, for three years.
acid rain	rain caused by a chemical reaction that begins when compounds such as sulfur dioxide and nitrogen oxide are released into the air. These substances can rise very high into the atmosphere, where they mix and react with water, oxygen, and other chemicals to form more acidic pollutants and become a part of our precipitation.
afforestation	the planting of trees in an area where there were no trees before to create a new forest.
agrarian	characteristic of farmers or their way of life.
agricultural land	land devoted to agriculture, including the production of crops and rearing of livestock.
agricultural mismanagement	improper farming techniques that can result in soil degradation, such as overuse of fertilizers, water, and pesticides.
agronomists	plant and soil scientists who develop new farming practices and technologies aimed at improving crop yields, quality, and resilience while protecting the environment and conserving natural resources.
algal blooms	rapid growths of algae in aquatic systems that can have severe impacts on human and ecosystem health. They are often caused by nutrient pollution from human activities.
anaerobic digestion	a process through which bacteria break down organic matter – such as animal manure, wastewater biosolids, and food wastes – in the absence of oxygen.
anthropogenic	caused or influenced by humans, often referring to human impacts on the environment or pollution produced by our activities.
aquaculture	the breeding, rearing and harvesting of plants and animals in all types of water environments.
aquifer	an underground source of water; a permeable layer of sand, gravel, or rock where water collects.
arable	land that can be cultivated for the production of crops.
asylum seeker	a person who has left his/her country of origin and applied for refugee status to receive protection and support from a foreign nation.

Term	Definition
background extinction	without human and environmental stress, the average number of species (including all organisms), per million species, that disappear each year; in the fossil era, the background extinction rate was 10 to 100 species per year.
Better Life Index	a visualization of 11 key factors that facilitate clear comparisons of well-being among OECD countries.
bioaccumulation	the build-up of harmful chemicals in organisms after uptake from the environment. Bioaccumulated toxins can affect entire ecosystems due to the interconnectedness of food webs.
biocapacity	the capacity of ecosystems to produce useful biological materials and to absorb waste materials generated by humans, using current management schemes and extraction technologies.
biodegradable	the capability of a material to break down easily and relatively quickly by biological means, returning to the environment.
biodiversity	the variety of life on Earth from the level of genes to ecosystems. It can also include the evolutionary, ecological, and cultural processes that sustain life.
biofuel	organic material made from plants and animals, containing energy stored from the sun, which is burned or converted to create fuel. Wood, crops (such as corn and sugar cane), vegetable oils, and animal fats are primary examples.
biomass	organic material made from plants and animals that can be burned as a renewable and carbon dioxide neutral source of energy.
biomes	the Earth's major ecological communities, classified according to predominant vegetation and animals that have evolved to live there.
birth rate	the number of babies born annually per 1,000 women of reproductive age in any given set of people.
black carbon	a form of particulate air pollution usually caused by biomass burning, cooking with solid fuels and diesel exhaust.
booms	floating, physical barriers deployed to slow or contain the spread of oil or other pollutants in water environments.
boreal forest	also known as taiga, a large, dense coniferous forest found south of the tundra in North America and Eurasia that receives two meters or less annual precipitation, often in the form of snow.
bottom trawling	a fishing technique in which vessels drag large, heavy nets on the ocean floor, often scraping and damaging sea plants and animals.
brain drain	the emigration of highly trained or educated people from one country to another, usually in search of better living conditions, higher salaries or more stable political conditions.

Term	Definition
bycatch	the unintentional injury or capture of wildlife during fishing operations.
cap and trade	an approach to reducing pollution by placing a limit (cap) on the amount of greenhouse gases that a company or country can legally emit and having companies pay penalties if they exceed it. This is paired with a market where companies buy and sell allowances (trade) permitting a certain amount of emissions. Companies that cut their emissions can save money by selling or saving their allowances, thereby incentivizing lower pollution.
carbon budget	the cumulative amount of carbon dioxide emissions permitted over a period of time to keep the global average temperature within a certain threshold.
carbon dioxide (CO₂)	a naturally occurring greenhouse gas in the atmosphere, concentrations of which have increased mostly due to human activities, such as the combustion of fossil fuels.
carbon dioxide emissions	carbon dioxide released into the atmosphere mostly from burning fossil fuels and other human activities.
carbon footprint	the amount of carbon dioxide and other greenhouse gases produced by the activities of a person or group in a given time frame.
carbon monoxide (CO)	an odorless, colorless, tasteless gas that forms from the incomplete combustion (burning) of carbon containing fuels such as coal, wood, charcoal, natural gas, and fuel oil.
carbon sequestration	the long-term storage of carbon in plants, soils, and oceans that occurs naturally and as a result of human activities.
carbon tax	a fee charged for carbon dioxide and greenhouse gas emissions, with the aim of discouraging the burning of fossil fuels (coal, oil, gas) and incentivizing energy efficiency and switching to cleaner energy sources.
carrying capacity	the maximum number of people a given area can support without degrading the natural, social, cultural, and economic environment for present and future generations.
catalytic converters	car pollution control devices which help remove carbon monoxide from car exhaust.
chlamydia	a sexually-transmitted bacterial infection that affects humans and other animals such as birds, mammals and reptiles. In all species, the disease can seriously damage the reproductive system, leading to infertility, sterility, abortion, inflammation, and influenza-like symptoms.
chlorofluorocarbons (CFCs)	ozone-depleting substances (ODSs), such as cleaning solvents or refrigerants, that are among the strongest insulators of greenhouse gases.
circular economy	an economic system in which resources are re-used instead of extracted, products are designed for reuse, advanced recycling collection systems are in place and waste is ultimately removed from the system.
citizen scientists	members of the general public who collect and analyze data relating to the natural world, typically as part of collaborative projects with professional scientists.

