A DICTIONARY ON ENVIRONMENT

BY

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FOREWORD

I hava to congratulate the author of this book for producing a most interesting unique and fascinating dictionary. The timing of production of this book is most appropriate as this subject is one which constantly engages our attention now. There are new courses starting in the University System in Sri Lanka on this subject and public interest, and the interest in schools, is also rapidly increasing. I hope the book will receive the recognition it deserves and will find its way not only to libraries but into the homes of those who have an interest in the preservation of the environment.

Thank you,

Prof. A. P. R. Aluwihare
Chairman
UNIVERSITY GRANT COMMISSION

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PREFACE

Environment awareness is gradually increasing the globe over. particularly from the 1980s. Conferences on environment awarness are being organised by bodies like the United Nations Environmental Program (UNEP), and others Text books on the topic are few, however Environmental Biology is taught at the University level and it is incooperated with ecology in the school curricula of Sri Lanka.

Many new terms are found in the study of environment and normal or science dictionaries do not take the Subject in detail, hence an attempt has been made to bring together Scattered information on environmental studies, with the hope it will make the study easy.

Unesco publications and other Environmental reports of conferences and Encyclopaedias have been consulted in preparing this dictionary. To my knowledge this is the first of its kind in Sri Lanka although few organisations have published reports on environment combining Natural Resources and National conservation strategy.

Comments are invited by the author to supplement an issue if necessary.

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DICTIONARY ON ENVIRONMENT

Abiotic — Factors of an environment or ecosystem other than biological, that is its the chemical and physical features.

Abioceen — The non-living components of the ecosystem or environment.

Absolute Humidity — Is the number of grams of water vapour in a cubic meter of air.

Absorber — It is a black material which absorbs heat from the sunlight or an apparatus used in the process in which one material is used to retain another. It is used for selectively removing a gaseous or liquid material from another gas or liquid.

Absorption rate — With regard to surfaces it is the energy absorbed per unit area per unit time.

Abstraction — Is the removal of water from a well, lake or river or any other source to a water works.

Abyssal — In the case of the sea bed and sediments at great water depth where as in a lake its the zone below the layer of effective light.

Abyssal zoner — It is the dark zone below the penetration layer of open water of the ocean.

Acceptable Daily Intake (ADI) — The daily intake of a chemical. This amount taken during complete lifetime which intake appears to be without risk.

Accessory Mineral — The occurrence of a mineral in small amounts in a rock which can provide evidence regarding the origin of the rock but which is not used in the classification of a rock.

Accessory species — With regard to plants it is the occu-rence of a species in one fourth to half distinguishable from adjacent vegetation and is more or less uniform in species composition age and condition that is of a stand.

Acclimatization — The process during which an organism undergoes morphological or physiological adaptation or both, in response to various abiotic factors. that is phenohypic variation.

Accommodation — In a specific area (gegoraphic) or volume of a habitat it is the location of a population

Acenaphthece — It is a chemical substance that cause irritation to the skin and mucus membrane and is suggested that it might be carcenogenic.

Acetamide — Exposure to this chemical can cause irritation and is careenoginic.

Achromorbacterium — The bacteria is prevalant in activated sludge, denitrification process etc.

Acid dewpoint — The gases in a flue that is in the passage for conducting combustion gases in an incenerator installation have a high dew point if So_3 is present in any significant quantity.

Acid dipping — A process which produces hazardous fumes & acid mists in the immersion of a metal in a tank of acid in order to remove scale resulting in a clean surface.

Acid droplets — These are minute liquid particles emitted through certain industrial processes and which can act as nuclei of condensation.

Acid Fermantation — In the anaerobic decomposition of sewage sludge this is a stage which results in biodegradation of complex organic compounds to simple organic acids.

Acid Formers — Anaerobes of the facultative & particularly obligate groups which ferment organic compounds in sewage by hydrolysis to simple organic acids.

Acid Hydrolysis — The process used to convert cellulose particularly from the metropolis refuse into ethanol which is a non-polluting fuel.

Acidification — Loss of Alkalinity. Acidification of freshwaters can be thought of as analogous to a large scale titration, this titration is a dynamic rather than a static process.

Acidity — Acidity of water is usually, associated with salt of strong acids or weak base & pressure of Co_2 & refers to the hydrogen ion concentration or

pH. Low pH under neutrality of 7.0 is acidic. Atmospheric pollution by So_2 could cause acidity (see acid rain).

Acid Mine Drainage — The water drained from action or abundaned mines such as coal or sulphide mines is often acidic such drainage acid waters are polluted & damage industrial water supplies and the disolved metal such as copper zinc & iron become toxic, This polluted water may be rid of the toxic effect by neutralising by lime or limestone & sedimenting.

Acid mist – Droplets of acids formed from So_2 & No_2 in smoggy air.

Acid rain — This is due to the presence of sulphuric acid and to a lesser extent nitric acid & the water possessing an acidity more than normal. It comes as precipitation either rain or snow. Burning fossil fuels release the pollutant So_2 this is converted to sulphuric acid through the intermediate sulphur trioxide in humidair. The nitric oxide released in this burning is converted to nitric acid. These two pollutants when let into the prevailing wind, they are carried away to distant places & comes down with precepitation far away from their sources. The rate of leaching of essential nutrients such as the divalents Ca & Mg & the monovalent K, from leaves & soil is increased. They particularly affect the pine needles in the temperate regions where acid rain is largely created and falls.

Acid Smut Soot — Particularly this soot occurs where installation having metal chimney. It's carried by particles of carbon clumped together with So_2 by acidic water.

Acoustic reflex — Certain animals like the mammals are able to protect .themselves against too loud sounds that is in sound pollutiona, by adjusting the muscles attached to their auditory ossicles.

Acquired character — Is that character caused by an environmental influence on an organism where by a variation appears in the affected organism.

Actinomycetes — They are a kind of bacteria playing an Important role in the decomposition of organic matter in the soil.

Activated Alumina — A form of aluminium oxide used in pollution control etc which has the property of absorbing certain substances from gases & liquids.

Activated carbon — Also used in pollution control having an absorbtion property, it is a form of carbon. It is also used in the process of removing So_2 from flue gases.

Activated manganese oxide — Like activated carbon this is used in removing So_2 from flue gases.

Acute toxicity — The toxic property of polluted air or water to kill.

Adaptation — The ability of an organism that improve the chance of surviving in the condition or the environment in which it lives.

Adaptation radiation (divergent adaptations) — The property of organisms to diverge or spread in a manner such that they can make use of a niche in the environment also its the ability of diverse organisms to evolve to live in a particular habitat.

Adiabatic — Is something that occurs with no heat transfer in connection with its surroundings

Adsorption — In sewage purification this is an important process using its adhesive property of gases, vapours etc. This precedes enzymic extra cellular break down of organics.

Adulterant — An impurity which should not be present in food, organisms ect.

Advanced Waste water Treatment (AWT) — In waste water treatment this follows biological treatment of sewage & consists of some physico chemical treatment.

Aeration — This is the addition of air to sewage or water that needs raising its dissolved oxygen level. In sewage treatment aeration precedes the main sewage treatment.

Aero allergans — These are minute particles of vegetable origin such as a vegetable dust or pollen suspended in air & which causes allergy.

Aerobe — An organism which clearly needs oxygen for its livlng.

Aerobic Biological oxidation — A process using aerobic organisms in pollution control.

Aerosol — This is the suspension of minute perticles or droplets or both in atmospheric air dust, mist & smoke dispersion aerosols.

Aerosol propellant — In order to expel the contents of an aerosol container, a liquid of low boiling point is used. Chloroflouro carbons are aerosol propellants.

Aestivation — Certain animals pass the dry season or drought by remaining dormant.

Aflatoxins — Are a group of formidable toxins produced by a fungus that grows on grains oil seeds nuts & cocouuts. They are powerful carcinogens.

Ageing of Lakes — This may be caused by natural eutrophication or by man by adding human wastes or drained fertilisers. The lakes turn into marshes & eventually dry up.

Aggalomeration — Aggregation of fine particles specially in air sometimes under the influence of ultrasonic radiation.

Aggradation — Deposition of material causing build up of land. The building up of innerbeds by detritus is an example.

Agonistic behaviour — Aggressiveness of an animal towards that of the same species.

Agricultural Pollution — Wastes from farming such as liquid & solid wastes and run off from pesticides fertilizer etc and products of decompositive of farm animals and plants.

Air Basin — The common atmospheric interaction of a geographic region including bodies of water & raised land.

Air curtain — A device that sends air bubbling through a perforated pipe causing an upward flow of water that slows the spread of oil. Thus containing oil spills. Fish too can be prevented from entering polluted water.

Air filter — Dust is filtered from air passing through a device of fabric wire or paper.

Air mass — A huge body of air formed in the troposphere. These have uniform meteorological characterstics.

Air Pollutants — Combustion chiefly produces polluting agents such as So_2 & carbon monoxide. Toxic elements in the air are found in industrial areas.

Air pollution — The addition of gases, liquids or solids foreign to the normal composition of the atmospheric air at a harmful level. Air pollution sources could be from Agricultural activities, such as crop spraying dusting & field burning, and dust producing processes including crushing, grinding etc fuel burning motor vehicles; manufacturing sources such as chemical plants etc and nuclear energy activities and use of solvents in spray paintings etc.

Air Quality — When the amount of pollution is low air quality is regarded high and may bejudged by material damage or other means.

Air saturation Value — The amount of oxygen soluble in water in equilibrium with air. When salinity & temperature increases air saturation value decreases.

Air stripping — The removal of undesirable gases such as Co_2 or H_2S etc by blowing air with an aerator through effluent sewage etc.

Alcaligenes — Are anaerobic bacteria of the facultative type that grow well in activated sludge etc.

Alcidae — Is a group of marinefish eating birds that come ashore only during the breeding season, they are fatally affected as a result of oil spillings.

Algal Bloom – This occurs in water bodies with an increased input of nutrients such as nitrates & phosphates resulting in eutrophication as a sudden burst in numbers.

Algal Harvesting In a lagoon of sewage of sewage effluent the algal growth is checked by their removal periodically.

Algal pond An oxygen rich effluent charged with algal is added in treating raw sewage or effluent is a waste stabilisation pond.

Alkalinit; – of water that has a pH above neutral (pH 7) or the total of the alkaline substances present.

Alkyl sulphonates – These are components of synthetic detergents being surface active agents. The discharge of these detergent residence into waters interfere with sewage treatment precess.

Allen's Rule — Correllated with an increased necessity to conserve heat the relative size of limbs, tails & ears of warm blooded animal, decrease as the mean temperature latitudinally of the environment decreases.

Allergen Also called an antigen technically; a specific chemical substance which on entering or is contact with the human body (and lower animals) causes discomfort or illness. Allergens may be of different sizes and levels of complexity. They cause hyper sensitivity & are foreign to the host body.

Allogenic succession — This is a succession of organism that takes place due to changes in the environment.

Alluvium – Deposits on land of sediments transported by stream.

Allyl Thiourea / Thiourea — This chemical substance has an inhabiting effect on Nitrifying organisms.

Alpha diversity — Diversity of life which occurs as a result of competition between species in more favourable environment consequently the variation becomes limited in individual species.

Alternative Technology — Resources are used in sucha way as to cause animal damage to the environment or its biota in it with much personal control by the applicant.

Alum / Aluminium Sulphate — A coagulant which when dissolved in water hydrolysis & precipitates the hydroxide in an alkaline medium.

Ambient noise — Is the entire noise associated with a given environment, generallay sounds from many sources.

Ambient temperature — is the temperature of the sorrounding air.

Ambient turbulence — is the eddy motion present which is a cause of dispersion pollution.

Ammonia — The chemical resulting from decomposition by bacteria & proteins in sewage which may be later oxidised to nitrites and nitrates. It can be removed from the water in many ways.

Ammoniacal liquor — As a result of coke making part of the liquid wastes containing pollutants such as NH_3 is removed and the waste production spent liquor is left.

Ammonia plant damage — Within several hours of exposure to ammonia entire leaves are damaged. Colour changes from a green gradually to brown.

Ammonifying bacteria — species of psudomonas nitrifying bacteria that break down the protein in the remains of animals & plants to ammonia.

Ammonium nitrate — Due to excessive fertilizer use is the main nitrate run off from farm land which turns to be a pollutant which can cause eutrophication. It is also a component of weed killers & insecticides.

Amoebiasis / amoebic dysentery — The protozoan **Entamoeba histolytica** cause this disease.

Ammebic Meninge — Encephsilitis — a kind of amoeba that enters the body through the nasal passage when swimming in polluted waters, reaches the blood and causes this often fatal illness.

Anabatic wind — During the day time when the sun warms the hill side it results in an up hill wind.

Anacoustic zone — The region above an altitude of about (100 miles) 1.6 kilometers the distance between air molecules is greater than the wave length of sound where propagation of sound waves can no longer take place.

Anadromous (Fish) — The migration of animal (fish) from their home the ocean to freshwater on reaching maturity for spawning. The construction of dams etc in the inland waters or thermal pollution of these, could be a hazard to this normal phenomenon.

Anaerobe — An organism usually bacteria that can live in a complete or nearly complete absence of oxygen. Facultative anaerobes can make use of free oxygen but obligate annerobes become poisoned by any oxygen present.

Anaerobic biologic treatment — anaerobic organisms are made use of to reduce the amount of organic matter in wastes in specially water.

Anaerobic sludge Digestion Tank — A tank with no access to oxygen that is usually heated to maintain an anaerobic sludge digestion process at 30 to 35° c. Methane can be collected in this initial stage for use as fuel.

Analyzer — An acoustic instrument for the analysis of frequencies sound pressure level distribution at different frequency regions is important frequency analysis are necessary.

Anion exchange — Acid radical ions as No_3 or So_4 - are replaced in water by the process of ion exchange.

Anodising — A thin layer of alumina formed on the surface of an aluminium object using a suitable acid electrolyte, where by corrosion is minimised.

Anopheles mosquito — a kind of mosquito that acts as a vector in causing the illnesses of malaria & sometimes fllariasis.

Anoxia — A condition due to the deficiency of oxygen in blood, tissues and body of water,

Anthropochore — Kinds of flora introduced to the environment by man.

Anthropogenic (Source) — The source of pollution as industrial which is caused directly or indirectly by man.

Antibiosis — When undesirable substance produced by certain organisms that is harmful in a relationship between species.

Antioxident — Inhibition of oxidation by any substance which there by prevents deterioration of rubber gasoline & their materials.

Apatectic colouration — The formation of protective colouration as in camouflage which masks the identification of an animal by predators.

Aphoticzone — That region in lakes or ocean which is deep and dark and into which light does not penetrate.

Aphytic zone — The areas lack plants in the lake floor due to its depth.

Appleton layer — A layer in the atmosphere where solar radiation by ionisation causes the radio waves to refract & reflect.

Application factor — The quantity of a lethal level of a substance that would be environmentally safe for the organisms under study.

Aquaculture — Fish farming in fresh or marine waters.

Aquatic — That which concerns water.

Aquifer — Porous soil formed geologically through which water may percolate extensively and slowly allowing springs & well to be formed from the ground water.

Aquifuge — A geological region which does not contain or transmit water in quantities for needs.

Aquiherbosa — The kind of aquatic vegetation that is submerged.

Aquiprata — Communities of flora found in wet meadows.

Aquitard — Rock or soil formations that retards ground water movements.

Arctic smoke — A featura in the temperate regions which causes the formation of steaming fog when very cold air passes over warm water.

Area source — Any small individual fuel combustion source apparent in air pollution.

Arid zone — The regions composing, the world's desert where rainfall is minimal that is the geographic areas that are said to be " dry ".

Array — A series of individual devises for the use of solar energy effectively.

Artesianwell — The kind of well bored into a confined aquiter which overflows the well - head.

Artificial formation — The pattern of vegetation which is the result of mans continuous activity.

Artificial rain - This is brought about by ' Seeding ' of the cloud with an artificial stimulus, generally, a chemical such as Silver iodide, where by larger droplets are formed causing a shower to fall on earth but this does not appear to be practically useful.

Artificial reef — This is made by the dumping of waste material such as debris & junk such as rusting car bodies and similar material into deep water which provides marine fish with shelter and breeding ground.

Asbestos — A fibrous silicate mineral, fire resistant substance made from this. This when enters the environment can cause much damage to the workers and others due to the inhalation of the dust. It can cause serious lung disease. One kind the blue asbestos is banned from use. It is carcenogenic.

Asbestosis — A lung ailment caused by asbestos inhalation, this may often lead to development of lung cancer.

A-Scale Sound level — This is a measurement of sound pollution nearing the sensitivity of human ear which gives the intensity.

Ascariasis — This illness is caused by the round worm ascaris in man (& other animal). Infection can be through water The stage of infection is excreted along with human faeces.

Asellus aquaticus — This is a fresh water crustacean. Since it inhabits moderately polluted waters it can serve as a biological indicator of pollution.

Ash — Substances ejected by a volcano when it settle on the ground it becomes a pollutant. It is also the mineral content of the product left after complete combustion.

Assimilation — This is when a body of water is able to purifier itself of a pollutant usually naturally.

Atmosphere — The layers of gases with varying temperature and pressure sorrounding the earth.

Atmospheric composition — Chiefly made up of about 78% of nitrogin 20% of oxygen, 0 . 03% carbondioxide and traces of other gases.

Atmospheric absorption — It is the absorption by the earths atmosphere of amounts from, electro magnetic spectrum etc.

Atmospheric dispersion — The gaseous and other pollutants in the atmospere being diluted.

Atmospheric moisture content — The water vapour content of the acmosphere. The processes of evaporation and condensation of water in the atmosphere requires and emanates very large amounts of heat.

Atomic radiation — Nuclear decomposition etc resulting in a radiation or radioaltivity.

Atomic waste — The splitting of nuclear fuel such as uranium produces this waste as ash.

Autecology — The study of the relationships between individual species and its environment.

Automobile Enissinos — Gaseous and solid pollutants from automobile exhaust pipes.

Auto trophic — Organisms that use inorganic subtances to synthesis organic compounds.

Avicide — Chemical subtance used to kill or repel nuisance causing birds such as pigeons.

Back fill — The process of refilling an excavation or the material used for itself.

Back ground level — The level of pollutants from natural sources, That is by the trace concentr ations of radioactive rock & soils.

Bacteria — Unicellular filamontous micro organisms without chlorophyll & multiplying rapidly by simple fission. These may be rounded, moniliform strips or spirals in shape. Thy occur in all media including soil.

Bacterial purity — Regulation of most countries require the maximum number of certain bacteria including *Escherichia coli* in 100 ml of drinking water to be zero in almost all the tests and with more than certain very small number of bacteria.

Bacteriological pollution — Due to the fact that is difficult to confirm the presence of disease causing bacteria in routine tests, it is usually regarded that the presence of *Escherichia choli* indicats such pollution.

Bacteriophage — These are viruses living parasitically in bacteria. They consist mostly of Deoxyribo nucleic acid and once within the bacteria they force the bacteria to produce viral DNA instead of its own.

Bacteriostat - Any substance which prevents or retards the growth of bacteria.

Bagasse — The fibrous residue in sugarcane crushing for extraction of sugar. It may be utilised in the fertiliser or extraction of proteins.

Baling — Waste materials including used news papers when recycled are compacted with wire into bundles.

Bamboes — Woody plants of the family Graminac, they form a very important component of the tropical & subtropical ecosystems.

Bank sludge — Solid deposits of sewage or industrial waste origin accumulating on the bed of a water way.

Barcelona convention — Nations bordering the mediterranian drew up a convention in 1976 that forbids the discharge polluting agents into the mediterranean sea.

