

## An idiot's guide to the Environment.

This topic looks at the issue of why the environment has become a major issue and causing concern to us. You will need to know the answers to the following:

- What are the issues?
- How have they come about?
- What are the possible effects?
- What has been / could be done about them?

### What are the issues?

It is a fair assessment to say that as a race we humans have not really cared for our environment as well as we could have. As a world we face some major changes to the environment, which can be looked at in three main reasons.

#### *1. Increases in the World's population.*

There has been a major increase in the amount of people who live on the planet. It is estimated that the population has increased by over 75 million per year. That means that it has been predicted that by 2050 the world population is expected to be at 9 billion.

#### *2. The increased use of natural resources, which cannot be replaced.*

Due to advances in technology we are becoming more reliant on them. We are using up natural resources (like coal, oil and wood) to turn them into energy (like electricity). When these resources are used, they change the environment. They are making by ~ products like carbon monoxide and toxic chemicals.

#### *3. People want more material things than ever before.*

People who live in countries like ours have a higher standard of living and expect to have a comfortable lifestyle. People who live in less economically developed countries want the same lifestyle.

### How are people interacting with the environment?

If we all lived with the same attitudes to the world, we would not be facing the issues we are today. But we know that every one of us has a different set of priorities and as such are exploiting the environment to achieve our own aims. If we look at the Tropical rainforests we can see this in action.

The tropical rainforests cover up to a third of the world's surface. My species of animals live there and many of them are unique to that area. If one area is changed / damaged this will have a knock on effect to the rest of the world. If you like it is a kind of jigsaw that fits together. When one piece is missing, the eco system is not complete.

The trees in the rainforests are important for a number of reasons:

1. Trees absorb carbon dioxide and produce oxygen.
2. Without forests radiation bounces back into the atmosphere raising the temperatures.
3. This could alter the air circulation (convection).
4. It is also involved in recycling the water in the earth to return as rainfall in other parts of the world.
5. Streams will disappear if the forests are not there to store the water. This is happening now in parts of Africa!

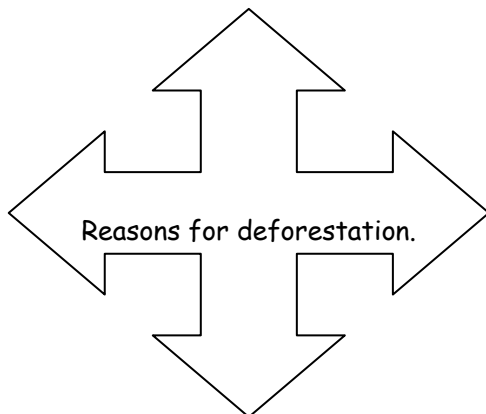
So what is happening? In a word deforestation ~ trees being cut down at a furious rate. The reason for this is due to human greed as they have realised what an opportunity the area holds.

The case study that is and has been used for a long time is the Brazilian rainforest, but the reasons are much the same not matter where you look in the world.

Most of the deforestation that occurs is connected to the Economic development of the countries where the rainforests grows.

*Logging:* trees are being converted into timber to sell abroad, especially hardwood. Smaller trees are just being ripped up and left to die.

*Extraction of Minerals:* These are extracted from the land beneath the trees. This means that trees are uprooted to expose the minerals to create wealth for the country.



*Small-scale farming:* the clearance of the rainforest has produced plots of land for farming. For many this has improved the quality of life, as they are able to grow their own food.

*Cattle Ranching:* the first stage involved burning the land then allowing the grass to grow over the burnt land. This will only last for 2 years before the land is worn out from grazing cattle. They will then repeat the process over and over again.

*Major Engineering projects:* this includes the building of dams for hydroelectric power, building roads and building settlements for farmers and miners to live near the forests. By doing this they are destroying the environment that they are there to bring advantages to the local people.

