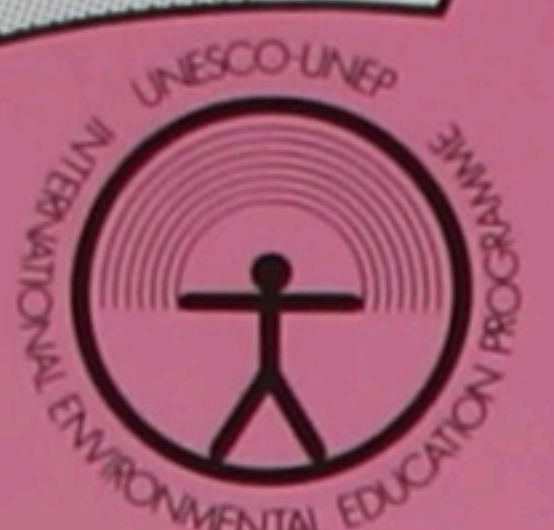


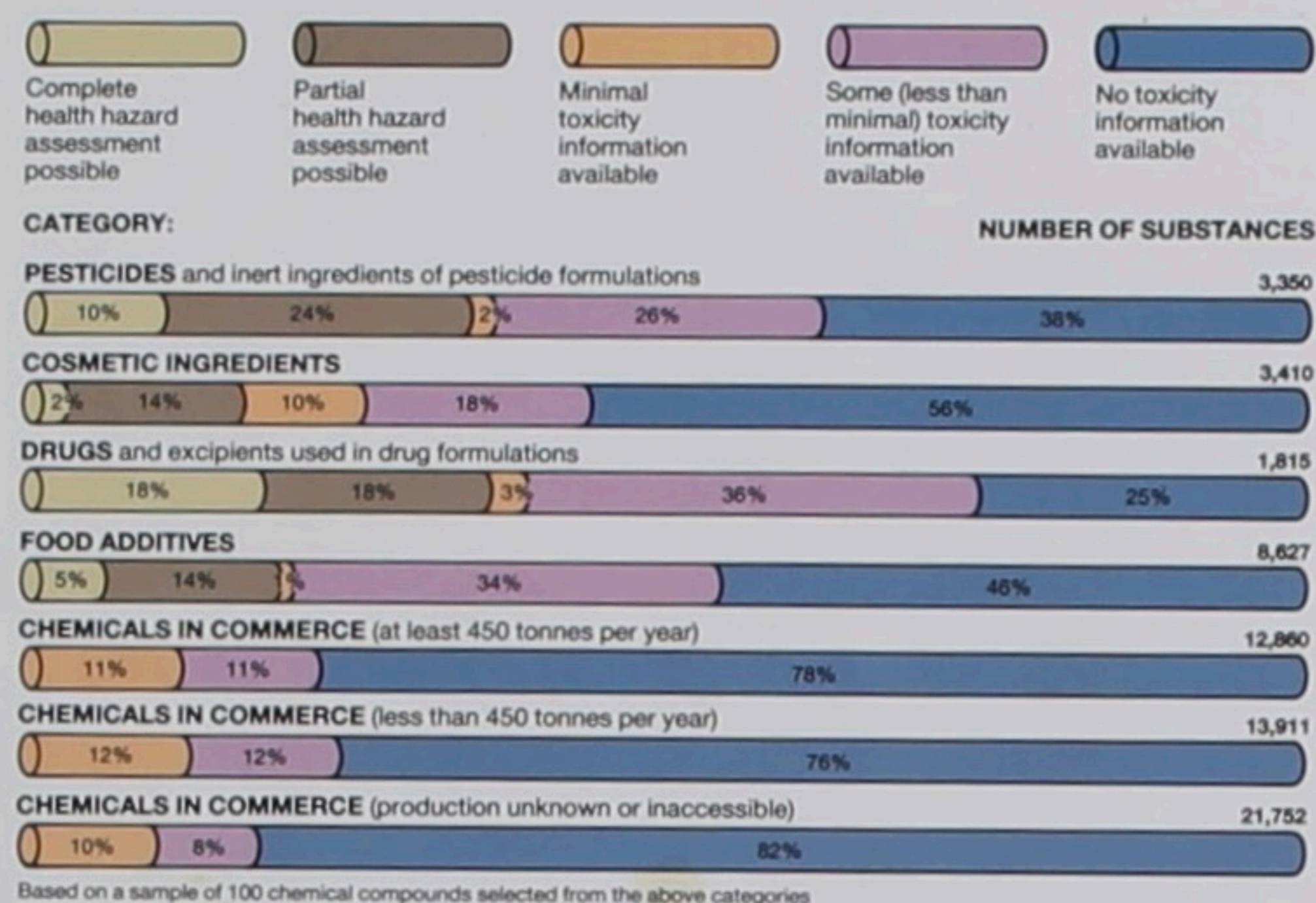


Environmental Effects of Industry

Industry is essential to the development of a country and the prosperity of its people. But industrial processes and the production, transformation and final use of energy cause major problems. Besides depleting natural resources, they generate airborne emissions, water effluents and solid wastes, leading to climate change, air and water pollution, acid rain, deforestation and land degradation.

