FACTSHEET

Antarctica

The Antarctic Ozone Hole

You will no doubt have heard of the hole in the ozone layer above the Antarctic. CFCs (chlorofluorocarbons) cause ozone depletion when they are released into the atmosphere. It is thought, however, that the extreme cold of the Antarctic may also be a factor in ozone depletion, as there is a similar hole over the Arctic. The decline of Antarctic ozone could be a sign of a more worrying global ozone breakdown.

Melting Ice Sheets

The burning of forests and fossil fuels has resulted in a 25 per cent increase in the carbon dioxide deposits found in Antarctic snow since the 1970s. Gases from burning fossil fuels trap some of the sun's heat and warm the atmosphere, causing global warming.

This warming is known as the 'Greenhouse Effect' and may increase the rate at which Antarctic ice sheets melt. The earth's average temperature will probably rise by between 2 and 5 degrees centigrade by 2020. Such temperature rises would cause flooding in coastal cities throughout the world, and low-lying countries such as Bangladesh and the Netherlands would be completely submerged.

The Key to the History of the World's Weather

Antarctica plays a vital role in the world's climate and atmospheric patterns. Nearly 90 per cent of the world's ice is contained in the Antarctic's ancient ice sheets. By drilling into the ice, scientists can read the world's climatic history from as far back as half a million years ago, through deposits etched in the ice layers. These ice deposits tell us, for example, that 18,000 years ago, the world was probably far windier and dustier because Antarctic ice from that period contains more dust than fresh snow and the dust comes from other continents.

Animal Life in the Antarctic

Antarctic animals all depend on the sea for their food, with bird and mammal populations concentrated in the ocean and around the marginal coastal areas. The tiny, shrimp-like krill is central to the food chain of all Antarctic life. Each individual krill measures about 4cm long and has a life span of up to seven years. The krill is the staple food source for five whale species, three groups of seal and many species of fish and birds, including penguins.

Fishing nations started to exploit krill around the Antarctic during the 1970s. Improved harvesting techniques, and the discovery of wide uses for krill in animal and human foods led to yearly catches of over 400,000 tonnes. We do not know enough about the krill's life cycle to be sure that it can withstand such fishing, and a large drop in its numbers could spell doom for animals higher up in the food chain, such as whales, but these warnings have gone unheeded.

Overfishing of Antarctic Ocean fish species has also taken place. Three varieties of Antarctic fish are heavily depleted and there is serious concern over the survival of the ice fish species.

The Antarctic Treaty - A 'Cover Up'?

Twelve nations settled old territorial claims by signing the 1959 Antarctic Treaty. The Treaty was supposed to encourage the peaceful scientific exploration of Antarctica. However, many observers believe that a lot of the scientific research which goes on in the Antarctic is looking for mineral deposits under the ice, to be exploited

at a future date by the member nations.

CCAMLR - Powerless to Stop the Damage

Brought into effect in the spring of 1982, the Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR) is the only international agreement which gives protection to wildlife living in the Antarctic.

CCAMLR forbids the killing or wounding of any native bird or mammal - except whales - without a permit, and states that damage to and interference with habitats should be minimised. The convention is toothless, however, as it has no means of punishing member nations who break the rules. CCAMLR has looked on powerless as Antarctic fish have dwindled, and it has failed to extract detailed krill harvesting quotas from fishing fleets.

Pollution From Bases

Many of the national scientific bases in Antarctica show little care for the environment, disposing of their waste carelessly and pouring fuels and sewage into the sea and onto the ice. Serious contamination was allegedly caused by a leaking US nuclear reactor in the 1970s and, in defiance of the convention, the French used explosives in an attempt to build an airstrip. In doing so, they destroyed penguin colonies and threatened traditional breading grounds.
Large-scale oil and mineral exploration could cause far greater disasters. Extreme cold and hurricane winds would present unprecedented dangers to drilling rigs. A serious accident could leave Antarctic wildlife at the mercy of a spillage, and any rescue missions could be blocked by impenetrable ice seas. Oil is estimated to take up to 100 times longer to disperse naturally in the cold of the Antarctic than it would in warmer waters. Also, vast areas of blackened ice would lose their ability to reflect the sun's rays and would begin to melt, so it is clear that Antarctica needs proper environmental protection.