There are other people who have an interest in the rainforest. They include:

Group:	Reason for interest:
Researchers.	They want to discover what effects of deforestation is having on both local and global living conditions.
The Brazilian Government.	They are trying to cope with the major increases of both a growing population as well as a developing economy. They want to reduce national debt.
Commercial companies.	They want to make profits from the raw materials that can be found in the rainforest. They also believe that they are helping the economy by providing jobs for local people.
Original inhabitants of the area.	They have lived and learnt how to use the rainforest to their advantage. The way they live does not hurt the environment. But they are now seeing this way of life destroyed.
Growing population of poor people in the surrounding areas.	They are hoping for a better lifestyle than they have at the moment. They believe that making way for farms will have a positive effect and make them more self-sufficient.

So what can be done about this? Well there is the idea of stewardship, which means that people can use the land but understand what is needed in order to ensure it survives. This means that they treat it with respect and concern for its future.

Another idea is sustainable development. This means finding a way to use the resources of the rainforest but without destroying it. This would include:

- a. Protecting and managing the remaining rainforest.
- b. Helping people to improve their quality of life without causing damage to the rainforest.
- c. Get governments and international groups to agree to work to conserve the rainforests.

#### Summary of the Brazilian rainforest case study:

1. Rainforests are vital for the world's ecosystem, which provides unique resources and controls world climates and weather patterns.
2. Rainforests are being cut down at an enormous rate ~ the resources are valuable.
3. Many people (researchers) believe that this process and methods used are extremely hazardous to the future of the world.
4. People who are exploiting the rainforests believe that it is the only way to support weaker countries to improve their quality of life.
5. The loss of rainforests is already causing problems for the world.
6. The answer to these problems, or a way of dealing with them, involves everyone learning how to protect the rainforests. One way to do this is through sustainability.
7. The new approach may be difficult to organise on a world scale as people interact differently with the environment.

#### How are natural resources exploited? ~ The Aral Sea case study.



The Aral Sea was once the fourth biggest sea in the world ~ it covered 66,100km<sup>2</sup> and its salt content was 1%.

This began to drop in the 1960's due to the Russian government setting up a major irrigation scheme to grow cotton and rice to help the Russian economy.

This meant that water was diverted from the rivers that flowed into the Aral Sea to where the crops were planted. As a result of this mass irrigation program, 27,000km<sup>2</sup> of former sea bottom became dry surface. This meant that 60% of water volume was lost and the sea level fell 14 meters.

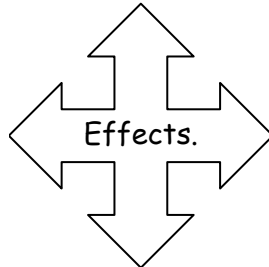
The water also became twice as salty. Every year about 200,000 tonnes of salt and sand is carried away by wind.

The effects of the changes to the Aral Sea:

Climate: The water and sea used to moderate the temperature. Winters are colder and summers are hotter. The area is always dusty because the wind has increased.

Desertification: The salt air has damaged the farming area, destroying pastures and creating a shortage of food for domestic animals. As desertification increases there is more toxic dust in the air from the wind blowing over the exposed seabed.

Work: The cotton and rice industries are failing, the fishing industries have collapsed. The harbours are now miles from the sea, and the fish could not survive the over salted polluted sea



Water supply: Sanitised water is in short supply. The water that is available is polluted. The Soviet government had not worked out in advance what might happen to the local ecology ~ this has meant that the locals are left in desperate condition.

Health: The drying up of the sea, the reduction in the quality and quantity of water along with the salt and dust has had a damaging effect on the health of the locals.

environment should be perceived and exploited.

2. There are usually 2 forces at work:
  - i. Exploitation of the natural environment to produce resources that people want or will consume to improve their lives.
  - ii. Conserve the natural environment and to limit the damage caused.
3. Some parts of an ecosystem may be damaged as a result of commercial pressures, where the desire to get and trade specific resource overrides other concerns.

Why is pollution a problem?

Pollution is happening everywhere and affects everything. Humans have always created waste and have usually left it in the natural environment to decay naturally. A lot of pollution today has been caused by:

- Overcrowding of the earth.
- Heavy industry.

The table below shows the main types of marine pollution.

