

# Global Climate Change: Knocking our doors already?

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## ABSTRACT

*Today, concerns over climate changes are discussed worldwide. Governments are formulating policies and protocols, scientists and meteorologists are coming up with their projections and estimates and a common man complains over declining air quality and scarcities. But the question arises, is global climate change a new reality or is it just another theoretical projection? If it has started taking a toll on our planet, are we as a layman aware enough about the changes happening? Or are we being oblivious or are we turning a deaf ear towards the happenings? This paper aims to collect the various current instances which are a clear evidence that Global Climate Change is the reality. The paper seeks to analyse the various challenges ahead of countries and more importantly, the paper seeks to convey the very fact that it is high time to fight climate change.*

**KEYWORDS:** climate change, global, governments, scientists, air quality, policies, protocols

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## Objectives

The paper has been written with a sole aim of making a harsh realisation: all the projections, reports and estimates have got a face as climate is changing globally and it is showing severe fatal and lethal consequences already. The paper analyses the scenario in India and hence the Developing countries which have limited resources.

## Introduction

According to Wikipedia, Climate Change occurs when changes in Earth's climate system result in new weather patterns that last for at least few decades. Climate change may impact atmosphere (air), hydrosphere (water), lithosphere (crust of earth), cryosphere (ice and permafrost) or biosphere (living things).

Presently, human activities are driving climate change by generating pollution and hence global warming. Students are taught about climate change, governments and countries express their concerns over climate change. But the various changes we observe around us today are a proof how the problem has reached our doorsteps.

## Causes of Global Climate Change

There are many factors contributing to global climate change. It is very necessary to know the causes of climate change so that vital steps can be taken.

- Greenhouse effect: Scientists have attributed the major cause of climate change to greenhouse effect. In a greenhouse effect, various gases trap the heat and block it from escaping the Earth. Carbon Dioxide, Nitrous Oxide, Methane are some of such gases which are produced due to various natural and human processes. The atmosphere of Venus has 154,000 times carbon dioxide as is found in Earth's atmosphere; thus producing a strong greenhouse effect and a temperature so hot as is adequate to melt lead.
- Human factor: A report by IPCC i.e. Intergovernmental Panel on Climate Change concluded that there is a 95% probability that the human activities have warmed the Earth over the past 5 decades. The Industrial, agricultural and various other Consumerism developments have led to lot of pollution and warming of earth. We have already raised atmospheric carbon dioxide levels from 280 parts per million to 400 parts per million in the last 150 years.
- Solar variability: There is still a debate over this: whether changes in solar pattern and changes in energy received from sun impact the climate and cause it to change or not. The energy received from sun by the earth has undergone several ups and downs and the impact is yet to be ascertained.

Certainly, humans can impact their own pollution causing activities and not the natural causes of climate change.

### **Climate change across the globe**

To realise if climate change is a reality or only a theory, we need to see some serious changes which are happening or happened:

- I. A river Slims in Canada disappeared in just 4 days because of melting glaciers. In 2016, an intense glacier melt diverted the river's flow; the melt water got directed to Gulf of Alaska.
- II. Because of climate change and warming seas, the symbiotic relationship between corals and zooxanthellae (algae) was adversely hit. Resultantly, The Great Barrier Reef is probably on its final verge of death because of such bleaching and dying events.
- III. Because of global warming, Arctic Sea Ice has been shrinking rapidly. It is even predicted that Arctic Sea ice may completely vanish this century. This has impacted the habitats of native people and wildlife such as polar bears.
- IV. The largest community of penguins in southern Indian Ocean is at risk. About 90% of the population has collapsed. Though the reasons aren't known yet, but the scientists believe the cause to be either climate change or some epidemic.
- V. Pakistan and China are hotspots in a warming world. Projections point out that these regions will be exposed to multiple hazards at even 1.5 degrees rise in the form of intense droughts, water stress, heat waves, habitat degradation and reduced crop yields.

These examples are a serious proof how climate change is totally taking a toll not only on humans, but on wildlife and flora as well, globally.

### **Climate change in India**

According to scientists and researchers, India would be one of the worst affected countries by ongoing climate change. This is because:

- a) Sea level changes will have disastrous impacts owing to the very large coastline of the country, which would hit the livelihoods of crores of people,
- b) Deadly heat waves will become common, Kolkata being the worst hit. These waves would be similar to the ones in 2015, which killed thousands of people in India and Pakistan.

