

## 'Global Climate Change: Developmental Challenges And Alternatives Before India'

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### *Abstract*

*During contemporary times global climate change is one of the biggest challenges confronting humankind. Although the intensity of environmental pollution has been minimized due to recent countrywide lockdown due to an outbreak of novel coronavirus (COVID-19) pandemic almost all over the world. It seems that the phenomenon of climate change has been adversely influencing because of frequent natural calamities, reduction in agricultural productivity, health risks, migration, adaptation and growth in unemployment. The threats of global climate changes and their implications are not only restricted to a particular continent or region but cross trans-national physical and geographical boundaries. Keeping in mind the scope and limitations of this paper, impacts of global climate change have been delineated, exposed and attempted to find appropriate alternatives in the context of developing countries like India. To mitigate the impacts of climate change from global to local levels it becomes necessary to rethink developmental models and discourses which are being envisaged, implemented by the union government, concerned state government agencies, bodies and policymakers. This paper is a sincere endeavour to understand the challenges and find out appropriate measures to tackle the contemporary predicament concerned with climate change by adopting sustainability in developmental models and paradigms. Simultaneously, it would further minimise the social inequities, jobless growth and strengthen environmental and ecological consciousness.*

**KEY-WORDS:** 'COVID-19', 'Natural Calamities', 'Agricultural Productivity', 'Health Risk', 'Migration', 'Adaptation', 'Unemployment', 'Sustainability', 'Social Inequities', 'Jobless Growth' 'Environmental and Ecological Consciousness'.

### **Introduction:**

The term 'climate change' refers to a change in the longer-term pattern of behaviour of the atmosphere over millennia or, more recently, as a result of natural processes or human activities. Climate is distinguished from weather, which is the specific behaviour of the climate at a particular time. The terms global warming and climate change sometimes seem to be used interchangeably. Global warming is just one feature of climate change and is indeed an important indicative parameter of climate change. Small rises in average global temperatures can further lead to very large changes in other aspects of local and global climatic patterns. In the 21st Century, global climate change is one of the most serious crises, problems confronting humankind. The human world is standing at a crucial position in the pace of development. Never before have entire natural resources across the globe have the threat of its depletion. Hence, a widespread notion prevailed that no resource is finite and within its existence, the developmental models should be encouraged which maintains environmental and ecological equilibrium. Climate change and global warming are wide-ranging and profoundly influencing almost all dimensions of human societies.

### **Global Climate Change: Brief Historical Backdrop:**

Long before climate change has significantly influenced the history of mankind. Climate changes over hundreds of thousands and even millions of years facilitated the shaping of the evolution of our species. The complex and diverse components influenced human evolution and, indeed, in all the phases of human prehistory and history. Climate change took several forms during the period of human evolution. Human ancestors evolved during a period of general cooling. It is generally believed

and accepted the notion that climate change was a pivotal driving force for human evolution (Lieberman and Gordon, 2018: 20). Records and accounts of crops and agriculture from the Roman Empire thus provide possible proxies for climate history, but economics and cultural preferences also drove planting. (Ibid: 104). The climate, in particular, has been attributed prominently as a molding force throughout history. During the period of colonial expansion, for instance, issues of adaptation to different environmental conditions became a major political, scientific and economic dilemma. Geographical discussions of climate then also focused on centring patterns of variation in levels of human civilization within a regional climatic framework (Endfield, 2009: 225). Many eighteenth-century climatic theorists had pointed out with certainty that change of climate might cause a transformation or even degeneration in man himself (Grove, 1995: 14). The 'El Nino' affects patterns of drought, flood around the world and agrarian unrest between French revolutions took place during 1789-1793. 'El Nino: History and Crisis', edited by Richard Grove and John Chappell has considered a remarkable work that brings together the recent historical studies of the 'El Nino' and its drastic impacts on past and present civilizations (Dutta, 2008: 262-63). While narrating an earlier climate history work of the French Annales School of History, and associated most notably with the work of Braudel and Le Roy Ladurie (1972), interests in climate-society interactions over the historical period have also grown significantly over the last few decades. This pioneering work is not only providing detailed regional climate histories but also put forth significant insights into how societies have been influenced by, coped with and have responded to climatic variability and weather-related events in the past (Endfield, 2009: 228). Fernand Braudel, Annals school historian, highlighted the importance of the environment in historical phenomena. He defined thus,

"History of a human being means the relationships of man with the environment. The environment is a barrier in human development, by avoiding it there is nothing to do because man is a slave of the environment, although doing something there would be immense upheavals" (Dhavalikar, 2017:04).