Type of marine pollution:	% Of total:	Examples:
Run of from the land.	44	Sewage. Agricultural waste ~fertilisers Industrial waste. Food and drink waste.
Atmosphere.	33	Wind blown dust and gases from vehicles, fires and factories.
Marine Transport.	12	Oil leaks. Cargo spills. Pleasure boating.
		Sewage sludge.

Dumping at sea.	10	Ships rubbish blown overboard Dredging. Bilge water discharges. Rubbish disposal by barges
Off shore pollution	1	Waste from oil and gas extraction.

One group who has been trying to help the situation is Greenpeace ~ they are a pressure group that has been successful in bringing the issue to the public's attention. They have used various tactics to bring the issue to the public's attention. Other groups who have aimed to do this have also included 'Surfers against sewage' ~ based in Cornwall they have been campaigning to restrict the sewage outflow on the South coast of Britain.

Summary of pollution of the oceans:

1. Humans have used the sea as a place to dump waste for thousands of years.
2. The toxicity of the waste has increased and is causing problems across the world.
3. There are many ways in which pollution has entered the sea, but the greatest risk is from the industrial, agricultural and human waste.
4. This pollution is damaging both marine and human life.
5. The outcome of these changes will affect the food chain.
6. This situation is hard to change, as the sea has become a dumping ground for humans.
7. There are many groups who are aware of the dangers and are trying to solve this issue.

How can the natural environment be exploited sustainably?

*Non-renewable resources* are natural resources ~ the best known of these are fossil fuels (oil, wood and natural gas). These have supplied most of our energy in the past. Yet there are problems with this. These problems include:

- Wood is in short supply
- Fossil fuels are running out.
- They cause pollution.
- Nuclear power can cause a threat to both the environment as well as human life.

For the exam you will need to know why they are used. It comes down to:

- Cost ~ they are very cheap.
- Most industries in producing electricity are based on these fuels and the investment in this is massive. To scrap this would cost an unthinkable amount of money.

*Renewable resources* occur naturally and are always available. Although they are free they too have their problems before they can replace fossil fuels.

- Hydropower ~ the cost of building the dams needed is enormous and to recoup the cost of building it would take a long time. They can only be built in a limited number of places. Land would disappear, as it would have to be flooded to create the dams. Local ecosystems are damaged and there is a lot of water lost due to evaporation.
- Water power from the sea ~ tidal power uses the movement from the sea. It is expensive and has not produced very good results. The other issue is related to the wave movements. Very little energy has been produced.
- Solar power ~ with solar panels energy can be converted. But it is not used to produce very much power. Large-scale production is expensive to produce in the UK but it has worked in Denmark.

- Power from the atmosphere ~ wind farms are an excellent way to produce energy. But practically this can also cause problems. They are expensive to build, they need a lot of space and it is inconsistent.

### What impact does leisure and tourism have on the environment?

It is an environmental issue because:

1. Increased transport causing pollution.
2. Accommodation being in demand and this will affect the use of resources (water and electricity).
3. Leisure activities have changed the use of land.
4. Changes in lifestyle for the local people.

When the wealth of tourism comes to a country the landscape has to change. Some of the changes are positive as they increase wealth, better infrastructure and new opportunities for the local people. However, some of the changes are negative due to the changes due to pollution by sewage and traffic fumes.

### Is climate change the world's biggest environmental problem?

Climate change is the result of global warming ~ weather patterns have changed and will continue to do so if we do not try to stop it now.

The ozone layer acts as a barrier to harmful UV radiation. UV rays can cause skin cancer and mutations in plants. Chemicals called CFC's have made holes in this layer and are letting in more UV radiation. It does not let in more heat but it is a threat to the health of people and animals.

#### *Why worry?*

1. Increasing CO<sub>2</sub> emissions are produced through the burning of fossil fuels ~ this means that other chemicals such as methane are being produced adding to the problem.
2. There are changes in the climate of the world.
3. The changes are unpredictable and we do not really understand or know what they will be.
4. Some places will be affected more than others; this will lead to more droughts and hurricanes. Poorer countries will suffer more as they do not have the resources to cope with this.
5. There will be an impact on the environment and animal life.