Barrage — A series of blockage constructed at a flow of sea tides so that the water is held back in a basin for future release.

Basal Application — A method of spreading pesticide on the plant just above the soil surface.

Base flow — That part of the run off of a stream from ground water etc.

Base lines — Tne levels of tolerance by organisms to particular concentrations of substances which varies from species to species.

Base Substance density — The survial of a human population which is impossible above a particular density.

Behaviour — The response of an organism to stimulation which helps the organism in various ways including reproduction.

Beneficial use — The use of the environment for the benefit of man in various ways, with regard to water it is the provislon of potable water for drinking & domestic purposes agricultural & industrial needs in the provision of habitats for aquatic organisms etc.

Benthic deposits — Generally related to water, where by the accumulation of decaying organic matter at the bottom of the aquatic habitat.

Benthos — The organisms inhabitng the benthic region.

Berberis vulgaris — A shrub in U. K which harbours a stage in the life cycle of the fungus *Puccinia graminus* which causes black, rust on cereal plants like wheat etc.

Bergmann's Rule — The body size of warm blooded animal species generally increases as the environmental temperature decreases with increase in latitude.

Birkffed filter — A drinking water filter used domestically.

Berylliosis — Oxide of the light weight metal. beryllium when inhaled cause this disease. Dust of this metal inhaled causes the addition the disease chemical pneumwhen onites.

Best practicable means (B. P. M) — The requirement of works managements to use the best practicable means to avoid pollution and maintain continuity of pollution control.

Beta diversity — This reveals a narrow tolerance range to environmental factors bringing about diversity due to competition between species.

Beta factor — This is the air saturation value in an activated siudge ration to that in clean water maintained at the same temperature & pressure.

Bicarbonte hardness — Hardness due to carbonates.

Biennial — When a plant such as tubers which complete its life cycle in two years whcre food is manufactured and stored during the first year & used to produce seeds in the second year.

Big Bang — Refers to the common theory of origin of the universe and also to an explosion producing pressure oscillation of the order of a milibar or more at a further point onthe earth.

Bilharziasis (Schistosomiasis) — Blood fluks of the genus *schistosoma* causing diseases of humans. Generally transmitted by bathing in polluted inland waters. This disease is chiefly found in the sothern hemisphere there the secondery host is a fresh water snail.

Bio accumulation — Is the process of accumulation of chemical pollution in the tissues of ceatain organisms. A common such chemical is DDT for instance it is retained by certain fish but the fish is not really harmed as those eating the fish.

Bioassay — A method by which the character and strength of a potentially toxic chemical is determined by studying its effects on standard test organisms in the laboratory.

Biochemical oxidation — Within an anaerobic treatment process micro organisms contained in it transform organic pollatants into organic or inert mineral substances that settle.

Biochemical Oxygen Demand — (B. O. D) In the oxidation of the constituents of a water sample the weight of oxygen that is taken up chiefly by biologic action is B. O. D. This test is now known not to be complete with regard to pollution for many chemicals.

Biocide (Pesticide) — Any substance that is able to kill living organisms.

Biocoen — The entire living components of the environment.

Biocoenology / Synecology — A study aimed at an under standing of the numerical determination of species.

Biocoenosis / Biocease — The members or community of a biotope.

Bioconversion — Organic wastes being converted into methane by the action of micro organisms.

Bicdgradable — Subatances that could be broken down by dmainly aerobic bacteria into basic elemets.
eg. food remains, paper.

Biodegradation— The process of breaking down of substances by becterea to basic element such as many manufactured substances however there are other such as organochlorine insectidas that are non - degradable.

Bio - flocculation — The activation of sludge being aerated again, thus flocculation of a suspension consiting of bacteria algae etc.

Bio fouling — The methods adopted to prevent alleviate & control the formation of biological slime etc & similar coatings on the ocean thermal energy conversion of heat exchanger surfaces.

Biogas — The capturing of gas from compost related substance that is from anaerobic sludge digestion in the form of methane and carbon dioxide.

Biogenisis — The origin of living organisms from other related living organisms.

Biogeochemical Cycles — The circulation of elements (or substances) such as carbon dioxide, Nitrogen, water etc within the various ecosystems.

Biosphere — That part of the earths crust where life exists.

Bioleaching / Bacterial leaching — Bacteria being used to attack dumps of mine tailings or other chemicals of low metal content. The metal to be extracted later from solution.

Biological Amplification/Biological magnification — The persistent presence of a substance such as an organochlorine insecticide concentrated by the organisms in a food chain such that at each successive trophic level the amount of the chemical relative to the organisms biomass is increased.

Biological Bench mark — Animals & plants being used to measure pollution in addition to or instead of other physico chemical agents used in studies.

Biological Control — Living organisms being used to control pests. The use of living organiams assures perpectual control which is specific and do not act as environmental pollutants. Biological control have been successful in many instances such as the use of the myxomatosis virus on the rabbits in Australia, Pomethocerus cumingi on tropical cocount trees & the beetle on salivinia. In addition to direct attack on the organism directly the use of sterile or irradited males can in mosquitos result in the production of infertile eggs. is indirect control.

Biological / Microbial film Biological Slime — The formation of film of slime in a sand filter trickling filter etc, thought to be composed of zoological material contains poly saccharides etc of metabolic products and also micro-organisms.

Biological half-life The admistered dose of a substance takes a certain time for the body to eliminate it by regular processes.

Biological Hydrolysis / enzymatio hydrolysis — The breaking down of complex organic compounds by enzymes in the presence of water. That is the biodegradination by action of enzymes of aerobic, annerobic or simple human metabolism into simple molecules,

Biological Indicator / Index of pollution The level of pllution in an environment is shown by the presence and frequency of a living organism however it may not indicate the amount of toxins present.

Biological Monitoring — The determination of the variations in the composition and abundance of living organisms above & below an effluent outfall or before and after the beginning of potentially harmful waste discharge is direct measurement of the changes in the biological status.

Biological Oxidation — The manner in which complex organic materials are consumed and decomposed by microbes. This method is used in water bodies and activated sludge waste - water treatment to self purify.

Biological Oxygen demand — This is the demand for oxygen by bacteria in breaking down of organic pollutants into simple substance this provides in determining as to which forms the living organisms the polluted water body is able to support.

Biological Shield — This wall sorrounds a nuclear reactor which for protection of personnel absorbs neutrons & gamma radiation.

Biological treatment / oxidation In order to exidisise sewage processes biochemical reactions are used in trickling filters, activated sludge etc.

Biomagnification / Concentration — Usually toxicchemicals move up food chain eventually reaching the trophic predator level and they are concentrated from the air or water from the bacteria algal etc particularly the non - biodegradable pesticides. DDT is known to concentrate hundred times in birds.

Biomass — This consists of the entire Weight of all living organisms in a particular habitat. It is expressed as grams of organic matter per square meter.

Bio meteorology — The study of the relationship o iiving organisms to weather.

Biomonitoring — To determine the water quality at a discharge site by the use of living organisms.

Bioplex — The word coined from Biological complex refere to the biological system where in waste products of every stage are used as raw material in the following stage thus the entire system forming a cycle.

Biosphere — That part of the earths atmosphere where organisms live. Tha programme Man & the Biosphere (MAB) is an effort to study this in relation to man.

Bio stabilizer — Its a machine which convert solid waste to compost.

Bio systematics — is lhe biology of populations studied in relation to reproductive behaviour etc.

Biota — The living organisms found in an environment.

Bio technology / engineering — The use of biochemical process in industry particularly DNA recombinant methods to produce food for humans or life stock.

Biotic element — includes the living organisms comprising populations round in an eco system.

Biotic index — It is the rating employed to determine the quantiy of the environment in biolgical terms.

Biotic potential — The potential capacity in its maximum bound to be exhibited by a population.

Biotic pyramid — The graphical representation of the trophic levels in a stable food chain.

Biotic succession — The appearance of successive organisms in an ecosystem, particularly the appearance of plants in an order or animals in an aquatic medium.

Biotin — earlier known as vitamin H. but actually belonging to vitamin B group it is involved in the formation of fats and utilisation Co_2 in many animals possibly essential to human.

Biotope — The stable ecological community system comprising plants and animals.

Biotron — This is a chamber to study the completing controlled environmental conditions which offers the observations of the effect of the variations in the environment or living organisms.

Bird ringing / banding — The marking of birds with numbered light metals leg rings to determine their life span migration etc.

Birth rate Nativity — The nnmber of births within a population in a given period of time.

Bittern — refers to a marsh bird and also the liquid left after sodium chloride crystallisation from sea water forming a source for certain chemicals like magnesium iodine etc.

Bituminous coal — A kind of coal which burns with luminous smoky flame.

Black death — Drastic reduction of population by plague in Europe in the 14th century.

Black Lung disease — A disease that affects coal miners which causes their lungs to become black from coal dust.

Black mud — under an aerobic conditions the sulphate reducing bacteria produce hydrogen sulphide in inland water bodies where the mud becomes black.

Black oil — usually refers to crude oil & sometimes to heavy oil fractions. A short while after an oil spill part of it evaporates leaving heavy oil residue afloat-on water.

Bleaching — A waste in cotton textile & other waste as Hypochlorite.

Blood worm / chironomous (larvae) — An aquatic insect larva red in colour which could indicate pollution by sewage, found in low levels of oxygen.

Bloom — A sudden burst in a water body of micro organism populations usually algae, Available ample nutrients like phosphorus causes this.

Blue green algae — unicellular algae which forms mats in the water in summer & causes unsightly appearance of the water, when it appears waste stablisation ponds they may give an unpleasant taste & smell to the water.

B. O. D: — Biological oxygen demand see biological O_2 demand.

Body Burden — refers to the total load of a contamitant harmful substance bound to be carried by people in a particular environment. For example flouride in the local food or air makes it necessary to lower the quantity of the flouride in water in the locality.

Bog — A marsh or swamp usually covered with peat.

Boom — In the case of oil in water a floating device is used to contain oil.

Bordeux mixture — A blend of copper sulphite, quick lime & water much used in vine yards in Europe as a fungicide also used to control potato blight etc.

Boreal Forest — The coniferous forests found in northern cold winter climates.

Borism — Excess boron in water can cause this illness.

Botanical Insectisides — Naturally occuring organic insecticides obtained from plants or a close synthetic relative mostly less toxic to mammals for eg. Pytethrum.

Botanical Pesticides — Also chemicals of plant origin like nicotine & strychinine used to control pests.

Bottom load — The material pushed or rolled along the bottom of a running water.

Bottom Sediments — The layer of mud at the bottom of rivers lakes & the sea which tend to concentrate metal salt from wee percentages dissolved in the water above them.

Botulism — Food poisoning disease caused by the bacterium *Clostridium botulinum* to man wild fowl and other animals.

Boundary layer — In running water is the layer of slow moving water just above a rocky surface & in contrast to fhe fast moving stream.

Bourne — In a stream along a hill spring like the underground water level rises causing the extension of water upwards.

Brackish water — Is water that has a salinity more than fresh water but much less than sea water (about half its salinity). This is found in estuaries & swamps.

Break water — In order to prevent erosion by wave action a wall is constructed off shore of beach or harbour.

Breeze — minute particles of coke.

Brine — Usually refers to sea water (or a solution of common salt) having 3.5% of dissolved salts of which most are chlorides amounting to 20.000 mg/litre.

Broad - cast application — Spreading of a pesticide over an entire area in farming.

Broiler — Production of poultry meat semi industrially.

Bronchial disease — Disease due to the production of excessive mucus in the bronchial system, resulting from inhalation of smoke, or other pollutants,

Brown Forest soil — Organic matter of this well aerated dark brown soil gradually decreases down to a ealcareous parent material with a high calcium carbonate which helps retard leaching.

Brown pod solic soil — The presence of acid forest soil having a surface litter layer over a dark mineral soil with leached layer beneath which is pale.

Brown ores — a possible resource for the future, consists of soils leached of the more soluble minerals yet retaining large amounts of iron salts.

Brown smoke Volatile tarlike materials emitting smoke on burning coal at low temperatures.

Brucellesis — Disease caused by the bacterium *Brucella abortus*, to man & enable transmission may be through unpasteurised milk or through water.

Bryophytes — A group of planls which includes liverworts & mossiss found normally in slightly polluted water.

Bubble Gun — An instrument used for destrutification of large lentic habitats.

Buffer strip — Erosion resisting grass or vegetation occuring in the farm of a strip between cultivated fields.

Bug watcher — This is a quick assay system or devise to measure the ability of mesofauna to respond physically to the preserve of toxic substances in the environment.

Builders — More than 60% of the commercial synthetic detergents constitute this which include foaming agents. that hold the dirt & prevents it from re-depositing, Domestic detergents contain large amounts of polyphosphates which make up most of domestic sewage.

Bunding of Oil tanks — The building of a bund around an oil tank of such a height that the volume contained below the top level of the bund is equali to the volume of the tank plus a little more such that if the tank bursts all the oil will be held in & this prevents oil pollution.

Burial ground — Earth or water is used as a shield for unwanted radioactive materials at a disposal site.

Burn out — When refuse is burnt in incenerators a maximum of 5% of residual carbon is allowed in many countries, when below this level the organics that remain would not cause any smell.

Caddis fly — Its Larvae is an inhabitant of clean or slightly polluted water. It is a *biological indicator* of pollution.

Calciferol — Is one form of vitamin D found in man. Its level gets reduced in human populations living in urban areas amids industrial air pollution where high densities of sulphate & particle densities of the environment.

Calciformic Soils - Soil Contain excess of lime-like materials.

Calcium carbonate — Is the chief cause of hardness in water. On boiling carbonates (in water) are precipitated.

CAMP — acronym for Continuous Air Monitoring program. This measures air pollutants through out the states in America.

Calcium cycle — Calcium an important element for life. Calcium taken up by plants and stored in roots & trunks. it may be leached by rain & returned to the soil. Animals get the element from the leaves etc which they eat when fauna & flora due it is returned to the soil. Any calcium lost from the ecosystem by leaching as run off from the surface is once again taken up by plankton fish etc It's also present in the sea spray. In this manner calcium is recycled.

Caustic Scrubbing — After the precipitation of the calcium sulphate as pollutants removed by reacting sodium hydroxide with sulphur dioxide from fuel gases and the addition of lime converting to calcium sulphate, This may then by discharged into a stream.

Capsid bugs — Chiefly serious pests in orchards but few likes *Blepharidopterus angulatus* feeds on red spider mite and thus acting as biological control.

Carbomates — This group of insecticides are gradually replacing D. D. T since these can be quickly detoxified and eliminated from animals, They are not stored in fat or milk unlike D. D. T.

Carbon 14 - / 14C — A form of radioactive carbon used as an atomic clock for dating of objects.

Carbon dioxide — The gas is one of the main products of combustion or decay of organic matter and respiration. It's the chief agent in the photosynthesis of plants presently the amount of Co_2 released from burning fuels has exceeded the taking up of the gas by photosynthesis or by the ocean, which last remove Co_2 by a series of steps. Carbon dioxides in the

atmosphere builds up due to accumulation of the gap. In the right amounts it absorbs near infrared and infrared rediation the harmful rays of the sun Increasing carbonsioxide levels in the atmosphere trap the harmful rays this causing a green house effect which gradually raise the temperature of the earth & may cause rising of sea levels.

Carbonising — Coke & charcoal are produced by the heating of coal wood etc. this is also a step in wool cleaning.

Carbon monoxide — A highly poisonous gas. It is found in many industrial works and exhausts of internal combustion engines & in the smoke from chimneys. It has a great affinity for the haemoglobin in the blood forming carboxy haemoglobin. The tissues become unable to carry the required amounts of oxygen & the system is said to be carbonmonoxide poisoned.

Carbon tetra chloride Its a noninflamable liquid used as an industrial solvent. Its vapors are transported into the stratosphere & may cause some loss of the earths protective ozone layer, thus posing concern to all life.

Carcinogen — Any cancer producing agent. They include many organic compounds such as from smoke, soot etc and organo - chlorine compounds. Many naturally occuring organic or, inorganic substances.

Carnivore — Chiefly animals feeding on other animals. Forms the consumer in the food pyramid.

Carpet masufacturing wastes — These are liquid wastes from wool cleaning and synthetic textile industries. Many are using biodegradable substances now though some use Dieldrin in the processess.

Carriage water — The waste water from industry & dwellings plus some infiltration that makes up. 99.9% water in the sewage that carries it along the sewers to the treatment plant.

Carrying Capacity — An ecological concept that is the point of balance between reproduction potential and

environmental resistance that is the population size when some limiting factor prevents further increase in population.

Cascade — In a repeated separation or purification giving a gradual increase in the separation component.

Catadromous — Opposite to an anadromous. That is certain fishes (like the eel Anguilla) spend most of its growing years in fresh water and descends the ocean to spawn.

Catalytic Converter — A diminishing of air pollution device that removes organic contaminants by oxidising them to carbon dioxide and water.

Catalytic Incineration — Usually platinum & palladium are used in the disposal process of gaseous wastes containing low concentrations. of combustible materials and air.

Catalytic muffler — The catalytic converter used in exhaust train of vehicles.

Catarobic — Organic matter in a body of water decomposing slowly while oxygen is not maintained in short supply.

Catchment area - Its an area from which water flows to a specific site which may be a lake or river.

Ceiling — This is the height of a cloud above the ground

Cell — Its the hole where waste is dumped with layers of dirt daily, it also refers to the amount of refuse deposited in one day enclosed all round with daily cover in controlled tipping.

Census — In contrast to sampling this consist of the full eaumeration of an entire population with respect to specific variables.

Centrifugal Collector — A system in which centrifugal force is used to remove aerosols from a gas stream or to remove water from sludge.

Cephalic Index — This is the measure of the breadth of the human head expressed as a percentage of the front to. back length.

Cess pit or Cess pool — A built tank or pond which receives untreated domestic water bourne waste at places whers there is no sewer to remove it.

Channeiisation — The practise of straightening & deepening of streams in order to allow water to move faster. These may reduce floods but could very well interfere with waste assimilation capacity. the habitat of fishes would be disturbed.

Chemical fixation — Toxic waste substance is converted chemically into an insoluble State thereby a way of disposing of it.

Chemical mutagens — Chemical source of mutations (other then radiation).

Chemically precipitated sludge — Coagulation being used for sedimentation of suspended matter in a water or sewage works producing sludge.

Chemical oxygen demand (COD) — All the organic matter in a sample of water taking up the weight of oxygen without distinguishing between biodegradable and non biodegradable organic matter. This test is applied to assesing sewage & trade wastes strength.

Chironomid — A kind of insect whose larvae are called blood worms, the latter usually live in sewage polluted mud. They are biological pollution indicators.

Chlamydomonas — Green alga that is flagellate & found usually in nutrient high or eutrophic water including waste stabilisation ponds giving a green tint to the water.

Chloracne / Environmental halogen acne — A disorder of the skin often accompained by systematic toxicity caused by exposure to halogenated aromatic compounds.

Chlordane — An organo chlorine insecticide highly toxic to fish, moderately toxic to rats & birds. Though very effective on cockroaches fleas etc they can be carcenogenic to humans.

Chlorella — Unicellulor green algae which has been used to maintain a closed environment such as within a space cabin for they produce oxygen & consume Co_2.

Chlorinated hydrocarbons — These are organic compounds which consist of only chlorine H_2 & carbon, DDT is an example.

Chlorination — The disinfection of water by adding chlorine

Chlorine demand — That amount of chlorine necessary to kill all pathogenic bacteria in a given volume of sewage or polluted water.

