

## **The World We Live In: Environmental Degradation and Its Consequences**

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Environmental degradation is the disintegration of the earth or deterioration of the environment through consumption of assets, for example, air, water and soil; the destruction of environments and the eradication of wildlife. It is characterized as any change or aggravation to nature's turf seen to be pernicious or undesirable. Ecological effect or degradation is created by the consolidation of an effectively substantial and expanding human populace, constantly expanding monetary development or per capita fortune and the application of asset exhausting and polluting technology. It occurs when earth's natural resources are depleted and environment is compromised in the form of extinction of species, pollution in air, water and soil, and rapid growth in population.

Environmental degradation is one of the largest threats that we face in the world today. The United Nations International Strategy for Disaster Reduction characterizes environmental degradation as the lessening of the limit of the earth to meet social and environmental destinations, and needs. Environmental degradation can happen in a number of ways. At the point when environments are wrecked or common assets are exhausted, the environment is considered to be corrupted and harmed. There are a number of different techniques that are being used to prevent this, including environmental resource protection and general protection efforts.

### **Causes of Environmental Degradation:**

Some environmental life species require substantial areas to provide food, living space, and other assets. These creatures are called area specific.

At the point when the biome is divided, the vast patches of living space don't exist anymore. It gets to be more troublesome for the wildlife to get the assets they need in order to survive. The environment goes on, even though the animals and plant life are not there to help sustain it properly.

1. Land Disturbance: A more basic cause of environmental degradation is land damage. Numerous weedy plant species, for example, garlic mustard, are both foreign and obtrusive. A rupture in the environmental surroundings provides for them a chance to start growing and spreading. These plants can assume control over nature, eliminating the local greenery. The result is territory with a solitary predominant plant which doesn't give satisfactory food assets to all the environmental life. Whole environments can be destroyed because of these invasive species.
2. Pollution: Pollution, in whatever form, whether it is air, water, land or noise is harmful for the environment. Air pollution pollutes the air that we breathe which causes health issues. Water pollution degrades the quality of water that we use for drinking purposes. Land pollution results in degradation of earth's surface as a result of human activities. Noise pollution can cause irreparable damage to our ears when exposed to continuous large sounds like honking of vehicles on a busy road or machines producing large noise in a factory or a mill.
3. Overpopulation: Rapid population growth puts strain on natural resources which results in degradation of our environment. Mortality rate has gone down due to better medical facilities which has resulted in increased lifespan. More population simple means more demand for food, clothes and shelter. You need more space to grow food and provide homes to millions of people. This results in deforestation which is another factor of environmental degradation.

4. **Landfills:** Landfills pollute the environment and destroy the beauty of the city. Landfills come within the city due the large amount of waste that gets generated by households, industries, factories and hospitals. Landfills pose a great risk to the health of the environment and the people who live there. Landfills produce foul smell when burned and cause huge environmental degradation.
5. **Deforestation:** Deforestation is the cutting down of trees to make way for more homes and industries. Rapid growth in population and urban sprawl are two of the major causes of deforestation. Apart from that, use of forest land for agriculture, animal grazing, harvest for fuel wood and logging are some of the other causes of deforestation. Deforestation contributes to global warming as decreased forest size puts carbon back into the environment.
- 6: **Natural Causes:** Things like avalanches, earthquakes, tidal waves, storms, and wildfires can totally crush nearby animal and plant groups to the point where they can no longer survive in those areas. This can either come to fruition through physical demolition as the result of a specific disaster, or by the long term degradation of assets by the presentation of an obtrusive foreign species to the environment. The latter frequently happens after tidal waves, when reptiles and bugs are washed ashore.

### **Effects of Environmental Degradation**

1. **Impact on Human Health:** Human health might be at the receiving end as a result of the environmental degradation. Areas exposed to toxic air pollutants can cause respiratory problems like pneumonia and asthma. Millions of people are known to have died of due to indirect effects of air pollution.
2. **Loss of Biodiversity:** Biodiversity is important for maintaining balance of the ecosystem in the form of combating pollution, restoring

nutrients, protecting water sources and stabilizing climate. Deforestation, global warming, overpopulation and pollution are few of the major causes for loss of biodiversity.