Term	Definition
Clean Air Act of 1970	the first comprehensive federal response to address air pollution, which mandates that the Environmental Protection Agency implement and regulate programs to reduce air pollution nationwide.
Clean Air Act of 1990	a package of amendments to the Clean Air Act designed to address environmental issues such as acid rain, toxic pollutants, and urban air pollution. The amendments also began the phaseout of several ozone-depleting chemicals and promoted the use of low sulfur coal and natural gas to curb acid rain.
Clean Water Act	1972 U.S. legislation that establishes limitations on contaminated discharges into waters and sets water quality standards; the most comprehensive environmental legislation in the nation's history.
clear-cut	all trees cut and removed from an area of forest.
clearcutting	cutting and removing all trees from an area of forest.
climate activism	civic engagement that specifically aims to pressure governments to take action that addresses the issue of climate change. Forms of engagement range from tactics that involve citizens working directly to change their individual behaviors, to those that involve indirect efforts to bring about change through the political and economic systems.
climate change	the regional and global changes in weather patterns and natural phenomena primarily caused by the human use of fossil fuels that releases carbon dioxide and other greenhouse gases into Earth's atmosphere. These changes include increased temperature trends on Earth's surface, sea level rise, sea and glacier ice melting, and extreme weather events.
climate refugees	people forced to leave their homes or communities because of the effects of climate change, including sea level rise, drought and desertification.
climate vulnerability	the degree to which natural ecosystems and human communities are susceptible to, or are unable to cope with, the adverse impacts of climate change.
cohort	a group of persons sharing a demographic characteristic, often age.
collaborative consumption	also called the sharing economy, the shared use of a good or service by a group that utilizes underused assets by matching needs with haves.
colonialism	the process via which countries have historically taken control of land in other parts of the world; colonialism often involves taking majority control of a local government, bringing settlers from the colonizing country, and creating economic programs to extract and export resources to the colonial power.
Colony Collapse Disorder (CCD)	a phenomenon in which almost all of the adult honeybees disappear from a hive, often leaving behind the queen and immature bees with plenty of food stores and a few nurse bees to take care of them. It is believed to be caused by multiple stressors, including parasites and pathogens, poor nutrition, exposure to pesticides, and habitat loss, among others.

Term	Definition
common source epidemic	an illness in which all affected people acquired the pathogen immediately from the same source, such as Lyme disease.
compost	organic material (such as yard trimmings or food waste) that can be used as a soil amendment or a medium to grow plants.
contour plowing	plowing along the contours of the land in order to minimize soil erosion. The plow furrows run crosswise to the land's slope, slowing runoff and allowing the soil to absorb rainfall, rather than wash away.
contraception	also called birth control, methods used by sexually active people to prevent pregnancy.
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	an international agreement between countries to ensure trade in wild animals and plants doesn't threaten species' survival. CITES lists species according to the degree of protection they need, and limits international trade accordingly.
coral bleaching	a loss of color in corals that occurs when changes in the environment such as temperature, light or nutrients cause them to expel the symbiotic algae that live in their tissues. When corals lose their algae, they lose their major source of food and become more vulnerable to disease.
cover crops	plants that are planted to cover the soil rather than for the purposed of being harvested. Their benefits include slowing erosion, improving soil health, enhancing water availability, smothering weeds, and controlling pests and diseases.
crop diversification	the process of planting multiple different crops each season in order to break disease/insect cycles, reduce weeds, curb erosion, improve soil quality, lessen environmental resource impact, increase farmer profit, strengthen rural community and/or help domestic economy.
dead zone	an area of oxygen-depleted water uninhabitable for fish, caused by eutrophication.
death rates	the number of individuals who die annually per 1,000 individuals in any given set of people.
deforestation	the loss of forest due to overcutting of trees.
demographers	scientists studying the characteristics of human populations, such as size, growth rate, and other vital statistics.
demographic transition	population change over time, in the three part pattern: high birth and death rates, to high birth and low death rates, to low birth and low death rates.
Demographic Transition Model (DTM)	a theory that explains how a country's total population growth rate shifts through stages as that country develops economically. It predicts that the population will eventually stabilize as the country trends toward lower birth and death rates.
density dependent	describes a parameter that varies causally with population density, such as the rate of a disease spreading within a population.

