What We'll Discuss

TOPIC OUTLINE

Introduction

Environmental Issues

Case Study

Introduction

The study of

- moral issues and
- moral perspectives, beliefs, or attitudes concerning those issues.
- Engineers in the past are known for their negligence of environment, in their activities.
- It has become important now that engineers design eco-friendly tools, machines, sustainable products, processes, and projects.
- The essential things to be considered are
  - ensure protection (safety)
  - prevent the degradation and
  - slow down the exploitation of the natural resources, so that the future generation can survive.

Introduction

- Engineers as experimenters have certain duties towards environmental ethics, namely:

1. Environmental impact assessment: One major but sure and unintended effect of technology is wastage and the resulting pollution of land, water, air and even space. Study how the industry and technology affects the environment.

2. Establish standards: Study and to fix the tolerable and actual pollution levels.

3. Counter measures: Study what the protective or eliminating measures are available for immediate implementation

4. Environmental awareness: Study on how to educate the people on environmental practices, issues, and possible remedies.

Disasters

1. Plastic Waste Disposal
2. e-Waste Disposal
3. Industrial Waste Disposal
4. Depletion of Ozone Layer
5. Global Warming
6. Acid Rain

1. Plastic Waste Disposal

2. e-Waste Disposal

ELECTRONIC RECYCLING

2. e-Waste Disposal

- Even in the West, the electronic junk has been posing problems. Strong regulation including

  (a) pressure on industries to set up disassembling facilities,

  (b) ban on disposal in landfill sites,

  (c) legislation for recycling requirements for these junk and

  (d) policy incentives for eco-friendly design are essential for every country.

- Every country needs regulations to define waste, measures to stop illegal imports, and institutional structures to handle safe disposal of domestic industrial scrap.

3. Industrial Waste Disposal

- There has been a lot of complaints through the media, on

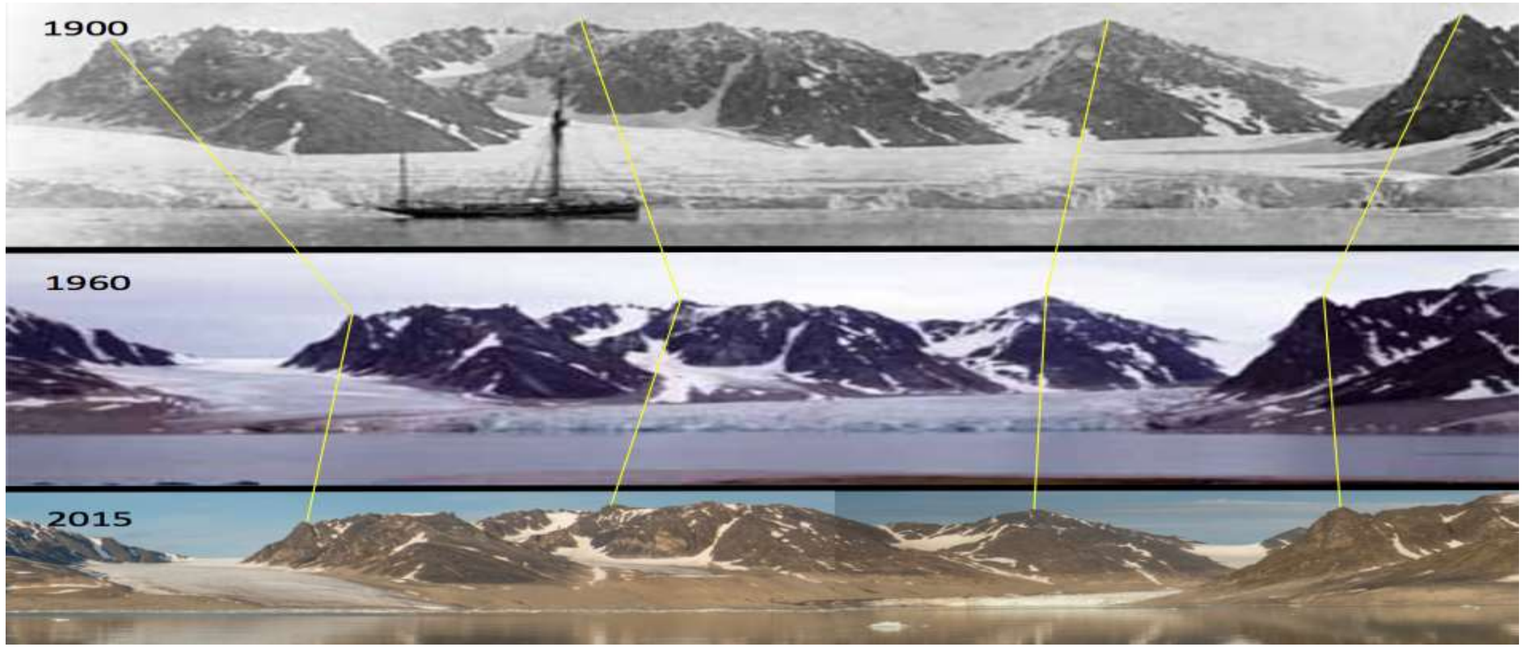
  (a) against the Sterlite Copper Smelting Plant in Thuthukkudi (1997) against its pollution, and

  (b) when Indian companies imported the discarded French Warship Clemenceau for disposal, the poisonous asbestos compounds were expected to pollute the atmosphere besides exposing the labor to a great risk, during the disposal.