- 3. Ozone Layer Depletion:** The Ozone layer is responsible for protecting earth from harmful ultraviolet rays. The presence of chlorofluorocarbons, hydro chlorofluorocarbons in the atmosphere is causing the ozone layer to deplete. As it will deplete, it will emit harmful radiations back to the earth.
- 4. Loss for Tourism Industry:** The deterioration of environment can be a huge setback for tourism industry that rely on tourists for their daily livelihood. Environmental damage in the form of loss of green cover, loss of biodiversity, huge landfills, increased air and water pollution discourages tourists. This is a major loss of income for communities and countries.
- 5. Economic Impact:** The huge cost that a country has to shell out due to environmental degradation can have big economic impact in terms of restoration of green cover, cleaning up of landfills and protection of endangered species.

### **What is Carbon Footprint?**

A carbon footprint is historically defined as the total emissions caused by an individual, event, organization, or product, expressed as carbon dioxide equivalent. The concept name of the carbon footprint originates from ecological footprint, discussion, which was developed by William E. Rees and Mathis Wackernagel in the 1990s. This accounting approach compares how much people demand compared to what the planet can renew. This allows to assess the number of “earths” that would be required if everyone on the planet consumed resources at the same level as the person calculating their ecological footprint. The carbon Footprint is one part of the ecological footprint. The carbon part was popularized by

a large campaign of BP in 2005. In 2007, carbon footprint was used as a measure of carbon emissions to develop the energy plan for City of Lynnwood, Washington. Carbon footprints are more focused than ecological footprints since they measure merely emissions of gases that cause climate change into the atmosphere.

### **Report of Intergovernmental panel on Climate Change (IPCC) and Paris Agreement:-**

According to 5<sup>th</sup> assessment report of climate change by IPCC, the past decade has seen an unprecedented rate of increase in greenhouse gas concentrations. Also, Paris Agreement with United Nations Framework Convention on Climate Change (UNFCCC) was adopted in 2015

Tata Power Club Energy (TPCE):-TPCE is an energy and resource conservation program in our school? for 5 years and made us aware about carbon footprints, ways to calculate it, tips for saving fuel and energy, energy audit, etc.

### **Growing Concerns**

Global Warming is already having significant and costly effects on us which include rising seas, intense heat waves, damaging wildfire, changing seasons, melting ice, etc. The increase in Carbon Footprint is another major concern. The richest 10% of people produce half of Earth's climate-harming fossil fuel emissions, while the poorest half contribute a mere 10%. Another huge concern is the Melting of Arctic Mountain glaciers such as glaciers in Alaska's Denali National Park that are melting faster because of rising temperatures. Summers are at least 1-1.2 degrees Celsius warmer than before.

**Introduction of low carbon technologies:-**Tata Motors European Technical Centre, (a subsidiary of Tata Motors) has invented a low carbon vehicle which reduces carbon emissions from an average of 160gm/km to 40gm/km. But a large percentage of Indian population is not aware

about increasing carbon footprint energy crisis and scarcity of natural resources in our country.

### **Impact on our health:-**

Climate change will likely lead to increased air pollution, a more intense allergy season, spread of insect-borne diseases, more frequent flooding, etc.

**Proactive Measures Taken by India:** In the month of December 2018, India took proactive measures to reduce carbon footprints by adopting new farming techniques for its upcoming presentation at a summit to be held in February 2019 in which carbon footprints and sustainable environment relation is the main point of focus.

### **Objectives:-**

To analyze the findings from reports of IPCC and Paris Agreement.

To study the impact of climate change on our health.

To analyze the energy consumption pattern of residential and commercial units in the society

To make people aware about increasing carbon footprint of various countries

To know the use of different low carbon technologies

To study the harmful effects of global warming on our environment

To educate people about different methods to reduce energy and resource consumption

To calculate the carbon footprints of different people and suggest methods to reduce it

To analyze the power consumption of houses in my neighborhood (energy audits)

**Review of Related Literature:-**

Fifth assessment report on climate change by the *Intergovernmental Panel on Climate Change (IPCC)* published on 2<sup>nd</sup> November 2014.

