

# Human impact on the environment – problems caused by population growth

[Sociology](#), [Population](#)



In about 1830 the human population reached one billion, there are now somewhere around six billion people on the planet today and that figure is growing at a very high and very rapid rate.

Past populations were controlled by disease, war and famine but now because of technology and modern medicine. The environment around us has been built to support these growing numbers but this development is having a huge effect on the world's ecosystems.

Human population's clear other space and habitats of other species to make way for their own. This ignorance has killed many species to extinction and polluted the environment; this has endangered our survival and the survival of other species at risk.

Read this [Ch. 22 Respiratory System](#)

However, in natural ecosystems factors are limiting whereas human ecosystems are different as we have the technology to maximise resources and find new ones when existing ones run out. The planet obviously can only hold a certain number of people, most species never reach their maximum numbers but they have a peak, then the numbers start to decline.

### **Activities that have changed the landscape**

Industrial and domestic waste has to be disposed of, and as the population is increasing the waste is becoming more and more difficult to get rid of. There are a lot of things that cause pollution in varying rates on a big scale oil spill to a normal deodorant can which uses cfc's.

## **The Pollution of the Water**

There are a number of different ways and processes of water pollution the main ones are 'waste disposal', 'organic pollution' and 'eutrophication'.

Waste disposal is the domestic and industrial waste which is treated in sewage plants to remove impurities. The problem is that some of this waste is being disposed in many rivers and canals and polluting them heavily. This has destroyed many freshwater ecosystems like the 'Great Lakes of North America' and parts of the 'Norfolk Broads'. Organic pollution is where domestic sewage is disposed in rivers and canals and the organic content in the sewage is a food source for bacteria and fungi. These organisms also take the dissolved oxygen in the water so that fish and other aquatic animals die out. Eutrophication is when the nitrate and phosphate levels are high this encourages the growth of algae. These algae can cause a lot of damage to the water ecosystem.

- Algae grow rapidly and give an 'algal bloom' over the surface of the water.
- Many blue-green algae produce toxins which kill some plants and animals.
- Small animals that feed on algae do not multiply fast enough to check the increase in the algae.
- Algae block out the light for the rooted plants growing on beds of lakes and they die. This reduces the amount of oxygen.

- The algal population crashed due to competition for resources. The algae are then decomposed by bacteria which use the oxygen in the water.
- This lack of oxygen kills many invertebrates and fish.
- All this is the process of eutrophication.

## **The Pollution of the Atmosphere**

Pollution is a term used to describe the presence of an unwanted substance. Although air contains lots of microscopic particles, like volcanic dust and tiny sand grains from deserts, this pollution is natural in origin. Man-made pollution of the atmosphere however, is now causing a lot of concern. Most of this air pollution comes from the burning of coal, oil and gas - the fossil fuels - in power stations, factories and homes, and petrol and diesel in cars and other road vehicles. We need energy and electricity to keep us warm and to cook our food, but unfortunately we do not make enough from other non-polluting sources.

Burning fossil fuels releases greenhouse gases into the air. This may be changing the climate and causing global warming. Other pollutants like sulphur dioxide and nitrogen oxides are also given off. This can reduce the quality of air which we breathe, leading to health problems, and can cause acid rain.

## **Global Warming**

Global air temperatures as measured by land-based weather stations show an increase of about 0.45 degrees Celsius over the past century. These may be mistakes in data or climatic variation.

Satellite data indicate a slight cooling in the climate in the last 18 years. These satellites use advanced technology and are not subject to the "heat island" effect around major cities that alters ground-based thermometers.

Projections of future climate changes are uncertain. Although some computer models predict warming in the next century, these models are very limited. The effects of cloud formations, precipitation, the role of the oceans, or the sun, are still not well known and often inadequately represented in the climate models although all play a major role in determining our climate. Scientists who work on these models are quick to point out that they are far from perfect representations of reality, and are probably not advanced enough for direct use in policy implementation. Interestingly, as the computer climate models have become more sophisticated in recent years, the predicted increase in temperature has been lowered.

However, 98% of total global greenhouse gas emissions are natural (mostly water vapour) and only 2% are from man-made sources.

## **Sustained Development**

Sustainable development is where a population can make developments and improvements to their area or their needs without causing harm to the

environment. Sustainable development is all about a greener planet in both developed and developing countries by not polluting the environment and being more energy friendly. Sustainable development is

- Social progress which recognises the needs of everyone
- Effective protection of the environment
- Prudent use of natural resources

Sustained development can be achieved by using less fossil fuels and researching into environmentally friendly sources of energy like solar and geothermic sources. Be less wasteful so that we use fewer resources so that they are prolonged and regenerate, find more effective ways of disposing of waste and producing less waste in the first place.