Worldwide totals of hazardous wastes generated by industry are impossible to estimate since many countries differ over definitions and very little information is available. Industrial countries probably generate over 90% of the world's annual total of about 350 million tonnes of hazardous wastes. Safe disposal of these is an increasing problem and industrial accidents, such as those of Bhopal (India), Chernobyl (Ukraine) and Basel (Switzerland), often have tragic environmental consequences.

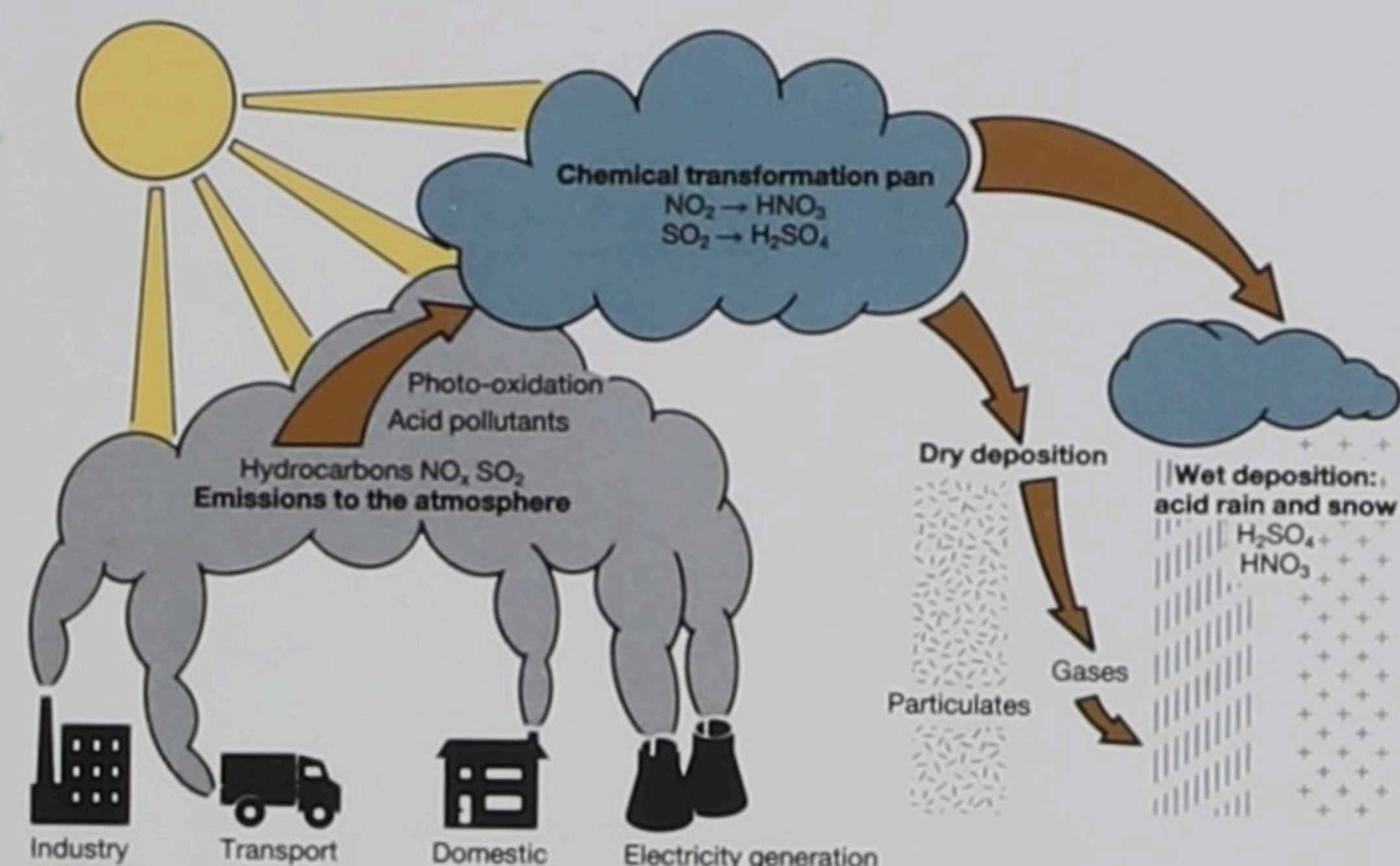
Available data for health hazard assessment