Term	Definition
desalination	any process that removes salt and other dissolved solids from sea water to obtain freshwater suitable for consumption or irrigation.
desiccation	dryness resulting from the removal of water.
destructive fishing practices (DFP)	fishing techniques such as blast and cyanide fishing and muro-amni nets that pose a significant threat to fish and other marine wildlife.
developed countries	countries that have a generally more industrialized economy that is strong and diverse, and higher standards of living relative to developing countries.
developing countries	countries at a relatively early stage in the process of economic development classified using a range of economic and social criteria such as per capita income and life expectancy.
disease vectors	organisms or contaminated objects that transmit infectious diseases between humans or from animals to humans.
doubling time	the period of time required for a quantity or population to double in size assuming a constant growth rate.
dowry	a cultural practice where money, property or goods are given to the husband or his family from the bride or her family.
ecological economics	a transdisciplinary field that aims to describe and analyze an integrated system of ecology, economics, and human well-being.
ecological footprint	a resource management tool that measures how much land and water area a human population requires to produce the resources it consumes and to absorb its wastes under prevailing technology.
ecosystem	a community of living organisms that interacts with each other and their physical environment.
ecosystem services	the life-sustaining benefits provided by nature that are necessary for environmental and human well-being.
emigrating	leaving one's country to live in another.
emissions trading	a process established by Congress which assigns allowances (one allowance = one ton of emissions per year) to electric utilities and other industries that produce pollutants. Each utility or factory decides the most cost-effective way to reduce its emissions; then it may sell the allowances it no longer needs after the reductions.
endangered species	a species that is at risk of becoming extinct.

Term	Definition
Endangered Species Act	a 1973 law providing broad protection for species of fish, wildlife, and plants that are listed as threatened or endangered in the U.S. or elsewhere. Provisions are made for listing species, as well as for recovery plans and the designation of critical habitat for listed species. Also the enabling legislation for the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).
energy efficiency	technologies and measures that reduce the amount of electricity and/or fuel required to do work, such as powering homes, offices, and industries.
energy poverty	a lack of access to consistent energy services such as household electricity and clean cooking facilities.
energy recovery	any process that converts non-recyclable waste materials into usable electricity, heat, or fuel, including combustion, anaerobic digestion, and landfill gas recovery.
enteric fermentation	a natural part of the digestive process in ruminant animals such as cattle, sheep, goats, and buffalo. Microbes in the digestive tract, or rumen, decompose and ferment food, producing methane as a by-product.
environmental justice	the right of all people and communities to equal treatment and meaningful involvement in the development, implementation, and enforcement of environmental laws and policies.
Environmental Protection Agency (EPA)	Federal agency established by the White House and Congress in 1970 “in response to the growing public demand for cleaner water, air and land.” Today, the EPA leads U.S. environmental science, research, education and assessment efforts.
environmental refugees	people forced to leave their homes due to a serious environmental disruption that threatens their survival or seriously affects their quality of life. Disruptions include sudden catastrophes such as floods and storms as well as slower disasters like prolonged drought, sea-level rise, and desertification.
epidemiologist	a scientist concentrating on the diffusion of illness, including the source, mode of transmission, and methods of control.
estuary	a body of water where freshwater from rivers and streams mixes with salt water from the ocean. Estuaries are some of the most productive environments on Earth, boasting high levels of plant and animal diversity.
eutrophication	a flourishing of algal blooms that depletes the water’s dissolved oxygen, suffocating marine life and potentially causing human disease.
e-waste	any electrical equipment or electronic device that is near or at the end of its useful life, including electronics that are destined for reuse, recycling, or disposal. Components of e-waste can be harmful to humans and the environment when recycled or disposed of improperly.
exponential growth	also called geometric growth, growth with an increasing rate of change, resulting in faster and faster growth over time.

Term	Definition
extinction	the disappearance of a species or population.
extreme poverty	the state of living with an income below the international poverty line, defined by the World Bank as less than \$1.90 USD per day.
family planning	the practice of attaining a desired number of children and determining the spacing of pregnancies, achieved by providing access to contraceptives, reproductive health services as well as education.
family planning program	a program which enables women and men to plan the timing and spacing of childbearing through reproductive health information and the use of contraceptives.
famine	a food crisis where the scarcity of food is so severe and extensive that it causes widespread malnutrition and death from starvation and disease.
fertility rate	the average number of live births per woman during her reproductive years, among a given set of people.
fish aggregation devices (FADs)	artificial structures deployed in oceans to attract schools of fish for harvesting. They can be made of various materials including bamboo, plastic, palm fronds, and fishing nets.
fish kill	the sudden and unexpected death of a number of fish or other aquatic animals over a short period of time and often within a particular area in the wild.
food desert	geographic area where access to affordable, healthy food options is limited or nonexistent because grocery stores are too far away from residents.
food insecurity	a lack of consistent access to a sufficient quantity of affordable, nutritious food for an active and healthy life.
forced migration	involuntarily leaving one's country because of political or environmental drivers.
fossil fuels	energy resources from the remains of plants and animals; most commonly used are oil, coal, and natural gas. When burned for energy, they create byproducts, such as carbon dioxide and nitrous oxide (greenhouse gases).
fresh water	water containing very little dissolved solids (most often salt) that sustains human, plant and animal life.
gender-biased sex selection	the selective termination of pregnancies when the fetus is known or predicted to be a female because male children are valued over female children in a particular family or society.
genetic modification (GM)	also called genetic engineering, the process of altering an organism's genetic material artificially, not by mating or natural recombination. Crops are often modified to increase their nutritional value, resistance to insects or diseases, and tolerance of pesticides.
geothermal energy	energy obtained from the heat within the Earth.