There are two main options available to us to try to work with this change:

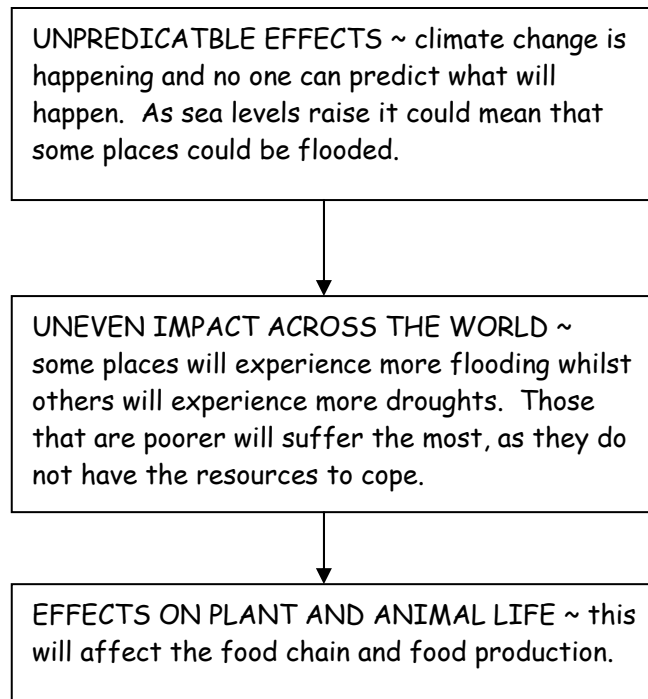
#### 1. *Increasing CO<sub>2</sub>:*

The most developed countries produce the most CO<sub>2</sub> and as countries grow so does their output of these harmful emissions. Despite trying to solve this issue the burning of fossil fuels is on the increase.

#### 2. *Evidence of changes in climate:*

- a. Arctic sea levels are changing.
- b. Many low-lying islands are losing coastal land at a rate of 25m (82 ft) per year.
- c. In May 2003 a record heat wave in India claimed 1600 lives. In Europe it claimed 35,000 lives.
- d. Ice glaciers are now melting.
- e. Crop yields have fallen.
- f. There has been an increase in droughts since the 1980's.
- g. In 2004, the Caribbean and Florida experienced more hurricanes.
- h. Bangladesh has experienced heavier floods.
- i. Some insects and diseases have survived and spread further across the world. This has included Malaria, yellow fever and cholera.

