

Definitions and Concepts for CAIE Biology IGCSE

Topic 21: Human Influences on Ecosystems

*Definitions in **bold** are for supplement only*

Acid rain - Any form of precipitation that is acidic due to the dissolution of sulfur dioxide and nitrogen oxides.

Activated sludge process - A method of sewage treatment involving screening, grit removal, sedimentation and aeration.

Aeration - The addition of air into wastewater enabling the digestion of dissolved substances (e.g. urea, ammonia, nitrates) by aerobic microorganisms.

Agricultural machinery - Machinery used in farming to improve efficiency by clearing land, preparing soil, and maintaining and harvesting crops.

Captive breeding program - The breeding of endangered animals in enclosures (such as zoos) to increase population numbers and preserve biodiversity.

Chemical fertilisers - Mineral salts (e.g. ammonium sulfate, NPK) that are added to soils to provide essential nutrients and improve plant growth.

Climate change - The long-term changes in the Earth's weather patterns.

Conservation - **The maintenance of ecosystems and biodiversity by humans in order to preserve the Earth's resources.**

Deforestation - The removal of trees from land which is subsequently used to grow crops or provide space for cattle. Removal of forests can lead to extinction, soil erosion, flooding and global warming.

Endangered - Describes a species that is at risk of extinction due to loss of habitat or rapid decrease in population numbers.

Eutrophication - **The process by which pollution by nitrogen-containing fertilisers results in algal blooms and subsequent oxygen level reduction in bodies of water.**

Extinction - The death of all living members of a species.

Famine - Extreme, widespread food shortage. Drought, flooding, poverty, increasing population and unequal distribution of food contribute to famine.

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Fossil fuel - A non-renewable fuel (e.g. coal, oil, natural gas) formed from the compression of carbon-containing plant or animal remains over millions of years.

Global warming - The gradual rise in the average temperature of the Earth due to increasing atmospheric levels of carbon dioxide and methane gas.

Greenhouse effect - The increase of global temperatures caused by the trapping of solar heat by insular gases in the atmosphere.

Habitat destruction - The process by which a natural habitat can no longer support the species present. This may be due to human actions such as increasing urbanisation, the extraction of natural resources and marine pollution.

Herbicides - Chemicals that are used to kill weeds.

Insecticides - Chemicals that are used to kill insects.

Intensive livestock production - A type of intensive farming (also known as factory farming) that maximises production whilst minimising associated costs. This includes zero grazing, antibiotic treatments and harvesting animals before adulthood.

Legal quotas - A means of managing and regulating the amount of resources that can be taken from the environment, e.g. commercial fishing quotas or logging quotas.

Monoculture - The agricultural practice of harvesting only one species of crop at a time.

Natural fertilisers - Natural materials (e.g. manure) that are added to soils to provide essential nutrients and improve plant growth.

Non-biodegradable plastic - Plastic that cannot be broken down naturally by decomposers.

Non-renewable resource - A resource that is in finite supply and which will eventually run out.

Nuclear fall-out - The residual radioactive particles released into the atmosphere as a result of a nuclear explosion or leak from a nuclear power station.

Pollution - Contamination or destruction of the natural environment due to human intervention. Sources of pollution include fertilisers, pesticides, chemical waste, nuclear fall-out, discarded rubbish and untreated sewage.

Pollution by contraceptive hormone - The entry of contraceptive hormones (oestrogen and progesterone) into water systems when excreted in urine.

Poverty - Having insufficient income or material possessions to meet basic personal needs.

Recycling - The collection and processing of waste materials (paper, glass, plastic and metal) into new materials.



Seed bank - A storage of viable seeds to protect biodiversity.

Selective breeding - The process by which humans artificially select organisms with desirable characteristics and breed them to produce offspring with desirable phenotypes.

Soil erosion - The movement of the upper layer of soil due to the action of water.

Sulfur dioxide - A toxic gas released into the atmosphere when coal and oil are burnt. Sulfur dioxide dissolves in rainwater to form an acid.

Sustainable development - Development that meets the needs of a growing human population without causing harm to the environment. **This requires local, national and international planning, cooperation and management of conflicting demands.**

Sustainable resource - A resource that is never depleted. It is produced as quickly as it is removed from the environment.

Water treatment - Any process that improves water quality and ensures that it is not contaminated by disease-causing bacteria (from untreated sewage for example).