Term	Definition
Gini coefficient	also called a Gini index, a measurement of the degree of inequality in family income distributions in a country. A value of 0 represents perfect equality, and a value of 100 represents perfect inequality.
global warming	the increase in the average temperature of the Earth's surface.
globalization	the global integration of trade, investment, information technology and cultures among people, companies and governments of different countries.
Green Revolution	the development and diffusion of more productive agricultural methods in the 1970s and 1980s, namely the adoption of higher-yield crops and a greater use of fertilizers.
greenhouse effect	the exchange of incoming and outgoing radiation from the sun that warms the Earth. When solar energy reaches Earth's atmosphere, some is reflected back to space and the rest is absorbed and re-emitted as heat by greenhouse gases. Increased levels of greenhouse gases from human activities trap more of the sun's radiation and warm the planet's surface above normal temperatures, causing global warming.
greenhouse gas (GHG)	a gas which allow sunlight to enter the atmosphere freely, then absorb infrared radiation and trap heat in the atmosphere. Common examples include carbon dioxide, methane, nitrous oxide, chlorofluorocarbons, and ozone.
gross domestic product (GDP)	an economic indicator which measures the total market value of all goods and services produced by a nation's economy over a given period of time (usually a year).
gross national income (GNI)	an economic indicator that measures the approximate total income of all persons in the country by taking the GDP and adding all income from other countries, such as through interest, and subtracting all payments to other countries.
ground-level ozone (smog)	a gas created by chemical reactions between oxides of nitrogen (NOx) and volatile organic compounds (VOC) in the presence of sunlight. Major sources of NOx and VOC include emissions from industrial facilities and electric utilities, motor vehicle exhaust, gasoline vapors, and chemical solvents.
groundwater	water absorbed in the ground, originally from rain, snow, sleet, or hail.
H.I.P.P.O.	a mnemonic device for the greatest threats to biodiversity: Habit Loss, Invasive Species, Pollution, Human Population and Overharvesting.
habitable land	land that is suitable for humans to live on.
hazardous waste	a waste that is potentially harmful to human health or the environment.
hectare	a metric unit of measurement for area equal to 10,000 square meters, or about 2.47 acres.
human capital	the economic value of a worker's skill set, which accounts for education, training, experience, skills and abilities among other resources.

Term	Definition
Human Development Index (HDI)	a measure of average achievement in key dimensions of human development: life expectancy, education, and standard of living. The HDI was developed by the United Nations Development Program.
hydraulic fracturing ("fracking")	the process of injecting fluids at high volume and pressure, producing fractures in underground rock formations which stimulates the flow of natural gas or oil. Hydraulic fracturing can create environmental problems including water pollution, air pollution, and strong seismic activity.
hydroelectric	using the power of falling or fast-flowing water to generate renewable, emissions-free electricity. Most hydroelectric power generation requires blocking waterways with dams, which can negatively affect water quality and freshwater ecosystems as well as displace local human communities.
hydrofluorocarbons (HFCs)	artificially produced chemicals used for refrigeration, air conditioning, foam blowing, aerosols, fire protection and solvents. HFCs were developed as alternatives to ozone-depleting substances phased out in the Montreal Protocol, but they have a global warming potential 1,000 to 3,000 times that of carbon dioxide, raising concerns about their efficacy as a replacement chemical.
illiteracy	the inability of an individual to use reading, writing, and computational skills in everyday life.
immigrating	arriving in a country after leaving another.
impervious surfaces	land that does not permit water and precipitation to infiltrate to ground water, such as roads, buildings, and parking lots. As impervious surfaces replace natural landscapes, more runoff occurs which, in turn, affects water quality, streamflow and flooding.
in situ burning	the controlled burning of oil spilled at sea that, in certain conditions, can significantly reduce the amount of oil on the water and its impacts on ecosystems.
incinerator	a disposal system that burns solid waste or other materials.
income inequality	the difference in disposable income between people or social groups.
indicator species	a species whose presence or absence reveals a characteristic of its environment, such as soil quality or climate change. These species are generally more sensitive to change and thus can provide early warnings of ecosystem disruptions.
indicators	measurements or values that inform you about the condition or state of a population or country.
indoor air pollution	air pollution in and around buildings and structures, often produced by cooking and heating using solid fuels like wood, charcoal, coal, and crop wastes. These practices can produce high levels of smoke containing a variety of health-damaging pollutants such as fine particles and carbon monoxide.

