



Our Battered Biosphere

The human population of our planet is steadily increasing at the rate of **one million more people every four days**, and the total human population is now over **six thousand million**

! This is quite frightening when you remember that in 1970 there were fewer than 3,500 million humans inhabiting the world.

As the human population increases, so do environmental problems of every kind. More attention is now being paid to the environment, but huge damage is still being done throughout the world. At the moment there is not enough thought for the future.

So what is the biosphere?

Put simply, it's the bit on the outside of the planet, where all living things are able to exist. It includes the deepest layers of soils and ocean trenches, upwards to the highest levels of the atmosphere in which any form of life (including dormant spores, bacteria or other cells) is present.

We humans not only live in the biosphere but are absolutely dependent upon it for almost every aspect of our existence. We constitute an integral part of the biosphere, but we are so prominent and active that we are now changing it very considerably - and much too rapidly for our future safety and survival!

Some of the changes humans have caused are extremely dangerous, especially those we regard as irreversible. Among the better known examples are:

1. The atmospheric build-up of carbon dioxide, (causing global warming).
2. Damage to the ozone layer - our stratospheric safety shield against the sun's harmful radiation.
3. Pollution of fresh and salt waters, and of soil and air.
4. Erosion and other effects of deforestation.

The Earth's atmosphere is wafer thin when compared with the size of the planet - with about 50% of the atmospheric mass existing in a layer which extends less than 6km out from the surface. The rest of the

atmosphere stretches up to about 680km, but it cannot support life and gets progressively thinner as it gets further from the earth. Temperatures in the atmosphere vary greatly, from -55 degrees Celcius to over 2200 degrees Celsius. The distance from the Earth's core to the outer reaches of the atmosphere is 6,550km. All animal and plant life exists in a layer at most 30km thick, so we have a comparatively small amount of space to use on the very surface of the planet.

There is great concern for the ozone layer at the moment. This layer of ozone gas occurs between about 15 and 40 km from the planet's surface. It works as a filter, absorbing most of the sun's harmful ultraviolet rays.

Ozone occurs naturally, but can be destroyed by chlorofluorocarbons (CFCs). One chlorine atom from CFCs can destroy up to 100,000 ozone atoms, and CFCs can remain in the atmosphere for up to 100 years before they decay. CFCs are now used a great deal less, but the effects of the CFCs already in the atmosphere may be very significant, plants to become damaged by ultraviolet radiation and more humans to suffer from skin cancer.

Most of us are aware that an ever-increasing number of animal and plant species are being pushed towards extinction. In fact,

the world may already be losing one species of animal or plant EACH DAY!!

There are definite signs that people's attitudes towards the environment are changing. Concern is being expressed continually in the media, and young people's knowlege is getting ever greater. However, there are still major hurdles to overcome.

Many industries which are bad for the environment cannot simply stop. This would put hundreds of thousands of people around the world out of work. Governments will not agree to take part in schemes which will reduce harm to the environment but which will also seriously damage the economies of their countries. Progress towards reducing harm to the environment is therefore likely to be slow and steady, rather than dramatic and swift, especially in the developing countries of the world, where environmental damage is increasing rapidly as they struggle to catch up industrially with the economies of the West.

Another important factor is that people are essentially selfish. They may well be concerned about the environment, but not do anything to help it themselves. It's no good blaming others. Take a look at the damage you do to the environment, and only when you've reduced this as much as you can will you be able to pass judgement on others. This means recycling as much of your rubbish as possible and disposing of the rest carefully; buying environmentally-friendly and recycled products whenever possible; walking, cycling or taking public transport rather than using a car; switching off lights when they're not in use; properly insulating your home; not having the central heating set too high; protesting to those in power about excessive environmental damage.

There aren't many people who manage to do all of the above all of the time. But you can be sure that the more often you do at least some of them, the better off the biosphere will be as a result. Don't expect the world to change overnight. It just won't happen. Slowly but surely, the message will get through. We just have

to hope that it happens before it's too late!

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