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Climate Change: Coping Strategies For A Sustainable Future In India

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27. CLIMATE CHANGE: COPING STRATEGIES FOR A SUSTAINABLE FUTURE IN INDIA

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ABSTRACT

Today, human race faces many threats but none is greater than the climate challenge. I quote Ban Ki-moon, the Secretary General of UN, " climate change does not respect borders; it does not respect who you are-rich and, the poor, small and big. Therefore, this is what we call ' global challenges' which require global solidarity"-co-operation and collaboration among all people and all governments of the world. Our globe, is a world of looming climate challenges. Climate change is happening here and happening now. Hence, human beings should not become architects of their own destruction. With the available knowledge and tools, it is essential to reduce global warming in terms of the mitigation and adaptation strategies. Therefore, this paper delineates various climate change coping strategies followed all over the world with a detailed description of measures formulated and adopted in India.

INTRODUCTION

In 2006, Nicholas Stern, head of the United Kingdom's Government Economics Service presented his report on 'Economics of Climate Change' to the British Government where he has advocated climate change mitigation as one of the cardinal objectives (Stern, 2007). The Stern report stated that if we don't act, the overall costs and risks of climate change would be equivalent to loosing at least five per cent of global GDP each year now and forever. If a wider range of risks and impact is taken into account, the estimates of damage could rise to 20 percent of GDP or more. In contrast, the costs of action reducing GHG emissions to avoid the worst impacts of climate change can limit to around one per cent of global GDP each year. Therefore, all out efforts have to be taken for climate change mitigation globally in view of its low cost and high benefit in terms of job generation and sustainable economic development(Rudrappan,2004). A sustainable emission pathway will be meaningful only if it is translated into practical national strategies and national carbon budgets among all countries. Many European Union countries have credible targets with a few countries like Canada and USA fall short of the target laid down under the Kyoto Protocol.

OBJECTIVES

The objectives of the paper have been listed below

To find out the causes of climate change and the extent of destruction caused by climate change, and

To suggest remedial measures in terms of mitigation and adaptation for reducing climate change extreme events.

METHODOLOGY

Descriptive study is adopted using secondary data for outlining causes and catastrophes of climate change in addition to explanation on various measures formulated and followed by the Governments both at the Centre and States.

Discussion

Usually, changes in the climate system occur slowly and are responsible for the existing bio-diversity on the planet. However, the last few decades have seen rapid changes in this phenomenal world such that flora and fauna have not been able to adapt to changing climate. Human activities are largely responsible for this and human induced climate change has been widely recognized as one of the major problems threatening the earth today. Though natural events such as volcano eruption and solar radiation contribute to some extent in increasing the global temperature, the rise is caused mainly by greenhouse gases such as carbon dioxide, methane, water vapour and other gases as a result of human activities induced factors. The present global warming is a phenomenon where there is an increase in earth's surface temperature leading to a change in global climate, melting of ice glaciers and consequent increase in the sea level. Ozone depletion in the troposphere which is the lowest part of the earth atmosphere also contributed to warming of earth surface. Preventing dangerous climate change is the agreed ultimate objective of climate policy formulated in the 1992 U.N. Framework Convention on Climate Change. (UNFCC) through mitigation and adaptation strategies.

Climate change mitigation target should also be transformed into policies which are considered more challenging politically. The starting point of mitigation is putting a price on carbon

emissions in the following two ways:

1) Tax on carbon dioxide emissions which could be used to support wider environmental tax reforms.

2) Cap-and–trade where the government seeks an overall emission cap and issues tradable allowance that grant business the right to emit a set amount (Christopher & Robert, 2009).

Those who can reduce emissions more cheaply are able to sell these allowances. Therefore, carbon markets are an essential condition for the transition to lower level carbon economy. Moreover, the governments have a critical role in fixing regulations and in supporting research and development for a carbon neutral economic growth. The USA has used tax instrument to increase the development of renewable wind power energy source. IPCC has advocated enhanced energy efficiency to reap double dividend not only by lowering carbon dioxide emissions but also reducing energy cost in sectors like automobile. The automobile sector which accounts for more than 30 per cent of green house emissions in rich countries, adoption of regulatory standard is a must to unlock double dividends.

In addition to this, international trade could also play a major role for the development of alternative fuel such as ethanol which is more efficient in cutting carbon emission as seen in Brazil. Another key for mitigation is carbon dioxide capture on storage (CCS) which helps coal fired power generation with mere zero emission. This cutting edge CCS technology should be developed further as a costless method and deployed more rapidly around the world. Adaptation of climate mitigation policies requires proper planning and implementation capacity. However, the capability is lacking in poor countries as a result of absence of social protection, insufficient infrastructure and inadequate climate related risk information.