Term	Definition
Industrial Revolution	a period in the 18 th and 19 th centuries during which human society transitioned from an agrarian and handicraft economy to one dominated by industry and machine manufacturing. This process began in Britain and from there spread to other parts of the world. The Industrial Revolution marks a major historical turning point, influencing many aspects of daily life for people around the world and contributing to unprecedented and sustained human population growth.
infant mortality rate	the annual number of deaths to infants under one year of age per 1,000 live births.
informal settlements	residential areas where inhabitants live in unauthorized, unplanned or illegal housing that is often cut off from basic services and infrastructure.
inhospitable	environment that is harsh and difficult to live in due to climate and lack of life-sustaining resources.
intervening obstacle	an environmental or cultural feature that hinders migration.
invasive species	a species not originally from an ecosystem, whose introduction adversely affects its new environment.
irrigation	artificial processes that deliver water to crops.
IUCN Red List of Threatened Species	a list (more than 79,800 long) that provides a framework to classify species according to their extinction risk. Its primary goal is to identify and document the species most in need of conservation attention and to provide an index of the state of degeneration of biodiversity.
J-curve	also called a geometric curve, a J-shaped curve modeling population growth that is exponential, growing rapidly with no limit.
keystone species	a species whose existence plays a large role in the survival of other species although it may have only a small presence in the ecosystem, and whose absence could result in major ecosystem upheaval.
land subsidence	the gradual settling or sudden sinking of the Earth's surface because of the movement of underground material. Subsidence is often caused by removing water, oil, natural gas, or mineral resources out of the ground.
landfill	a disposal area where garbage is piled and then covered with dirt and topsoil.
leachate	liquid (such as rainwater) that filters through a landfill and becomes contaminated.
least developed countries	nations that have primarily agricultural economies and lower standards of living relative to most other countries, and face serious structural challenges to their sustainable development.
less developed countries	nations that generally have a less industrialized, more agricultural economy with lower standards of living relative to more developed countries.

Term	Definition
Life cycle analysis (LCA)	also known as life cycle assessment, an evaluation of the total environmental impact of a product that accounts for every input and output throughout the product's life, including design, materials needed, production, use and disposal.
life expectancy	the average number of years someone is expected to live based on current health trends.
limiting factor	an environmental or societal condition that limits the growth, size or distribution of a population.
longlining	also called long line fishing, a commercial fishing technique that connects hundreds of hooks to a single line that is typically 50-100 km long. Longlining can have a huge impact on ocean life, endangering any species that bites the baited hooks.
malnutrition	the condition that occurs when a person's body does not receive enough nutrients, often caused by an inadequate or unbalanced diet.
market-based solution	a solution to an environmental problem that sets a price on pollution or other use of the environment and spurs businesses to find cost-effective ways to reduce their environmental impact.
Maslow's hierarchy of needs	a theory of human motivation that describes five sets of needs (physiological, safety, social, esteem, and self-actualization) that need to be fulfilled in a specific order starting with the most basic for survival.
mass extinction	a significant global rise in species extinction rates above background levels in a geologically short time period. There have been five mass extinction events in Earth's history, and many scientists believe we are witnessing the sixth today.
material footprints (MF)	the amount and types of natural resources required to sustain nations' economies.
maternal mortality	the death of a woman from pregnancy-related causes.
megacity	cities or urban areas with a population of 10 million residents or more.
megadrought	droughts which are characterized by prolonged periods of dryness that span more than two decades.
megalopolis	a clustered network of heavily populated cities or urban areas.
methane (CH₄)	a greenhouse gas that remains in the atmosphere for approximately 9-15 years, emitted from a variety of natural and human-influenced sources, such as landfills, natural gas and petroleum systems, agricultural activities, coal mining, stationary and mobile combustion, and wastewater treatment.
microhabitat	a smaller part of a larger ecosystem that encompasses the specific biotic and abiotic conditions in an organism's immediate vicinity.
micronutrient deficiencies	a lack of essential dietary vitamins and minerals the body needs in small amounts for healthy growth and development.

Term	Definition
migration	movement to a new location.
monocultures	in agriculture, the practice of repeatedly growing a single crop or very few genetic variants of a crop on the same land for commercial farming purposes.
Montreal Protocol	adopted in 1987, an international agreement which controls the production and consumption of substances that can cause ozone depletion.
more developed countries	nations that generally have a more industrialized economy that is strong and diverse, and higher standards of living relative to less developed countries.
national climate action plans	individual countries' plans to translate the goals outlined in the Paris Agreement into action at the national level.
natural capital	the natural assets and ecosystem services that makes human life and civilization possible.
neonicotinoids	a group of pesticides that are effective against a wide range of insect species and considered less harmful to humans and other vertebrates. They are systemic pesticides, meaning plants absorb neonicotinoids and distribute them throughout their tissues. There are concerns that these pesticides play a role in recent pollinator declines around the world.
net-zero emissions	achieving a balance between the greenhouse gases put into the atmosphere and those taken out.
nitrogen dioxide (NO₂)	gas produced during many fossil fuel combustion processes that contributes to air pollution and acid rain. While many of the nitrogen oxides are colorless and odorless, nitrogen dioxide, along with particles in the air, can often be seen as a reddish-brown layer over urban areas.
nitrogen oxides (NOX)	gases formed when fuel is burned at high temperatures, as in a combustion process. The primary manmade sources of nitrogen oxides are motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuels. While many of the nitrogen oxides are colorless and odorless, nitrogen dioxide, along with particles in the air, can often be seen as a reddish-brown layer over urban areas.
nonpoint source pollution	a combination of pollutants from a diffuse area rather than specific sources, mostly as a result of contaminated runoff.
nonrenewable energy	energy resources that will be depleted or will not be replenished in a short period of time.
no-till farming	tilling involves the turning over of surface soil to plant crops. This loosened soil can lead to soil erosion and run-off. No-till farming leaves the soil intact, protecting the soil structure and biomes, preventing water evaporation and keeping carbon in the soil.
nuclear energy	energy or power produced by nuclear reactions (fusion or fission).