Toxic and dangerous substances and materials that require priority consideration

- Arsenic and compounds
- Mercury and compounds
- Cadmium and compounds
- Thallium and compounds
- Beryllium and compounds
- Chromium (VI) compounds
- Lead and compounds
- Antimony and compounds
- Phenolic compounds
- Cyanide compounds
- Isocyanates
- Organohalogenated compounds, excluding inert polymeric materials
- Chlorinated solvents
- Organic solvents
- Biocides and phytopharmaceutical substances
- Tarry materials from refining and tar residues from distilling
- Pharmaceutical compounds
- Peroxides, chlorates, perchlorates and azides
- Ethers
- Chemical laboratory materials
- Asbestos
- Selenium and compounds
- Tellurium and compounds
- Polycyclic aromatic hydrocarbons
- Metal carbonyls
- Soluble copper compounds
- Acids and/or basic substances used in the surface treatment and finishing of metals
- Organochlorines (eg PCBs, DDT)

How acid rain is formed

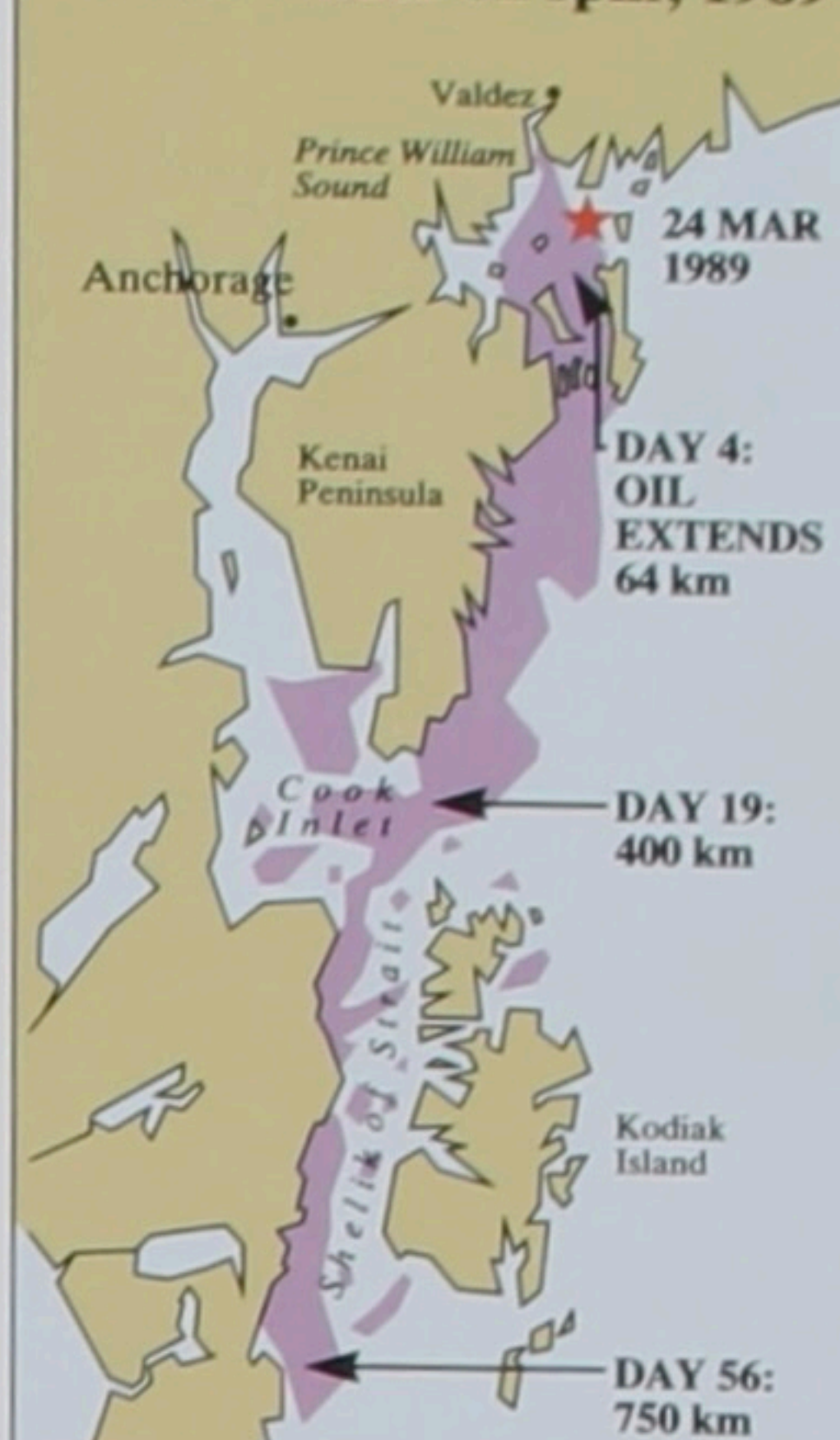


Acid rain is caused mainly by sulphur and nitrogen emissions from the burning of fossil fuels such as coal and oil in power plants, industrial boilers and car engines. They combine with water vapour, sunlight and oxygen in the atmosphere to create a diluted 'acid soup' which is washed out of the atmosphere by rain, snow crystals or as dry particles, polluting the air and causing untold damage to trees and buildings.