**Key findings-IPCC**

The past decade has seen an unprecedented rate of increase in Greenhouse Gas (GHG) concentrations in atmosphere as a result of global rise in emissions. A strident development of low carbon technologies demonstrates now the viability of climatic mitigation. The technologies include solar power, wind power, electric vehicles, highly efficient building shells, etc. A change of national, regional and local climate policies have been implemented. Limiting the global average temperature increase to the internationally agreed target of 2 Degree C or even 3 Degrees C above the preindustrial level requires the cessation of CO<sub>2</sub> emissions from fossil fuel combustion, etc. Replacing fossil fuel utilization by energy efficient and a range of renewable and nuclear energy. The efficiency of industrial production process and transportation technologies has increased in past decade.

Tata Power Club Energy which began in 2007:- We took help from here to do the carbon footprint calculation and energy audit. The punch line of the club is:- '*JIYO POWER SE*'! It had conducted seminars on energy and resource conservation in my? school.

The Paris Agreement within United nations Framework convention on Climate change (UNFCCC) adopted by 196 countries on 12<sup>th</sup> December 2015: Under the Paris agreement, each country shall determine, plan and regularly report on the contribution that it makes in order to mitigate global warming.

**Relevance (Ill-Effects):-**

Carbon footprint is defined as total emissions by an individual, organization, expressed as CO<sub>2</sub> equivalent. Carbon dioxide persists in the atmosphere for *50 to 200 years*, so emissions released now will continue to warm the climate in future. The EPA predicts that climate change will cause demand for water to increase while supply of water shrinks. Around *6million* deaths occur every year in the world due to emissions of greenhouse gases which causes air pollution. The global emissions can be broken into the following ways:-

Electricity and heat production (25%):- the burning of coal, natural gas and oil, for electricity and heat is the largest single source of greenhouse gas emissions.

Industries (21%):- it primarily involves fossil fuels burned on site at factories for energy. It also includes emissions from chemical, metallurgical and mineral transformation process.

Agriculture, forestry and land use (24%):- it mostly comes from deforestation and application of fertilizers.

Transportation (14%):- the emissions come from fossil fuels burned for road, rail, air and marine transportation. the energy comes from petroleum based fuels.

Other energy (10%):- this source of emissions refers to fuel extraction, refining, processing, etc.

Recycling 1 ton of paper can save 17 trees, 380 gallons of oil, 3 cubic yards of landfill space, 4000KW of energy, 7000 gallons of water. This represents a 64% energy savings, 58% water savings and 60 pounds of CO<sub>2</sub> air pollution. Eating vegetarian food reduces your carbon footprints to half. High meat produced equivalent of 15.8 pounds of carbon footprints whereas vegetarian diet produces 8.4 pounds of CO<sub>2</sub> per



day. Recycling waste from landfills reduces methane emissions which are 25 times more potent than CO<sub>2</sub> at trapping heat in the atmosphere more than 17 tonnes of e-waste is collected each year and the waste which is not collected contributed to about 4.25% of greenhouse emissions. Over 8000 chemicals are used in textile process which is very hazardous to our health. The final product, by weight, about 23% synthetic chemicals which increases pollution in environment. According to WHO, climate change is projected to increase the % of people suffering from hunger from 34% to 64% in 40 years. According to NATURE CONSERVACY, one-quarter of the earth's species will be headed for extinction in 40 years if climate changes increases at this rate.

### **Conclusion and Suggestions to reduce Carbon Footprint:**

Though a carbon footprint calculation measures CO<sub>2</sub> emissions in order to determine an individual's impact on environment, it can also be useful to determine where an individual can reduce its wasteful output. GHG are an important topic when discussing climate change will affect our generations as well as next. Thus, preventive measures should be taken at right time. We think we should invest more in low-carbon technologies. Electric vehicles can replace the present vehicles which run on fossil fuels such as petrol, diesel, etc. Also small steps can be taken at home such as switching to CFL and LED bulbs, keeping the AC temperature at 26 degree Celsius, using laptop instead of computers, etc. The surging level of CO<sub>2</sub> are growing concern for all the countries and the people should understand the intensity of problem.

We should try our level best to reduce our carbon footprint and live with a motto of *JIYO POWER SE*. Avoid transportation vehicles by walking or biking destinations. If walking is not an option, carpooling or mass transportation can be used. Reviewing our choice of diet—Rice, Red Meat, Heavily processed food should be avoided. Planting trees in deforested areas, using alternate sources

of energy, having fewer children, forgoing air travel, adopting a plant-based diet, not wasting food items, lowering the amount of water usage, using clean resources, etc are the efficient ways to reduce carbon footprints.