

## Global warming: Causes, effects & precautions

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### Abstract

“Global warming is a phenomenon that has the world scared and it’s about time too. It is the popular scientific theory that the earth is heating up. Global warming is mainly due to emission of greenhouse gases. Greenhouse gases keep our planet warm. Without greenhouse gases the surface of the earth would be as cold as the surface of the moon. In the last 100 years the atmosphere has warmed up by about 0.5 degree Celsius<sup>[1]</sup>. The gaseous composition of the atmosphere has undergone a significant change mainly through increased industrial emissions, fossil fuels combustion, widespread deforestation and burning of biomass as well as changes in land use and land management practices. The primary cause of global warming is Carbon-dioxide emissions. The present paper aims at to highlight the affects of Global Warming in the present world scenario”.

**Keywords:** global warming, fossil fuels combustion, deforestation, industrial emissions

### Introduction

Global warming in turn, leads to regional changes in climate related parameters such as rainfall, soil moisture and sea level. The sea level has risen by 10–20 cm with regional variations. In the same way, snow cover is also believed to be gradually decreasing. More flood, frequent droughts and forest fire, decreasing in agricultural and aqua cultural productivity cause many dangerous consequences. Political leaders are already beginning to overstate the clarity of the Science in order to attract public report. A lot of money is now going into climate research, and new findings with varying political implication will continue to appear. If the earth continues to warm as climate models have predicted, the temperature of earth surface may be 3 degree Celsius warmer by 2100 than it is today<sup>[2]</sup>. This rapid change in temperature would be harmful to many eco-systems, and many other species of plants and animals.

**Causes of Global Warming:** Some major causes of Global Warming are as under:

- 1) **Mining Activities:** Oil and coal are two main culprits in producing greenhouse gases. Methane like carbon dioxide creates a thick shield over the atmosphere trapping the sun’s rays. With the continued use of mining operations, these harmful gases will only increase.
- 2) **Population Increase:** As the population on the earth increase, food and housing demands along with other basic necessities also increase. Manure from cattle, contributes to methane gas levels. The cutting down of forests to make space for housing and other buildings accounts for close to 11 – 12% of carbon emissions.
- 3) **Burning of Fossil Fuels:** Each time a fossil fuel burn, Carbon-dioxide levels in the atmosphere increase. As we know Carbon Dioxide absorbs infra-red energy emitted from the earth’s surface, preventing it from returning to space. It causes due to Automobiles, Carbon emissions

from the burning of gasoline to power cars, trucks and other means of transportation.

- 4) **Water Vapour:** Water vapour is increasing in the atmosphere due to carbon-dioxide induced warming. Two third of the heat trapped by greenhouse gases is contained in water vapour, and as the average temperature on the planet to raises.



Fig 1

- 5) **Plankton boom due to Warming Sea:** Some of the sea lions, sea urchins, kelp beds and fish populations appears to have extinct due to loss of plankton, decrease in population of sea lions. Leading orcas to eat too many sea otters, leads to loss of various fish populations.
- 6) **Deforestation:** The use of forests for fuel (both wood for charcoal and other necessary lifestyle products) is one cause of deforestation. In order static ourselves, for wood and other products , mainly habitat and to build farms we are chopping forests which is not good sign and has also

leads to decrease in rainfalls<sup>[3]</sup>.

**Effects of Global Warming**

Though global warming poses a variety of challenges, the present paper focus on the issues like rising sea level, effects of human health, agriculture and food security, water stress and water insecurity, biodiversity and wildlife, human infrastructure and habitat, which have immense relevance from the perspective of developing countries in general and India in particular.

**Rise in Sea Levels**

The global average sea level has already increased by 10 to 25 cm during the past century. Based on the model calculation, IPCC estimate a mean value of sea level rise by 46 cm at the time of 2100. This rise is 2 to 5 times greater than rise experienced over the past 100 years<sup>[4]</sup>. The present scenario clearly indicates that the sea level will definitely rise. IPCC predicts that sea level could rise rapidly with accelerated ice sheet disintegration. Global temperature increase of 3-4 degree celsius could result in 330 million people being permanently or temporarily displaced through flooding.

**Coastal States in India**

The states along the coasts like Orissa will experience worse cyclones. Many species living along the coastline are also threatened. The coral reefs that India has in its bio-sphere reserves are also saline sensitive and thus the rising sea level threatens their existence too, not only the coral reefs but the phytoplankton<sup>[5]</sup>.

**Human Infrastructure and Habitat**

There are direct and indirect effects on human infrastructure and habitats caused by global warming. Change in temperature, precipitation and sea level or extreme weather events can directly damage physical infrastructure. The impact of global warming on agricultural and ecosystem will be

higher than the hard infrastructure sectors such as energy, transport and industry. The effects on hydroelectric power generation will depend on frequency and quantity of rainfall and evaporation.

**India's Biodiversity**

India is a land of mega-biodiversity, encompassing features from glaciers to deserts. Mountain ecosystem are hot spots of bio diversity<sup>[6]</sup>. Coastal and marine ecosystem is one of the assets of India. The mangrove forests of the rivers and the coasts acts as carbon sink as well as a habitat for a unique and diverse species of plants and animals. The wet lands acts as natural barrier to flooding (that may be caused by the rising sea levels) and cyclones.

