

Environmental Dictionary

A

Abatement is the reduction or elimination of the degree or intensity of emissions i.e. pollution.

Abiotic Resources are the resources which are considered abiotic and therefore not renewable. Zinc ore and crude oil are examples of abiotic resources.

Acceptable Daily Intake is the highest daily amount of a substance that may be consumed over a lifetime without adverse effects.

Acid Deposition is a comprehensive term for the various ways acidic compounds precipitate from the atmosphere and deposit onto surfaces. It can include:

- wet deposition by means of acid rain, fog, and snow; and
- dry deposition of acidic particles (aerosols).

Acid Rain is rain mixed mainly with nitric and sulphuric acid, that arise from emissions released during the burning of fossil fuels.

Acute Exposure is one or a series of short-term exposures generally lasting less than 24 hours.

Adaptability refers to the degree to which adjustments are possible in practices, processes, or structures of systems to projected or actual changes of climate. Adaptation can be spontaneous or planned, and be carried out in response to or in anticipation of changes in conditions.

Aerobic composting is a method of composting organic waste using bacteria that need oxygen. This requires that the waste be exposed to air either by turning or by forcing air through pipes that pass through the material.

Aerosols are particles of solid or liquid matter that can remain suspended in air from a few minutes to many months depending on the particle size and weight.

Air is a mixture of gases containing about 78 percent nitrogen; 21 percent oxygen; less than 1 percent of carbon dioxide argon, and other gases; and varying amounts of water vapor.

Air Monitoring is the sampling for and measuring of pollutants present in the atmosphere.

Air Pollution is the degradation of air quality resulting from unwanted chemicals or other materials occurring in the air.

Air Pollutants are amounts of foreign and/or natural substances occurring in the atmosphere that may result in adverse effects to humans, animals, vegetation, and/or materials.

Air Quality Standard (AQS) is the prescribed level of a pollutant in the outside air that should not be exceeded during a specific time period to protect public health.

Alternative Fuel are fuels such as methanol, ethanol, natural gas, and liquid petroleum gas that are cleaner and help to meet mobile and stationary emission standards. These fuels may be used in place of less clean fuels for powering motor vehicles.

Ambient Air is the air occurring at a particular time and place outside of structures. Often used interchangeably with outdoor air.

Ambient Air Quality Standards (AAQS) are health and welfare-based standards for outdoor air which identify the maximum acceptable average concentrations of air pollutants during a specified period of time.

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Ammonia is a pungent colorless gaseous compound of nitrogen and hydrogen that is very soluble in water and can easily be condensed into a liquid by cold and pressure. Ammonia reacts with NO_x to form ammonium nitrate -- a major PM_{2.5} component in the Western United States.

Asbestos is a mineral fiber that can pollute air or water and cause cancer or asbestosis when inhaled. The U.S. EPA has banned or severely restricted its use in manufacturing and construction and the ARB has imposed limits on the amount of asbestos in serpentine rock that is used for surfacing applications.

Atmosphere is the gaseous mass or envelope of air surrounding the Earth. From ground-level up, the atmosphere is further subdivided into the troposphere, stratosphere, mesosphere, and the thermosphere.

Aquaculture, or pisceculture is the breeding or rearing of freshwater or marine fish in captivity, fish farming.

B

Binding targets refers to environmental standards that are to be met in the future.

Biodegradable material are any organic material that can be broken down by microorganisms into simpler, more stable compounds. Most organic waste such as foods, paper, etc are biodegradable.

Biogenic Source are biological sources such as plants and animals that emit air pollutants such as volatile organic compounds. Examples of biogenic sources include animal management operations, and oak and pine tree forests.

Biomass is the living materials (wood, vegetation, etc.) grown or produced expressly for use as fuel. **Biomass burning** is the burning of organic matter for energy production, forest clearing and agricultural purposes. Carbon dioxide is a bi-product of biomass burning.

Biomass fuels is wood and forest residues, animal manure and waste, grains, crops and aquatic plants are some common biomass fuels.

Biome is a climatic region characterised by its dominant vegetation.

Bioreserve are the areas with rich ecosystems and species diversity are reserved for conservation.

Biota is the flora and fauna of an area.

