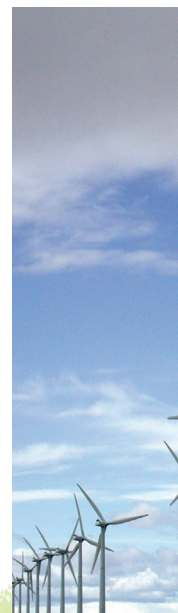


The environment and its protection

Windmills are a source of alternative energy.



For millions of years, the atmosphere, the hydrosphere, the lithosphere and the biosphere have been in balance on the Earth. These four parts make up what we call the Earth's environment.

ATMOSPHERE - all the gases that make up the air including the weather systems, the **greenhouse gases** and the **ozone layer**.

LITHOSPHERE - all the rocks in and on the Earth.

HYDROSPHERE - all the water in the seas, rivers, lakes and soils.

BIOSPHERE - all the living organisms on the Earth. 'Organisms' include viruses and bacteria right up to plants and animals (including humans).

Four million years ago, humans first walked on the Earth's surface. We have a **highly developed** brain. We learn quickly and can plan for the future. We

soon began to change the balance of the environment **in our favour**. The number of people on the Earth is growing each year making our environmental problems worse. The main ones are:

Global warming

Background: The earth has a thin atmosphere that is like a **transparent blanket** that keeps us warm. In a process called the greenhouse effect high energy **radiation** from the solar system is **trapped** by gases such as **carbon dioxide**. This heat energy keeps Earth temperatures **too high to support life**.

Causes: Carbon **fossil fuels** such as coal are burnt to produce energy. This process produces large amounts of carbon dioxide that goes into the atmosphere.

Effects: More carbon dioxide means a larger greenhouse effect so the Earth's **overall** temperature is increasing. This could cause **rising sea levels, unpredictable** weather in the form of **flooding** or **drought**, hurricanes and large loss of life.

Solution: Change the way we produce energy and produce less carbon dioxide.

The ozone hole

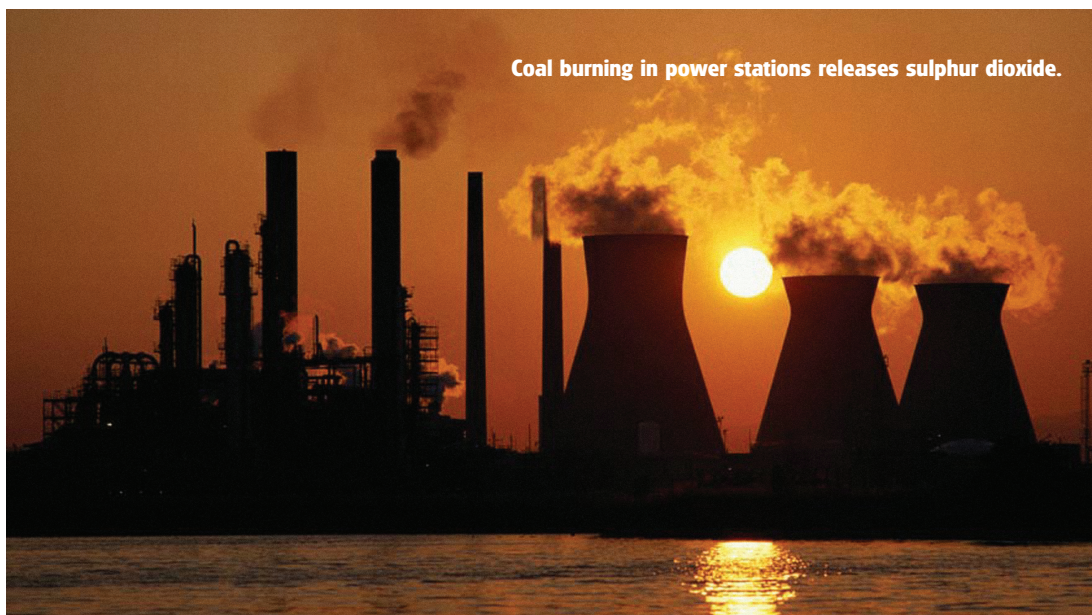
Background: Scientists discovered that the ozone layer in the atmosphere over the Antarctic was missing. In other populated places such as Australia it was very **thin**. The ozone layer, about 30km above the Earth's surface, absorbs dangerous **ultra violet** (UV) radiation.

Causes: We **release** ozone damaging chemicals in industrial and domestic activities. Some of them destroy the ozone molecule and UV reaches the Earth's surface.

Effects: UV causes damage to the DNA of cells and various cancers can result especially after sunbathing. Sheep at high altitude in the Andes are often blinded by UV.

Solutions: **Ban** the use of dangerous chemicals in **aerosols, refrigerators** and **car air conditioning**.





Cutting down the rainforests - deforestation

Background: As humans we like to eat meat and the modern trend for beef burgers has increased the demand for more **cattle** and more space worldwide. We also use more hard wood for furniture.