**Human Health**

The world health organization (WHO) in their studies have indicated that due to rising temperatures Malaria cause are now being reported from the first time from countries like Nepal and Bhutan. It has been predicted that an additional 220-440 million people could be exposed to malaria. A disease that claims around 1 million lives annually<sup>[7]</sup>. Emissions of the greenhouse gases have been responsible for the depletion of ozone layer, which protects the earth from the harmful direct rays of the sun. Depletion of ozone results in higher exposure to the UV rays of the sun, leading to an increase in the incidents of skin cancer.

**Agriculture and Food**

Global warming is projected to have significant impacts on conditions affecting agriculture, including temperature, precipitation and glacial run-off. It affects agriculture in many ways. It can affect crop yield as well as the types of crops that can be grown in certain areas, by affecting agricultural inputs such as water for irrigation. The amount of solar radiation that affect plant growth as well as the prevalence of pests<sup>[2]</sup>.

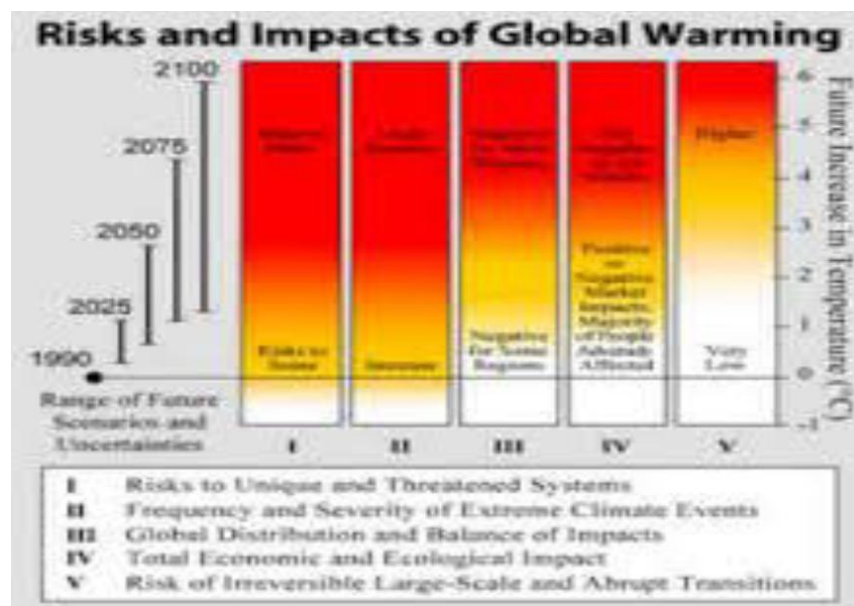


Fig 2

## Prevention of Global Warming

We can adopt some major steps to protect the environment:

- 1) **Automobiles:** Automobiles including cars and bikes are an important part of life for most of the people. These also cause pollution and release a lot of greenhouse gases into the air. Fortunately there are some cars that are better for the environment.
- 2) **Become Aware of Your Contribution:** With technology within your fingerprints, finding information about protecting the environment is everywhere. To help emit less carbon-dioxide, the first step is being aware of how much you contribute.
- 3) **Tune Your Car Regularly:** Regularly maintenance will help your car function properly and emit less Carbon-dioxide.
- 4) **Save Energy:** When you consume less energy, the less Carbon dioxide is released into the atmosphere. Setting your thermostat using your smart phone or changing the type of light bulb you use is a great start.
- 5) **Use Less Hot Water:** Buy energy saving geysers and dish washer for your home. Avoid washing clothes in hot water. Just wash them in cold and hot water. Avoid taking frequent showers and use less hot water. It will help in saving energy require to produce that energy.
- 6) **Plant A Tree:** Planting trees can help much in reducing global warming than any other method. They not only give oxygen but also take in carbon-dioxide, during the process of photosynthesis, which is the main source of global warming.
- 7) **Avoid Products with Lot of Packing:** Just don't buy products with lots of packaging .when you buy such products you will end up in throwing the waste material in the garbage, which then will help in filling landfill sites and pollute the environment.
- 8) **Replace Filters on Air Conditioner and Furnace:-** If you haven't, not only you are wasting energy, but breathing in dirty air. Cleaning a dirty air filter can save several pounds of carbon-dioxide a Year.
- 9) **Tune off the Lights:** If you not using a room, there is no need for the light to be on <sup>[8]</sup>.

## Conclusion

Our response to global warming should include both mitigation by reducing greenhouse gas emissions, adaption learning to live with a changed climate. The Kyoto protocol and further negotiations can be seen as useful steps along the path of mitigation. Global action to reduce the negative impacts, and local actions will also help. It is time for the national and regional planners to reconcile with the reality of climate change and take appropriate action for its mitigation. Reliable assessment, mapping of vulnerability & risk and promoting appropriate adaption strategies are also equally important to ensure mitigation of the water and climate induced vulnerability in the Country.

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