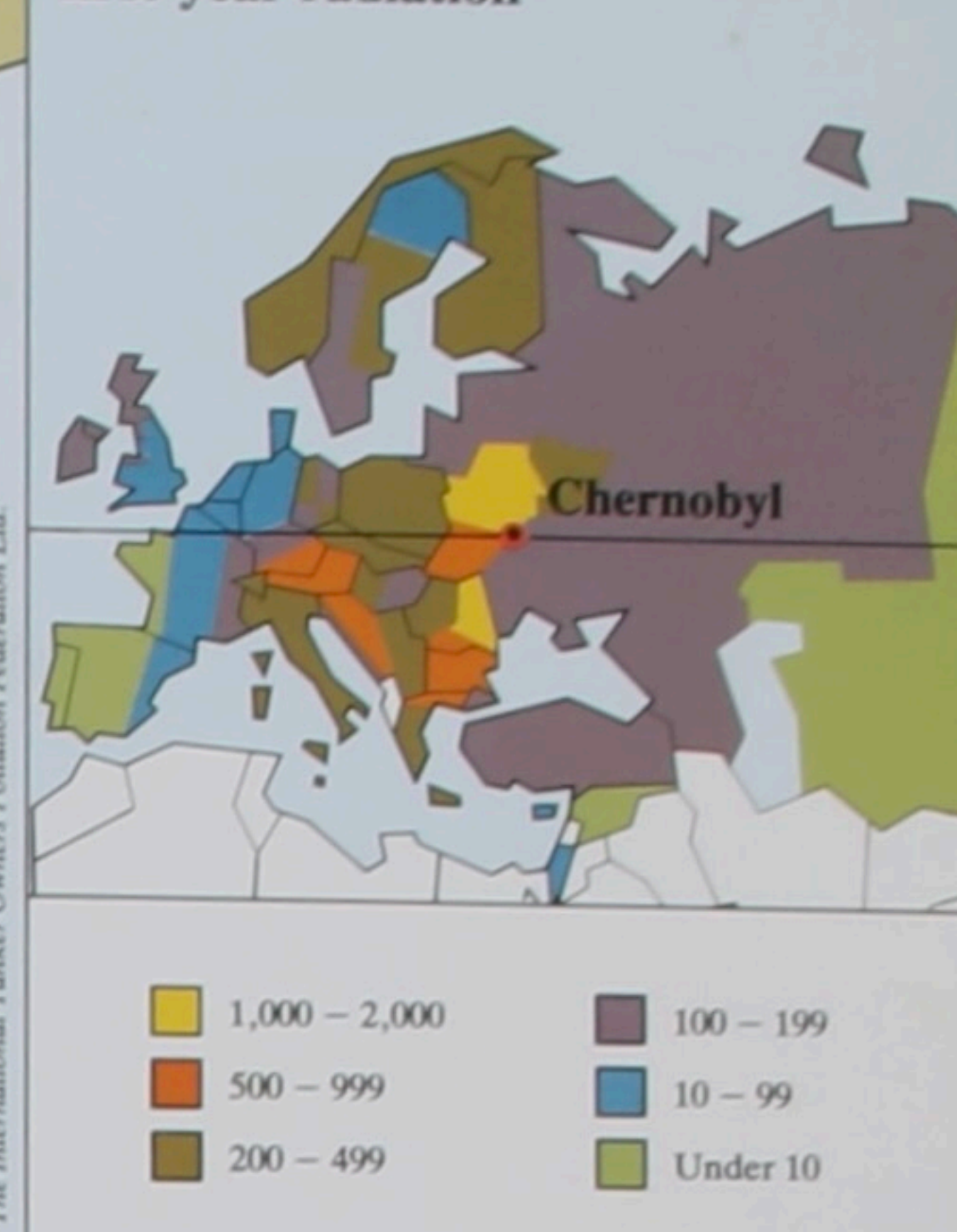
"Environmental management must be given the highest priority since it is a key to moving to sustainable practices. As part of this move, business and industry need to develop 'clean' techniques and technologies that reduce harmful environmental impacts."

