

## Climate Change: An Urgent Crisis

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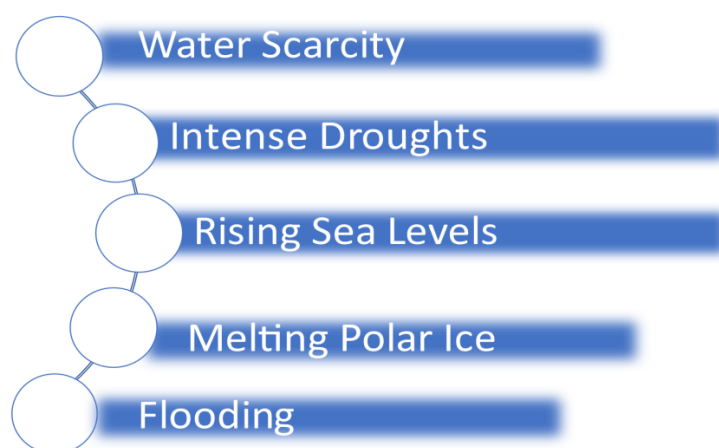
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Long-term changes in temperature and weather patterns are known as climate change. Such changes may be brought on by large volcanic eruptions or variations in the sun's activity. But since the 1800s, human activities mainly the burning of fossil fuels like coal and petroleum have been the primary cause of climate change. Fossil fuel combustion produces greenhouse gas emissions that act as a blanket around the planet, trapping heat from the sun and increasing temperatures. The main cause of climate change are greenhouse gases like carbon dioxide and methane. These gases came from paddy straw burning, motor vehicles, industries etc. The agriculture sector contributes 14% of the greenhouse gas (GHG) from the country.

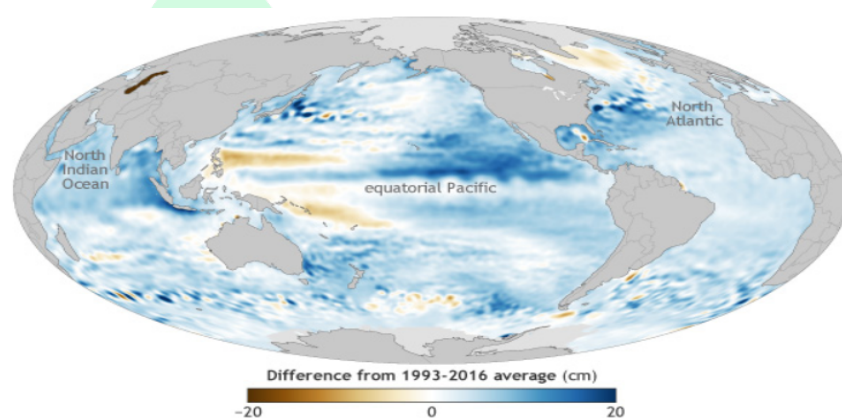
### Effects of climate change

#### Effects of Climate Change



- 1) **Water scarcity** -There are various effects of climate change on the availability of water like variations in quantity and seasonal variations in precipitation. India dependence on an increasingly erratic monsoon for its water requirements increases this challenge. Climate change is likely to exacerbate this pressure on water resources.

- 2) **Intense droughts-** Global warming increases the risk of drought in several ways. In general, higher temperatures cause water to evaporate more quickly. Therefore, hotter weather may cause soils to become drier.
- 3) **Rising Sea Levels** Sea level has been rising over the past century, and the rate has increased in recent decades. In 2016, global sea level was 3.2 inches (82 mm) above the 1993 average. The highest annual average in the satellite record in 1993. Increasing sea level plays a role in flooding, shoreline erosion, and hazards from storms.



#### Sea level in 2016 compared to the 1993-2016 average (NOAA)

- 4) **Melting polar ice-**Recent years have seen some notable environmental changes in the Polar Regions, including the Antarctic ozone hole, significant sea ice loss in the Arctic Ocean, and significant warming on the Antarctic Peninsula. If greenhouse gas concentrations keep rising over the next century, the polar regions are also expected to warm more than any other part of the planet. Due to warming up of earth the ice present in polar region melts.
- 5) **Flooding-**Environmental changes have an impact on flood risk on various levels, such as changing the ability of river basins to retain water, altering the ability of floodplains to withstand damage from rivers, and raising vulnerability levels due to habitation in flood-prone areas. Consequently, natural factors like the climate and river basin morphology have an impact on flood risks.