Biotic are the resources which are considered biotic and therefore renewable. The rainforests and tigers are examples of biotic resources.

BOD is the biochemical oxygen demand.

Brackish water contains 500 to 3000ppm of sodium chloride.

C

Calorie Metric thermal unit is a measure of heat energy; the amount needed to raise the temperature of one kilogram of water by one degree Centigrade. This is the large Calorie (used relating to food energy content) definition. The "small" calorie of fuel research is the amount of energy needed to raise the temperature of one gram of water by one degree Centigrade.

Carbon cycle is the process of removal and uptake of carbon on a global scale. This involves components in food chains, in the atmosphere as carbon dioxide, in the hydrosphere and in the

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geosphere. The major movement of carbon results from photosynthesis and from respiration. See also sink and source.

Carbon Dioxide (CO₂) is a colorless, odorless gas that occurs naturally in the Earth's atmosphere. Significant quantities are also emitted into the air by fossil fuel combustion and deforestation. It is a greenhouse gas of major concern in the study of global warming. It is estimated that the amount in the air is increasing by 0.27% annually.

Carbon Monoxide (CO) is a colorless, odorless gas resulting from the incomplete combustion of hydrocarbon fuels. CO interferes with the blood's ability to carry oxygen to the body's tissues and results in numerous adverse health effects. Over 80% of the CO emitted in urban areas is contributed by motor vehicles. CO is a criteria air pollutant.

Carbon sequestration generally refers to capturing carbon -- in a carbon sink, such as the oceans, or a terrestrial sink such as forests or soils -- so as to keep the carbon out of the atmosphere.

Carbon sink is a pool (reservoir) that absorbs or takes up released carbon from another part of the carbon cycle. For example, if the net exchange between the biosphere and the atmosphere is toward the atmosphere, the biosphere is the source, and the atmosphere is the sink.

Carnivore are the flesh eating species.

Carrying capacity is the maximum number of organisms that can use a given area of habitat without degrading the habitat and without causing social stresses that result in the population being reduced.

Catalyst is a substance that can increase or decrease the rate of a chemical reaction between the other chemical species without being consumed in the process.

Catalytic converter is a motor vehicle pollution control device designed to reduce emissions such as oxides of nitrogen hydrocarbons carbon monoxide. Catalytic converters have been required equipment on all new motor vehicles sold in India.

Chlorofluorocarbons (CFCs) is a synthetically produced compounds containing varying amounts of chlorine, fluorine and carbon. Used in industrial processes, refrigeration and as a propellant for gases and sprays. In the atmosphere they are responsible for the depletion of ozone and can destroy as many as 10,000 molecules of ozone in their long lifetime. Their use is now currently restricted under the Montreal Protocol.

Chronic health effect is a health effect that occurs over a relatively long period of time (e.g., months or years).

Climate is the prevalent long term weather conditions in a particular area. Climatic elements include precipitation, temperature, humidity, sunshine and wind velocity and phenomena such as fog, frost, and hail storms.

Climate change can be caused by an increase in the atmospheric concentration of greenhouse gases which inhibit the transmission of some of the sun's energy from the earth's surface to outer space. These gases include carbon dioxide, water vapor, methane, chlorofluorocarbons (CFCs), and other chemicals. The increased concentrations of greenhouse gases result in part from human activity -- deforestation; the burning of fossil fuels such as gasoline, oil, coal and natural gas; and the release of CFCs from refrigerators, air conditioners, etc

COD is the chemical oxygen demand.

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Combustion is the act or instance of burning some type of fuel such as gasoline to produce energy. Combustion is typically the process that powers automobile engines and power plant generators.

Community is a group of organisms living in a common environment and interdependent.

Compost is the material resulting from composting, which is the natural process of decomposition of organic waste that yields manure or compost, which is very rich in nutrients. Compost, also called humus, is a soil conditioner and a very good fertilizer.

Concentration is the measure of the atmospheric content of a gas, defined in terms of the proportion of the total volume that it accounts for. Greenhouse gases are trace gases in the atmosphere and are usually measured in parts per million by volume (ppmv), parts per billion by volume (ppbv) or parts per trillion (million million) by volume (pptv).

Conservation is the planning and management of resources to secure their long term use and continuity and better their quality, value and diversity. It is the use of less energy, either by using more efficient technologies or by changing wasteful habits.