Chlorobiaceae — Green sulphar - oxidising bacteria that are photosynthetic they use Co_2 on their carbon source they also may oxidise sulphar or sulphides but they do not release 0_2. They are found in abundance in stagnant pools and waters that contain H_2S.

Chlorosis — Normally green plants become discoloured due to disease etc or air pollutants.

Cholera – Disease caused by the bacterium *Vibrio cholerae* which can be fatal. It is a water borne disease.

Chronic Toxicitym — Long lasting but low levels of pollutants that may not be fatal but yet may cause lasting harm.

City climate — The climatic change due to the influences of the city which may sometimes be useful such as the reduction of humidity due to rain running off roofs etc which dry so quickly.

Cladophora / Blanket weed — Filamontous green alga found in eutrophic waters, they form a dense mat on the surface giving a carpet appearance.

Clarification – An essential process involved in removing turbidity and suspended solids by settling.

Climate change — Although climate has varied in the past and there is still a large degree of scientific uncertainity the rate of climate change predicted by the Inter governmental panel on climate change (IPCC) to occur over the uext century is unpr-ecedented. This is due mainly to the continuing accumulation of greenhouse gases resulting from a host of human activities since the industrial revolution, hither

to particularly in developed countries. The potential impact of such climate change could pose an environmental threat of an up to now unknown magnitude; and could jeopardize the social and economic development of some areas. It could even threaten survival in some small island states and in low lying coastal. arid and semi arid areas.

Cline — Members of a species that show gradation of structural dlfferences correllated with ecogeographical distribution.

Clone — Organisms of a population containing identical genetic constitution, unless mutation occurs, produced from a single organism by sexual reproduction or parthenogenesis.

Closed community — Since all niches in a habitat are occupied, community is prevented from colonisation.

Cloud seeding — Method producing artificial rain by sprinkling particles of silver iodide etc into clouds.

Coagulation — Chemical added to lessen the surface charge to water or sewage which removes most of the tiny particles suspended from the water.

Coal desulphurisation — The removal of suphur from coal which can be done by mechanical cleaning processes, which depend on the specific gravity differences of coal & the unwanted materials.

Coal industry waste water — Acid mine drainage & coal washery wastes. Presently in all washeries all the dirty water is clarified & recirculated.

Coastal protection — Both vegetational and mechanical means are used to prevent erosion in the upper parts of the beaches and by mechanical means in the lower parts to stabilise beaches & dunes.

Cobalamine / Vitamin B_{12} — Synthesised by the bacterium *Bacillus subtilus* found in the gut of many animals. Essential for normal cell division in animals including man.

Cobalt 60 — toxic substance constituting the radio isotope of cobalt a product in atomic explosion

Coccidiosis — Often an endemic disease in wild populations of mammals and birds the pathogen is a protozoan.

Coefficient of Haze / COH — An atomspheric visibility interference measurement.

Coenocline — A natural communities sequence related to an environmental gradient.

Coenosis — Common ecological requirements of a group of organisms distinct from a community.

Coke Oven emissions — Benzene & other emissions in the stages of coke production which are carcenogenic.

Coke Plant wastes — Of the two distillates one is a light layer of ammonical liquor is highly polluting.

Collector Retaining contaminants from air or other gases is removed by this divice.

Combustion — Usually the process of burning. While chemically, it consists of a procsse of quick oxidation of any material which is capable of oxldation with the oxygen present in the air.

Combustion air — In the primary chamber of an incinerator air is introduced through the fuel bed by a draft which may be natural or forced.

Combustion vapour — The production of vapour or gas in furnaces. combustion chambers or merely from open burning.

Comminution — Pulverisation of wastes used in solid wastets management and waste water treatment.

Community — An assumblage of naturally occuring group of organisms in a common environment.

Compacion of land fill — The settlement and compression of all controlled tips due to the conversion Co_2 or methane.

Compactor Truck A lorry collecting refuse.

Competitio — Ecologically the competing of food space etc of limited resources, by organisms.

Complex organic mixture — Environmental threats due to the many potentially hazardous chemical in a source.

Compost The disentergrating plant parts of low bulk density improving soil. An artificial method. It is a soil conditioner with manurial value but it is not a fertiliser in itself.

Compression — The compacting of a volume of refuse being reduced by about 80% under high pressure; the resulting blocks are bound with bitumenised plastic or other material & conveyed to tip sites or used in reclamation or share protection works.

Concrete degradation — The corrosion of the inside & outside of concrete pipes. The inside gets corroded with sulphuric acid of the sewers by sulphide eorrosion in warm climates & the outside gets corroded by sulphate in the soil.

Condensation trail / Contrail — The mixing of hot exhaust from air craft with cold ambient air results in a formation of cloud.

Confined groundwater – Since the ground water is overlain by impermeable rock it could be under a higher pressure than that of the atmosphere. Water can rise up in a pipe above the bottom of the impermeable bed as in Artesian wells.

Conservancy system — The use of buckets earth closets etc instead of water closets which needs no carriage water to transport the excreata.

Conservation — The thoughtful use of the environment such that some areas and resources for production for the needs of mankind and preservation of other areas and resources for the sustainable development.

Conservative pollutants — Includes heavy metals and many pesticides which are non - biodegradable.

Constant – Ecologically it is the occurrance of the species in almost all the samples taken at random in a community.

Consumption residuas — The final consumption of goods or services resulting in wastes as distinct from their production or distribution wastes.

Contact pesticide — A chemical that kills pests on contact with the body.

Contaminntion — Usually the introduction into water of micro-organisms chemicals or waste which make the water unfit for use.

Continental shelf — The zone that borders the continents that is from the continental shore line cutting off the deeper oceanic regions.

Contour farming — Generally applies to hills where ploughing etc is done across the slope. Acommon cause of water pollution of siltation is then reduced, since every furrow of the horizontal ploughing acts as a reservoir retaining water.

Controlled tipping — The usual method of disposing of solid waste by major cities specially, where by the waste is buried by piling it in layers of certain thickness on suitable land & run bulldozers or compactors over them.

Cooling Pond — Irradiated fuel elements from a nuclear reactor are stored in a large tank for fission products to decay & also used for the natural cooling of condenser cooling water.

Critical Links — In a particular community the organisms of a food web which are responsible for capture and flow of energy at the same time for nutrient assimilation and give out. These are generally the sediment inhabitants.

Crocidolite — The kind of Asbestos that is most carcenogenic.

Crop rotation — Instead of growing the same crop in a particular area over and over again different plants are grown successively. This method maintains soil fertility in the particular area. One of the crops is usually a legume which assures the qnantity of nitrates needed with the aid of the nitrogen fixing becteria in their root nodules.

Crown Fire — This burns the forest surface debris as well as the canopy causing complete distruction of plants. It can almost incenerate most of the surface living organisms that are unable to flee, as a result massive erosion will take place.

Crown - of - Thorns / Starfish — A severe denuder of corals particularly in Australia it belongs to the phylum Echinodermata.

Cryogenic fragmentation — In U. K. this process is applied for de - tinning of cans. It consists of super cooling the cans by dipping in liquid nitrogen and then shredded by a hammer mill. In addition by a differential magretic separation Aluminium is re-covered.

Cryogenic temperature — Generally a range of temperature below the boiling point of liquid nitrogen.

Cryogenics — A method using very low temperatures near absolute zero to break the resistance more or less of some metals.

Cryology — The study of water at low temperatures whether snow ice or hail.

Cryopump — The method of applying cryogenics for removing gases from an enclosure by conednsing the gases

Cryptic (hidden) colouration — Many animals including insects and birds have a colour pattern resembling their sorroundings that is camouflage a fine example is the peppered moth of Britain.

Culex — A genus of mosquito a species of which is the vector for filariasis. It proliferates in polluted stagnan waters in the tropics specially containing sewage etc.

Cullet — Broken glass of one colour and which is clean It requires less fuel to make bottles than from the raw materials.

Culm and Gob Banks / Anthracte & bituninous — Residue of interior fuel and waste of no commercial value from coal - processing plants which is allowed to accumulate on land as banks, they disfigure the landscape.

Cultch — Materials generally composed of shells and pebbles that are let into the coastal sea to provide suitable sites for the growth of the larval stages of shellfish. The culturing is commercial.

Cultural entrophy — The entrophication of water bodies by pollution from man's activities,

Culvert — Passage in the form of channel or large pipe below a road, raildway or controlled tip for streamor sewer.

Cumulative frequency function — The measure of cumulative frequency distribution of pollutants analysed statiscally.

Cuprosolvency — The dissolving of copper in drinking water, this occurse in hot water with low pH and also with high chloride concentration.

Cyanides — Salts of Hydrocyanic acid. Those found in certain effluents cause toxic effects on fish and other organisms in the running waters such as rivers and on bacteria in sewage works. Production of the poisonous gas hydrogen cyanide is dangerous to humans working in these areas. Cyanides may be removed from an effluent by oxidation with chlorine to cyanates which are relatively harmless or by treatment with ferrous sulphate to precipitate the cyanides as a complex iron cyanide.

Cyanophage — A kind of virus harmless to humans but are more resistant to chlorination than coliform bacteria hence their use as indicators of the presence or absence of certain harmful micro - organisms.

Cyclodine Pesticide — A member of the organo chlorine family of pesticides includes some of the most persistant and environmentally disturbing chemicals like aldrine, dieldrin etc. More than 100 species of insects have developed resistance to these.

Cyclone — A low pressure area with rotating winds, which bring moisture. Rainy windy weather prevents as the rising air gets cooled and vapour condenses. Also a device in industry where by particulate matter from the waste gases is removed.

Dalapon — A herbicide helps prevent or controls growth of monocotlydenous plants such as reeds and grasses that might block water courses.

Dam — A construction across a river or stream that regulates the flow of water for irrigation, hydro electric power, increase low flow or flood control. Augmentation of low flow may dilute pollutants, however dams cause many environmental problems for a reservoir behind a dam can eventually get sedimentation which would consist of the nutrients which may not reach the estuaries.

Daphnia — Water fleas that can act as biological indicators of pollution by toxic wastes in water.

DDE — Dichlarodiphenyldichlor ethylene — A breakdown product of DDT, The earths ecosystem has been burdened with this chemical, which although not commercially used as a pesticide it does have pesticidal properties. They get stored in the fatty tissues especially of birds.

DDT — Dichlorcdiphenyl trichloroethane — Widely used insecticide due to its low toxicity to mamals & cheapness of manufacture. It has harmful side effects and accumulates is fatty tissues of predatory birds. Its' use is much limited now.

Dead storage — That volume of bottom water which cannot be drained since it is below the outlet dirty etc.

De-aeration All the dissolved oxygen in the feed water of boilers need be removed to stop corroslon. This is done by physical or chemical means.

Decibel A — (dBA) Scale — Is a measure for determinng human reaction to noise. O dBA is the "Threshhold" of hearing. A quiet office is 50 dBA and a very noisy factory is 90 dBA.

Declaration on human Environment — In the UN conference of Human Environment held in Sweden in 1972, a declaration of general outlook & common principles was issued.

Decomposer — A scavenging organism which may be a small invertebrate or fungus feeding on and breaking down dead organic matter.

Decontamination filter — Activated carbon or resins & other material filter that can remove almost all the redioactive materials from water.

Dedusting — A method by which all or part of the dust occuring in a gas is arrested.

Deep coarse Filter Bed – Sewage effluent is purified in a deep filter bed with rounded sand grains. These filter beds act as anaerobic filters in de-intrification or intrify sewage effluents.

Deep cone Thickener - Instead of lagoons this thickening tank is use for settling tailings from a coal washery.

Deep-Shaft System – This is an activated sludge system used for treating domestic sewage & other industrial waste where air is blown into a shaft very deep into the ground.

Deflation – The capturing & removal of loose material by wind.

Defoliant Removal of leaves from trees especially in war where the canopy is destroyed by herbicide as a result the hormonal balance of trees is upset causing metabolic disorders in them.

Deforestation — Destroying of forest and the under growth for cultivation or removal of timber for constructions. The removal of which cause erosion when it rains which may be sheet erosion when water runs down steep gradients and Ravine, erosion which is a later stage of rill erosion.

Degradation — Movement of water enbloc over any substrate (in a river or stream) which causes erosion of the parent material. The finer particles are removed as suspended materials while the coarser materials may be moved along gradually as a bed load.

Degreasing — The removal of grease oils etc from machine parts in industry be dipping them into a tank of commonly organic solvent which latter may cause skin inflamanation or even caneer.

Degree day co cept - This is to calculate the heat req uired to maintain the living space at a comfortable temperature while the outside conditions are changing.

Dehumidifier In air conditioning systems the incoming air is dried by passing it over layer of hygroscopic material or a spray of super cooled water

De-inking — In recycling paper chemicals are used to remove old ink from the vast amount of minute wood fibres present in the used papers.

Delayed Density dependent — Where the mortality of a parasitised host population depends on the host population density in succesive generations which affect the size of parasite population.

Delta — River mouth accumulation of sediment. The rate of sediment accumulation depends on its deposition into sea or lake exceeding the rate at which it can be removed.

Deme — That part of the population which lacks natural barrier for interbreeding.

Demersal — Fish etc. that live on or close to the sea.

De-mineralised / De-ionised water — That is water from which suspended & dissolved solidsare removed & hence very pure water.

Demography - Population dynamics such as of size of population distribution by sex, age etc fogether with the trends in these charactertics of humans.

Denaturing Aharmful substance — Such as dyes being added to a food product meant for livestock making it unfit for human consumption.

Dendro Chronology — Dating & investigating of acient climates using the study of the differences of successive annual rings of trees.

Dendrocoelum lacteam — A turbellariam (free living flatworm) which may be a biologic indicator since it is more tolerant to organic pollution than other invertebrates & is found in mildly polluted waters.

Dengue — A mosquito transmitted viral disease attacking many Asians.

Denitrification — Certain siol bacteria break down nitrates releasing free introgen a process occurring in anaerobic condtions reducing soil fertility.

Density (Population) The number of individuals per unit area in ecology which may be crude density that is the number of organisms per unit of total space or ecological density which specifies the same unit of habitable space.

Density current — Also referred to as Gravity and suspension current etc. when two similar bodies (warm & cold or clean fresh water & salfy ordirty water) come in contaot one flows over or below the other.

Density Dependent — Regulating population that is by controlling or influenced by the size of the population.

Density dependent Factor — When the growth of a population is limited by a factor which depends upon the existing population density such as disease access to food etc.

Density independent — The survivourship or mortality of population of a species varing independenbly of population density

Denudation — Land surface being worn away by both weathering & erosion.

Deodorizer — An apparatus or chemical which removes noxious gases.

Deposited matter — Particles of the air that settles out of it

Deposit gauge — Any air pollution instrument that is used to measure the amount of material deposited in a particular area at a particular time.

Derelict land — Land that has become unsightly or useless due to industrial exploitation & needs treatment to make it of any use.

Dermal toxity — Toxic chemical poisoning the skin on contact.

Derris / Rotenone — A pesticide used tc control certain insects & mites. Its harmful lo fish but not to birds & mamamals, it breaks down rapidly after application.

DES / diethylstibestrol — Growth stimulant in food animals of synthetic oestrogen but whose residue in meat poses cancer problems.

Desalination Desalinisatio — The removal of salt from sea or brackish water. Various methods are applied for this like electrodialysis, distillation. solar evaporation etc.

Desert — Open land devoid of vegetation due to evaporation exceeding the amount of rainfall.

Design rule — Manufacturers expected to stick to rules in the design of products so that they conform to specially environmental standards.

Detergents — Chemicals which are surface - active agent- rhat can remove dirt etc from many a surface. The earlier detergents do not decompose easily. later some what different detergents were manufactured to which subsequently phosphates were included, out there last accelerate the process of eutrophic. ation in waterbodies yet a suitable detergent has not been made

De - toxification - Preventing danger from toxics or poisons-

Detritus Decomposed or decomposing substance on the bottom of land or water bodies. In the treatment of sewage it may be the abrasive materials removed in a grit chamber or may be the accumulating dead or dying material of plant or animal origin.

De - watering of sludge - Various process applied to removal of water from sludge.

Dialysis — Consists of the separation of colloids from a solution using a semipermeable membrane, That is hydro extraction helps concentrate viruses.

Di-Allate — A herbicide that acts on soil in the control of certain crops. It causes skin iritation & is also harmful to fish.

Diastrophism — The deformation of the earth's crust by bending folding or breaking.

Diatom — Forms most of the planktcn of both freshwater & marine. It is a unicellular alga with silica impregnated cell walls.

Diatomite or Diatomaceous earth — A powdery material chalk - like used in the filtering out of solid waste from waste water treatment plants its also an ingradient in pesticides.

Diazinon — A general insecticide effective on a wide range of insects, is harmful if sprayed near nesting sites of birfs. A suitable insecticide since it does not survive long in the trophic stagesof the food web & is not stored infatty tissue.

Dicophane — Synomyn for DDT.

Dieldrin — In insecticide with high contact toxicity for most insects. Contact with human skin inhalation or food contamination can be harmful.

Diffusion — Spreading by scattering of fine liquid or gasious material. One type the eddy diffusion in the mixing process in the atmosphere where by a quantity of polluted air is dispersed to occupy large volumes.

Digester — Intensified bacterial action is allowed on sludge in waste water treatment.

Dilution — Eiffluent disposal of a kind by which fairly small volumes of it are large receiving bodies of water or air.

Dilution ratio — It is the ratio between the volume of water in a stream river and the volume of incoming waste. This can determine the ability of the water body to assimilate waste.

Diphyllobothrium latum — A parasitic flatworm (tape worm) found infecting fresh water fish & some crustaceans from devouring infected human faeces. Proper cooking of the food can eliminate the threat. It's an intestinal parasite causing anaemia.

Dip plating — Development of a metal coating to another metal. This causes metal pollution in the water bodies which receives the waste water.

Direct incineration — The burning of all waste received without prior separation of the contents that cannot burn.

Discharge — Its the amount of water flowing in a particular time through a given point in a stream channel.

Discharge measuaement - The various methods used to measure the quality and quantity of indiustrial discharges into stream close by lay sampling the water. A sophisticated method involves the installation of devices that determine the velocity of the discharge by propellers and rotating cups. The distribution of several automatic discharge meters can provide confirmations data.

Discharge Prevention — A pollution control method of acid mine drainage such that the contaminated water is held within the mine workings.

Disclimax The tampering of an area by humans or animals such that a true climax is prevented from farming but leaving a sub-climax that struggles on for a long time.

Disinfection — The eradication of a major portion of harmful micro organisms by the use of chemicals, heat etc or the use of chemical additive etc to reduce the number of specially pathogenic organisms.

Disintergrater — The use of water spray to catch or collect dust from dusty gas.

Dispersant — In order to remove or wash oil from polluted benches by the use of a synthetic detergent or emulsfier thus producing oil in water emulsion that causes the spread of oil making it easy for microorganisms to reach out & destroy the oil.

Disposal / Infection well — Corrosive or dangerous liquids are infected and left into a well or borehole for disposal.

Diselved load — The components of weathred rock being carried in solution by moving water.

Dissolved oxygen — Generally refers to oxygen molecules in water as parts permillion (ppm). Amount of saturation decreases with temperature increase. DO is necessary for aerobic organisms in water.

In stagnant waters oxygen dissolved from the atmosphere diffuses slowly & the levels are low where as in running water the churning action springs the unsaturate water to the atmospheric oxygen there by the levels are high.

Dissolved oxygen electrodes — The application of a constant voltage across electrodes covered by a membrane in water measure the DO. A current is caused to flow when oxygen is diffusing through the membrane which is directly proportional to the concentration of oxygen.

Dissolved solids — This can be measured electrically by a conductance bridge. It consists of the total disentergrated organism & inorganic materials in water. The presence of these in excess can cause the water unfit for drinking purposes or industrial use.

