

Environmental pollution argumentative essay



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Efforts to improve the standard of living for humans—through the control of nature and the development of new products—have also resulted in the pollution, or contamination, of the environment. Much of the world's air, water, and land is now partially poisoned by chemical wastes. Some places have become uninhabitable.

This pollution exposes people all around the globe to new risks from disease. Many species of plants and animals have become endangered or are now extinct. As a result of these developments, governments have passed laws to limit or reverse the threat of environmental pollution. Ecology and Environmental Deterioration The branch of science that deals with how living things, including humans, are related to their surroundings is called ecology .

The Earth supports some 5 million species of plants, animals, and microorganisms. These interact and influence their surroundings, forming a vast network of interrelated environmental systems called ecosystems. The arctic tundra is an ecosystem and so is a Brazilian rain forest.

The islands of Hawaii are a relatively isolated ecosystem.

If left undisturbed, natural environmental systems tend to achieve balance or stability among the various species of plants and animals. Complex ecosystems are able to compensate for changes caused by weather or intrusions from migrating animals and are therefore usually said to be more stable than simple ecosystems. A field of corn has only one dominant species, the corn plant, and is a very simple ecosystem. It is easily destroyed by drought, insects, disease, or overuse. A forest may remain relatively

unchanged by weather that would destroy a nearby field of corn, because the forest is characterized by greater diversity of plants and animals.

Its complexity gives it stability. Population Growth and Environmental Abuse

The reduction of the Earth's resources has been closely linked to the rise in human population. For many thousands of years people lived in relative harmony with their surroundings. Population sizes were small, and life-supporting tools were simple. Most of the energy needed for work was provided by the worker and animals.

Since about 1650, however, the human population has increased dramatically.

The problems of overcrowding multiply as an ever-increasing number of people are added to the world's population each year. Air Pollution Factories and transportation depend on huge amounts of fuel—billions of tons of coal and oil are consumed around the world every year. When these fuels burn they introduce smoke and other, less visible, by-products into the atmosphere. Although wind and rain occasionally wash away the smoke given off by power plants and automobiles, the cumulative effect of air pollution poses a grave threat to humans and the environment. Although the release of toxic chemicals into the atmosphere is against the law in most countries, accidents can happen, often with tragic results.

In 1984, in Bhopal, India, a pesticide manufacturing plant released a toxic gas into the air that within a few hours caused the deaths of more than 2,000 people. Water Pollution Since the beginning of civilization, water has been used to carry away unwanted refuse. Rivers, streams, canals, lakes,
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and oceans are currently used as receptacles for every imaginable kind of pollution.

Water has the capacity to break down or dissolve many materials, especially organic compounds, which decompose during prolonged contact with bacteria and enzymes.

Waste materials that can eventually decompose in this way are called biodegradable. They are less of a long-term threat to the environment than are more persistent pollutants such as metals, plastics, and some chlorinated hydrocarbons. These substances remain in the water and can make it poisonous for most forms of life. Even biodegradable pollutants can damage a water supply for long periods of time.

As any form of contamination accumulates, life within the water starts to suffer. Lakes are especially vulnerable to pollution because they cannot cleanse themselves as rapidly as rivers or oceans. Factories sometimes turn waterways into open sewers by dumping oils, toxic chemicals, and other harmful industrial wastes into them. In mining and oil-drilling operations, corrosive acid wastes are poured into the water. In recent years, municipal waste treatment plants have been built to contend with water contamination.

Some towns, however, still foul streams by pouring raw sewage into them. Septic tanks and cesspools, used where sewers are not available, may also pollute the groundwater and adjacent streams, sometimes with disease-causing organisms. Even the purified effluent from sewage plants can cause water pollution if it contains high concentrations of nitrogen and phosphorus.

Farm fertilizers in some regions fill groundwater with nitrates, making the water unfit to drink.

Agricultural runoff containing dangerous pesticides and the oil, grime, and chemicals used to melt ice from city streets also pollute waterways. Land and Soil Pollution In order to sustain the continually growing human population, current agricultural methods are designed to maximize yields from croplands. In many areas, the overuse of land results in the erosion of topsoil. This soil erosion, in turn, causes the over-silting or sedimentation of rivers and streams.