Causes: Tropical rain forests are being burnt and cut down because people need more land for agriculture. This is happening in the Amazon **basin** in Brazil and SE Asia.

Effects: Many plants and animals **will become extinct**. The forests absorb carbon dioxide in the process called photosynthesis. Without trees carbon dioxide levels will increase.

Solutions: Alternative sources must be found for food and wood.

Toxic pollution

Background: We produce lots of waste in the home and toxic chemicals from industrial processes. These must **be disposed of** safely. It is less expensive to **dump** waste and toxic chemicals into rivers or holes in the ground than to dispose of them safely.

Causes: Chemicals are used to kill **pests** in agriculture, to increase production. Toxic waste from industrial processes **leaks** into our waterways.

Effects: Toxic waste kills fish in rivers, lakes and the sea. Wastes getting into our drinking water or chemicals getting into our food cause illness and diseases.

Solutions: Laws and regulations must be followed by all countries and must **be updated** as we get more knowledge.

Acid rain

Background: Today rain contains harmful acid which can damage the environment. pH shows on a **scale** (of 0 to 14) how acid or **alkaline** the environment is. Creatures in lakes, rivers and in the soil often live **in a narrow range** of pH.

Causes: Coal burning in power stations releases **sulphur dioxide** into the atmosphere. This mixes with water in clouds and acid rain is formed. Car **exhaust gases** add other acids.

Energy

As countries develop, they use more and more energy. China and India are expanding rapidly without environmental controls. Pollution is increasing. Britain is looking again at Nuclear Power to supply energy in the future but there is still no solution to the problem of nuclear waste. Wind and wave energy is also a possibility.

We must all save more energy. Switch off lights, turn down the central heating, insulate our houses, reduce packaging on goods, re-use items instead of buying new, and recycle to reduce waste. We must think of future generations and encourage politicians to see the longer view. Think globally, act locally.

Effects: Acid rain in lakes kills fish and destroys leaves on trees and other plants.

Solutions: Remove the sulphur dioxide from **chimneys** of power stations and use alternative sources of energy.

Nigel Haward (Great Britain)

vocabulary

have been in balance ['bæl(ə)ns] - byly v rovnováze
greenhouse gases ['grin:haʊs gæsɪz] - skleníkové plyny

ozone layer ['əʊzəʊn 'leɪə] - ozonová vrstva

highly developed [dɪ'veləpɪd] - vysoce vyvinutý

in our favour ['feɪvə] - v náš prospěch

transparent blanket [træn'spær(ə)nt 'blæŋkɪt]

- průhledná pokrývka

radiation [reɪdɪ'eɪʃ(ə)n] - záření

to trap [træp] - uvěznit, polapit

carbon dioxide ['kɑ:b(ə)n daɪ'ɒksaɪd] - oxid uhličitý

too high to support life [su'pɔ:tɪ] - příliš vysoké na udržení života

fossil fuels ['fɒs(ə)l fjuəlz] - fosilní paliva

overall [əʊvər'ɔ:l] - globální

rising sea levels - stoupající hladiny moří

unpredictable [ʌnpri'dɪktəb(ə)l] - nevyzpytatelný

flooding ['flʌdɪŋ] - záplavy

drought [draʊt] - sucho

thin [θɪn] - tenký

ultra violet ['ʌltrə 'vaɪələt] - ultrafialové

to release [rɪ'li:s] - vypouštět

to ban [bæn] - zakázat

aerosol ['eɪrəʊsl] - sprej

refrigerator [rɪ'frɪdʒəreɪtə] - lednička

car air conditioning [ə kən'dɪʃ(ə)nɪŋ] - klimatizace v autě

deforestation [di:fɒrɪ'steɪʃ(ə)n] - odlesňování

cattle ['kæʔ(ə)l] - dobytek

basin ['beɪs(ə)n] - povodí

to become extinct [ɪk'stɪŋkt] - vyhubnout

to dispose of [dɪ'spəʊz] - zbavit se, zlikvidovat

to dump [dʌmp] - vyhodit, zbavit se

pest [pest] - škůdce

to leak [li:k] - unikat

to update - aktualizovat

acid ['æɪd] - kyselý

scale [skeɪl] - stupnice

alkaline ['ælkələɪn] - zásaditý

in a narrow range ['nærəʊ rem(d)ʒ] - v úzkém rozmezí

sulphur dioxide ['sʌlfə daɪ'ɒksaɪd] - oxid siřičitý

exhaust gases [ɪg'zɔ:st] - výfukové plyny

chimney ['tʃɪmni] - komín

to expand [ɪk'spænd] - rozvíjet se

to switch off - vypnout

to turn down - stáhnout

to insulate ['ɪnsjələt] - izolovat

to encourage [ɪn'kʌrɪdʒ] - přimět, přesvědčit

to see the longer view - aby uvažovali

v dlouhodobějším časovém horizontu