Distillary waters — The production of liquor from grains cause liquid washes which latter are high in dissolved suspended organic substances however much of the solid wastes are recovered as animal feeds. The remaining liguid is biodegradable.

Disturbances — Excitation especiaily acoustically.

Distributer — The spreading of the effluent from primary sedimentation over the upper surface of a trickling filter in water treatment.

Disulpnoton — An insectcide poisonous to vertebrates.

Diurnal – Daily rhythums also the diurnal cycle of pollution concentrations of much value to air pollution control agencies.

Diuron — A weedicide that acts on soil, its effects, can last for about 12 months after application. It is harmful to fish & can be irritant to humans.

Diversity — Generally biodiversity. A community is said to have high (bio-) diversity when it contains many species of equaliy great abundance.

Divide — American synonym for watershed.

Diversification — In a population or community the increase of variation shown over time.

DNOC / Dinitro - Cresel — A very poisonous herbicide acts on contact. It eradicates insect and mite pests.

Domestic sewage — Human excreta carried in flushing water & other wastes from human activities in the house.

Dosimeter — Measuring instrument of ultraviolet radiation in the solar & sky radiation.

Down draft — Pollution from chimneys brought down by a desorcending current of air behind buildings & under rainstrom cools and spreads it on the ground.

DPD (Diethy — Paraphenylene Diamine) Achemical used to test for free residual chlorine in drinking water.

Dredging — Mechanical way of removing earth from the bottom of still water bodies or over rivers. As a result the ecosystem is disturbed and there is the possiblity of killing the aquatic fauna due to silting.

Drinking / potable, water — Water from wells and mountains streams are drinkable without treatment. But supply from a main from water works as drinkable water is only after the water has been treated.

Drinking water standards — Absence of suspended matter, excess salts and all harmful micro organisms etc from water is the quality in drinking water.

Drip Irrigation Extensively done in Israel it is surface irrigation where by water is delivered through plastic pipes to the plants through holes in them. Waste of water is reduced by this method. It is particularly useful to orchards etc. but unsuitables for wheat. Clogging of the holes in the pipe is a big problem but weeds are discourged.

Drought — Long persistance of dry period due to low rainfall, it results is parched ground often cracking up of the mud and withering vegetation.

Dry limestone process — The use of lime stone to absorb sulphur dioxide in furnaces etc which is a method of air pollution control.

Dump — A plot of land that is open where materials are dumped or burnt. when dumped the place invites flies, mosiquitos & rats which results in water pollution. since water will accumulate due to precipitation as well.

Dust — Minute solid particles project into the air by natural phenomene such as wind, volcanic eruptron or earth quake or man made processes including crushing, grinding miiling, drilling etc. Dust particles usually measure about one to hundred UM in size. (Particles smaller than one UM are fumes or smoke). Generally settles due to gravity.

Dust Collector — Is an equipment which collect and remove dust specially from exhaust gases. This may employ various mechanisms. It is also a device for monitering dust emissions.

Dust deposit — The deposition of solid particular matter on the ground from the external air over a given time.

Dust storm — Dust flow up from the ground as a storm when winds speeds exceed a critical value. It depends on the specific gravity, size, shape & dampness of the surface paricles,

DY — The bottom lake sediment consisting largely of plant detritus mixed with a gelatinous precipitate of iron salts. This occurs usually in oligotrophic lakes.

Earth — The major regions of the earth are the atmosphere, which consists of the gaseous layer enveloping the planet earth, Secondly the hydrosphere which includes water which cover about 70% of the earths surface and thirdly the lithosphere which forms the earths solid crust or mantle and the entire interior. Parts of the first two regions constitute the biosphere, where organisms live.

Earth quake — When a transient disturbance within the earths crust spreads a series of shock waves, an earth quake is said to have taken place. The shock

waves are of two types the body waves and surface waves The origin of the earth quake is called the focus and the point on the earth's surface is the epicentre. The local structural damage caused by the surface waves is classified on a special scale while the magnitude of the earth quake is measured using the Richter Scale.

Earth Scan — Is a news agency founded in 1976 and funded by United Nations Environmental Programme (UNEP) gets original articles on environment and sells them as features to newspapers magazines etc. Its head quarters are in London and in general sells them to developing countries.

Earth watch programme — In 1972 a programme of global environmental assessment of trends in air, land and water and human health was begun as part of the action program of the U. N conference on Human Environment.

Earth Resources Technology Satellite (ERTS) — An earth orbiting satellite equipped to scan the surface of the earth which obtains information relating to natural resources and environment was first launched in 1972 from the U. S. A.

Ecocline — Variation along a ecological gradient directionally in the characteristics of a population or community.

Ecological Balance -/ Balance of Nature — The natural communty of animal and plant life has its components in equilibrium of their relative numbers remain more or less constant hence forming a stable ecosystem. Due to natural ecological succession, changes in climate and other influences there is gradual readjustments taking place continually.

Eeological Factor — The influence on living organisms of any factor of the environment.

Ecological Efficiency — At a trophic level the utilization of energy from thc next low trophic level expressed as a percentage.

Ecological Impact — A natural or man - made environmental change having a total effect of change on the community of living organisms.

Ecological Pyramid — Trophic levels of an ecosystem showing successive diminishing levels where by the highest point is the secondary carnivore is at the summit and the producers are at the bottom and grades of trophic levels in between.

Ecological Niche — Different organisms having different ecosystems and their having a specific corner for itself.

Ecology Is the study of living organisms in relation to one another and to their sorroundings or environment. The community of organisms and the sorroundings function together as an ecosystem or ecological system.

Ecosystem — A natural set of plant and animal communities together with the environmental component that interact in the area as a whole.

Ecosystem Development strategy — A plan to minimise the nutrient content of sewage or any other effluent flowing into the water body. Methods employed may be stocking with fish, aeration and arresting soil erosion.

Ecotone / Tension zone — That is where two distinct ecosystems meet and at this junction charcteristics of both communities are seen. Hence in nature there is no hard distinct line separating the two bordering communities.

Ecotype — A group of species of organisms which are sub-specific or distinct species which is genetically adapted to particular habital but being able to inter breed without affecting normal reproduction.

Edaphic Factors — Biotic and Abiotic factors of the soil which interact in an ecosystem.

Eddy diffusion — Diffusion of gases in the atmosphere.

Ethyl Acrylate — A gas with unpleasant smell in the manufacture of synthetics like perspex, which can be removed from waste gases by carbo filtere etc.

Effluent — Generally refers to fluid emitted by a source. Sewage water or other liquids treated partially or completely and flowing out of a treatment plant etc.

Effluent standard — In a discharged sewage the maximum amount of specified pollutants allowed by regulating agencies.

Ekistics — The branch of sciance that deals with human settlements and includes research and experience in town planning sociology etc.

Emission — The entire solid. liquid and gaseous pollutants emitted into the atmosphere from a given source in a given fime in grams per cubic meter.

Emission Factor — The link between the amount of pollution and the amount of raw material processed in an industry.

Emission (Effluent, Discharge) Standard - The acceptable maximum release of pollutants from a given source to a specific medium under specific conditions.

Emulsifier — A type of chemical when added to a mixture of two or more immiscible by lessening the surface tension in the continuous phase. For example in an oil - in - water mixture the oil is the disperse phase occuring in bubbles and the water is continuous phase.

Emmulsion breaking — Where the two parts of an emmul sion ts separated by adding chemicals that makes the droplets cf the disperse phase to coalese into large drops.

En capsulation — The method of toxic waste disposal whereby the substance is cast into an concrete like or similar material which is in accesible to and insoluble water and other substances that might release the poison.

Endangered species — Usually refers to vulnerable fauna but may well apply to plants, which are likely to become extinct due to pressure on highly specialised

habitat or due to exploitation by men such as coral mining, poaching, (for tusks of elephants) or threat from other species or due to a combined destructive happenings. The Koala bear and emu are examples of fauna.

Endemic — Disease producing or pest species that originate in a particular region or area and which occurs continuously. A species confined to a speciftc reglon.

Endogenous phase growth — In a population of micro organisms growth phase thers is no new intake of food from cutside the population but the individual microbes use the nutrients from dead cells at the same time the number of living cells is on the decline.

Endo perasite — A parasite that lives within another animal (the host) specially in the digestive tract. Genereply these parasite develops mechanisms to tolerate or be immune to the hosts repulsive methods and have stages living in or outside which bring about transmission from one host to another.

Endrin — A deadly insecticide poisonous to vertbrates, its use in agriculture is not allowed in many countries.

Energy budget — The energy relation in the various trophic levels of populations in an ecosystem that is recorded.

Energy flow — It is the passing or flow of energy through the various trophic levels of a food chain or web. The Initial energy is heat and light energy from the sun which is converted to chemical energy. At each level some energy is dissipated during respiration. As such when energy flows from trophic level to the next much of the chemical energy is lost during this transfer from the lower to the higher.

Energy resources — The fossil fuels that is biological including petroleum, coal and natural gas. Industrial Hydrologic and hydro electric thermal and electrical and climatic such as wind water and ocean currents forming the energy reserves available for mankind.

Enrichment — Adding nutrients such as nitrogen phosphorus and carbon to a waterbody from the process of sewage effluent or agricultural run off increases greatly the growth potential of aquatic flora.

Entrainment — Fast moving fluid when in contact with waters removes gas bubbles or solids or liquids particles, for exampie wind removing by sea spray and sand-storm.

Environment — The sorroundings of a living organism that is the biotic and abiotic factors made up of the physical and chemical components

Environmental control Engineering — The methods developed such as design and construction, operation and even the management of equipment necessary for water treatment and supply sewage and the other waste treatment, quality control of effluents and also atmospheric pollution.

Environmental Protection — The discharge into the environment of substances that might be harmful or with harmful effects such as noise or release of radiation and safeguarding beneficial uses being the concern of the resource management.

Environmental quality standards — That concentration of pollutants permitted in specified media such as air and water.

Environmental Resistance — The interaction of one or more environmental factors that would restrict population growth.

Enzymatic hydrolysis — Biodegradation such as aerobic anaerobic or human metablolism involves at least some hydrolysis of complex organic compounds into simpler molicules by microbial enzymes.

Epibenthic organisms — Living organisms occupying the sea bed, such as sedentary oysters hermit crabs etc.

Epibiotic Organisms living on the surface of other organisms

Epideictic display — Animals marking their territory by behavioreal manner.

Epidemic — The quick spreading of a disease in areas.

Epidemiology — A medical study of the environmental personal and other factors that determin the incidence of a disease for example the study of the connection between air pollution and broncheal disease.

Epilimnion — In a lentic habitat the upper layer of the water which usually has the highest oxygen concentration. It is also characterised by a less than one degree celcius of temperature gradient per metre of depth.

Epoch — In the geologic time scale it consists of 2 or more epochs constituting a period which are divisible into ages.

Equilibrium population - where the population neither grows nor declines. In the absence of migration natality is equal to mortality.

Eradication — Attempt et the extermination of a species through out its range.

Ergosterol — The presence in the skin of the vitamin D precursor which is converted to vitamin D by ultraviolet radiation. It is found in some animals including man.

Erosion — Removal of rock particles and soil from its origin transported and deposited in another place. Agents causing erosion are water and wind in nature. But soil erosion is also caused by man's careless activities such as clearing of forests removal of sand or corals for man's activities, and over grazing etc.

Erosion scour — Removal of mateial from running waters or banks by fast currents also the removal of top soil by rain which can harm useful bacteria of the soil while the former can be harmful by burying life in the sediments.

Escape — Animals in captivity or from cultivation escaping from these and establishing them in the wild.

Escherichi coli — Its a bacterum its presence in water indicates pollution. E. coli is of faecal origin and occurs in the colon of humans. specially.

Estuary — It is the area in which a river flows into the sea, its a junction. Estuaries are partly saline and partly fresh water so that organisms from the two habitats are found in this zone, hence their ecology is distinct.

Ethnobiology — The study of the use to which animals and plants and their products are put by people of different culture.

Ethology — Behavioural study of animals in their natural sorroundings.

Eucaryote — These have nuclei and are with higher protein.

Euphotic zone — This zone has sufficient sunlight like the limnetic zone of a lake where photosynthesi can occur and contain much phytoplankton.

Euryhaline — Able to tolerate wide variation in salin. conditions (osmotic pressure). of the environment.

Eurytopic — Widespread distribution of organisms.

Eutrophic — Applied to a highly nutrition filled lake hence a large number of phytoplanKtion is found.

Eutrophication — Due to flow of nutrients like nitrogen and phosphorous. the phytoplankton bursts in blooms as a result the organisms below are affected by the death and decay of these algae in the surface layers thus causing ageing of the lake. In small amounts these nutrients are beneficial to the animals below but the algae flourish and then decay equally fast causing decrease in oxygen available for organisms below. In order to arrest eutrophication chemicals like coppersulphate and chlorine are used to destroy the algae.

Eutrophic Lake — A lake with plenty of algae and little oxygen.

Evaporation — The stage in the hydrologic cycle where by water is lost as vapour to the atmosphere.

Evapotranspiration In a particular ecosystem the total amount of water that evaporates from any specific area such as the soil and vegetation.

Evolution of the atmosphere — For thousands of million years the atmosphere which is almost completely of biological origin has remained fairly stable. It has however changed since a thousand million years ago from a reducing atmosphere containing mainly carbon and hydrogen compounds to an exidising one containing mainly nitrogen and oxygen produced by plants. As a result it paved the way for animal life stabilising mechanisms for atmospheric composition and control due to the presence of a radiation screen of carbon dioxide and a natural turbidity of photo chemical smog.

Exclusive species — Refers to a spacies of a community more or less being completely confined to it.

Exhaust Emissions – Gases emanatings from a cranck case. Diesel enigine or petrol engine contains unburnt fuel, carbon monoxide etc.

Exosphere That part of the atmosphere from about 1600 to 3000 Km where there is no electromagnetic radiation. The ions follow the standard magnetlc force lines.

Explosive — Rapid chemical change on heating or detonation of a substance takes place with the evolution of much heat and great volume of gas.

Exposure — An organism or material being exposed to harmful environment containing concentrations of alr pollutant.

Facultative – Being able to live either with or without exygen often refers to bacteria.

Fall out — Usually its a measure of the air contamination composed of mass rate at which solid particles deposit from the atmosphere. It also often refers to the radio active fall out from an explosion which may be from atomic or thermonuclear origin.

Fanning – Bahaviour of the chimney plume when the air is very stable. It produces a thin layer of pollution that may settle on tall buildings or hills at a distance.

Feed lot — A limited small area for cattle raising. It's cost is low but the soil cannot absorb the large amount of animal waste that result from it, hence the run off will pollute nearby water bodies.

Fen — An area of low lying land in which water covers part of it.

Fentin — It's a fungicide which control certain plant disease. contain organic compounds of tin and are poisonous to vertebrates.

Fermentation — A process by which organic material are converted to alcohol, methane etc. generally in the absence of oxygen by organisms like bacteria.

Ferruginous discharges (Red water) — Water common in acid using drainage or iron discharged into water. Its acted on by sulphuric oxidising bacteria and conveted to sulphurlc acid and ferrous sulphate, which de-oxyginate the water. If it enters a stream it can pollute it and kill fish and all other living things it contains.

Fertilizers — It consist of material when added to the soil improves the growth of crop plants. In the past natural manure such as animal manure, vegetable waste etc were used. But now organic fertilizers and other chemicals are used which when leached to water is a pollution threat.

Field Capacity — The maximum amount of water that is possible for a soil to hold in its inter spaces after excess water has been drained away.

Filariasis — It is a disease caused by the nematodes *Wuchereria bancrofli* (and *Brugei malayi*). The larvae are released in vast numbers and affects the blood and lymph of specially man. It is a tropical parasite transmitted by the mosquito culex fatigans.

Filling — Dirt and mud often raised by dredging is deposited in marshy areas thus reclaiming the land but this method can destroy the ecology of the marsh.

Filter — Generelly a porous material which separates solids when a mixture of solids and liquids is allowed to pass through. The solid particles are retained on the filter.

Filter Fly — Many species of small fliea are found breeding in trickling filters in sewage works. They may cause a fly nuisance to people near the sewage works. By the careful use of disinfection or insecticide or by flooding the filters for a day can reduce them.

Fitness — The number of offspring produced to the number needed to maintain a constant population. This being a response to natural selection.

Flagellata — One group of protozoans that contain a number of species like trypanosoma which cause sleeping sickness in man in Africa.

Flash colours — Certain animals are able to produce bright colours suddenly in certain of its areas to confuse predators and thus escape from them.

Flashy stream — After rain the stream in mountain district or the large paved areas of cities where the flow rises rapidly it drains and then equally falls fast again.

Flax wastes — The acidic effluent with a high Biological Oxygen demand being produced in the manufacture of linen from flax anaerobically is coloured and smelly. But with the aerobic process it is partly reused and hence is not absolutely a pollutant.

Flood — Generally due to a storm at some part of the river causes it to swell the level rising beyond the bank full stage. And since usually people settle on the flood plains due to the high fertility of the soil there they are subject to destructive effect of of overflowing. Building of dams can ease the problem to some extent. There is also lesser flooding in other areas where there are no rivers

Flood Plain — Part of the river valley relatively a level area formed from sediments deposited by the river during periods of flooding.

Flue — Synonym of chimhey. Also a passage usually on top of a building conveying combustion gases from an incinerator.

Flouridation — Flourides are added to general water system to prevent teeth decay or delay it.

Flourocarbon — In aerosols it is a gas used as a propellant which is believed to affect the ozone layer in the stratosphere as a result allowing more of the harmful solar radiation to impinge on the earths surface.

Fly Ash — That part of the products the glassy powder like materials of combustion specially of coalfire, consisting of the non - combustible mineral remains or ash of the fuel often with minute particles of the fuel. It causes annoyance to people in the locality and its difficult to clean fly ash from surfaces on which it settles and when It's breathed and it finally settles in the lungs it cause health hazards, specially to humans.

Foamfractionations — Synthetic detergenta, organic compounds or dyes being removed from sewage or water by bubbling air through it the foam that is a gas in liquid dispersion, is collected from tha exit air stream. In the foam solids may also be removed.

Foaming From synthetic detergents in rivers or activated sludge plant foam may escape into the air as a pollutant.

Fog — When the wind is light and calm and cooled below a certain temperature, condenstaion will take place and small droplets will be formed in the atmosphere, These droplets may form as a suspension around the very small particles that are always present in the air. According to interntional standard fog is defined as visibllity below 1000 meters.

Fogging — In destroying mosquitoes and blackflies, the pesticide applied by rapidly heating so fhat the chemical forms very fine droplets that resemble smoke.

Food additive — Any substance the use of which on addition may result directly or indirectly in becoming

part of the food or else affecting the characteristic of the food to which it is added. The additive may be of various types such as colour additive Enzymes vitamins and amino acids, non-nutritive sweeteners, flavour, potentiators etc.

Food chain — The energy transfer in the organisms where the producers the plants is food for the herbivores these in turn form the food for primary carnivores which then form the food of secondary carnivores. This link between the trophic levels is a food chain from producers to consumers.

Food poisoning — The bacteria salmonellae contaminated food when taken causes diarrhoea and other complaints. It is rarely fatal.

Food web — The relationships in a food chain when inter connected, where organisms in one trophic level is eaten by more than one type of organism.

Forest — Usually naturally occuring extensive area of wood land or plantations some maintained for timber. It may be coniferous or deciduous. Also the Rain forests are those where there is high rainfall with very short or absent dry season, these are found in the tropics where there is monsoonal rains.

