

Global Warming: The causes and effects and Indian climate change and policies

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ABSTRACT

India as a developing country does not have any commitments or responsibilities at present for reducing the emissions of greenhouse gases such as CO₂ that lead to global warming, pressure is increasing on India and other large, rapidly developing countries like China and Brazil to adopt a more protective role. The sources cited in this research paper are mainly taken from the internet. However as the main focus of this article is on policies and not on science, I hope that this research paper does not contain ambiguities concerning policies.

Key words: Global warming, causes of effects.

INTRODUCTION

Global warming has often been described as one of the most serious environmental problems ever to confront humanity as this problem is inextricably linked to the process of development and economic growth it self. Since greenhouse gases are generated by burning fossil fuels as in power plants, factories and automobiles, it is not easy to reduce emissions, since virtually every facet of our lives as intimately tied to the consumption of energy. Climate change is an unusually difficult issue for the people who make the decisions in democratic governments. First of all, the science is uncertain while government have to make firm, policy decisions, if only the decision to do nothing, long before these uncertainties can resolved.

Government authorities are exercising to over state the clarity of science in order to attract public support. Lots of money is now going in the climate research, and new findings with varying implications are coming up.

Working of the greenhouse effect

The cause of the warming of the earth's average temperature is called "Greenhouse Effect".

The basic working of this phenomenon are not hard to understand. Normally, a percentage of the sun's rays, which heat the earth's surface, is reflected back in to space. Those rays which are not reradiated are "Absorbed by the oceans and the soils and warm the surrounding areas to create the climate conditions we live in, without this greenhouse heating the earth's average temperature would be only a about-73°C, a temperature which would not allow mankind to exist.

Since the industrial revolution however, the amount of CO₂ has increased dramatically. These molecules from a barrier which prevents the reradiated rays of the sun from traveling further in to space. As a result the sun's rays are reradiated to the earth's surface.

The green house effect is aggravated by processes known as feedback mechanisms; the polar ice shelf has a bright surface, which reflects, sun's rays effectively. Due to the rise of the average global temperature, the polar ice shelf begins melting and is eventually replaced by dark soil or blue ocean. This new dark surface is capable of absorbing more heat than the bright surface of ice and snow. As a result, the ice surrounding the warm

soil can melt much faster, creating more dark soil. Finally, the melted ice causes a sea level rise.

Some effects of global warming on our lives Effects on Health

The rise of the average global temperature can be very dangerous for human^[1] being because "extreme temperature can directly cause the loss of life." An increase in concentration of ozone at ground level due to "Higher air temperature" can lead to serious problems for people with asthma and other lung diseases. Higher air temperatures could have serious impacts on those who lives in the southern areas of the united state it is estimated "that in Atlanta, for example, even a warming of about 2° (f) would increase heat related death from 78 today to any where between 96 to 247 people per year."

In addition to these direct impacts, there could also occur indirect ones. If warmer temperature enabled insects to become established farther north, infectious diseases such as malaria, dengue fever and yellow fever could occur in those areas which today are too cold for these insects to survive.

Effects on agriculture

As the changing climate could cause soils to become drier and drier, crop failure could become more wide spread. Agriculture² could also be affected by increased heat stress, more frequent flooding, and salinization of soils due to sea level rise.

On the other hand, global warming could have "beneficial effects" which could offset the adverse impacts at least in the united states. One "beneficial effects" is the "fertilizing effect" of CO₂ which enables plants to grow more rapidly another positive impact agriculture is the possible lengthening of the growing season in colder areas which would allow farmers to plant crops in latitudes that are normally not suitable for these crops.

Effects on forest

In the case of the north American forests, for example this could enable the trees to colonize north in to areas that are currently too cold, on the other hand, southern areas will become too hot and

dry for (many north American forest) species to survive, As a result, a 2°C warming in 100 years could cause the species to migrate about 2 miles every year.

A side effect of global warming are insect attacks. A study shows that Alaskan forest^[3] have suffered from severe out breaks of bark beetles, which have devastated several million acres of forest³. Another aspect has to be mentioned in this context is that the plants and trees of the terrestrial ecosystem are the largest absorbers of CO₂, which otherwise rises in to the atmosphere. This clearly shows how strange the situation really is climate change destroys the trees, which would normally mitigate the effects of climate change.

India Climate Change Policies

For India, the climate change^[4] issue has several ramifications: First although India does not currently have any obligations under the convention to reduce its greenhouse gas emissions, international pressure may keep on increasing in this regard. It is therefore important for us to develop a clear understanding of our emission inventory. We also need to document and analyse our efforts in areas such as renewable energy, waste land development and forestation all of which contribute towards either reducing CO₂ emissions or increasing CO₂ removal from the atmosphere considering the these efforts may often be undertaken for a variety of reasons not directly related to global warming, but yet have benefits as far as climate change^[5] is concerned, we may be able to leverage such efforts in the international context.

Second, we need to develop a clean and well articulated position on each of the three basic questions indicated earlier. This position needs to be supported by appropriate analysis. The Indian research community could contribute substantially in this regards.

CONCLUSION

Finally there is a need to recognize that even if countries do undertake immediate and rapid action to reduce emissions, some degree of climate change^[6] is inevitable. If we consider the fact that we have very limited abilities to deal with weather

extremes in the present day, the situation may get worse in the future. Therefore, we need to significantly improve our ability to plan and adopt to extreme events such as floods, droughts, cyclones

and other meteorological hazards. Any robustness that we build in to the system in this regard will always stand us in good stead, no matter what climate change actually transpires.

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4. Authoritative reviews of the science underlying the climate change issue are provided by the intergovernmental panel on climate change (IPCC). See, for example;
5. J.T. Houghton, et.al. eds., climate change 1995: the science of climate change Cambridge University press, 1996; and James P. Bruce, et al., eds., climate change 1995: economic and social dimensions of climate change Cambridge University press, 1996 the IPCC also maintains a website at www.ipcc.ch.
6. A good introduction to the costs of reducing emissions is provided by Robert Repetto and Duncan Austin the costs of climate protection a side for the perplexed, world resources institute Washington (1997).