Dealing with the threats of the present and making convenient choices for the future both depends on understanding the environmental experiences of the past. (Hughes, 2009:01).

### **Factors Contributing To Global Climate Change:**

The incineration of fossil fuels and other human activities are the major reasons for the augmentation of Carbon dioxide (CO<sub>2</sub>) and other greenhouse gases (GHGs) emissions in the atmosphere. Historically speaking, the industrialized countries have been the primary contributors to emissions of Carbon dioxide (CO<sub>2</sub>). According to one estimate, industrialized countries are responsible for about 83% of the rise in growing fossil fuel-related Carbon dioxide (CO<sub>2</sub>) emissions since 1800. The accountability for emissions increase lies largely with the industrialized world, though the developing countries are likely to be the source of an increasing proportion of future increases (Sathaye et al., 2006:315-16). The historical 'Paris Agreement' (2005) framework of terms concerned with reducing GHGs by major contributors however the USA which agreed to the deal did not want to put much responsibility to make reductions (Narain, 2021: 49). Carbon emissions in the atmosphere for hundreds of years, destruction of forest tracts for construction of dams, pollution, rapid growth in chemical, industrial farming etc. are the major contributors to global climate change (Nulkar, 2021:01).

### **Climate Change And Development: The Challenges Of Our Time:**

The global temperature has already risen by 1.20C since the 1880s (Narain, 2021: 49). According to the CEEW ('Council on Energy, Environment and Water') Report (2020), the threats of natural calamities have arisen as an outcome of global climate change taking severe positions. The appropriate measurable remedies to these climate change threats to India have been explored as well by CEEW. Between 1970- 2005, in India, there are 250 natural calamities such as droughts, floods and

cyclones have been recorded and 310 phenomena amongst them have occurred in the last 15 years. It is a noteworthy fact that we call natural calamities, which occurred as an implication of consistent human intervention (Nulkar, 2021:01). The adverse implications and their severity seem to be one of the biggest impediments in the pace of development. In Jun. 2020 the Nisarg cyclone in the Arabian Sea of Maharashtra has given a major setback to the peoples of the Konkan region. It has repelled economic development by 20 years especially among tribal communities (Ibid: 04). The Himalayan glaciers have been changing their streams and global warming leads towards the rise in the sea level (Waslekar, 2011: 104). The recent glacier breaks in the Himalayan state of Uttarakhand in Chamoli districts (7th Feb., 2021) created havoc by devastating the Rushiganga Power Project in the valley and more than 100 labourers were missing. These phenomena are frequently occurring due to increased human intervention in the natural ecosystem resulting in global warming, floods and landslides (Dandekar, 2021: 10). Developing countries are facing immediate concerns that relate to forest and land degradation, freshwater shortage, food security, air and water pollution. Climate change will worsen the impacts of deforestation and other economic pressures, leading to further water scarcities, land degradation and desertification. Increasing global temperatures will result in rising sea levels. In the global climate change debate, the issue of the largest importance to developing countries is reducing the vulnerability of their natural and socio-economic systems to projected climate change. Over time, there has been a visible shift in the global climate change discussions towards adaptation. Adaptation can complement mitigation as a cost-effective strategy to reduce climate change risks (Sathaye et al., 2006:316).