ADAPTATION STRATEGY TO REDUCE THE RISK OF CLIMATE CHANGE

Response to global warming requires immediate curtailment in the level of future climate change through adaptation. The aim of adaptation is to increase the climate resilience of communities by enhancing their capacity to cope with less predictable rainfall patterns, more frequent droughts, stronger heat wave, different diseases and weather hazards. It is the responsibility of all governments to develop strategies and projects that will enable people to cope with changes occasioned by climate change. Several countries have been implementing adaptation projects for building resilience among the people through federal, state, local governments as well as with the help of non-governmental organizations and local community groups. The adaptive capacity of a country depends on five forms of livelihood capital- physical, natural, social, human and financial capital as well as on access to technology, access to information on climate variability, capacity of institutions, equitable distribution of resources, and international cooperation. However, in view of the inadequacy of above factors among poor countries, many African and Asian countries are not able to build up adaptation capacity of communities sufficiently (Rudrappan,2010).

CLIMATE CHANGE ACTION PLAN IN INDIA

After climbing up steadily for at least two decades, India's green house gas emission began to decline rapidly after 1995 suggesting the start of decoupling process of environmental challenges and economic growth, as has occurred historically in rich countries at higher per capita income levels in terms of Kuznets inverted 'U' shaped curve. India's per capita emission ranks among the lowest averaging only 25% of the world and 5 % of USA's present emission. Furthermore, pressure from citizens activists and Government's policies driven by environmental challenges have reduced green house gas emission (Rudrappan,2011).

In terms of UNFCC accord, Kyoto Protocol, Marrakesh, Copenhagen and Cancun agreements signed so far, several measures are being undertaken in India, which contribute to GHG mitigation. Some of them are:

1.Establishment of the Technology Information, Forecasting and Assessment Council under the Department of Science and Technology, which facilitates the transfer of environmentally sound technology.

2.Extensive efforts in conservation of forests and biodiversity.

3.Involvement of a number of governmental and independent agencies in climate change research in India.

4.Using satellite data received from INSAT, cloud imageries will be projected. This will be used to derive cloud motion vectors, sea surface temperatures, and outgoing long wave radiation which in turn would be utilized for formulating mitigation measures.

To achieve the above mitigation strategy, following eight Missions have been established focusing on promotion of understanding of climate change, adaptation, mitigation, energy efficiency and natural resource conservation.

1.National Solar Mission: In view of India's position in the equatorial Sun Belt getting abundance of solar power throughout the year, generation of more solar power has been given much importance.

2.National Mission for Enhanced Energy Efficiency: The industrial sector of India which has been consuming 42% commercial energy emits 31% of total CO2. Therefore, the mission aims at increased energy efficiency in this sector.

3.National Mission on Sustainable Habitat: The aim of the Mission is to make habitats more sustainable through improvements in energy efficiency of buildings to achieve 30% electricity savings in new buildings, management of Municipal Solid Waste (MSW) and urban public transport

4.National Water Mission: As water becomes a scarce resource, the National Water Mission aims at conserving water, minimising wastage and ensuring more equitable distribution through Integrated Water Resource Management and modern irrigation techniques.

5.National Mission for Sustaining the Himalayan Ecosystem: Land-use planning and water-shed management practices for sustainable development of mountain ecosystems have been formulated.

6.National Mission for a Green India: Aiming at enhancing ecosystem services such as carbon sinks, it provides for Green India campaign for the afforestation of 6 million hectares and the national target of increasing land area under forest cover from 23% to 33%.

7.National Mission for Sustainable Agriculture: The objective is to make Indian agriculture more resilient to climate change by identifying new varieties of climate resilient crops, especially thermal resistant ones and alternative cropping patterns.

8.National Mission on Strategic Knowledge for Climate Change: Apart from usual budget grants, the mission aims at establishing a special Climate Research Fund also to promote research in climate change and related field in collaboration with global community.

Implementation: Each mission has to be implemented by the respective ministries and the progress made by them would be submitted to the Prime Minister's Council on Climate Change annually for evaluation. Further, India is an active participant in the Clean Development Mechanism (CDM) established by the Protocol and has more than 500 registered CDM projects accounting for about a third of all global projects and most of them are bio-mass and renewable energy projects. Under a CDM project, all incandescent bulbs in residences will be replaced into compact fluorescent bulbs. The price differentials will be recovered by the role of carbon credits. It is estimated that this will reduce 24 million tons of CO2 annually.

Under transportation, the government has directed all new four wheeled vehicles should comply with Euro IV standard emission norms and heavy vehicles should use Compressed Natural Gas (CNG) in big cities. For mass transit in urban areas, metro railways are being built up. The government also has introduced bio-fuel in the form of ethanol-blended gasoline and provides incentives for the production as well as commercialization of bio-fuels.

CONCLUSION

The "Perform Achieve and Trade"(PAT) scheme launched in April 2011 is an energy saving mechanism based on emission certificates targeting key industrial sectors with trading scheme. Despite no binding emission targets, Government of India acknowledged that it has a major role to play in global mitigation efforts in line with the principle of common but differentiated responsibility and respective capability. In spite of being the second largest polluter of greenhouse gases of the world, the USA has not realised its shared global responsibility and its President Donald Trump has withdrawn from the commitment of financial help to poor countries to overcome climate disasters as well as from the global climate Paris Accord, signed by all countries in 2015. As such, India magnanimously took on the voluntary target of reducing its carbon intensity by 25%. India's vision is to build a self-sustaining prosperous economy in terms of its capacity to unleash the creative energies of its people and the country is mindful of its responsibility to the present and future generation.

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