This module is about how people/countries can damage the environment by trying to develop.

Economic Development and the Global Environment

Acid Rain

Caused by...
Burning fossil fuels creates emissions of sulphur dioxide and nitrogen oxides. These combine in the atmosphere with water vapour, sunlight and oxygen to make dilute sulphuric and nitric acids. These acids are washed out of the atmosphere by rain, hail or snow.

Effects...
Acid rain passing through soil leaches out nutrients. Crops grow badly in contaminated soil. When water reaches streams and rivers, fish die.

Consequences ...
In Southern Norway, 80% of lakes and rivers have little or no life in them. A quarter of Sweden's 90 000 lakes are acidified, and 4000 have no fish. Trees are weakened by the acid rain, and die.

How can acid rain be reduced or prevented?

- Add lime (lime neutralises acid). Sweden spends $15 million a year on liming.
- International agreements to reduce emissions.
- Low sulphur coal and gas used.
- Emissions from cars reduced or reduce the numbers of cars on the road.

Ozone layer

The ozone layer filters out the sun's ultraviolet rays which damage things. Ozone is a natural gas that is found in small amounts in the atmosphere. CFCs (originally used in fridges and aerosols) cause the ozone layer to break down. The layer above the Artic and Antarctic has thinned since the 1970s. Vehicle and aircraft exhausts also destroy ozone by reacting with UV radiation.

Why is a thin ozone layer a problem?

- Increased skin cancer.
- Photosynthesis of plants is also reduced, which in turn affects our food supplies.

Can ozone depletion be prevented?

- International agreements
- Ban CFCs

Sustainable development

Sustainable development is one way forward. The UN defines sustainable development as: 'Development that meets the needs of the present without compromising the ability of future generations to meet their needs.' A rainforest can be sustainable if a tree is planted for every one cut down. A damaged environment that will never be the same again is unsustainable.

Ways people damage the environment

- Water pollution
- Industrial accidents
- Burning coal
- Deforestation
- Leaks from oil wells
- Coal mining

Economic development

'Economic development' implies a better quality of life for people, but not all people benefit and in some cases the environment has suffered.
People in some industrial regions have been badly affected by air and water pollution.

Examples of pollution problems

Bhopal. India
A US transnational company (Union Carbide) built a pesticide plant on the edge of the city. A shanty town built up around the plant - something that would have been prevented in MEDCs.
Chemical leaked from the plant causing:

- Blindness
- Damaged lungs and breathing difficulties
- Genetic damage in babies for years to come
- Reproductive problems.

Cherttobyl, Ukraine
Explosion and fire at the nuclear power station. Radioactive clod was blasted into the air. Many people dies and there has been a massive increase in cancers in the area. Economy devastated because people had to leave the area.

Appropriate technology and sustainability

People have started to realise that large-scale development can cause environmental problems. Some companies have now been set up that use cheap to run and are efficient at using, re-using and recycling resources.

- **Traditional appropriate technology**
  Clothing, furniture etc.. made in local workshops using local or recycled products.

- **Newer appropriate technology**
  E.g.. using small portable solar power generators in homes and clinics.

- **Organic farming**

Pressure groups such as Greenpeace draw attention to problems created by industry etc..

Global Warming

The atmosphere around the earth naturally contains greenhouse gases such as water vapour and carbon dioxide, which act like glass in a greenhouse and trap heat around the earth. In the last 200 years, emissions of greenhouse gases from human activities have added to the natural gases.

- Major greenhouse gases:
- Carbon dioxide (vehicles, deforestation);
- Methane (farming, landfill sites);
- CFCs (fridges and aerosols)
- Nitrous oxide (power stations, fertilisers, power stations)

Problems

- Droughts
- Ice caps melting
- Sea level rising - causing cities like London to flood
- Changing growing seasons
- Animal habitats changed
- Heatwaves and periods of unusually warm weather