D

Deforestation is the practice or process that result in the long-term change in land-use to non-forest uses. This is often cited as one of the major causes of the enhanced greenhouse effect for two reasons:

- the burning or decomposition of the wood releases carbon dioxide; and
- trees that once removed carbon dioxide from the atmosphere in the process of photosynthesis are lost.

Depletion is the result of the extraction of abiotic resources (non-renewable) from the environment or the extraction of biotic resources (renewable) faster than they can be renewed.

Desertification are the progressive destruction or degradation of existing vegetative cover to form desert. This can occur due to overgrazing, deforestation, drought and the burning of extensive areas. Once formed, desert can only support a sparse range of vegetation. Climatic effects associated with this phenomenon include increased albedo, reduced atmospheric humidity and greater atmospheric dust loading, which can cause wind erosion and/or atmospheric pollution.

Diversity is the number of species in an area i.e. a community has a high degree of diversity if it contains many species of equal abundance.

E

Ecology is the study of the interrelationships between and among organisms and environment.

Efficiency is the ration of desired work-type output to the necessary energy input, in any given energy transformation device. An efficient LIGHT bulb for example uses most of the input electrical energy to produce light, not heat. An efficient HEAT bulb uses most of its input to produce heat, not light.

El Niño is a climatic phenomenon occurring every 5 to 7 years during Christmas (El Niño means Christ child) in the surface oceans of the SE Pacific. The phenomenon involves seasonal changes in the direction of Pacific winds and abnormally warm surface ocean temperatures. The changes normally only effect the Pacific region, but major events can disrupt weather patterns over much of the globe. The relationship between these events and global weather patterns are poorly understood and are currently the subject of much research.

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Emission is the release of a substance (usually a gas when referring to the subject of climate change) into the atmosphere.

Emission factor is the relationship between the amount of pollution produced and the amount of raw material processed or burned. For mobile sources, the relationship between the amount of pollution produced and the number of vehicle miles traveled. By using the emission factor of a pollutant and specific data regarding quantities of materials used by a given source, it is possible to compute emissions for the source. This approach is used in preparing an emissions inventory.

Endangered species are the plant and animal species in danger of extinction.

Endemic species are the species which are native, restricted or peculiar to an area.

Energy-efficient is electrical lighting devices which produce the same amount of light (lumens) using less electrical energy than incandescent electric light bulbs. Such devices are usually of the fluorescent type, which produce little heat, and may have reflectors to concentrate or direct the light output.

Energy efficiency is the amount of fuel needed to sustain a particular level of production or consumption, in an industrial or domestic enterprise. Energy efficiency measures are designed to reduce the amount of fuel consumed, either through greater insulation, less waste, or improved mechanical efficiencies, without losing any of the value of the product or process. Improving energy efficiency is a technological means to reduce emissions of greenhouse gases without increasing production costs.

Energy sources are:

- fossil fuels (coal, oil, gas);
- nuclear (fission and fusion);
- renewables (solar, wind, geothermal, biomass, hydro).

Environment is the surroundings in which an organization operates, including air, water, land, natural resources, flora, fauna, humans, and their interrelations. This definition extends the view from a company focus to the global system.

Environmental effect is any direct or indirect impingement of activities, products and services of an organization upon the environment, whether adverse or beneficial. An environmental effect is the consequence of an environmental intervention in an environmental system.

Environmental impact is any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's activities, products or services. An environmental impact addresses an environmental problem.

Estuary is a region where fresh water from a river mixes with salt water from the sea.

Ethanol is Ethyl-alcohol, a volatile alcohol containing two carbon groups. For fuel use, ethanol is produced by fermentation of corn or other plant products.

Evaporative emissions are the emissions from evaporating gasoline, which can occur during vehicle refueling, vehicle operation, and even when the vehicle is parked. Evaporative emissions can account for two-thirds of the hydrocarbon emissions from gasoline-fueled vehicles on hot summer days.

Exposure is the concentration of the pollutant in the air multiplied by the population exposed to that concentration over a specified time period.

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F

Fauna is the total animal life in an area.

Flora is the total plant life in an area.