The impacts of temperature increase would be that people would be hit disproportionately, affecting the disadvantaged and the vulnerable. There will be income losses, hike in food prices and severe health impacts. According to the report by IPCC, if India is exposed to destabilisation because of climate change, the impacts would be devastating- socially as well as politically.

What needs to be noted here is the fact that it is not easy for developing countries like India with limited resources and host of social problems to mitigate and minimise climate changes. It has been estimated that to limit global warming between 2015 and 2050, Investment of about \$900 billion is needed. This obviously is an under estimation.

A new international agreement, Intended Nationally Determined Contributions (INDCs) took place. The countries outlined what would be their actions post 2020 for climate improvement. India said that mere fulfilment of INDC targets would cost it \$1 tn, Pakistan estimated a cost of \$40 bn. Although it shows the magnitude of problem, it also presents an ambiguity over who would bear such huge costs. The Green Climate Fund is not able to fulfil its obligations of arranging funds.

India is not only supposed to curb climate changes, but it has to deal with droughts, scarcities, cyclones and floods. Although it has a good disaster management mechanism, but there is a lot more to be done.

A village Bhira in Maharashtra recorded the world's highest temperature, 46.5 degrees one day. This was obviously considered abnormal as it lies in coastal region.

India is already facing frequent cyclones over the Arabian Sea and the ratio of severe cyclones to cyclones is increasing in Bay of Bengal.

### **Delhi: Where is National Capital heading to?**

The pollution of Delhi makes headlines on most days. Let winters come, residents of Delhi choke in the deadly smog. The blurred image of India Gate with polluted air around is like a must appearance on news channels and papers.

Particulate matter concentration in Delhi is three times the permissible limit. This has serious implications: surface cooling, atmospheric solar heating, changes in atmospheric thermal structure, and disruption of precipitation.

Delhi is already facing dimming effects due to black carbon present in air (Ramanathan and Carmichael, 2008). The surface of the planet has been dimmed, but it is brighter at the top of the atmosphere.

The problem lies in the fact that we tend to ignore the sectors other than transport while trying to mitigate emissions. Although the Delhi Government came up with solutions like odd-even formula, use of CNG, No entry of commercial vehicles during peak hours, Ban on 10 year old diesel vehicles and introduction of BS-VI fuel, there is a long way to go, still.

### **International agreements**

There have been numerous agreements, conventions and protocols which have been framed to curb the various problems pertaining to climate change.

- I. Kyoto Protocol – With currently 192 countries as its parties, The protocol aims to reduce greenhouse gases, mainly, CO<sub>2</sub>, methane, hydrofluorocarbons, nitrous oxide, perfluorocarbons and sulphur hexafluoride.
- II. Montreal Protocol – The protocol is designed to protect the ozone layer from depletion after holes were observed in the ozone layer.
- III. United Nations Framework on Climate Change – adopted in 1992, the treaty was signed in Rio de Janeiro with an objective to reduce greenhouse gas concentrations in the atmosphere.
- IV. Convention on Nuclear Safety, Vienna, 1994
- V. Convention to Combat Desertification, Paris, 1994
- VI. Geneva Protocol ( Prohibition of the use in war of asphyxiating, poisonous or other gases, and of bacteriological methods of warfare)
- VII. International Tropical Timber Agreement, Geneva, 1994
- VIII. Minamata Convention on Mercury, 2013 (to protect human health and environment from releases of mercury and mercury compounds.)
- IX. Convention on Biological Diversity, Nairobi, 1992
- X. Convention on the Conservation of Migratory Species and Wild Animals (CMS), Bonn, 1979

### **Conclusion**

It can be safely concluded that climate change has reached our doors, along with its adverse implications. Talking in context of India, There is a dire need to recognise all forms of pollution rather than focussing on air pollution, primarily. What we need is a more holistic approach towards pollution mitigation in the sense that we need to take into ambit all the pollutants and all the pollution causing sectors while framing policies. Humans need to remember that they share this planet with millions of other species and that we need to protect the planet as we need to safely give it to our future generations. Policies in sectors like land, industries, agriculture, energy, transport need to be changed and participation at the grass- root level is a must to bring in a positive change.

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