

A STUDY OF CLIMATE CHANGE, ITS IMPACTS AND THE INDIAN SCENARIO

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ABSTRACT

The climate of the Earth has been changing since historic times. But the recent trend of climate change is unusual: past climate changes were natural whereas the sharp change through the last five decades has been due to increased anthropogenic activities. Global average temperature has increased by 0.74°C between 1906 and 2005 due to the increasing greenhouse gas concentrations. Global sea level has risen at the average rate of 1.8mm/yr during 1961-2003, the rate has been quicker during 1993- 2003, at the rate of 3.1 mm/yr, which if unabated would lead to a catastrophe.

The review article first probes into the genesis of climate change and the possible reasons responsible for it. Major international landmarks related to climate change like the UNFCCC, Kyoto Protocol along with the meetings held in Bali and the initiatives taken by India in the recent years like the establishment of National Clean Development Mechanism Authority, National Action Plan on Climate Change released by the Prime Minister have also been discussed. The climate change impacts at the global and regional levels have been talked about, along with certain measures that need to be taken for a better management of this extreme situation. As the article advances, climate models which help in projecting both past and future climate changes such as the AGCMs, OGCMs, Land-surface models and Sea-ice models have been discussed briefly. A brief history that led to the formation of present day climate models has been held forth. A discussion on models in the tabular form used for forecasting climate follows. Parallel to the international front, various advances

taking place in India have also been documented. Various institutes that are working in climate change have been reported. It also deals with the socio economic impacts of climate change.

India has a large growing population, which is tied to its natural resource base, hence it is more vulnerable to climate change - increased temperatures, changed forest boundaries, limited water resources and sea level rise. Climate change is a major threat to the human society because of its adverse impacts on the ecosystems, biodiversity, water resources, agriculture, forests, economy, etc. Thus, awareness and understanding of all the processes that govern climate and climate change is the need of the hour. There is also an urgent need to carry out extensive studies and research on the recent climate changes that are taking place, and are likely to take place over the Indian subcontinent along with the linkages with the changes taking place over the world. Assessment of the climate change impacts on the various sectors of activity should be reported, so as to facilitate community level actions to implement adaptation strategies.