Term	Definition
nuisance flooding	also called high tide flooding, flooding that causes public inconveniences such as road closure and other compromised infrastructure, mostly in coastal areas. As sea levels rise due to climate change, the frequency and intensity of these floods is increasing.
observed extinction rate	the number of species documented as extinct by scientists over a certain period of time.
OECD (Organisation for Economic Co-operation and Development)	an international forum of 35 member countries whose mission is to promote policies that increase economic and social well-being for people around the world. OECD studies economic and social developments, recommends policy decisions, and then governments implement those recommendations.
old growth forest	a forest that is typically older than 200 years with large trees, dense canopies, and an abundance of diverse wildlife.
organic farming	producing food without the use of synthetic fertilizers or pesticides.
over-cultivation	growing the same crop on the same land too many years in a row, depleting soil nutrients and eventually losing the ability to grow anything on that land.
overfishing	fishing beyond the capacity of a population to replace itself through natural reproduction.
overgrazing	grazing livestock beyond the capacity of the land to renew itself through natural reproduction.
overharvesting	harvesting food or natural resources beyond the capacity of the land to renew itself through natural reproduction.
overproduction	manufacturing more of a product, commodity, or material than is needed or desired.
ozone	a gas made of three oxygen atoms (O ₃) that occurs naturally in Earth's upper atmosphere (the stratosphere) and protects life on Earth from the Sun's harmful ultraviolet (UV) radiation. Ozone is also created by chemical reactions between air pollutants in the lower atmosphere (the troposphere) near Earth's surface, where it can be toxic to humans, wildlife and plants.
ozone depleting substances (ODSs)	human-made chemicals, such as chlorofluorocarbons, that deplete the ozone in the upper atmosphere and are the strongest insulators of greenhouse gases.
ozone standards	norms that impose limits on the amount of ozone produced. EPA establishes minimum standards, but states are allowed to be stricter.
pandemic	an outbreak of a disease that occurs over a wide geographic area (such as multiple countries or continents) and typically affects a significant proportion of the population.
Paris Agreement	adopted in 2016, an international agreement that aims to respond to climate change by keeping global temperature rise below 2 degrees Celcius above pre-industrial levels. The agreement also focuses on strengthening countries' abilities to deal with climate change impacts. Nations that signed on develop a country-specific action plan outlining their best efforts to achieve the aims of the agreement.

Term	Definition
particulate matter (PM)	suspended particles of soot, ash, dust, acids, metals, and chemicals. Once inhaled, these particles can affect the heart and lungs and cause serious health risks.
perennial crops	crops that automatically grow back without having to be planted each year. Many fruit and nut crops are naturally perennials. Agronomists are also developing some grain crops to be perennial. By eliminating or greatly reducing the need for tillage, perennial crops can reduce soil loss due to erosion.
permafrost	ground that remains below freezing (0°C) for at least two consecutive years. It often consists of a combination of soil, gravel, and sand bound together by ice.
petroleum	also called crude oil, a liquid fossil fuel extracted from underground deposits that is processed into gasoline and many consumer products. This is a nonrenewable energy resource.
photic zone	the upper layer of water that can be penetrating by sunlight, allowing photosynthesis to occur.
physical capital	madmade technology and goods that enable efficient production, including cash, computers, equipment, and buildings.
phytoplankton	microscopic algae living in water that, like terrestrial plants, have chlorophyll to capture sunlight and use photosynthesis to turn it into energy. They are the base of many aquatic food webs, providing nutrients for whales, snails, jellyfish, and many other marine species.
planned obsolescence	a strategy for developing products that ensures it will become out-of-date or unusable within a known period of time, guaranteeing future demand for replacement products.
poaching	the illegal hunting and killing of wildlife.
pollination	the act of moving pollen grains within or between flowers by the wind or pollinators like bees, birds, bats, butterflies, and other animals. Pollination is necessary for successful seed and fruit production in plants.
population growth rate	the average annual percent change in a population over time, resulting from the difference in births and deaths as well as the balance of migration into and out of a country.
population pyramid	distribution (by age and sex) of a given population, usually forming the shape of a pyramid.
predation	the act of one organism (the predator), killing and consuming another (the prey).
prenatal care	the healthcare a woman receives during pregnancy, including dietary and lifestyle counseling, physical exams and the regular monitoring of the expectant mother and developing fetus.
pro-natalist	an individual or sentiment supportive of childbearing.