Fluorescent light is a device which uses the glow discharge of an electrified gas for the illuminating element rather than an electrically heated glowing conductive filament.

Fly ash are air-borne solid particles that result from the burning of coal and other solid fuel.

Food chain is a sequence of organisms through which energy is transferred from its ultimate source in a green plant; the predator-prey pathway in which organism eats the next link below and is eaten by the link above.

Food web is a group of interconnecting food chains.

Fossil fuel is any hydrocarbon deposit that can be burned for heat or power such as coal, oil or natural gas. Fossil fuels are formed from the decomposition of ancient animal and plant remains. A major concern is that they emit carbon dioxide into the atmosphere when burnt, a major contributor to the enhanced greenhouse effect.

or

Fossil fuels are the fuels formed eons ago from decayed plants and animals. Oil, coal and natural gas are such fuels.

or

Fossil fuels such as coal, oil, and natural gas are so-called because they are the remains of ancient plant and animal life.

Fuel is a material which is consumed, giving up its molecularly stored energy which is then used for other purposes. e.g. to do work (run a machine).

Fuel efficiency is the amount of work obtained for the amount of fuel consumed. In cars, an efficient fuel allows more miles per gallon of gas than an inefficient fuel.

Fuel cell is an electrochemical cell, which captures the electrical energy of a chemical reaction between fuels such as liquid hydrogen and liquid oxygen and converts it directly and continuously into the energy of a direct electrical current.

Fumes are solid particles under 1 micron in diameter formed as vapors condense, or as chemical reactions take place.

Furnace is combustion chamber; an enclosed structure in which fuel is burned to heat air or material.

G

Garbage is the waste that is generated whether in the household, commercial areas, industries, etc.

Gene is a section of a chromosome containing enough DNA to control the formation of a protein; a gene controls the transmission of a hereditary character.

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Geothermal is pertaining to heat energy extracted from reservoirs in the earth's interior, as is the use of geysers, molten rock and steam spouts.

Geothermal energy is the heat generated by natural processes within the earth. Chief energy resources are hot dry rock, magma (molten rock), hydrothermal (water/steam from geysers and fissures) and geopressure (water saturated with methane under tremendous pressure at great depths).

Global warming is an increase in the temperature of the Earth's troposphere. Global warming has occurred in the past as a result of natural influences, but the term is most often used to refer to the warming predicted by computer models to occur as a result of increased emissions of greenhouse gases.

Greenhouse effect is the progressive, gradual warming of the earth's atmospheric temperature, caused by the insulating effect of carbon dioxide and other greenhouse gases that have proportionately increased in the atmosphere. The greenhouse effect disturbs the way the Earth's climate maintains the balance between incoming and outgoing energy by allowing short-wave radiation from the sun to penetrate through to warm the earth, but preventing the resulting long-wave radiation from escaping back into the atmosphere. The heat energy is then trapped by the atmosphere, creating a situation similar to that which occurs in a car with its windows rolled up.

Greenhouse gases (GHGs) include the common gases of carbon dioxide and water vapor, but also rarer gases such as methane and chlorofluorocarbons (CFCs) whose properties relate to the transmission or reflection of different types of radiation. The increase in such gases in the atmosphere, which contributes to global warming, is a result of the burning of fossil fuels, the emission of pollutants into the atmosphere, and deforestation.

H

Habitat is the natural area in which a species or organism is found.

Hazardous waste is waste that is reactive, toxic, corrosive, or otherwise dangerous to living things and to the environment. Many industrial by products are hazardous.

Haze (Hazy) is a phenomenon that results in reduced visibility due to the scattering of light caused by aerosols. Haze is caused in large part by man-made air pollutants.

Herbivore is an animal that eats plants or parts of plants.

Hydro is that which is produced by or derived from water or the movement of water, as in hydroelectricity.

Hydrocarbons are compounds containing various combinations of hydrogen and carbon atoms. They may be emitted into the air by natural sources (e.g., trees) and as a result of fossil and vegetative fuel combustion, fuel volatilization, and solvent use. Hydrocarbons are a major contributor to smog.

I

Incineration is the process of burning solid waste and other material, under controlled conditions, to ash.

Indoor air pollution occur within buildings or other enclosed spaces, as opposed to those occurring in outdoor, or ambient air. Some examples of indoor air pollutants are nitrogen oxides, smoke, asbestos, formaldehyde, and carbon monoxide.