Forest conservation — An awareness of the dwindling forest specially tropical forests as that of Amazon forests and enacting laws to reduce deforestative and exceessive felling for timber, for cultivation. and reforestative by planting trees on an extensive scale. Thus making attempts to preserve the forests of the world.

Fossil — Organisms of bygone ages being preserved as remains or traces in the earth's crust by natural processes. Fossils may be formed in a number of ways. There are dating methods by which the age of the fossil may be determined.

Fossil fuel — It may be solid (coal) liquid (oil) or gas (natural), It consists of the decomposed deposit of vagetation over millenia.

Free Acceleration test — Method by which pollutant gas from automobile is measured.

Freed lot — Pens in large areas where beef cattle are slaughtered. wastes from sewage of these fed cattle endanger near by water bodies.

Fresh oil spills— The most dangerous of oil spills are fresh ones due to the low boiling point liquids. However they evaporate or get dissolved quickly after a day or so in warm weather by then the toxicity is greatly reduced.

Fresh water — Inland waters with low total dissolved solids. Some regard 500 mg / litre of dfssolved matter as the limit while others take 1000 mg / litre as the limit.

Fresh water mussels — These animals are bivalves they block the water mains but they are flushed out by heavy chlorination. when briefly the main cannot be used.

Fresh water shrimps — These are crustaceans such as *Gammarus pulex* which need fairly high dissolved oxygen level and are biological indicators of clear water.

Fume — Solid particles generally less than 5 u in size are airborne and arise from chemical reaction, volatiilization, sublimation, calcination. and distillation. The particles are respirable.

Fumigants — Are chemical compounds used as pesticide. Generally they are used in agriculture. They are volatile and very toxic substances, added to the soil to kill insects nematodes and sometimes weeds. They affect the soil microbes that convert ammonia fo nitrite and nitrates and remain active for several weeks whereby soil fertility is reduced.

Fungus — Primitive form of plants both aerobic and heterorrophic lacking chlorophyll. They are found on land and aquatic media. Mushrooms are one type ot fungus. Many are filamatous and are found in polluted fresh waters. They hardly cause any disease in man but cause many disease to plants.

Game fish — Are species of fish caught in the sport of Angling. They are more sensitive to environmental changes than other food fishes.

Gammarus pulex — A cusstacean of the ammphipod group sensitive to pollution since they need high levels of dissolved oxygsn.

Garbage — Kitchen waste. It decomposes more quickly than other town wastes.

Gas chromatography — A biochemical technique for separating mixtures of volatile substances.

Gas Plume — An effluent consisting of gas only or gases with particles. Gas plumes may be of different kinds due to the distinctly different atmospheric conditions.

Gasoline — Commonly known as "Gas" specially in the U. S. A. It is a fuel obtained from petroleum and made use of almost entirely on internal combustions engine of atuomobiles and certain air craft.

Gasoline Additives — Cartain compounds (anti Knock) promoter smoother and less explosive and more knock free combustion. Since the lead in these additives would deposit in parts of the engine certain chemicals are added to convert the lead to volatile bromides and chlorides. These compounds find their way out through the exhaust into atmosphere. Antioxidants detergents and Anti-icers are added to gasoline for trouble free engines. Almost half the pollutants emitted each year originate from automobiles lead compounds or car — produced pollutants chiefly carbon monoxide.

Gelatic — Collagen being the main source of this protein. It is used in medicine Biology food processing etc.

Gene — Basic unit of inheritence and composed of a molecule of Desoxy ribonucleic acid that determines and controls hereditarily transmissible characteristics genes are arranged linearly in the chromosomes found in the nucleus of a plant or animal cell.

Generation curve — In a growing developmental stage the population density being plotted for a sequence of generation, against generation number.

Generation / Doubling Time — The time taken for a single cell to duplicate itself or two to become four etc, it depends on the certain factors such as temperature, pH and availability ot adequate nutrients.

Genome — The entire genes of an individual organism.

Genus — A unit in the taxonomic scale representing a hypothetical assemblage of species population. It is a sub group of a "family".

Geological Time Scale — The measure of time for the age of the earth in terms of eras and periods.

Geomorphology — The study of the earth in relation to form and development especially its surface and physical features as compared to its under lying geological structurs.

Geosphere — That part of the solid non living region of earth excluding the atmosphere, hydrosphere and biosphere.

Geothermal — The heat from the interior of the earth made available through hot springs etc. This can be used for heating and other purposes. The best place to be found is across Newzealand where anomalies in the temperature gradient in the earth's crust is seen.

Ghanat/Ganat — Probably first used 2,500 years ago in the arid countries like the middle east consist of a network of tunnels dug to collect water from the ground water source.

Giardia — The water borne disease giardia of humans and animals due to infection of this flagellate causes diarrhoea.

Gebberellins — Hormones of plants which control growth and development in them.

Glacier — A big area of ice originating from land and showing evidence of present or past movement. They occupy. about 10 % of the earth's terrain surface and contain about 98 % of the earths freshwater.

Gladioli — These plants grow from bulbs and are biological indicatos of air borne flourides at very low percentage when the leaves turn yellowish brown.

Grain loading — From a pollution source the particles emitted are measured as the grain per cubic feet (0. 29 Cu. M) of gas emitted.

Grass land — Terrestrial habitat of herbacious vegetation dominated by grasses. Most grass lands are not very old. Extensive areas of the world grass lands are the steppes in Asia and Europe; Prairies in North America; Pampas in South America and Savannas in Africa.

Grate — It is an item of the incinerator that supports the refuse and allows that ash to fall through to the ashpit.

Gravimetric Dust Sampling — Respirable dust in a unit volume of air being determined for its weight. Harm to the breather is not due to the number of particles but the mass of the respirable dust being increased.

Grazing — Inverebrate fauna like insects their larvae, rotifers Nematodes snd Oligochaetes which graze on the biological film in a trickling filter in water treatment.

Great Barrier Reef — In Australia the north eastern part of the continental shelf being made up of the calcareous skeletal remains of coral algae sea urchins molluscs etc. and these living animals. The reef isxa-about 2,400 km in length.

Green Bans — Environment concerns groups prevent the construction of buldings free ways etc through cities saving parK land. Green bans are imposed to preserve living conditions.

Green belts — The Britsh started this in 1959 where by belts of land with vegetation are left around urban areas. This prevents further expanslon of the urban areas, its uses are manifold one being the preservation of historic cities.

Green House Effect — The principle of selective absorption used in the construction of the green house whereby the green house is kept warm applies to the carbon dioxide and water vapour of the atmosphere. These gases while they allow incoming short wave solar radiation are relatively opaque to long wave radiation back from the earth like wise cause a warming or green house effect. In the atmosphere the increase in carbodioxide from industrialisation and fuel combustion aggravates the situation that could raise the mean temperature of the atmosphere affect the climatic conditions on the contrary an increase of aerosols also due to industrialisation could cool the earth throgh a reflection of solar radiation. Therefore the actual harmful effects of the green house effect on fhe atmosphere is controversial.

Green manuring — The practice of growing plant crop specially to make use of it as manure by digging into the soil.

Green Revolution — Norman E. Borlang the Nopel prize winner (for 1970) and agronomist developed great yielding strains of wheat and rice that increased the yield excessively specially in the tropics.

Grit and Dust — In air pollution Grit is larger than 76 u meters but sewage grit is larger and includes sand gravel ashes metal etc. Grit and dust is pollution by solid particles. It is the source of complaint of residents and industry. Dust being solid particles produced in combustion and processes such as grinding, crushing and demolition.

Gross productivity — It is the rate at which energy is fixed by plants during photosynthesis energy is used in respiration and hence the gross productivity minus this respiration rate is net productivity.

Ground cover — In order to prevent erosion of the soil, plants being grown.

Ground level concentration — The presence of solid liquid or gaseous material per unit volume of air about two metres above ground.

Ground level pollution — The presence of a pollutant in weight occuring at ground level.

Ground water — Rain water percolates through soil into an impermiable material and gets stored. The upper layer of this ground water is the water table.

Groyne — A process consisting of building of a structure extending into the sea for shore protection from erosion by wave action tides and current.

Guano — Is a fertiliser which consists of bird excrement large quantities of it being found almost exclusively on islands or near coast. One such is the west coast of South America other form of excrement like that from fishes is also used.

Gully Reclamation — Small gullies being ploughed in and check dams may be constructed a long a gully which allows silt to collect behind the dams to gradually fill in the channel, the method checks erosion.

Habitat – The place where an organism or a population lives the habitat has a relatively uniform physical environment and has a fairly close interaction of all the biological species involved. It is the living place of a community. A habitat may also be climatologically tropicai forest, desert etc.

Hail — In cold weather small lumps of ice fall which is one form of precipitation.

Hard detergent — A non-hiodegradable synthetic detergent.

Hardness of water — This is due to the total concentration of calcium and magnesium which when their bicarbonates are present is refered to as "permanent hardness". It is unsuitable for industrial purposes it needs treatment but for irrigation purpose hard water it is good since it reacts with soil favourably and reaches the roots readily.

Hazardous Air Pollutants — Asbestos and certain chemicals which may cause illness or death.

Hazardous wastes – May be toxic such as pesticides or lead salts. Flamable like hydrocarbons corrosive such as acids or alkalies or oxidising as nitrates and chromates, which pose danger to living organisms when released into the environment or saftey of humans affected in incorrect handling of equipment in disposal plants.

Haze — The presence of fine dust particles in suspension in the atmosphere causing obscurity.

Heat transfer — It is the transfer or exchange of heat by radiation, conduction or convection well within a substance and between the substance and the environment.

Heating Season — During winter when pollution increase in much inhabited areas due to the burning of fossil fuels to keep warm.

Heptachlor – An insecticide highly toxic to fish and birds whose use was banned in 1975 by the environment protection agency.

Herbicide — Used to kill (unwanted) plants, usually the leaves become deformed in some crop plants.

Heterosphere — It is a part of the upper atmosphere where the quantities of gases present are variable. Also forms the region when radiation and other particles become mixed with particles of the air in the atmosphere.

Heterotrophic — Includes all animals and fungi which make use of the energy obtained from the break down of organic substances.

Hibernation — In winter most animals remain dormant with reduced rate of metabolism.

High level inversion — The inversion of temperature well above the earths surface on occasions. This prevents the ascent of chimney plumes.

Holding pond – A structure - reservoir or pond built of earth to store runoff pollutants.

Holophytic — Applies to plants which are able to manu facture food (carbohydrates) from Co_2, water and sunlight absorbed by chlorophyll. That is carbon assimiiation or photosynthesis.

Home range — That part of the sorrounding in which an animal move in soughting and gathering food.

Hormone weed killers — These are growth regulating herbicides which are synthetic compounds which are similar to natural growth regulating hormones or auxins. The herbicide is absorbed by roots & plants & directed to the growing points inhibit growth or cause deformities that eventually kill the plants. These are used to selecttvely kill weeds in cereal and other graminae.

Hot brine — Naturally occurring brackish subterranean water whose temperature is markedly high & here used as geothermal energy. Newzealand has such sources.

Humate — when humus dicomposes the humic acid formed may be converted to this salt or ester.

Humification — Dead organic matter being broken down by microbial action in the soil resulting in the formation of humus.

Humidifier — This bring air at a desired temperature into contact with water thus increasing the water content of the air this is often incorporated into air conditioning systems.

Humus — The break down of plant and animal tissue results is a complex organic componet of the soil its of great importance in plant growth.

Hurricane — Is a tropical storm and it moves differently in the northern and southern hemisphers. It originates in different places and reach a wind speed of 75 miles per hour or more.

Hydro electric energy It is the electric energy generated py water driven turbines at a dam. It may cause envitonmental problems where by natures grandesr canyons & water ways are destroyed & eventually siltation of the dam's reservoir results.

Hydrogen cyanide — Highly poisonous gas liberated in industry & causing many accidents.

Hydrogen sulphide — Large quantities of this gas are produced in the processing of petroleum in the coking of coals etc. In standard practice this gas is recovered for the production of sulphide which may later be used in the production of sulphuric acid.

Hpdrologic cycle — Mainly it is the inter change between the earths surface and the atmoshere through precipitation and evaporation. All water is trapped in the recyling process the hydrologic cycle.

Hydrosere — In plant succession the stage begin with water or wet habitat and progress toward deciccating conditions.

Hydrosphere — The entire water present on earth from oceans to ground water and swamps. It also inciudes the ice locked continents of Antartica and Green land.

Hypolimnion — In a lake it is the lower region or bottom stratum below the thermocline it has a temperature gradient.

Igneous rock — Unlike sedimentary rock this is rock formed by solidification from a molten or partially molten state.

Impedance — It is the rate at which a substance absorbs & transmits sound.

Impermeability factor — Is a factor that indicates the amount of rain that falis on a surface runs off it.

Impinger — Any pollutant collecting device that projects the gas containing it against a damp surface that catches it.

Impou ding reservoir — Raw water is stored in this resevoir for periods from a few weeks to months or longer which provide a significant improvement of water quality since they allow suspended matter to settle and even bacteria die off, yet if the water contains nitrate or phosphate it can cause eutrophication.

Impoundment — The confining of water by dam or other barriers.

Improductive forest — That is any forest that is not capable of yielding products other than fuel due to adverse conditions for eg. the forests that grow slowly or are stunted.

Incineration — The burning of refuse to reduce the volume and weight leaving a harmless residue.

Incombustibles — Materials that do not burn, specially of refuse.

Incubation — A sample or microbial culture being maintained at suitable temperature for investigations, in which the microbes are likely to multiply,

Index species — A narrow range of environmetal conditions in which an organism lives which is characteristic of these conditions.

Indicator Biologic An organism, species or community which is capable of showing the occurrence of certain environmental conditions.

Indicator organisms — These are biologic indicatore of pollution.

Indigenous — An organism being native or original to an area not introduced from outside the particular environment or region.

Indnutrial effluent — The various air & water borne wastes of industry.

Industrial river — In dry weather the flow of a river is mainly of effluents from domestic & indusirial waste water treatment plans, which is generally poor in dissolved oxygen & fishes are lacking.

Industrial wastes The many substances resulting from various manufaeturing processes including heat, agricultural run off, from fruit & vegetable processing, from petroleum refineris, phosphorus and pulp and paper.

Inert refuse — Rock demolition refuse which neither pollutes nor is biodegradable, which can be used to cover a control tip or to fill a wet pit.

Infiltration — That is the unintended entry of ground water into a drainage system.

Influent — Either raw or partly treated sawage or other liquid wastes flowing into a reservoir etc.

Infrasonic — Refers to wave frequencies below range of human hearing.

Inhibitor — The prevention of corrosion of fluid carrying pipes of solar collectors with a chemical included in the liquid used.

Inorganic pesticides — These are some of the oldest known pesticides generally of sulphates, arscnates or chlorides of copper lead & .mercury, whlch are still in use.

Insecticide — A large group of substances used. to kill insects by attractlng them to traps, poison baits or merely repelling them.

Insolation — The reception on a horizontal, surface of the total solar energy rate.

Integrated Pest Management — This is a management of various techniques whether biological chemical. cultural physical or mechanical into a pest control system.

Inter flow — The movement of water in the ground after meeting a relatively impermeable layer & which then flows horizontally to an outlet.

Inter fluve — That portion of land between adjacent streams.

Internal Combustion engine — The combustion of a fuel in an enclosed space in an engine whereby power is used to produce mechanical motion. The light temperature generated produce some gaseous pollutants with a residue of hydrocarbon.

International programmes — Such as International atomic energy agency, biological programme, council of Scientific unions, convention for the prevention of pollution from ships etc.

Inter tidal zones — That part of the sea shore between high & low tide marks.

Ionosphere — Is a layer of the atmosphere above 80 kilometers above the earth at which level some of the suns U. V radiation is absorbed by certain of its gas molicules which gets ionised into molecules & atoms or free atoms.

Irrigation — The use of pipes or channels in artificial watering of farm land. This may also be used in sewage disposal where land is plentiful, less costly & well drained.

Iso cyanate – Commonly applied to roofs in the west but it causes skin rashes, nausea & the like when applied by spraying.

Jar test — The determination of usually the correct chemicals for a water or sewage generally for the pH and coagulant requirement for a raw water varying amounts of combinations of chemicals are added to many samples of water of equal volume contained in jars. They are slowly stirred.

J shaped growth curve — In populations, density increases rapidly in exponential fashion and then stops abruptly as environmental resistance becomes effective more or less suddenly.

kjeldahl technique — Total Kjedal nitrogen is the ammonical nitrogen plus the unoxidised organic nitrogen. By this technique unoxidised organic nitrogen in water is measured by this standard method, where this portion is digested with sulphuric acid with a catalyst resulting in ammonium eulphate from the organic nitrogen. The amount of ammonia is then determined by distilling it off at pH 10 followed by nesslarisation.

Lacustrine — matters of the lakes.

Lagoon — An area or pond for allowing dirty water to settle before discharge into a river that is for temporary storage immaterial from water works, sewage treatment etc.

Lake — A very large not flowing body of water held in a depression in the earths' surface, it has a wave wasted shore line unlike a pond.

Land fill / Land reclamation — The controlled tipping of disposal of refuse on land usually a low lying area which is later made available as a playground and years later compaction for construction of house.

Land pollution — It refers to the misuse of land where by it is made unfit for man's future needs.

Land scape conservation — Making available for public enjoyment of scenery or landscape it is also for the preservation and enhancement of not merely what is inherited but also leaves room for new fascilities.

Land treatment — The treatment of any sewage effluent or sewage by irrigation.

Larvicide — A pesticide that kills immature stage or larvae of insects or other invertebrates.

Laterite — In the tropical soil it is a layer consisting cf granular or earthy mass mainly of iron and aluminium oxides.

Laundry wastes — It is the waste water from large laundry with high pH and turbidity.

Law of minimum — Certain minerals as macro and micro nutrients are needed by plants. If the soil does not supply this minimum the plants need, they cannot grow what ever other nutrients may be available.

Leaching — Consists of a process in metal recycling where the tin (a collective term) cans help remove copper from copper ore.

Lead in petrol — Tetraethyl and Tetramethyl lead is used to raise the quality of petrol at low cost. Lead compounds are emitted from antomobile exhaust pipes as solids are respirable dust. Lead compounds are the main sources lead in city air.

Lentic — Refers to stagnant or still waters as lakes and ponds.

Leptomitus lacteus — A true aquatic fungus a dominent member of sewage fungus.

Lepto thrix — This is a filamentous iron bacterium found as filaments in organically polluted water which can grow in the absence of iron.

Lethal gene — The killing of an individual by a gene which bears it by causing some disorganisation of the metabolism of the host.

Leukaemia — The uncontrolled over production of white cells in blood which is usually a fatal disease.

Life system concept — A life system comprise a subject population in an ecosystem and its effective environment which latter includes all biotic and abiotic factors, influencing the population. Here the population and the environment are inter dependant elements which function together as a system.

Life table Its the form of a description of the age specific survival of cohorts of individual in a population in relation to their age and stage of development.

Light — Obscuration instrument — A meter measuring smoke density.

Lime — Soda softening of water. During this process soda ash (Na2 Co3) may be added to remove non-carbonate hardness by forming precipitates of calcium carbonate and magnesium hydroxide.

Limnetic — Organisms living in the open water of ponds and lakes.

Limiting factor — A state in whose absence or excessive concentration atfects the population which shows some incompatibility with species requirements etc.

Limnetic zone — This forms the region of open water beyond the littoral zone of a still water body down to the region of light penetration.

Limnobiotic — Freshwater life description.

Limnology — The study of abiotic and biotic factors conditions of ponds lakes and rivers,

Lithosere — The successional plant stages beginning on bare rock surface.