Term	Definition
propagated epidemic	an illness with many points of transmission, such as chicken pox.
pull factor	a factor that motivates people to move to a new location.
Purchasing Power Parity (PPP)	a theory that uses the exchange rates of countries to measure how many goods and services an amount of currency can provide in different nations. It is often used to compare the quality of life in various areas.
purse seining	a fishing technique that uses a giant net to encircle and capture a large school of fish. Fisherman locate a school of fish, set the net around the school, then close off the bottom and trap the fish - called pursing because it is like pulling the drawstring of an old-fashioned purse.
push factor	a factor that motivates people to leave their current location.
quality of life	a measurement of the well-being of an individual or group that includes physical elements such as health, shelter, and safety as well as psychological aspects such as stress, joy, and worry.
rate of natural increase	the difference between the birth rate and the death rate of a given population.
recycling	the act of collecting, sorting, and reprocessing old materials including glass, metals, and some plastics into usable materials.
red tide	this term refers to harmful algal blooms that turn coastal waters a reddish color. The phenomenon is caused by microscopic algae that produce toxins that kill fish and make shellfish dangerous to eat.
redlining policies	illegal practices of refusing to offer credit or insurance in a particular community on a discriminatory basis (as because of the race or ethnicity of its residents).
refugee	person forced to leave their community or country in search of safety, often because of conflict or persecution.
remittance	cash or goods sent from migrants to support their family or friends back home.
renewable energy	an energy resource such as wind power or solar energy that can keep producing indefinitely without being depleted.
replacement level fertility	the level of fertility at which a couple has only enough children to replace themselves; usually estimated to be 2.1 children per woman.
reproductive number (R_0)	in epidemiology, the basic reproduction number is the expected number of cases directly generated by one case in a population where all individuals are susceptible to infection.
riparian buffers	vegetated areas near a stream, usually forested, which help filter water and control soil erosion by stabilizing soil with their roots.

Term	Definition
risk transition	the changing pattern of environmental health hazards and associated health risks with time and economic development.
salinity	a measure of the concentration of dissolved salts in water.
salinization	the process by which salt is deposited on topsoil after evaporating from irrigation water.
salmonella	a group of bacteria that is transmitted to humans from contaminated food. Symptoms include diarrhea, fever, abdominal cramps, and vomiting. Infection is preventable by properly refrigerating and cooking foods, and avoiding unpasteurized milk products.
schistosomiasis	a disease caused by parasitic worms that is physically debilitating and potentially fatal. Infection occurs when larval forms of the parasite released by freshwater snails penetrate the skin during contact with infested water.
S-curve	also called a logistic curve, an S-shaped curve modeling population growth that is initially exponential, and then levels off as population approaches a maximum size constrained by limited resources available.
selective cutting	a logging process whereby harvesters cut only the trees they wish to sell, leaving the rest of the forest intact.
slash and burn agriculture	a method of cultivation often used in the rainforest, which involves cutting or burning large areas of land (usually for pasture or agriculture), and can leave soil infertile for many future generations.
slum	an informal settlement in an urban area that is densely populated and may be characterized by poor housing and a lack of reliable services such as sanitation, electricity, clean water and law enforcement.
smart growth	an alternate form of development that combats urban sprawl by revitalizing city centers and existing suburbs, planning for pedestrians, building mixed-use residential and commercial spaces, and taking into account environmental considerations.
soil erosion	the loss of soil by wind or rain, often exacerbated by human activities that weaken soil integrity such as deforestation and till farming.
solar photovoltaic (PV) energy	energy produced by converting sunlight directly into electricity.
solid waste	a non-liquid, non-gaseous category of waste from non-toxic household and commercial sources.
source reduction	the process of reducing waste by buying and consuming fewer things.
strip cropping	farming method where a field is partitioned into long, narrow strips of different crops that are alternated in a crop rotation system. It is used to prevent soil erosion, especially on steep slopes.

Term	Definition
Structural Adjustment Programs (SAPs)	mandatory conditions, such as reducing spending, that countries receiving loans from the International Monetary Fund (IMF) must follow to keep their funding.
subsidence	the gradual settling or sudden sinking of the Earth's surface because of the movement of underground material. Subsidence is often caused by removing water, oil, natural gas, or mineral resources out of the ground.
suburb	an area characterized by low density housing spread over a city's surrounding countryside.
sulfur dioxide (SO₂)	a gas formed when fuel containing sulfur (such as coal and oil) is burned, when gasoline is extracted from oil, or when metals are extracted from ore. SO ₂ dissolves in water vapor to form acid, and it interacts with other gases and particles in the air to form sulfates and other products that can be harmful to people and the environment.
supply chain	a network linking the entities that produce and distribute a specific product to consumers. This network includes suppliers, producers, distributors, retailers, and the consumers.
surface water	water resources like rivers, streams, lakes and reservoirs found on Earth's surface.
sustainability	the ability to satisfy the needs of the world's present population without compromising the Earth's ability to meet the needs of future generations.
sustainable agriculture practices	an integrated system of plant and animal production that satisfies human food and fiber needs; enhances environmental quality and the natural resource base upon which the agricultural economy depends; makes the most efficient use of nonrenewable resources and on-farm resources and integrates, where appropriate, natural biological cycles and controls; sustains the economic viability of farm operations; and enhances the quality of life for farmers and society as a whole.
sustainable forest management	the environmentally, socially and economically beneficial management of forests for present and future generations that balances extracting forest products with maintaining forest integrity.
sustainable yield	the amount of a renewable resource that can be taken without reducing the available supply.
temperate forest	forests found in the moderate climates between the tropics and boreal regions in both the Northern and Southern Hemisphere. They may also be called "four-season forests" because the midlatitude climates harboring them tend to experience four distinct seasons. A vast diversity of different forest types make up this broad category, from the broadly distributed temperate deciduous forests to pine woods and relatively geographically restricted temperate rainforests.
temperature inversions	a reversal of normal air behavior where a layer of cool air at the Earth's surface is overlaid by a layer of warm air above it, preventing the upward movement of air and trapping air pollution near the surface.