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Inorganic waste is waste consisting of materials other than plant or animal matter, such as sand, glass, or any other synthetics.

Insolation is the solar radiant energy received by the earth.

J

Joint implementation is a concept where industrialized countries meet their obligations for reducing their greenhouse gas emissions by receiving credits for investing in emissions reductions in developing countries.

L

Leachate is the liquid that has seeped through a landfill or a compost pile. If uncontrolled it can contaminate both ground water and surface water.

Lead is a gray-white metal that is soft, malleable, ductile, and resistant to corrosion. Sources of lead resulting in concentrations in the air include industrial sources and crustal weathering of soils followed by fugitive dust emissions. Health effects from exposure to lead include brain and kidney damage and learning disabilities. Lead is the only substance that is currently listed as both a criteria air pollutant and a toxic air contaminant.

M

Methane (CH₄) is a greenhouse gas, consisting of four molecules of hydrogen and one of carbon. It is produced by anaerobically decomposing solid waste at landfills, paddy fields, etc.

Migration is the regular movements of animals, often between breeding places and winter feeding grounds.

Mudflats are area of mud that do not support any vegetation and are often covered by water.

N

Natural resources include renewable (forest, water, soil, wildlife, etc) and nonrenewable (oil, coal, iron ore etc.) resources that are natural assets.

Natural sources are the non-manmade emission sources, including biological and geological sources, wildfires, and windblown dust.

Nitrogen oxides (Oxides of Nitrogen, Nox) is a general term pertaining to compounds of nitric oxide (NO), nitrogen dioxide and other oxides of nitrogen. Nitrogen oxides are typically created during combustion, combustion processes, and are major contributors to smog formation and acid deposition. NO₂ is a criteria air pollutant and may result in numerous adverse health effects. They are produced in the emissions of vehicle exhausts and from power stations.

Nitrous oxide (N₂O) is a greenhouse gas, consisting of two molecules of nitrogen and one of oxygen.

O

Organic Compounds are a large group of chemical compounds containing mainly carbon, hydrogen, nitrogen, and oxygen. All living organisms are made up of organic compounds.

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Organic waste is the material that is more directly derived from plant and animal sources, which can generally be decomposed by microorganisms.

Organisms are living thing, animal or plant, that is capable of carrying out life processes.

OTEC - Ocean Thermal Energy Conversion Technology, which uses the temperature differential between warm surface water and cold deep water to run heat engines to produce electrical power.

Oxidant is a substance that brings about oxidation in other substances. Oxidizing agents(oxidants) contain atoms that have suffered electron loss. In oxidizing other substances, these atoms gain electrons. Ozone, which is a primary component of smog is an example of an oxidant.

Oxidation is the chemical reaction of a substance with oxygen or a reaction in which the atoms in an element lose electrons and its valence is correspondingly increased.

Ozone (O₃) it consists of three atoms of oxygen bonded together in contrast to normal atmospheric oxygen which consists of two atoms of oxygen. Ozone is formed in the atmosphere and is extremely reactive and thus has a short lifetime. In the stratosphere ozone is both an effective greenhouse gas (absorber of infra-red radiation) and a filter for solar ultra-violet radiation. Ozone in the troposphere can be dangerous since it is toxic to human beings and living matter. Elevated levels of ozone in the troposphere exist in some areas, especially large cities as a result of photochemical reactions of hydrocarbons and nitrogen oxides, released from vehicle emissions and power stations.

Ozone depletion is the reduction in the stratospheric ozone layer. Stratospheric ozone shields the Earth from ultraviolet radiation. The breakdown of certain chlorine and/or bromine-containing compounds that catalytically destroy ozone molecules in the stratosphere can cause a reduction in the ozone layer.

Ozone layer is the ozone in the stratosphere is very diffuse, occupying a region many kilometres in thickness, but is conventionally described as a layer to aid understanding.

P

Parasite is an organism that lives upon and at the expense of another organism.

Particulate matter (PM) is any material, except pure water, that exists in the solid or liquid state in the atmosphere. The size of particulate matter can vary from coarse, wind-blown dust particles to fine particle combustion products.