## Why is climate change seen as a major problem for the world?



### *What can be done?*

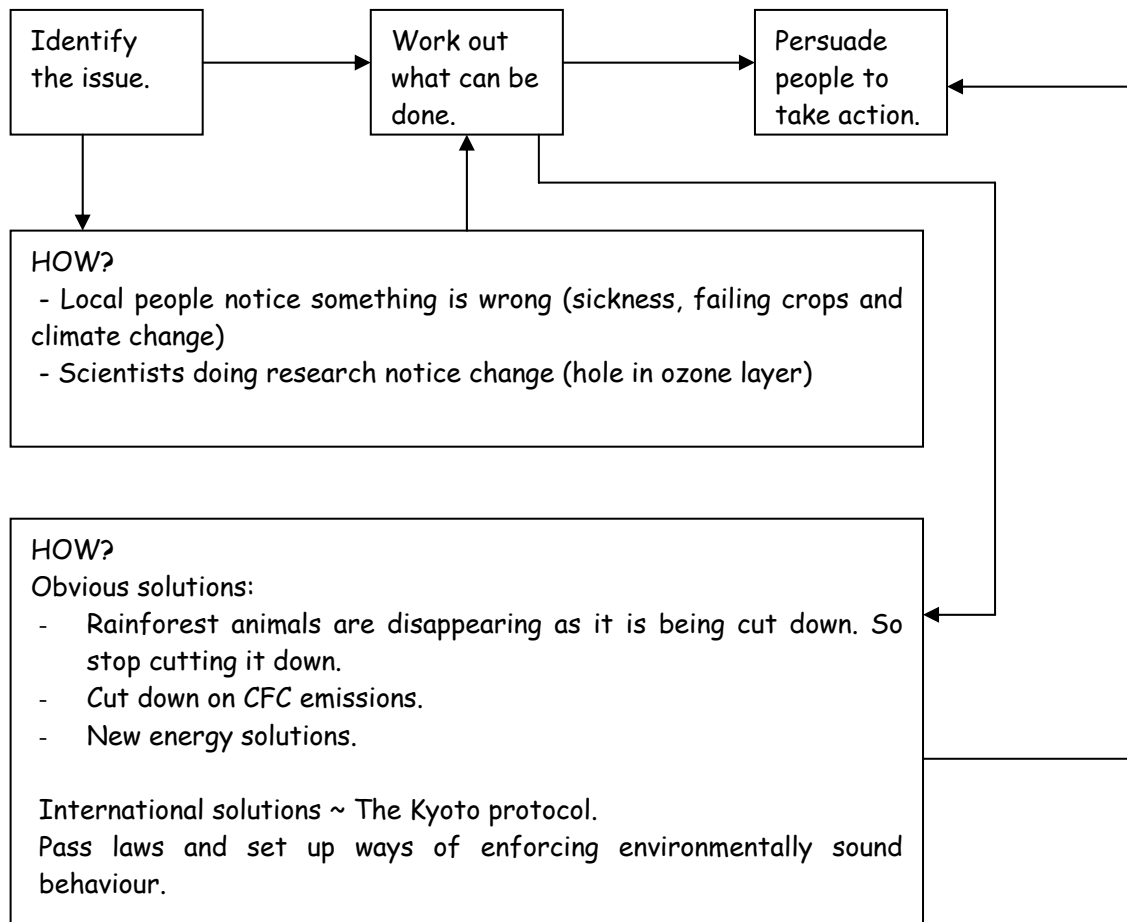
1. Try to control global warming by reducing the amount of greenhouse gases we produce. This may slow down or halt climate change.
2. Accept that climate change will continue to take place and start to prepare to adapt the way we live to cope with the changes.

## What can we do about environmental problems?

Most scientists believe that the planet will survive, but there is no guarantee that human beings will. If we do serious damage to the environment then we take that chance.

At the moment this does not seem likely, but case studies have shown that we still face some problems. We also need to look at the solutions as well. These include:

- a. The loss of the rainforest ~ we need to protect and manage this in the proper way to ensure that it can regenerate.
- b. The pollution of the oceans ~ governments have tried to limit both fishing and pollution through legislation.
- c. The pollution from burning fossil fuels ~ adopting alternative energy sources.
- d. Tourism ~ may become less damaging to the environment as both tourist and the industry recognise that they must behave differently.



The above diagram shows that the solutions offered has something in common ~ each have three steps for action and that we all have a part to play.

The government took their steps by:

- a. Encouraged recycling.
- b. Reductions in town centre traffic.
- c. More efficient cleaning and waste disposal.
- d. Stopped the sale of leaded petrol.
- e. Inspect industrial sites.
- f. Tries to educate the public about the issue of global warming through media campaigns.

The Green party:

They are a political party and have set their main aim to create a sustainable environment across the world. They want to protect the environment and share the world's resources more fairly.

Pressure groups<sup>1</sup>:

These are made up of people who do know and understand the issues. They are usually more forceful than the government because the issue is their main concern. They all have the same basic objectives, which include:

1. To inform the public about environmental issues.
2. To make individuals concerned enough to do something about the issue.
3. To try to get governments to do something about the issue.

<sup>1</sup> Make sure that you research a pressure group in detail. This could be 'Friends of the earth' or 'Greenpeace'

*Is there anything we can do?*

In the UK, environmental issues can only be resolved if we do something about the way we live. Remember, we live in a democracy, and as a result of this the government should do, as we want. So if we were concerned about climate change, we would:

- Burn less fossil fuels.
- Use cars less.
- Recycle more.
- Produce less waste.
- Buy environmentally friendly goods.
- Insist on alternative energy sources for our power needs.