Agenda 21, Chapter 30

Industrial accident: the Exxon Valdez oil spill, 1989



Industrial accident: Chernobyl (1986) first-year radiation



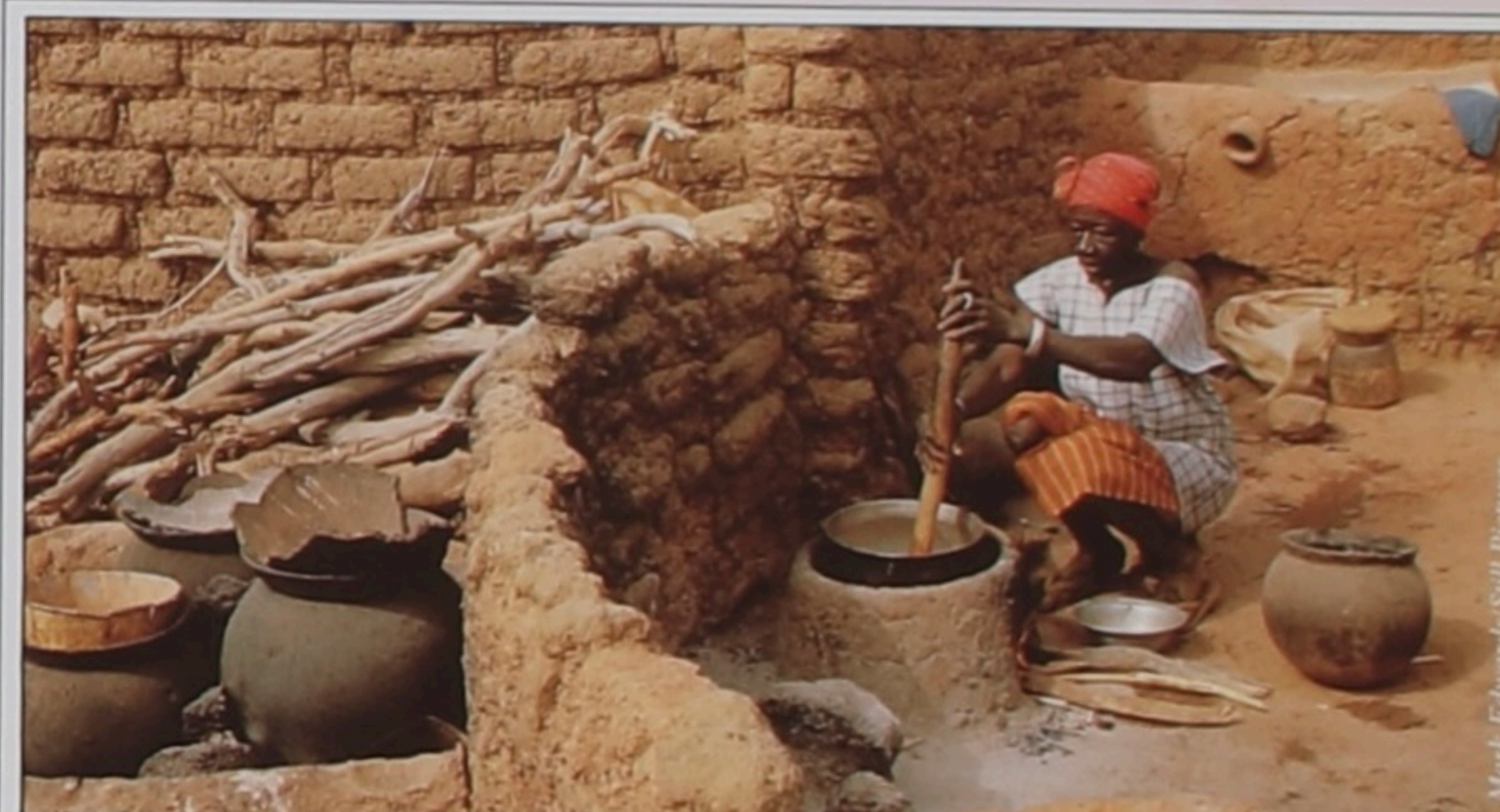
Over 1,500 kilometres of pristine coastline in Alaska, USA, were polluted with 11 million gallons of crude oil. After 6 months' clean-up, less than 200 kilometres of the originally polluted coastline was fit for plant and animal life. Scientists believe that the thousands of dead animals and birds found represent only a fraction of the numbers killed by the oil.

The world average annual dose from natural background radiation is 2,400 microsieverts. The map shows, by country and region, the average additional doses in the first year after the Chernobyl nuclear reactor accident. As a result of fallout from the accident, 31 people died and 135,000 had to be permanently evacuated. Localized areas received much higher levels of contamination and it is estimated that in the long term many thousands in Europe will suffer or die from diseases caused by increased radiation.

Energy production and use can be highly polluting. How to reduce this?



1. Use clean technologies
Increasingly, clean and renewable energy sources, such as solar panels, can be used to meet the energy needs of small communities.
2. Save energy
Use energy-efficient wood stoves where wood is the only source of fuel. Electricity can also be generated by burning waste and installing improved woodburning stoves can cut fuelwood consumption in countries where supplies are limited.



What can be done

- Improve treatment of industrial effluents by using biotechnology.
- Encourage technology that produces little or no waste.
- Reduce industrial discharges.
- Ensure adequate disposal facilities are available.
- Use energy efficiently.
- Include environmental considerations in industrial planning and development.
- Ensure information on environmental impacts is available internationally.
- Develop emergency response plans to industrial hazards.
- Further develop the technology for widespread use of renewable energy sources (solar, wind, waves, etc.).

What you can do

1. Use energy efficient appliances. Stop wasteful consumption of energy.
2. Recycle paper, glass and other materials.
3. Avoid using hazardous chemicals.
4. Support local organizations concerned with industrial planning. Monitor your local environment for industrial effects.
5. Encourage the use of solar cookers.