- The government did not act immediately.
- Fortunately for Indians, the French Government intervened and withdrew the ship, and the serious threat was averted!

4. Depletion of Ozone Layer

- The ozone layer protects the entire planet from the ill-effects of ultraviolet radiation and is vital for all living organisms in this world.
- Chloro-Fluro-Carbons (CFC) such as Freon
- NO and NO_2 gases

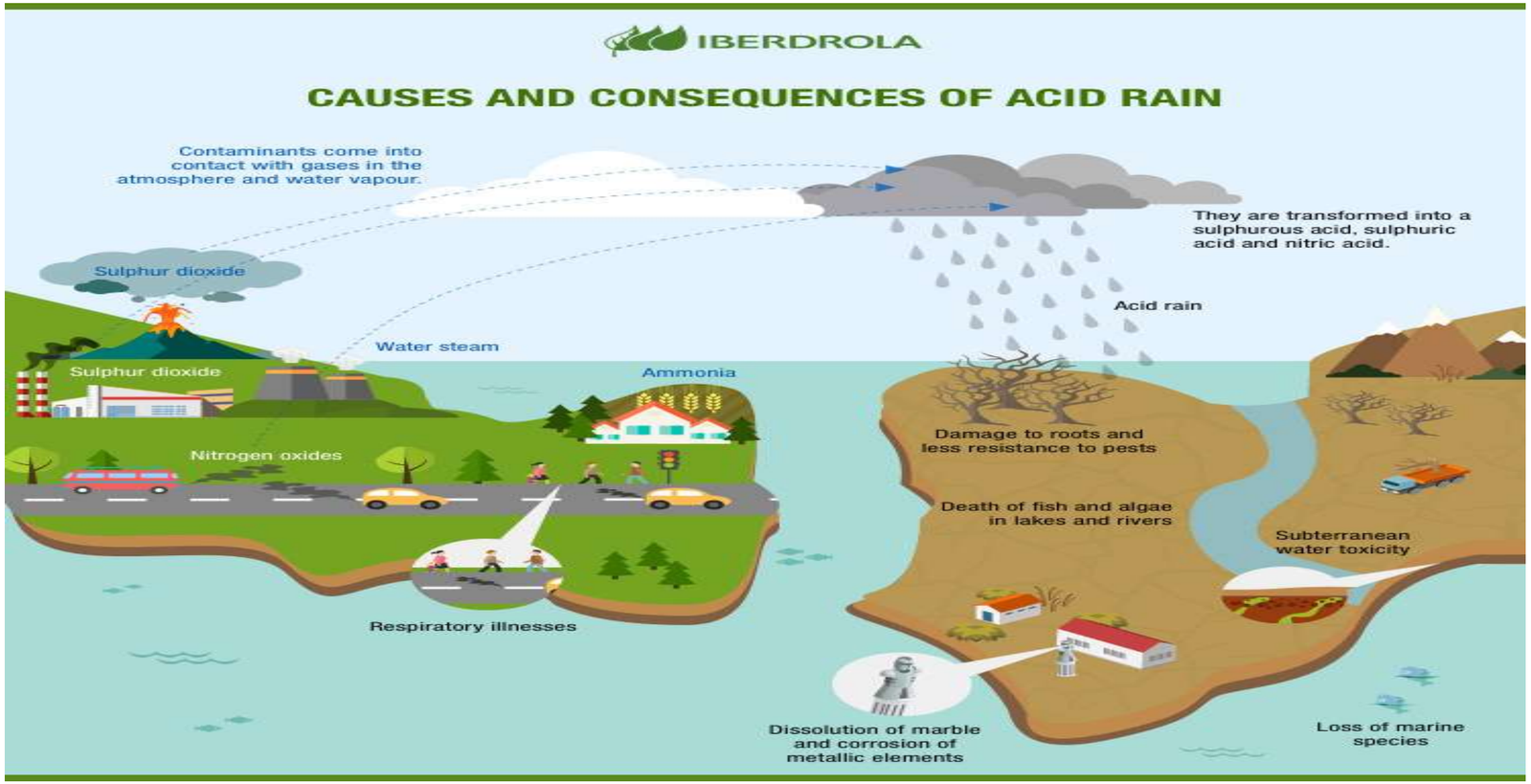


5. Global Warming

- Over the past 30 years, the Earth has warmed by 0.6 °C. Over the last 100 years, it has warmed by 0.8 °C. It is likely to push up temperature by 3^{o}C by 2100, according to NASA's studies.
- Delegates from the six countries — Australia, China, India, Japan, South Korea and US met in California in April 2006 for the first working session of the Asia-Pacific Partnership on Clean Development and Climate.
- These six countries account for about half of the world's emissions of climate-heating greenhouse gases.

6. Acid Rain

- Large emissions of sulphur oxides and nitrous oxides
- These gases form compounds with water in the air and precipitates as rain or snow on to the earth.



THANK YOU