#### Climate Change Impacts on Agriculture

Climate change is global processes that directly effects agriculture. Changes in average temperatures, rainfall, and climate extremes (such as heat waves) all have an impact



on farming. Temperatures eventually cause lower crop yields of desirable crops while promoting the growth of weeds and pests. Less effective pest management necessitates the use of more pesticides to maintain the same level of control. Crop yields may be limited by extreme heat stress caused by heat waves if they happen during phases of the life cycle of the plant (pollination, pod or fruit set). Additionally, heat waves can cause wilted plants (because of increased rates of transpiration), which can reduce yield if irrigation is not used to prevent it. Flooding from prolonged, heavy rains can harm crops and the structure of the soil. Methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) are the two main agricultural greenhouse gases. Methane makes up the majority of these emissions and comes from farmed livestock, such as sheep and cattle. These animals naturally produce methane as a by-product of their digestive process and release it into the air – primarily through burping. Crop production in low latitude nations will likely be negatively impacted by future climate change, whereas northern latitude impacts could be either positive or negative. For some vulnerable groups, like the poor, the risk of food insecurity will likely increase due to climate change.

### **The Intergovernmental Panel on Climate Change (IPCC) Report 2023**

ACC to IPCC there are so many effective options to reduce the greenhouse gases emissions. Scientists told us that if we should take action now, we can still secure a sustainable future. Solution for this lies in climate resilient development. We must act for reducing the greenhouse emission by use of clean energy resources, use of public transport, decrease fossil fuel burnings etc. Climate resilient became difficult with increase in global temperature. So, we have few years for deciding our future. It can be easily achieved by the government policies and more funds can be raised with the help of central banks and Environment Organizations.

### **How to reduce climate change**

By switching from fossil fuels to renewable energy sources like solar or wind, we can cut the emissions that cause climate change. But right away, something needs to be done. Even though more nations are pledging to have net-zero emissions by 2050 under Paris Agreement, emissions must be cut in half by 2030 to keep global warming to 1.5°C or less. Losses in crop yield due to variability in weather can be reduced by proper crop management, sowing of heat tolerate varieties, timely sowing of crops etc.

## Actions to Reduce Climate Change

|                          |  |
|--------------------------|--|
| <input type="checkbox"/> | Save energy at home                                |
| <input type="checkbox"/> | Use public transport                               |
| <input type="checkbox"/> | Stop wasting food                                  |
| <input type="checkbox"/> | Reduce , reuse, repair and recycle                 |
| <input type="checkbox"/> | Stop burning of Crop residue                       |
| <input type="checkbox"/> | Change energy sources(Switch to renewable sources) |
| <input type="checkbox"/> | Use electrical vehicles                            |
| <input type="checkbox"/> | Reduce tillage practices                           |
| <input type="checkbox"/> | Pushing for Climate-Friendly Policies              |
| <input type="checkbox"/> | Reducing Livestock Methane Emissions               |
| <input type="checkbox"/> | Organic Practices                                  |

### Key Government initiatives

- ✦ **National innovations on Climate Resilient Agriculture (NICRA)** – A multi-institutional and multi-disciplinary network project called National Innovations in Climate Resilient Agriculture (NICRA) was started by the Indian Council of Agricultural Research (ICAR) in 2011 with the goal of increasing the resilience of Indian agriculture to climate change and climate variability.
- ✦ **National Mission for Sustainable Agriculture** – The Prime Minister announced the National Action Plan on Climate Change (NAPCC) on June 30, 2008. It lays out a national strategy aimed at facilitating climate change adaptation and enhancing the ecological sustainability of India's development trajectory.
- ✦ **National Adaptation Fund for Climate Change** – The National Adaptation Fund for Climate Change (NAFCC) was created in August 2015 to cover the costs associated with climate change adaptation for the Indian States and Union Territories that are particularly susceptible to its negative effects.

### Conclusion

Climate change is biggest problem now a days and for future generations, all mankind should take the collective steps to reduce the climate change otherwise we will face lots of bad effects in future. Under changing conditions, we must adapt some new strategies to overcome from adverse effects of climate change and the effect of temperature can be controlled through the incorporation of residue in agriculture fields. Depleting ground water

can be saved by using advanced irrigation techniques. Greenhouse gases emissions can be reduced by using renewable resources, use of electric vehicles, using less water in rice fields, incorporating residue instead of burning.

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