Lithosphere — That part of the earth's crust whose outer region biogiosphere in which any form of life exists.

Littoral — Perteining to the shore of a water body.

Littoral zone — This is the shallow shore region of a lake or pond usually with rooted vegetation since light penetrates right to the bottom of this region photosynthetic activity and biomass are high in this zone.

Lodging — The destruction of cerial crops due to mechanical damage by heavy rain or hail. A lodged crop which is in a collapsed condition is difficult to harvest.

Logistic curve — In population growth this forms an S—shaped curve. Here the initial growth is slow then steepens and in the end flattens out as asymptote which is determined by the environments carrying capacity.

Longshore currents — Currents generated by waves winds and tides parallel to the coast.

Lotic — Concerned with flowing waters such as streams and rivers.

Loudness — Causes of noise pollution with sound waves reaching an annoyance level both in loudness and freguency. Those of the high frequencies are most annoying.

Low density baling — The process of compressing surface usually into containers from which it is eventually released.

Lung cancer — Usually atmospheric contaninants coupled with cigarette smoking causes the generally fatal disease of lung cancer.

Macrobiota — The larger organisms in the different ecosystems.

Macronutrients — These are mineral nutrients such as carbon hydrogen, oxygen, phosphores sulphide calcium and potassium needed by an organism specially plants.

Magneticfield — The area in the neighbourhood of a magnet or of a conductor carrying an electric current whose magnetic forces can be defected.

Magnetic storm — Solar flares and sunspots cause a disturbance in the terrestrial magnetic field as they travel as a stream of corpuscles at about 4 million mph through inter planetary space covering the distance between the sun and the earth in about one day.

Malaria A disease caused by the protozoan *plasmodium.* in man and other animals. The transmitting agent is the female *Anopheles* mosquito.

Malthusian theory – Pertaining to the population, a theory proposed by T. Malthus according to which a population would soon outstrip the means of feeding unless checked etc.

Mangroves — Are woody species of plants growing on land that is periodically flooded by seawater hence found in estueries and low lying areas such as swamps. They house diverse birds and invertebrates generally the larvae of crustaceans. Birds not only use it as halting or resting place but also build nests and multiply.

Marine Pollution — Pollution of the sea may be by dumping of sewage imperfectly treated or raw and wastes from ships, it may be by industrial effluents or by oil from refineries.

Marsh — Refers generally to water logged region which is usually reclaimed by filling.

Maximum Acceptable Toxicant Concentration — The highest concentration observed of a pollutant in air or water which has no effect on the biology of plants or animals.

Maximum permissible concentration – A radioisotope concentration in air. water milk etc. that will release within the maximum permissible doses to a critical organ when breathed or consumed at a normal rate.

Meat processing wastes — The formation of lard or grease from liquid wastes derived from slaughter house. Such wastes contain a high grease content although they are less polluting.

Mechanical Turbulencs — When influenced by local obstructions the movement of air being erratic.

Median tolerance limit or 50% lethal dose — Testing of the concentratron of a pollutant in water at which 50% of the fish can survive. This amount will vary with pH, temperature and oxygen content.

Membrane filtration — Consists of direct counting method of certain bacteria which is quite fast. Such filters are also used for sampling algae or for concentrating bacteria from water such as drinking water in which they are usually scarce. They may also be used in sterilising certain culture media that break down when heated. The bacteria will be held on it.

Mesotropic — Fresh water bodies which contain moderate amount of plant nurients and are therefore moderately productive.

Meteorolgical Influences — Where pollutants are disper sed to the atmosphere the effect of these characteristics including heat. The most important factor controlling the disposal of pollution is turbulence.

Microbiology — The study of microbes it includes cytology bacteriology enzymology mycology and virology.

Microbiota/microbes — Very small or microspic organisms such as algae bacteria etc found in soil air or water.

Micronutrient — Those chemicals either elements or compounds that are required by an organism. These can be measured in parts per thousand million. But can be toxic when in excess.

Mineralization — The breakdown by microbes of human of other organic material in soil to inorganic substances. It may also imply the reduction of the proportion of organic material by its conversion into carbondioxide.

Mining wastes — Wastes arising from class of mining operators, two forms may be recognised of Rock wastes and (b) tailings from mills. The second may contain chemical hazardous to vegetation and animal life.

Mist — Suspension of water droplets in the atmosphere reducing visibility.

Mixed Economy — Resources that are allocated through both private and public sectors.

Mixing depths — When warm air rise and mixes with cooler air in vast expanses.

Molecular diffusion — The instant inter mixing of different substences by molecular movement resulting in uniform concentrations.

Monitorins Programme — The method of measuring quantitatively or qualitatively the presence effect and level of any polluting substance.

Monoculture — The single crop cultivation year after year omitting all others.

Monophagous species — Some animals are able to make use of only one type of food. Their geographic distribution is llmitted to areas where the particular food is found.

Monsoon — These are typical of tropical South - east Asia. The winds constantly flown on shore during the summer bringing the rainy season or weather and off shore during the winter. bringinq cool weather.

Mortality / death rate — Consists of the number of individuals dying per unit of time. This is caused by various factors such as predation competition. etc.

Mosquito — Many species of mosquitoes are found but only some act as transmitters of diseases. The *Anopheline* mosquito carries malaria while filariases is carried by *Culex fatigans*, and yellow fever is carried by Aedes aegypti,

Multiple use — The comfortable use of land for more than one case such as grazing of live stock. wild life pretection, recreation and timber production.

Mutagen — Inducing of inheritable gene causing a change by a chemical substance or by a physical agent. The change is mutation.

Myxomatosis — Virus caused disease of rabbits. In Australia many number of rabbits were distroyed in 1950/51 by myxomatosis.

Nanoplankton — Very minute plankton, much smaller than the usual planktonic organisms.

Natality — The birth rate of organisms, That is the production of new generations of organisms by sexual or asexual modes of reprodction. Where the reproduct ive potential of a population is besed on natality and mortality in traspecific competition for food ctc.

Natality rate — The rate by which new individuals are added to population by birth.

National Aeronautics & space administrative (NASA) — A Government agency of the U. S. which conducts space exploration and manages launching of satillites.

National Park — That part of a relatively large area of land set aside and preserved for its unspoiled natural landscape fauna and flora dedicated for public enjoyment & education.

Natural Gas — A combustible gas occurring with oil accumulations or coal underground and tapped for use. Natural gas is composed largely of methane and with additional small amounts of higher paraffins together with carbon dioxide and Nitrogen.

Natural Pollutant — A substance produced in nature which is an environmental pollutant under this are included. Volcanic dust, ozone produced photochemically or by lightening; Sea salt particles products of forest fires etc.

Natural Selection — The theory propounded by Charles Darwin as the agent of evolutionary change by which an organism possessing an advantageous adaptation in a given environment multiply faster than those which do not have such adaptation.

Nature Conservation - The preservation of natural plant and animal communities as representative examples of these.

Nature Reserve — Land area or water preserved mainly to safeguard the fauna & flora and physicai features there in.

Navicula — A minute plant that Is a diatom of chiefly of fresh waters prolific in organically polluted water, that is tolerant of a wide range of hydrogen ion concentration and may occur in salt water. Navicula absorbs and concentrates chemical pesticide pollutants and therefore is a threat to fish which feed on it.

Nekton — Unlke plankton and neuston these are tiny free swimming organisms.

Nelghbourhood Noise — Noise emmanating from factories. noise produced when demolihsing construction and works noise from ventilating and air conditioning plants noise from advertising. human noise from lack of conside ration of others such as loud speakers etc, that cause disturbence or general annoyance to the general public.

Nematicide — A pesticide to control nematodes or round worms in soil etc. Most leave no residues on plants or animals.

Neritic zone — That part of the shallow sea overliyng the continental shelf which is relatively warm and is nutrient rich.

Net primary production — The biomass or biocontent incorporated into a plant community during a specific period of time.

Net production — The assimilation rate is gross production rate minus loss from respiration decompositign and predation.

Net raproduction rate — If current rates of birth and death continues it is the average number of female young that will be born to a newly born female during her life time.

Neuston — Small organisms associated with the surface film of water such as mosquito larvae or pond skaters that is suspnded on the upper or underside of the surface film.

Neutrosphere — It is the electricaily neutral region of the atmosphere extending from the earths surface to nearly 75 Km.

Niche — An Ecological area that is a specific part of habitat occupied by an organism, it is also the part played by an organism in the ecosystem.

Nickel Carbonyl — A volatile poisonous liquid formed when carbon monoxide mixes with nickel. Nickel occurs as trace elements in fossil fuel and thair combustion in motor vehicles where nickel carbonyl form and enter the atmosphere. It is regerded as hazard to man.

Nicotine — Is the actlve principle in tobacco leaves. It is public enemy number one as it causes different forms of heart diseases. It is also used as, an insecticide against aphids and other insects.

Nitrification — The formation of nitrates from organic nitrogen compounds by aerobic soil bacteria which can be absorbed through the roots by green plants.

Nitrate — It is the ion No_3. In the food industry it is used to cure meat products, it prevents the growth of the bacterium *clostridium botulinum* which cause fatal food poisoning. Yet nitrate is dangerous to infants blood system and secondly under acidic conditions or high heat it reacts with amines forming nitrosamines that are strong carcinogens mutagens found in experimental animals. It's feared that it will be harmful to man.

Nitrogen cycle — Nitrogen is essential in proteins. in all organisms. It is converted into nitrogen compound by nitrogen fixation caused by certain bacteria and excrements of animals and decay of dead bodies of organisms contain nitrogen compounds which are broken down by ammonifying bacteria in turn oxidise ammonia to nitrates. Still other bacteria break up the nitrogen compounds releasing free nitrogen into the atmosphere whereby the nitrogen cycle is completed.

Nitrogen dioxide — The relatatively harmless nitric oxide is rapidly converted to the poisonous nitrogen dioxide. It is also a by product of a number of industries including fertilisers and explosive manufacturing. It can be fatal in sufficiently high concentrations. In the atmosphere it can combine with rain drops to produce acid rain and it also contributes to photochemical smog reaction and forms aerosols when it meet sunlight oxidised hydrocarbons.

Nitrogen removal — Unwanted nitrogen compouuds can be removed from waters by algai harvesting ammonia stripping chlorination etc.

Noise pollution Noise is unpleasant sound saused by an Interaction between the nervous system and the ear in the form of rapid fluctuations of air pressure. Sounds of high frequency are more damaging than that ot low frequency. Noise specially in urban areas such as those of vehicles specially trucks factories and air craft cause noise pollution.

Non - biodegradable – Such items that are not broken by microbes.

Non - renewable resources — Natural resources such as coal which once consumed cannot be replaced.

Non - point Source – A cause of water pollution such as agricultural fertilizers run off or sediment of construction that cannot be traced to a definite point.

Nucleic acid — A chemical found in all living things including viruses. The two chief forms are Desoxyrebo Nucleic Acid (DNA) and Ribo Nuclelc acid (RNA).

Nuclear energy — Fission initiated in a reactor of a nuclear plant releases heat energy. One of the atoms used in fission is that a form uranium.

Nuclear waste pollution — The replacement of a spent nuclear fuel rod in a nuclear reactor remains extremely radioactive, the cooling water would release radioactive wastes to the environment.

Nuisance Threshhold — An air pollutant such as dust, soot noise smells etc which has a standard for concentration that is consldered objectionable.

Nutrient Cycles – The cycling and regeneration of nutrients specially carbon, nitrogen phospherus sulphur. Primary production by plants release inorganic nutrients which are mineral sources readily available foi other living beings.

Nutrient Stripping — The tertiary treatment of waste waters which would reduce the rate of eutrophication of the receiving waters or to allow the re - use of water for domestic purposes.

Obligate/Anaerobe/aerobe/parasite — A type of life that can live only in the absence of oxygen, in the presence of oxygen and as a parasite only respectively.

Ocean dumping — The dumping or disposal of wastes and raw sewage through pipes etc into the ocean.

Ocean incineration — Toxic wastes such as organo-chlorine compounds that cannot easily be disposed of being in cinerated incinerator ships in the ocean.

Ocean thermal conversion — A method of producing electricity from the ocean that is by the use of temperature differentials between warm and cold parts of the ocean to drive a low pressure turbine connected to a generator.

Odour — It is the perception of smell by the olfactory epithelium. It is usually an unpleasant smell such as chemical irritants or acid fumes.

Oil Coalescer — Consists of the method of separating oil particles from water when allowed to pass through a porus medium which holds back the oil and it eventually coalesce and rise rapidly to the outflow.

Oil films — Crude oil films obscure the passage of light into water this may hinder exchange of gases.

Oil finger printing — By this method oil spills are identified and later traced back to their origin.

Oil pollution - This occurs when tankers get demaged and the contents flow out into the ocean thus polluting It. The growth of the tanker trade on the intake and caution has been taken and preventing measurses adopted.

Oil Slick — Oil floating on the surface of water resulting from natural or accidental discharge of oil onto the ocean and the surface and it gets carried by wind tides etc.

Oil Spills — Spills resulting accidentally or deliberately which may be caused by off shore wells. This may occur in the ocean and the coastal waters or land or into rivers and other large fresh waters bodies. The principal agents in oil spills are mainly hydrocarbons, many are not biodegradable and are generally toxic to many forms of marine life. Oil spill clean up procedures consist of the use of treating agents, dispersants. Gelling agents, Sinking agents, Bio degrading agents, Burning agents etc.

Oiigohaline — Brackish waters of very low amount that is about 0.5 to 5.0 parts per thousand salinity.

Oligotrophic — Bodies of fresh water which are poor in plant nutrients. Such waters are unproductive these waters are clear due to lack of plantkon.

Open burning — The practice of out door burning of wastes & of open waste dumps which therefore causes atmospheric pollution.

Open community — Since certain niches are unoccupied they are easily colonised by other organisms.

Open heerth furnace — A basin shaped hearth used for melting & refining certain types of iron. This causes much dust etc are pollutants.

Organic contaminants — The major source of organic contamination is fuel combustion. In addition waste disposal by incineration and emission of organic gases and vapours by chemical industries are further sources of organic atmospheric contaminants some of these are carcinogenlc.

Organism in refuse — Materials such as paper plastlcs, vegetables and other food refuse make up nearly 60% by weight refuse from municipality.

Organo chlorines — These are chlorinated hydrocarbons specially used in pesticides. Although they serve to elimate many pests they have side effects, hence the use of these are limited in many countries including Britain. These chemicals get concentrated in the food chain and affect man and nature. The pesticides may enter humans by way of food or directly through skin or lungs.

Organophosphates — Chemicals in which the organic group is chemically found with phosphate. The insecticides containing these are broken down and they cannot be concentrated by any food chain, however they are nerve poisons, there are easily absorbed through the skin.

Orientation response — Sudden changes in the environment causes a physiological response in an animal which represent the defensive mechanisms of an animal to reacting to these sudden changes.

Overland flow / Surface runoff — The water from rain snow etc which travels over the ground surface to a stream, channel etc.

Over turn — Stratified water masses specially in a lake, specially different temperature mixes or turnover during certain periods such as the spring / vernal turnover and full turn over resulting in a uniform physical and chemical properties of the entire water mass.

Oxidation — This is the loss of one or more electrons by an atom or ion, during any chemicel reaction. On the contrary the removal of oxygen from a substance or the addition of hydrogen to it (or any reaction in which anatom gains electrons) is called reduction. For example the purification of sewage often involves oxidation with the help of bacteria or other microbes. That is a bio chemical oxidation.

Oxygen balance of natural waters In natural waters such as river. lake etc, oxygen is available in solution derived from three main sources; dissolved oxygen secondly re - aeration and O_2 released from photcsynthesis by water plants. Oxygen is removed from the solution by living organisms particularly bacteria and fish and the overall result of the uptakes and consumptions is called oxygen balance.

Oxygen deficit That amount by which the dissolved oxygen is less than the saturation value.

Ozone — Ultraviolet radiation from the sun encounters molecules of oxygen in sufficient concentration to initiate chemical change in the stratosphere between 10 and 40 Kilometers, where an oxygen afom combines with an oxygen molecule to produce ozone. This forms a protective layer to the earth. But chloro - fluorocarbons from aerosol, propellants refrigerant

fluids etc begin to absorb solar UV light and they break up, when chlorine atoms are released and these chlorine atoms may destroy ozone and generate chlorine monoxide (clo) which can remove oxygen atoms that otherwise might help make fresh ozone. The protective ozone layer when it is locally removed affects human skin causing two tvpes of skin cancer by ultraviolet radiation on it.Ozone is also formed in smog which requires the presence of sunlight and nitric oxide the main air pollutant released in the exhaust of internal combustion engines of automobiles ete. The ozone so formed is destroyed easily, A layer in the atmosphere about twenty to fifty Km abovethe surface, which contains ozone produced by ultraviolet radiation.

Paper — Wood is made into pulp for paper making either mechanically or chemically. The latter produces a highly polluted waste water but the finishing process gives a mixed effluent.

Parasite — An organism, generally small, living on a large animal the host for part or full life.

Particle — Consists of minute mass of solid or liquid matter such as dust fumes smokes and spray which are usually pollutants.

Particulates — Particles whether liquid or solid especially in smoke airborne. Particulates are generated by natural phenomena and by activities of man. Particulates are removed by certain methods from industrial sources. Particulates affect man causing worsening of chronic bronchitis, may cause and deaths increase illness, They affect the climate and vegetation the latter consists of dust emitted from cement plants deposit on vegetation. however the damage done is not known. Particulates of air are removed by many methods.

Pastrurisation Consist of partial sterilisation which destroy many pathogenic becteria in food without completely altering its flavour.

Pathogenic organisms — Wide varieties of pathogenic bacteria viruses and parasites are responsible for the transmission of communicable diseases like typhoid' cholera etc. These produce infectious or potentially infectious waste which when disposed of in hospitals are a threat to the health of the public.

Polychlorinated Bippenyl (PCBs) — These are organochlorines persistant in the environment, they are used as heat exchange agents in transformers. PCBs like DDT are far soluble & they tend to concentrate in the food chain and hence a hazard eventually to man.

Peak concentration — When monitoring air pollutants the higher concentration of the pollutants during that period.

Pelagic — Communites of lake or marine organism which live in the open water, swimming not depending on the shore or bottom.

Pulveriation — This is an intermidiate step in refuse disposal whereby the refuse is reduced to small particles thus saving on the volume.

Perched water table — A layer of ground water that is held temporarily or permanently above the main ground water by a rather small layer of impervious strata occuring in the areation zone.

Percolation — Consists of the movement of water usually downwards through the soil.

Peripheral weir/Launder — The outer edge of a circular or square sedimentation tank has a weir, the effluent flows over this.

Permanganate-oxidation — The use of potassium permangante solution for oxidation of odours, which can substantially reduce or eliminate many chemicals.

Permissable dose — An individual may receive that amount of rediation during a specified period without any harm done.

Persistence — The retenion capacity of a chemical substance, which is an important factor in determining environmental effect of the substance discharged into the environment it is possible for highly toxic substances like cyanides to have a low persistence while substances like organo chlorine insecticide though less toxic can cause severe effects due to their high persistence.

Pest — In any organism while in its location is in someway a biological threat or an annoyance to humans or their possesions. Pests can be controlled chemically mechanically or physically. Pesticides are generally chemicals used in pest control.

Pesticide tolerance — Consist of the amount of pesticide residue that could remain (by Law) in or on a harvested crop.

Petrology — The study of the decay of rocks & minerals using a variety of crop for their origin alteration & present conditions.