Term	Definition
terracing	farming method in hilly or mountainous areas where the land is terraced into “steps” to prevent soil erosion. It was invented by the Inca of South America and is used around the world, especially in rice-growing countries of Asia.
top predator	a species at the top of their “food chain” who, as a key predator, plays an important role in ecosystem balance.
topsoil	the fertile upper layer of soil that contains the necessary nutrients for many plants to grow.
trachoma	an eye infection in both eyes that is the leading cause of preventable blindness in the world. The disease thrives in places with crowded living conditions, shortages of water, and inadequate sanitation. It is highly contagious and spreads through contact with infected people or contaminated objects.
tropical rainforest	a large, dense forest which grows near the equator, between the Tropic of Capricorn and the Tropic of Cancer, that receives four to eight meters of rain each year.
ultraviolet (UV) radiation	part of the electromagnetic spectrum emitted by the sun. Though some is absorbed by the atmospheric ozone, most UV radiation reaches the Earth’s surface. Small amounts of UV radiation are essential for the production of vitamin D in people, yet overexposure may result in acute and chronic health effects on the skin, eye, and immune system.
umbrella species	a species requiring a large area of habitat, whose preservation helps foster the survival of many other species in the ecosystem.
United Nations Food and Agriculture Organization (FAO)	a specialized agency of the United Nations, founded in 1945, whose goal is to end hunger, maintain food security for all, and ensure access to high-quality foods so people can lead active, healthy lives.
United Nations Framework Convention on Climate Change (UNFCCC)	a treaty which sets an overall framework for intergovernmental efforts to tackle the challenge posed by climate change, produced at the 1992 U.N. Conference on Environment and Development.
United Nations Millenium Development Goals (MDGs)	eight goals developed by the United Nations in 2000 (and set to be achieved by 2015) which “form a blueprint agreed to by all the world’s countries and all the world’s leading development institutions.” The goals are: 1) eradicate extreme poverty and hunger, 2) achieve universal primary education, 3) promote gender equality and empower women, 4) reduce child mortality, 5) improve maternal health, 6) combat HIV/AIDS, malaria, and other diseases, 7) ensure environmental sustainability, and 8) develop a global partnership for development.”
United Nations Sustainable Development Goals (SDGs)	17 interconnected goals that provide individualized guidelines and targets to help every nation develop sustainably, protecting the planet and ensuring all people enjoy peace and prosperity. The SDGs are meant to build on the Millennium Development Goals (2000 - 2015) and also focus attention on addressing new problems such as climate change, economic inequality, and sustainable consumption among other priorities.

Term	Definition
upwelling	a natural process that occurs when winds push surface water away from the shore and deeper water rises to fill the gap.
urban agglomerations	an integrated urban area that encompasses a core city and its contiguous suburbs.
urban heat islands	a metropolitan area that experiences significantly higher temperatures than the surrounding rural areas due to the high densities of people, buildings, and activity.
urban runoff	water polluted by traffic exhaust, residue, gasoline, garbage, and/or other contaminants that washes into rivers, streams, and oceans.
urban sprawl	also called suburban sprawl, the outward development of cities from the city center, that varies in levels of organization, planning, and structure.
urbanization	the process in which an increasing proportion of a population inhabits cities and their suburbs.
voluntary migration	choosing to relocate in order to take advantage of an opportunity such as better living conditions or better employment prospects.
wage gap	also called the gender pay gap, the phenomenon of females earning less pay than males, on average, as well as in the same jobs or professions.
water-borne biological hazards	bacteria, viruses, and parasites found in water, often due to poor sanitation and pollution.
wetlands	an area of land saturated with water (salt, fresh or in between) for all or parts of the year, such as marshes, estuaries, peatlands, rivers, and flooded forests. Wetlands act as water filters, control floods and erosion, and serve as habitat for a variety of plant and animal species among other essential ecosystem services.
wind energy	power or energy derived from the wind.
windbreaks	planting of trees and shrubs near cropland to slow the wind and prevent soil erosion. They often have other ecological benefits including providing wildlife and pollinator habitat and storing carbon.
World Health Organization (WHO)	an international organization that collaborates with governments and other partners to to "build a better, healthier future for people all over the world." WHO directs and coordinates international health in the United Nations' system.
zero population growth	a demographic balance where a population neither grows nor declines.
zoning laws	rules or laws within an urban area that dictate what sort of activities, behaviors, or construction are acceptable and which are not.
zoonosis	a disease which can be transmitted to humans from animals.
zoonotic	pertaining to a disease that has jumped from animals to humans.