

Sustainable Engineeering

Submitted By

Blessey Maxia Soju

S3R

18

1. Discuss the consequences of the reckless exploitation of our natural resources.

The health and wellbeing of future generations is being jeopardised by our reckless exploitation of the planet's resources. The report warns that a growing population, runaway consumption and the overuse of natural resources mean humanity is on the verge of triggering irreversible environmental changes that threaten the health gains made in recent decades and pose new hazards, ranging from food insecurity to new infectious diseases.

The environmental changes threaten the gains in health that have been achieved over recent decades and increase the risks of health arising from major challenges such as under-nutrition and food insecurity, water shortage, emerging infectious diseases and extreme weather events.

The environmental changes are likely to reduce nutrient content of key food crops with a knock-on effects on health. The impact of decline of insect pollinators are responsible for the production of 40% of the world's supply of micronutrients like vitamin A and folate.

It is estimated that 50% decline in pollinators could push about 35-million people into vitamin A deficiency and lead to about 700000 more deaths a year from non-communicable diseases and malnutrition-related diseases.

2. What is climatic change. Differentiate between global warming and climatic change. Discuss the natural causes of climatic change.

Climatic changes describes a change in the average conditions such as temperature and rainfall in a region over a long period of time.

<u>Global Warming</u>	<u>Climate Change</u>
<ul style="list-style-type: none">• Global Warming refers to rise in global temperature due mainly to the increase in concentrations of greenhouse gases in the atmosphere.• It refers to long term warming of the planet.	<ul style="list-style-type: none">• Climate change refers to the increasing changes in the measures of climate over a long period of time including precipitation, temperature, and wind patterns.• It refers to the broader range of changes that are happening to our planet.

Natural Causes of Climatic Change

- Volcanic Eruptions causes short-term cooling as it pumps out ashes, dust, oxides of sulphur which blocks sunlight and reflects the sunlight away.
- Ocean Currents : The oceans global circulation system plays a key role in distributing heat energy, regulating weather and climate and cycling vital nutrients and gases.
- Methane from animal wastes cause global warming.

- Earth's Orbital Changes : Shifts and wobbles in the Earth's orbit can trigger changes in climate such as the beginning and end of ice ages. Small changes in the Earth's orbit lead to small but climatically important changes in the strength of seasons.

- Solar Variations : The sun is the fundamental source of energy that is instrumental in our climate system. It could be reasonable to assume that changes in the sun's energy output could cause the climate to change.

3. Discuss the following case studies of environmental issues.

a) Bhopal Gas Tragedy

- Apart from human toll, over 2000 animals were killed by that gas that night, most of them were livestock that people relied on for food.
- The heavy gas was absorbed into local rivers making the water undrinkable and poisoning the fish.
- Many crops were also deemed unsafe for human consumption and the entire region went into crisis due to food shortage.
- The atmosphere got polluted by this poisonous gases.

b) Coca Cola Factory at Plachimada

- Coca Cola has been accused of dehydrating communities in its pursuit of water resources to feed its own plants, drying up farmers' wells and destroying local agriculture.
- ^{In} The area surrounding the plant, the groundwater was contaminated and toxic waste is released.
- The water in that area became unsuitable for drinking and cooking, found that it contains high levels of Calcium and magnesium.
- The crop yields in that area decreased.
- The company dumped the waste which contains carcinogens to the neighbouring areas, which cause environmental pollution.

c) Endosulfan Tragedy

- People exposed to high levels of endosulfan, either intentionally or in contaminated food or who were exposed during spraying fields, suffered tremors and seizures and some died.
- The same effects have been observed in animals exposed briefly to high levels of endosulfan.
- The pesticide, which is not easily degradable, contaminated the soil and water and found its way into the food chain affecting lower and higher forms of life in the area including humans.
- A very high levels of bioaccumulation and bioconcentration in sediments and the food chain
- With the usage of pesticides, many species of butterfly, insects were disappeared.
- The water sources in that area get contaminated.

d) Western Ghats Conservation Issue

- The impacts of development in this area include pollution, depletion of fisheries, deforestation, siltation of water bodies and loss of unique biodiversity.
- The climatic change caused by deforestation results in flood ^{and landslide} in Kerala.
- The dams build in areas result in deforestation and water decrease water holding capacity of soil
- The illegal mining resulted in pollution, deteriorating water and air quality,
- Monoculture plantation practices has a negative impact of biodiversity.

e) Silent Valley Hydro electric Project

- The place could be flooded due to construction of dams.
- This place contains endangered lion-tailed macaque and other rare wildlife and development will have a negative impact on their lives.
- This also cause huge deforestations that will seriously affect the biodiversity.
- The entire lower valley will be submerged by the dam, destroying its biodiversity.