Percolation is the movement of water downwards and radially through the subsurface soil layers, usually continuing downward to the ground water.

Poaching is illegal hunting.

Pollution is the residual discharges of emissions to the air or water following application of emission control devices.

Population is a group of closely related and interbreeding organisms.

Precipitation is any or all form of liquid or solid water particles that fall from the atmosphere and reach the earth's surface. It includes drizzle, rain, snow and hail.

Predator is a animal that feeds on other animals.

Prey is an animal that is eaten by another animal.

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Propellant is a gas with a high vapor pressure used to force formulations out of aerosol spraycans. Among the gases used are butanes, propanes and nitrogen ozone hydrocarbons nitrogen oxides, and other chemically reactive compounds which, under certain conditions of weather and sunlight, may result in a murky brown haze that causes adverse health effects. The primary source of smog in California is motor vehicle.

Protected area is any area of land that has legal measures limiting human use of the plants and animals within that area; it includes national parks, game reserves, biosphere reserves, etc.

R

Range is the portion of the earth in which a given species is found.

Recharge is the process by which water is added to a reservoir or zone of saturation, often by runoff or percolation from the soil surface.

Recycling is the process of transforming materials (mainly waste) into raw materials for manufacturing new products.

Renewable energy is the energy resource that does not use exhaustible fuels. It is the energy from sources that cannot be used up: sunshine, water flow, wind and vegetation and geothermal energy, as well as some combustible materials, such as landfill gas, biomass, and municipal solid waste.

Resources are the materials found in the environment that can be extracted from the environment in an economic process. There are abiotic resources (non-renewable) and biotic resources (renewable).

Reservoir is any natural or artificial holding area used to store, regulate, or control a substance.

Runoff is that part of precipitation, snow or ice melt or irrigation water that flows from the land to the streams or other water surfaces.

Reuse is when we can use a product more than once in its original form.

S

Salinity is the degree of salt in the water or soil.

Smoke is a form of air pollution consisting primarily of particulate matter (i.e., particles released by combustion. Other components of smoke include gaseous air pollutants such as hydrocarbons oxides of nitrogen, and carbon monoxide. Sources of smoke may include fossil fuel combustion, agricultural burning, and other combustion processes.

Sulfur dioxide (SO₂) is a strong smelling, colorless gas that is formed by the combustion of fossil fuels. Power plants, which may use coal or oil high in sulfur content, can be major sources of SO₂. SO₂ and other sulfur oxides contribute to the problem of acid deposition. SO₂ is a criteria air pollutant.

Surface water is all water naturally open to the atmosphere.

Sustainable development implies economic growth together with the protection of environmental quality, each reinforcing the other. The essence of this form of development is a stable relationship between human activities and the natural world, which does not diminish the prospects for future generations to enjoy a quality of life at least as good as our own.

Swamp is an area that is saturated with water for much of the time but in which soil surface is not deeply submerged.

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Symbiosis is the living together in more or less close association of two dissimilar organisms, in which one or both derive benefit from the relationship.

T

TDS is the total dissolved solids.

Terrestrial is that which is of, or related to the land.

Tidal marsh is a low, flat, marshland traversed by inter laced channels and subject to tidal inundation. The only vegetation present is halo-tolerant bushes and grasses.

Turbidity is the cloudiness of a liquid caused by suspended matter.

V

Vapor is the gaseous phase of liquids or solids at atmospheric temperature and pressure.

Vertebrate is any of a major group of animals (fish, amphibians, reptiles, birds and mammals) with a segmented spinal column (backbone).

Volatile organic compounds(VOCs) are the carbon-containing compounds that evaporate into the air (with a few exceptions). VOCs contribute to the formation of smog and/or may themselves be toxic. VOCs often have an odor, and some examples include gasoline, alcohol, and the solvents used in paints.

W

Wetland is temporarily or permanently inundated terrestrial systems which border aquatic systems. It also includes the shallow systems such as estuaries, swamps, salt marshes, flood plains and the lagoons and coastal lakes.

Weathering is the physical and chemical breakdown of rocks due to natural process.

Water table is the level of ground water.

Weather is the result of unequal heating of the earth's atmosphere, as a function of terrain, latitude, time-of-year and other secondary factors.