### **Implications Of Climate Change:**

The first and foremost setback of climate change bears on the governmental treasury. The developmental budgets are being diverted for rehabilitation and maintaining public infrastructures. Secondly, agricultural ruin adversely impacts productivity and food securities. Thirdly, an immense jolt seems to the socially marginalized and underprivileged communities especially tribal's, women's and other unorganized strata of the societies. During such natural calamities, they are becoming socially insecure due to problems of livelihood. It further promotes migration on a large scale from the inhabited state, region to other state or region. Fourthly, the biggest setback appears to be natural ecosystems, habitations resulting in loss of pre-existed areas, tracts of biodiversity. It further weakens the productivity of the natural ecosystems, decreases agricultural foods with nutritional deficiency. By consuming such foods, the immunity of human beings is weakened. In the last few decades, zoonotic diseases (transmission of novel diseases from animals to human beings) are frequently increasing including SARS, Nipah, Zika, Swine flues. A recent outbreak of novel coronavirus (COVID-19) pandemic is also included in these categories. These challenges before human societies and their linkages with climate changes, development should be considered by the government and made appropriate budgetary provisions for mitigations. It is an unfortunate thing that financial budgets are being drafted by financial experts, policy-makers. However, not including scholars, experts from diverse academic disciplines especially biology, geography, geology, ecology etc. in the financial policies, frameworks, planning and administration. In brief, there should be an interdisciplinary committee to study and emphasize adaptation and mitigation strategies by aiming to minimize adverse impacts and consequences of climate change (Nulkar, 2021:04).

### **What Are Alternatives Before India? :**

India is a large developing country with the largest rural population directly depending on climate-sensitive sectors (agriculture, forests and fisheries) and natural resources. Simulations using dynamic crop models indicate a decrease in the yield of crops as temperature increases in different parts of India. It is important to note that the climate-sensitive sectors (forests, agriculture, coastal zones) and natural resources (groundwater, soil, biodiversity, etc.) are already under stress due to

socio-economic pressures. Thus, countries such as India with a large population dependent on climate-sensitive sectors and low adaptive capacity have to develop and implement adaptation strategies. (Sathaye et al., 2006:318-19). The measurable policies such as support for adaptation planning and implementation, creation of a public-private insurance mechanism and alignment of climate funds and development assistance can be deployed for gaining added benefits. Besides, the Adoption of a participatory approach to forest management, rural energy, irrigation water management and rural development, in general, can promote sustained development activities and ensure long-term greenhouse gas emission reduction. Large developing countries such as India should have long-term Research and Development (R&D) groups working on various aspects of climate change science, particularly the modelling aspects of GHG emissions scenarios, climate projections, climate impacts, integrated assessments, adaptation and mitigation. (Ibid: 320-324). CEEW Report (2020) recommends India to develop a strategic roadmap on five aspects for tackling global climate change such as developing a climate risk atlas; developing an integrated emergency surveillance system; mainstreaming risk assessment; enhancing the adaptive and resilience capacity; increasing the participatory engagement of all stakeholders in the risk-assessment process; and integrating local, sub-national, and national plans (Mohanty, 2020:34).

While looking into alternative developmental models as far as developing countries like India is concerned, sustainable development practices would be encouraged which can minimize adverse impacts of global climate change. Simultaneously it would bridge the lacunae between social imbalances, urban sprawling due to mass migrants and jobless growth by strengthening environmental and ecological consciousness. The afforestation, sanitation and cleaning drives of natural ecosystems such as river cleaning, beach cleaning would further create green jobs which require environmental innovations and sustainability (Vanitha, 2014: 36). The term 'sustainable development' is widely used in today's scenarios worldwide. However, the accepted definition of it is "Sustainable development is a development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987:44). Therefore, to reduce further risks of climate change governmental agencies, policymakers should rethink capital-centric developmental models and a paradigm shift towards sustainability. It is thus not surprising that the causes and effects of global climate change are also unequally distributed that needs to be addressed through humanitarian perspectives with due emphasis on the Gandhian approach to sustainability and development (Barua, 2015:138).

### **Conclusion:**

The threats of global climate change are not restricted to the natural calamities occurring in a particular region or country but as discussed above it has global adverse implications. In the 21st-century Global climate diplomacy with cooperation from all developing, developed and underdeveloped countries is required to tackle contemporary problems. As far as developing countries like India are concerned, renaming the ministry of environment and forest as climate change by the union government and other state governments is not adequate. As one of the biggest challenges in the pace of development, the government should set up strategic mechanisms and encourage sustainable development practices, models for addressing adverse implications and creating environmental and ecological consciousness.

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Mr. Bhimashankar M. Birajdar

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