PH — It is the hydrogen ion concentration of a liquid. It determines the acidity or alkalinity of a liquid (water). Low values of pH indicates acidity & high values alkalinity, midway to neutral that is pH of 7. Pollutants such as sulphur oxides in water lower its pH & hastens corroding metals that are in contact with such water. The pH value of unpolluted water bodies such as some rivers and lakes vary from about 5.0 to 8.5

Phenology — The study of timing of recurring natural phenomena such as migration of birds & flowering of plants affected by climate.

Phosphates - Certain detergents contain this chemical compound. These compounds induce growth in plants such as algae.

Phosphorus cycle — This is beneficial to plants, specially however generally to all organisims. As water flows over phosphate contained rocks it gradually wears away the rock surface and carries off many minerals including phosphates in solution or in suspension. Animals & plants take in inorganic phosphates, the former from these food that's taken in & for plants from the water. Phosphorus is an essential constituent of DNA & RNA. Yet the phosporus cycle is not a balanced one since marine birds & fish take up Phosphorus much slower than is returned to the sediment at the bottom of the sea. Phosphorus is present in sewage & there are many methods by whcch it is removed from sewage.

Photochemical Air Pollution — Photohemicals refer to the permenant chemical effects of the interaction of radiant energy such as light and matter. industrial wastes contain the chemical compounds in photochemicle Air pollution. The most important light absorber is nitrogen dioxide, it is necessary to have a light absorber for the chemical reaction to take place. Photochemical smog causes eye irritation to a certain extent.

Photolysis - The break down by light such as in Photosynthesis rhe splitting pf water by radiant energy that is absorbed by chlorophyll.

Photoperiodism - The effects of the relative duration of day & night on living organisms. The timing of the breeding season in many vertebrates & the periods of flowering such as in short day or long day plants. Forexample chrysanthemum is a short day plant.

Photosynthesis The synthesis of organic compounds from simple substance like carbon dioxide and water in the presence of chlorophyll in plants.

Phreatic surface — The term for water table as used by U. S. & France.

Phylogeny - Unlike the development of an individual this refers to the evoluntionary history of groups of organisms.

Physical Pollution — Pertaining to water being polluted by the appearence of colour suspended solids, temperature etc.

Physiological specialisation — A number of genetically distinguishable forms within a species occurring resulting in difference in species in the biochemical characters but not in their structure. This is caused in some such as disease producing organisms.

Phytobentos — In water bodies the aquatic plants fixed to the ground frees the sorrounding water through photosynthesis of carbon dioxide supplying the same with free oxygen.

Phytogeography — The study of plant species distribution in relation to history, climate & geography.

Phytoplankton — The minute passively floating plant organisms in water bodies. They form the basic food for both zooplankton (animal organisms) and certain other higher animals like fish.

Plankton — Passively floating orgasisms both in fresh waters & sea both of plants & animals. The phyto planktons consist of minute algae and diatoms & the zooplanktons are chiefly minute crustaceans of the class Branchiopoda protozoa and rotifers.

Plastic — Consists of one group of synthetics organic meterials of extensive chain of molecules joined by joining of molecules called monomers producing polymers. Actualiy the polymer material is a resin and the products made from it are the plastics. The raw materials for plastics come from the petroleum industry. Plastic industry, consists of iiquids from boilers & coolers. Waste gases are also formed which are air pollutants.

Pollutant — The usefulness of a resource is blocked adversly affected by any introduced substance.

Pollution — Is the introduction of a pollutant into the environment whether to air water or soil. Basically pollution consists of wastes that increase in the volume or rate of introduction of materials already present in natural ecosystem and wastes that poisons or chemicals that are normally not found in nature. Deforestation rehabilitation & land degradation are projects of pollution.

Pollution control — Consists of the methods of reducing pollution. These include the laws with their regulations for reducing pollution and the many equipments that make it possible to reduce pollution.

Pollution load — The objectionable physical & chemical characterestics or in terms of harm to receiving waters actually a measure of the strength of a waste in terms of its solids or oxygen demanding characteristics.

Polysaprotic — The fast decomposing of organic matter in a water body in which freeoxygen is exhausted or is present in very low concentrations.

Population — In an ecosystem it consists of similar species forming a group separated more or less clearly from other groups of the same or other species that is a number that is separate. dymamic unit or species interacting & interbreeding.

Population dynamics — The variations in numbers of various species in an ecosystem being studied. It reveals the interrelationships between species including their changes.

Population ecology — In the study of the laws governing the numbers of animals in relation to the areas which they inhabit including the relationships of animals to their food etc.

Population explosion — Refers to humans in general of the phenomenal increase in the rate of natural growth of the world population is attributed to modern medical advance and colossal public health measures which have decreased the death rates without in anyway showing a fall in birth rates.

Potable water — Water which can be utilised by man specially for drinking purposes that is free from amounts of impurities which wil otherwise be harmful to health causing diseases.

Potassium permanganate — An inorganic chemical compound which is an oxidising agent for many purposes including oxidising of industrial wastes containing cyanide compounds. It is also used as a disinfectant of drinking water.

Poultry house wastes — The washing down of poultry house is rich in nirogen, Phosphate and pottasium which can serve as manure.

Prairie soil — The type of soil that is formed in cool & moderabily humid climate with weal leaching of iron & aluminium oxides & hydroxide from the upper layers of soil & precipitated the zone of deposition beneath. Tall grasses grow easily in this soil this is found in both northern & Southern hem-inspheres in some as isolated thin strips. The surface struta are the result of the return by the grasses of calcium which gives a dark brown or grey colour.

Pre-adaptation — When a living organism is exposed to new environmental conditions it is the possession of characteristics which provids an advantage over others.

Precipitation — Chemically the settling of solid particles in solution. It is also the fall of rain & snow hail etc. that's form of water from the sky measured in millimeters of rain. It also refers to the fallout of polluting dust or electorstatic precipitation. Polluting precipitation mean the precipitation of air polluting substances from the atmosphere in grams per square metre per time, and ultrasonic precipitation is a process that saparates particulate matter from air & othe' gases by an ultrasonic field.

Predator – An organism that catches kills & eats an prey In the food chain man is generally the ultimate predator,

Preservation — Natural resources. structures or situations which have been inherited from the past being kept in existence unchanged.

Pre-treatment — The treatment of an effluent at the works of origin in industrial waste which reduces the cost of treatment at sewage wastes it can also mean any condition to improve the settling quality or filterability for sludge.

Primary production — The organic substances produced in photosynthesis by algae & other plants.

Process, Biological / Biochemical process — Vital activities of bacteria and other lytic microorgasisms in search for food break down complex organic materials into simple rather stable compound take place. In this process is included the self-purification of sewage polluted water bodies such as sludge digestion etc.

Producer — Consists of autotrophic populations usually green plants obtain energy from outside the ecosystem (sunlight) and direct it into the system.

Production — This may be of different catagories such as Gross primary production which consists of the assimilation of organic matter by plant community during a specified period secondly net primary production. The biomass in crops rated into a plant comminity during a specified period of time. Net production rate is the gross production or assimilation rate minus losses of mater chiefly by respiration and also by production and decomposition.

Profundal zone — This region gets very little sunlight it is the region immediately beneath the limnetic zone of a lake, it extends downwards to the lake bottom.

Protoco-operation — An association between two organisms where each benefit from the other. however neither need remain associated with the other in order to servive example many marine crabs plant coelenterates on their backs (carapace for camouflage).

Pulmonary Irritants — Certain chemicals like chlorine, oxides of nitrogsen and sulphur and other substances that affect the lungs.

Putrefaction – Organic matter being decomposed in an anaerobic state with release of gases which are foul smelling & incompletely oxidised products.

Putrescible wastes — These are mainly residues of animal or plant origin and which undergo biodegredation by bacteriological action.

Pyramid of numbers and Biomass — In a food chain this consists of large numbers of producers (plants) being consumed by a smaller number of primary consumers & these inturn being consumed by stil smaller number when put graphical forms a pyramid (of numbers). In the case of parasites it is an inverted pyramid.

Pyrethrum — This is an insecticide that breaks down rapidly, does not harm plants & is not very toxic to vertebrates hence it affects wild life in insignificant way. It is prepared from chrysanthemun flowers.

Pyrolysis — This consists of the heating of organic material wastes in the absence of air or with low amounts of air or oxygen supply. Unlike incineration the organic matter is incompletely burnt.

Quadrat method — In ecology this consists of an intensive study of the sampling area using a quadrat frame of the environment such that a knowledge of the wide area is obtained.

Qualitative Analysis – The determining of the components of a substance or mixture of substanees which analysis is designed to indicate the presence or absence of specific chemical material & not their respective quantities

Quantitative analysis – The determining of the relative amounts of compounds present in a substance mixture of substances.

Race — This may refer to microspecies, a particular breed ot permanent varieties.

Radiation — Energy bring emitted and propagation in the form of waves through space or through a material medium.

Radiation, bsckground — Background radiation from cosmic rays and natural radioactivity is always present. The presence of background radiation appears to give evidence for the theory of the big bang. The radiation arising from radioacrive material.

Radiation pollution — Ionising radiation being added through the activities of man to the environment. This given the people an exposure to more of such radiations more than the amount. They normally would experience the main sources of this pollution are the fall out from atmospheric test of weapons or from underground testing by man. Radiation enters the body on airborne radioactive dusts and gases or in food. Radiation damages the cell affecting the genetic chemicals that are critlcal in cell division.

Radioactive waste — Radioactives in waste produced in laboratories or hospitals & other places using radio active materials but principally occur as a by product nuclear power generation. Low level wastes emit radiation weakly present little hazard & may be disposed by sealing in secure containers and dumped at sea. But high level wastes are stored under water this accelerates their decay.

Radioactive decay — Atoms called radio isotopes disintergrate with the resulting emission of alphar or betar particles or gamma radiation. Such emission lends to the formation of other isotopes.

Ramsar convention — An attempt at the protection of international chain of wetland habitats used by migrant water birds, held in Ramsar in Iran in 1971.

Range management — The use of grazing land or range planned and managed in order to sustain optimum live stock production.

Rarity — The following divisions of degrees of rarity has been drawn up by the internationl union for the conservation of nature & natural resources. Endangered taxa in danger of extinction Taxa which is believed likely to move into the endangered category anp lastly the rare taxa.

Reclamation of water — This may involve removal of nitrogen, phosphorus, chlorides and traca organics followed by conventional treatment for raw water. It also means the treatment of sewage or other waste inorder to reuse the water directly though not necessaryly for drinking.

Recycling — In order to conserve as practically possible non renewable & scarce resources a return of discarded or waste materials to the production system for utilisation of manufacture of goods.

Redtide/Red Sea — Refers to the colour of dense populations of marine protozoa which can occur under optimam favourable conditions of water temperature salinity & chiefly nutrients. That is the proliferatiou of ocean plankton that may kill heavy numbers of fish.

Redox Potential (Oxidation reduction potential) — Due to the presence of oxidising or reducing substances the occurances of electromotive force in millivolts set up in a solution between standard electrodes.

Reducer — In ecology a heterophic individual breaking down or reducing organic matter while utilising chemical energy.

Refeeding of wastes — After heat drying of poultry excreta its used for further poultry or cattle or sheep without ill effects.

Refuse → During the course producing consuming & processing of useful products the generation of unwanted materials.

Relative abundance — The degree to which the abundance of species is able to maintain itself in the environmental conditions amidst competition.

Repellant — Some protection given from a insect pest with the use of a chemical by making the potential host unpalatable or offensive to the pest of wide range of repellants exist for protection including for human.

Reservation — The use & exploitation of areas and resources that is withheld and is judged to be held back against future needs or because they be kept as they are & such areas are called " Reserves ".

Reservoir — A water body such as a lake which is natural or artificial and is kept for domestic or industrial use. it is also used for regulation of inland water way levels.

Resistances — The use of chemical destroyers to which plants or animals are able to withstand and survive doses of a given pesticide that once served to control the population of the species.

Resource — The availability of a means for supplying an economic water. Resources are also minerals and fuels that are discribed as stock or reserve. The stock of a substance is the total amount of that substance contained in the environment much of which is inaccesible by present day technology. The reserves are that part of the resource that can be exploited with present day technologies Respiration damage from Air pollution - Due to air poliution four major types of respiratory damage are lungcancer, emphysima bronchial, Asthma and bronchitis.

Re-use of water — In arid and industrialised regions supply of water is so small in relation to the population that the treated sewage of an upstream town, discherged into rivers has to be used as part of their water supply by towns downstream. This type of use is found in many world country towns.

Ricketsia — These are minute bacteria resembling viruses that are obligate parasites. They cause certain fevers. their vectors are often lice.

Saiine Intrusion — Sea water Intrusion - Salt water moving under ground from the sea coast inland. This saline water passes below the fresh water forming saline wedge and if fresh water is pumped excessively extending into the saline wedge the well water will be saline.

Salinity — The amount of salt including sodium chloride and other salts dissolved in a water.

Salmonella — This a an enteric bacterium which causes enteric fever. Contamination with food & drink causes an infection.

Salt water Desalting — Salt water being heated to remove water as vapour separating it from the salt.

Sample — The representative portion of the whole quantity.

Sand mining — This is generally the extraction of the natrual concentrations of heavy minerals contained in small quantity of vast mass of marine sands particularly from the eastern sea board of Australia.

Sand river — Running water seasonally found under the dry river bed after heavy rains, this usually occurs in deserts of africa and middle east.

Sanitary Landfill — Refuse being dumped into excavations of earth & compacted by bulldozers in which micro organism decompose the organic matter & stable compound ground water assisting this process. It also means the method of refuse disposal by spreading the waters over land and covering them with earth thus sealing it.

Saprophagous/Saprozoic — Animals feeding on dead or decaying bodies of other organisms.

Satellite — Is an object that orbits around another larger one. Man made satellites orbit the earth used for communications & monitoring environmental phenomena and weather.

Saturated air — The relative humidity of the air being 100 percent and is the maximum amount of water the air can hold at a given temperature & pressure.

Schistosomiasis Bilharzia — An infection of human with the parasitic *Schistosoma* species found in the venous system which is debilitating. In virulent conditions damage is done to liver kidneys or the urinary tract. It kills millions of people specially in Africa. It causes severe medical problems.

Sea Salt — This is a natural air pollutant. It enhancee the usual corrosiveness of the atmosphere.

Seasons — Periods of the year caused by the regular changes in the weather. This is based on the annual cycle of the plants. Four reasons are recognised Spring being of sowing, summer of ripening Autumn of harvesting and winter a period of dormancy.

Sea water — Water having concentrations of various salts derived from rocks, gaseous effusion of volkanoes and biological activity. Amino material in the concenrration is meteoretic which is found in the earths atmosphere.

Sea water distillation Fresh water being derived from sea water by a method of purification by evaporation followed by condensation of vapour. The dissolved solids which are not needed remain in the residue.

Sedimentarycycle — A process involving the circulation of materials in an ecosystem by geological wealhering & erosion which results in the recovery of certain elements by the formation of land mass by the uplift of the marine sediments.

Sedimentation — Residue consisting of settleable solids by primary and secondary treatment using settling tanks in the treatement of sewage. The slowly moving sewage flowing through set up resulting in allowing particles to settle by gravitv to the bottom which is then removed as sludge.

Seeding/Inoculation — Suitable bacteria and other organisms added to help biochemical reactions.

Selective pestiside — Choosing of chemical pesticide to effect only certain types of pestes leaving unharmed other organisms.

Self cleansing — Pollution in various forms is added continually to the atmosphere the General tendency of a body of air to recover naturally from contamination by waste gases or particle. Rain removes some pollutants in the atmosphere particles of certain size are removed by gravitational forces.

Septic Due to anaerobic bacterial activity putrefaction results.

Septic tank Instead of being connected to a sewage treatment systems isolate dwellings have construction of a covered horizontal flow tank which involves a series of treatments.

Settling tank — A construction for holding waste water, where heavier particles sink to the bottom which can then be removed by siphoning.

Sewage disposal — The removal of community wastes by diluting with river or sea water. But that which is previously treated. In the past century sewage, used to be just led into river or sea untreated which results in serious pollution.

Sewage farming — Instead of sewage treatment it is used in irrigation, generally used where rainfall is low.

Sewage treatment — In order to make sewage more acceptable to the environment it is treated prior disposal. Four steps are involved in this process. Firstly primary treatment that is removal of suspended matter by physical & mechanical means next by secondary treatment the removal of finely suspended solids & colloidal matter by oxidation, thirdly tertiary treatment the attainment of higher effIcent standards for many purposes and lastly disposal of sludge.

Sewer — An underground pipe or culvert designed to lead away domestic and trade waste waters for treatment and disposal.

Shore zonation — The division into zones of the sea shore each having characteristic fauna & flora. They consist of splash zone which lies above the high tide mark next the upper. shore then the middle shore next the lower shore and lastly the sublittoral fringe.

Sigmoid growth curve — This consist of a graph showing the numerical growth rate of a population.

Silencer — In motar vehicle specially a car the attachment of a sound absorbing device for its exhaust systems.

Siltation — Finely divided solid matter. soil and sand being deposited in the bottom of water body that is usually inland.

Silviculture — Forests being managed for timber while clear cutting this sometimes add to water pollution.

Slick / Sleek — A small area of scum or sewage etc on a water surface. A diffuser is filled to modern outfall to avoid sewage slicks.

Sludge — Consists of the settled solids out from water Yet containrng much water.

Smog — It is a combination of natural fog and smoke. Often smog is laden with noxious gases & othe. irritants produced in the smoke of industrial plants & motor vehicles. Smog causes smarting of eyesr fits of coughing & in some instances even death. Its a severe pollutant of the air.

Smoke — Finely divided solid particles resulting from incomplete combustion consisting chiefly carbon and other combustible materials plus gaseous materials in air. Smoke although a pollutant does not remain permanently in the atmosphere it occurs for about two days.

Snow — The occurrance of water as a precipation of ice crystals either of branched or starshape.

Soft water — This is water with hardly any or no carbonate hardness or non-carbonate hardness. It may be corrosive.

Soil — It consists chiefly of very small particles of inorganic mineral matter mainly silicates plus humuss which formes a loose material forming the upper layer of tbe mantle rock of the earth. Plants obtain food & water from this layer. That part of the soil in cultivation is called the "Top soil" moisture air, organic matte-, bacteria protozoa and insects form a complex mixture of the soil and covers as a surface layer nearly or nearly all the land area of the earth. Several types of soil are recognised, Soils produced in the first stages of the weathering are usually saline.

Soil conservation — In order to do that there may be no loss of stability productivity or usefulness of the soil systems are devised in relation to hand use management.

Soil erosion — Soil lost due to natural or man's activi-ties. Creation soils is a usually natural phenomenon. This is indispensable to sustain human life. While accelerated soil erosion is due to bad forest fires, over deforestation, bush and forest fires. Over grazing and poor agricultural methods destroy the soil tremen dously. Soil erosion may be reduced or prevented by reafforestation reduction of over grazing, contour farming terracing of mountain slopes.

Soil water zone — Distinct from ground water. This zone extends from the surface which is penetrated by roots of plants.

Solar collector — Is a method to use suns energy. A collector that accumulates sun's energy and transfers it to water moving through coils on a flat plate Many factors affect rate of heat loss or gain. Solar energy is applied to heating and cooling of buildings and solar thermal conversion can generate electricity. Solar energy may also be used in desalinisation.

Solar radiation — Is an intermittant. low-density abundant source of energy and it consists of the total electro magnetic radiation emitted by the sun.

Solid wastes — Any material that is solid & discarded. this may be recycled. The solid wastes can be rubbish. trash faecal sewege sludge bottles scraps and a variety of discarded soiid materials including chemicals Most solid wastes are sent to open dumps a small amount of portion is dumped at sea while the reminder much less than ten percent is incinerated.