One answer to the garbage problem is recycling. Some towns have passed ordinances that encourage or require residents to separate glass and aluminum cans and bottles from other refuse so that these substances can be melted down and reused. Although lightweight steel, cardboard, and paper are also economically recyclable, most industries and cities still burn or bury large amounts of scrap metal and paper products every day.

Radioactive Pollutants Radioactivity has always been part of the natural environment. An example of natural radioactivity is the cosmic radiation that constantly strikes the Earth.

This so-called background radiation has little effect on most people. Some scientists are concerned, however, that humans have introduced a considerable amount of additional radiation into the environment. Another immediate environmental problem is the disposal of nuclear wastes. Some radioactive substances have a half-life of more than 10, 000 years, which

means they remain radioactive and highly dangerous for many thousands of years.

In nuclear physics, a half-life is the period of time required for the disintegration of half of the atoms in a sample of a radioactive substance.

Science has not yet found a safe method of permanent disposal of high level radioactive wastes. Even temporary storage of these wastes is a dangerous and expensive problem. Experiments are underway to investigate the possible use of salt mines several thousand feet below the surface of the Earth as repositories for spent nuclear fuel rods and similar highly radioactive substances. Thermal, or Heat, Pollution While the concept of heat as a pollutant may seem improbable on a cold winter day, at any time of year an increase in water temperature has an effect on water life.

Heat can be unnaturally added to streams and lakes in a number of ways. One is to cut down a forest completely. The brooks and streams that flowed through it are then exposed to the sun. Their temperatures begin to rise. As they flow into larger bodies of water, these in turn are warmed. This can kill fish and other water animals incapable of tolerating the higher temperatures.

Average worldwide temperatures can be affected when the products of combustion—carbon monoxide, water vapor, and carbon dioxide—are emitted into the air, especially at high altitudes. Since the normal level of carbon dioxide in the air is quite small, any significant addition is a potential threat.

Although solar energy on its way to the Earth's surface easily passes through layers of carbon dioxide, some of the heat escaping from the Earth would be

absorbed by increased amounts of atmospheric carbon dioxide, much as heat is trapped in a greenhouse. A worldwide greenhouse effect of this type might produce a dangerously warmer world.

Since the late 19th century, the average global temperature has increased between 0.54° F and 1.08° F. Internationally, 1990 was the hottest year on record since official weather records first started being kept by the British in about 1860. Noise Pollution The hearing apparatus of living things is sensitive to certain frequency ranges and sound intensities. Sound intensities are measured in decibels.

For example, a clap of thunder has an intensity of about 100 decibels. A sound at or above the 120-decibel level is painful and can injure the ear. Noise pollution is becoming an unpleasant fact of life in cities, where the combination of sounds from traffic and building construction reverberates among high-rise buildings, creating a constant din.

Efforts to Halt Pollution The solution of some pollution problems requires cooperation at regional, national, and international levels.

For example, some of the acid rain that falls in Canada is caused by smokestacks of coal-burning power plants in the United States. Thus, rejuvenating the lakes of eastern Canada requires the cooperation of electric utilities in Indiana and Ohio. The Clean Air Act, the Safe Drinking Water Act, and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (known as Superfund) are among the laws that set standards for healthy air and water and the safe disposal of toxic chemicals.

In 1990 President George Bush signed the Clean Air Act of 1990, the second amending legislation since the original Clean Air Act of 1970.

The new law called for reductions in emissions of sulfur dioxide and nitrogen oxide by half, carbon monoxide from vehicles by 70 percent, and other emissions by 20 percent.

The number of toxic chemicals monitored by the EPA would increase from 7 to about 250, and industry would be required to control their waste release by means of the best technology available. In the same year, the California Air Resources Board introduced the strictest vehicle-emission controls in the world. By 2003 the hydrocarbon emission of all new cars sold in California would have to be at least 70 percent less than that of 1993 models, and by 1998, 2 percent of all cars (rising to 10 percent by 2003) would have to release no harmful emissions at all. Several Northeastern states followed suit by introducing similar, though slightly less severe, controls.