Soot — It consists of particulate matter or carbon resulting from incomplete combustion and is of a finely divided condition clustered together in long chains. It is able to attract other substances such as chemicals because of the soot particles condition and exceptionally broad surface in proportion to their weight in which case they aredangerous.

Species — Consists of a group of members that have a close nutural resemblance having a common origin and above all a continuous breeding system that is they form a reproductively isolated group and form the smallest unit in the clasIfication of natural organisms

Spot test — The qualitative detection of air pollution. a means of detecting a chemical constituent by a colour producing chemical reaction.

Stabilizer — The addition of trace chemicals to plastics to reduce their degradation by oxidation and by the action of ultraviolet radiation.

Stabilization — Means more than one thing In drinking water its the prevention of the solids from the water With regard to compost or sewage it means putting them into a state in which it will not sink for sewage it is the settlement and biological treatment to reduce Biological Oxygen demand and to heaps of refuse or tailings it prevents them from subsiding or blowing away.

Stabilisation pond - Is a waste stabilsation pond. Stable effluent is that which does not and will not stink.

Stable population — The state of a population where natality & mortality are in balance. So that the size of the population remains constant discounting migration.

Stagnation — This causes air pollution inversion where by air pollutants are trappad in the layer of air close to the ground due to weather conditions.

Standard — Pollutants should not exceed certain levels of exposure.

Standing crop — The biomass or the amount of living matter existing within a given area of a population of one or more species.

Steady state — A system whose relevant variables no longer change as a function of time having reached a state.

Stenohaline — Is the ability to withstand only a narrow range of salinity in the environment.

Sterile male technique — Male pest insects which had been made sterile usually by gamma rediation being released in hundreds of thousands into a pest infected area. This is often done with mosquitos where it is the female that causes the damage to man. If this is done there will be no pesticide pollution of the environment. Sterilisation must be done in a way, that the male normal mating habits and behaviour does not change.

Storm water overflow – Excess flow of sewage and surface water in a combined sewer system being by - passed to a water course.

Stratification — In ecology a vertical layering of orgaisms or environmental conditions within a community of plants or animals being related as one of the intergral properties almost every natural community. Animal life may be stratified within plant communities with some mobility. Aquatic communities exhibit vegetative stratification. Deep Fresh water & oceanic communities may he stratified into a photic or light penetrating and aphotic that is devoid of light layers; forests may be stratified and also marine animals.

Stratosphere — The layer above the troposphere in which temperature does not change with height & in which oxygen is scarce and its upper most layer is the ozonosphere this layer soaks up large quantities of the sun's radiation and manufactures ozone.

Stream Regulation — A stream whose water qualitity is controlled by the addition of good quality stored water at times of deteriorating stream water quality.

Stress — This is thought of as the one of the mechanisms leading ro many kinds of disease in modern life. It is the non - specific response of a body or organism to any demand made upon it, most important in preparing the organism for physical activity such as fight or flight.

Strip cropping — The method of growing crops in bands or strips which act as barriers to wind and water erosion of the cultivated area.

Sub littoral zone — In a lake it is that part which is too deep for rooted plants and in sea it is the zone that lies below the intertidal zone and extending to the limit of the continental shelf.

Subsoil water — Ground water or water found naturally in the sub-soil area.

Succession — The occurence of one community or population after another due to change in the environmental conditions.

Sulphide corrosion — The corrosion of sewers by sulphuric acid produced in them by series of reactions when the sewage becomes septic sulphate reducing bacteria reduce the sulphate to sulphides.

Sulphurdioxide — A gas that is corrosive and poisonous produced chiefly from the burning of sulphur containing fuel. When inhaled it produces various illness in man. It combines with water in the rain and causes acid rain.

Sustainable Development — Development with the need for a continuous use of our nature and natural resources. Development happens every day, in every spot of the planet, it is a part of life. It is our duty to plan and practise our way of living in such a way that development will be sustainable. It is the realisation of both economic growth. and social justice and ecological care.

Swamp — A term often used to include marsh bog etc. But strictly it is an area that is saturated with water for most time of the year where the soil surface is not deeply submerged. Woody vegetation is found in this area.

Swidden Agriculture / slash & burn This is a shifting cultivation which involves cleaning land by cutting and burning the vegetation to avail planting crops. Mainly the countries in the Southern hemisphere practise this method of cultivation. The land is then abandoned after limited use & fresh area cleared. Many agriculturists consider this type of slash and burn is wasteful and inefficient.

Synergisim — The presence of a non toxic substanee synergist that enhance the promotion of a particular property such as the toxicity of an insecticide. It is a form of interaction. When such a non - toxic synergist is found & proved to be safe permitting very much less than of the pesticide to be used.

Synthetic detergents / syndets — In laundering these substainees do not form a scum on hard water their calcium salts are soluble. They contain a surfactant and a builder & may be a bleach. They are only slowly biodegradble.

Tailings — These with regard to refuse is the material left after the dust & ashes have been screened off and the iron, steel and similar material being removed.

Tannery wastes — Some heavy leather products require natural vegetable matetials for tanning but in most of present day tanning chromium salts are used.

Terracing — Raised level of earth that is constructed across a slope in order to control water run - off and minimise erosion.

Territoriality — A particular area being identified by an organism population or community as belonging to it·

Thermal pollution — This eliminates or greatly reduces the periphyton it may not kill all iife. Discharge of hot water to receiving water raises the temperature of the latter. This is undesirable since warming of water reduces its capacity to dissolve oxygen which could kill fish & other life. Heat will accelerate the decomposition process taking place in the receiving water.

Thermal Stratification — At 4°C water is most dense and less dense at all other temperatures in temperate lakes etc. As a result lakes, seas and large resovoirs may stratify in summer into two distinct layers the upper epilimnion the lower hypolimnion A small layer of the thermochine ssparates the two This is a realatively narrow strip of water with a rapid chenge of temperature from the warmth about to the cold stagnant hypolimnion below, Autumn turnover takes plaee when the upper layers cool & tend to sink so that eventually the body of water gets completely mixed.

Thermocline — The middle stratum of water that lies between the upper epilimnion and lower hypolimnion with a a temperature gradient of more than one degree centimeter of depth.

Thermophile — This consists of any bacteria that thrives at temperatures above 40°C.

Thermoplastics - When heated. most plastics soften and again harden. when cooled.

Thermosphere — Is a region of the atmosphere whose temperature more or less steadily increases with height, stsrting et 70 to 80 km from earth.

Third world — Refers to the economically developing countries such as South America, Africa & parts of Asia.

Threshold — The point at which a stimulus first produces sensation or comes first within the limits of perception in other words the lowest possible limit of stimulation cabable of producing sensation.

Tidal energy — Consists of tidal power of electrical energy that is obtained by directing tidal flow through hydro-electric turbines.

Tissue Culture — When cells are removed from the organism they are kept alive in a suitable medium containing the correct balance of salts- pH, oxygin & food and kept at the right temperature.

Tolerance – Organisms are able to survive with changes in the environment it also means the safe level of any chemicals applied to food or feed crops.

Topography — Consists of the relief features of a surfacs area indicating the relations elevations and such featuree that are natural or man made.

Total Dissolved solids (TDS) — This is measured or estimated quickly by electrical conductivity of the water when recorded continuously it reveals any sign of pollution.

Total inceneration The complete reduction of refuse to slag that is made completely to molten and by high temperature burning resulting in a lowest volume of ash and metal residue.

Toxic substance — Any substance that acts as a poison causing and adverse environmental effects ranging from slight disfunction of organism & ecosystems temporarily to accute disorder that would be fatal.

Toxicant — Pests being killed by chemicals rather than repelling them.

Toxicity — The degree of virulence of a toxic micro-organism or a poison.

Toxin — The poison produced by an organism.

Trade wastes — Organic and inorganic wastes discharged by industrial and Commercial enterprises.

Transect — A strip of land that is frequently estimated for its living organisms

Trans frontier pollution — Pollution of air and water of one country having crossed international frontiers the country of origin being different. For example, Scandinavia being at the receiving end of pollutants originated in industrial areas in Europe.

Transgression, Marine The raising of sea level in relation to the level of the land.

Trash — Municipal waste.

Trenching Sludge being disposed by partly filling a trench with it and after it has dried ploughing & cultivating.

Trent Biotic Index — The classification of rivers from their degree of specially pollution by the frequency and types of specially invertebrate animals. The index if zero represents very polluted waters grading down to ten which indicates no pollution & having abundant life.

Trickling filter / Biological F — In the secondary treatment of plants an aerobic process used for the processing of sewage.

Trophic level — In a food chain the levels at which the food is eaten from the first level of plants that is the producers up to the last level of consumer that is a top carnivore.

Trophogenic Region — Organic material produced by photosynthesis occupying a region of water body.

Tropical cyclone - Cyclone that is a violent storm in the Indian ocean and Bay of Bengal with a very small area of very low pressure at the centre around which circulate isobars being very close together the winds being extremely violent. The equivalent in the Caribbean is called hurricane; "typhoon" in the China sea and "Willi Nilli" in Australia.

Troposphere — The region about eleven km above the surface of the earth, in which atmosphere the temperature decrease with increasing height.

Tuberculation — The formation of hard yet brittle bubbles of rust formed on metal pipes let bacterial eorosion.

Tundra — The area near the polar regions with ground frozen most of the year a short growing region which is actually a treeless plain.

Turbid — Water that contains colloidal particles and micro organisims in suspension that makes it non - Transparent This affects the visibility of the water and is measured with sechchi disc.

Ulothrix - A filamentatous alga found in fresh water bodies whether polluted or not and found in water treatment trickling filters.

Ultraviolet Radiation - This harmful electromagnetic radiation is absorbed by the ozone layer of the sarth. Its wave length lies between visible light and X'rays.

Ulva — A multicellular green alga that grows in sewage polluted nutrient rich estuaries and gives off hydrogen sulphide. It is attached to the sediments at the bottom or submerged rocks.

Underground water — When it rains part of the water percolates through the upper strata of the soil and gets stored in underground reservoirs. Part of the rain water flows on the surface. Underground water may be drawn from relatively shallow wells etc., or may be drawn by deep artisian bores.

Undergrowth — In a forest this consists of the shrub and herbacious plants and saplings closer to the soil.

UNEP — An acronym for United Nations Environmeital Programme. It is a cordinating agency of the UN, measuring the Intergovernmental of protecting and environmental monitoring. This was formed after the 1972 UN Human Environment conference which was held in stockholm in June 1971.

Urban runoff — The water carying litter & organic wastes after a storm in city (streets).

Urbanization — Movement of people from rural to urban areas, this becomes are process leading to a social change Urban areas tend to be increasingly densely populated.

Urea — Is the amount of nifrogenous waste it in urine. It also means a group of herbicides that persist for long periods in the soil but are not toxic to animal life. They control weed seedlings by intibiting potosynthesis.

Valley Fog — Cool air on hill sides caused by formation of fog by radiation at night This often causes the air containing fog to stagnate in the valley by day.

Vapourisation This consists of a subtance from a liquid to a gaseous state. Its one of the three basic contributing process of air pollution.

Variety — Living organrsms that differ distinctly from others within the same sub-species,

Vector – Intermediate or vector organism that carries disease. often this is an insect of the group Diptera.

Vegetation — The total plant cover in a particular area or on the earth as a whole.

Virus — Minute disease producing organisms.

Visual Environment — The eyes being pleased or offended to aspects of environment. The visual environment is obstructed by certain constructions. visible discharges to air or water and disruption of the countryside or beaches by mining operations.

Volcano — A fissure or vent through which magma gases and solids are ejected from the earths crust The flowing substance is called lava.

Warm Front — This applies to the bounding between two air masses of different temperatures moving, where the warm air is advancing into and rising over the cold air.

Wash out — It is the removal of small particles or gases by collision with coming down rain drops in air pollution.

Waste — Material that is discharged eimitted or deposited in the environment. Whether liquidi solid, gas or radioactive in such volume or manner that causes alteration for the worse of the environment.

Waste Management — An approach that is comprehenive' integrated and rationed towards achievement and maintenance of acceptable environmental quality.

Waste Treatment — The removal of dissolved and suspended solids from waste water by biological and non—biological processes.

Waste Water — Watar frem homes. farms and industries carrying dissolved or suspended solids.

Waterborne Diseases — Many Infections diseeses like cholara. typhoid etc., that are transmltted through contaminated water supply.

Water Colour — Water that usually comes in contact with vegetation or other organic matter gets tinted with colours. It can be measured by a colorimeter or by comparing it with standard solutions of known colour.

Water conservation — Control, development and preservation of water resources above or balow the ground the prevention of pollution and so on.

Water cycle — Water from the oceans evaporates and forms clouds. The heat energy for this comes from sunlight. Water is cooled and falls as rain or snow. Some of this parecipitation on land soaks into the ground and some runoff the surface into streams and goes directly back to the seas. Ground water returns to the surface through springs & man use pumps to recover it.

Water Pollution — Bacteria. Viruses & substances discharged or present in water such concentrations that impairs the quality of the water so that it becomes unsuitable for use and presents a hazard to man & his environment.

Water Purification — Water that is needed for drinking, cooking. food processing, bathing for animal and plant life and industrial uses has to be upgraded to standards that are set making it usable.

Water Resources — The total volume of water on the earth is about 1,454 million cubic kilometres. This is the equivalent of a layer of water source 2, 650 metres deep covering the entire planet. The Oceans form 94 % of this volume, followed by underground water 4 · 1 %, and glaciers 1 · 65 %, Lakes 0 · 016 % soil moisture 0 · 005 %, atmospheric vapour 0 · 001 % and finaly rivers. 0.0001% which make up only one million of the hydrosphere but represent the main source of potable water accesslble to humanity. However through the hydrolgical cycle water continues to circulate between the different element of the hyd rosphere.

Water Softening — The water softening chemicals used are hydrated lime calcium hydroxide and soda ash (Sodium carbonate). This preciptation known as lime soda process. Here the calcium is always precipitated as calcium carbonate and the magnesium always as magnesium hydroxide.

Water Table — It is the surface of the ground water that is also the upper surface of a zone of saturation except where the surface is formed by an impermeable layer. Permanent water table is the lowest level to which a water table falls.

Water Treatment — The conversion of raw water to drinking water consists of screening then coagulation flocculation and clarification then filteration and finally disinfection. These remove suspended and colloidal matters.

Water Vapour — It's the main part of the atmosphere which falls as rain snow etc., These originate when water vapour is condensed by the cooling process which normally occurs with the expansion of upward flowing air currents resulting in clouds consisting of vast numbers of minute water droplets.

Water Works — The Place Where rain Water is treated before sending it to the service reservoir.

Weathering — This consists of chemical changes and mechanical activities which break down soil and rock. Their products are not removed. These products when removed dy water ice waves or wind is known as erosion.

Weather Radar — Ships and air - craft carry radar which detect unfavourable weather on their routes.

Weigh Bridge — A platform installed at every incinerator as well as at most controlled tips on which certain vehicles are weighed.

Wet Air Oxidation — High pressure and temperature air being brought in contact with the waste material in a pressurised reactor. Oxidation occurs at 300 to 500 F. wet air Oxidation is used for various purposes. One of which is to sewage cyanide distruction.

Wefland — These area include marsh, swamps, lagoons fens etc. which are Submerged or water saturated both natural and artificial and permanent or temporary. with water. The Ramsar convention was meant to protect and conserve these internationally.

Wild Life — Includes all living organisms in the wild. There are protection acts to save them globally.

Wind - Consists of the movement of air horizontally whose direction and speed are determined mostly by the character of the major winds.

Wind Erosion — The action of the wind causing the removal of particles from land or from buildings. It consists of picking up of dust by the air flow.

Wood Land — A distinct or sometimes open canopy of trees in a vegetation.

Wood Fiber — In recycling of paper this consists of minute strands of material making up the basic material of paper pulp.

Woolen Industry Wastes — Impurities produced as effiluent with a high content of inert and organic solids etc. Pollution by this results from finishing processes.

World Commission on Environment & Development (WCED) — A 23 member commission was set up in 1984 originated by the united Nations, to re - examine the many critical environmental and development issues and formulate proposals to deal with them.

World Enviro mental Day — United Nations conference on the Human environment in 1972 adopted as on 5th of June. And this is meant to be observed yearly.

World Wild Fund — An international union of Nature and Natural resources conservation. Prince Phillip is highly involved in this effort.

Xeromorphic — The ability of plants to restrict water loss during drought conditions, these are xero phytes.

Xerosere — The successional stage of plants from a dry site towards moister conditions.

Yard Waste — Waste from the house or garden consisting of shrub trimmings, grass cuttings etc.

Zeollte A hydrated sodium aluminium silicate occuring naturally or man made which can easily give up its sodium in ion exchangefor calcium or magnesium thus reducing hardness of water.

Zero - dischsrge lay out - An industrial plant so designed not to release effluent of any kind.

Zimmermam Process — The treatment of sewage in a closed vessel under high temperature and pressure achieving oxidation of organic material.

Zone of Saturation - The region below the water table in ground water where the voids are filled with water this being under hydrostatic pressure.

Zoobiotic — An organism living as a parasite on an animal.

Zoocerose Refers to an Animal community.

Zoonosis — Man being attacked dy an animal diseass by transmission.

Zoo plankton — Animal life is minute and planktonic They move due to wind they have large area of surface in terms of its size by out growths such as sitae and hairs. They include some adult animals but mostly larvae of crustacea, echinodermas etc.,

Zonatix — This is fresh water consist of a supra littoral zone which is the region just above the edge of standing water. The next region from the water's edge to a depth of about six metres in a lake and filled with rooted vegetation. where as in a pond this region is shallow. The animal life of this zone is dependant upon its vegetation. The next region in lakes is tne sublittoral zone or limnetic zone as in ponds. The deepest water zone is the profundal zone where there is no penetration of sun light.In the marine habitat there are two distinct zones the neritic province with less than one percent of the entire biome and an oceanic province of considerable magnitude, The terrestrial zonation occurs vertically and horizontally.

APPENDIX

Efforts of the International Community to find Solutions to Environmental problems.

1972 June - United nations conference on the human environment.

1972 Dec. - United Nations Environmental programme established by United Nations General Assembly.

1973 Feb. - Convention International Trade of Endangered Species of Wild Fauna and Flora signed 102 States party of as Sep. 1989.

1974 Aug. - World Population Conference.

1974 Nov - Universal Declaration on the Eradication of Hunger and Malnutrition.

1975 Convention on the Prevention of Marine Pollution by Dumping of Wastes and other matter 61 states party as of Sept. 1989.

1976 May - United Nation Conference on Human Settlements (Habitat).

1977 March - United Nations Water Conference.

1977 Aug. - United Nations Conference on Desertification.

1980 March - World Conservation Strategy Announced and Published.

1980 July - The Global 2000 Report to the President (United States) announced.

1981 Aug. - United Nations Conference on New and Renewable Sources of Energy.

1982 June - Session of Special Charactor of the Governing Council of the United Nations Environment Programme held; Nairobi Declaration announced.

1985 March - Vienna Conference for the Protection of the Ozone layer Signed. 44 States Party as of September 1989.

1987 April - "Our Common Future" announced and Published by the World commission on Environment and Development.

1987 Sept. - Montreal Protocol on Substances that Deplete the Ozone layer - 39 States Party as of September 1989.

1987 Dec. - Forty third Session of the United Nations General assembly: The concept of sustainable developemnt endorsed as guiding principle for development.

1989 March - Basel Convention on the control of Transboundary Movements of Hazardous Wastes and their Disposal Signed.

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