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IMPACT OF CLIMATE CHANGE ON INDIAN ECONOMY

* Dr. Rajendra Madhukar Sarode

* Assot, Prof, H.O.D. Bussiness. Eco. Dadasaheb Devidas Namdev Bhole College Bhusawal

A B S T R A C T

Twenty first century witness the huge growth of India in every sector with the development in the industrial sector, India is keen on climate change which is the global concern, India's stand on climate change seems to legitimate and appropriate a per its own and global needs. As far as the geopolitical order of Asia is concerned, climate change is an issue on which India has perhaps the greatest to lose Economic growth and development of the country are not mutually exclusive to each other so it is important to adapt inevitable environmental shift.

Key Words :- Vulnerable, Climate, Kharif, Rabbi, Sustainable, Monsoon.

Introduction :-

With its huge and ever-growing population, a 7000 km long densely populated and low-lying coastline, and an economy that is closely tied to its natural resource base, India is considerable vulnerable to the impacts of climate change. The average temperature change in India is predicted to be in the range of 2.330C to 4.780C with a doubling of carbon dioxide concentrations. It is also likely that there will be an increase in the frequency of heavy rainfall events in South and Southeast Asia. Other scientists believe an increase in annual mean maximum and minimum surface air temperatures of 0.70C and 100C over land in the 2040s with respect to the 1980s.

India could be more at risks than many other countries from changes in temperature and sea level. Temperatures would rise more in Northern India than in South India. In the Indian Ocean, under a carbon dioxide doubling scenario, the average number of tropical disturbance days could increase from 17 to 29 a year. Further, in the Indian context, climate change could represent an additional stress on the ecological and socioeconomic system that are already facing tremendous pressure due to rapid urbanization, industrialization and economic development. In the current scenario of global climate change, the effect on kharif season is expected to be less than to rabi season. Rainfall in rabi season will, however, have wider uncertainty.

Objectives:-

1) To examine how climate change 2) Asses the impact of climate change on various sectors of Indian economy.

Methodology / Data Collection :-

All the data used in this research paper are secondary

which is collected from books and journals. Data analyzed and interpreted then processed, appropriate data used in this research paper.

Result and Discussion:-

" India has a low-lying densely populated coastline extending about 6500 km. Among the 27 countries in India, that were most vulnerable to sea level rise. Most of the coastal regions are agriculturally fertile, with paddy fields that are highly vulnerable to inundation and salinisation. Coastal infrastructure, tourist activities, and onshore oil exploration are also at risk. The impacts of any increase in the frequency and intensity of extreme events, such as storm surges, could be disproportionately large, not just in heavily developed coastal areas, but also in terms of the paralyzing devastation in low income rural areas. Tata Energy Research Institute, New Delhi, provides a district level ranking of vulnerability to one metre sea-level rise by constructing a weighted index. The study also assesses the economic implications of such a rise on the most and least vulnerable districts in order to provide the

Coastal Areas	Economic Impact	Value of Anticipation	Cost of Protection
Mumbai	2287	1051	0.76
Goa	81	36.5	1.42
Balasore	3.6	1.3	1.25

range of projected economic impacts on the Indian coast. In present value terms, the results range from Rs. 2,287 billion in the case of Mumbai to Rs. 3.6 billion in the case of Balasore. Impact of 1-m Sea-level Rise on Coastal Districts (bil" Forests make a considerable contribution to the Indian economy. In 1996-97, forestry and logging accounted for nearly 1 per cent of GDP in 1980-81 prices. Moreover, non-timber forest products provide about 40 per cent of total offi-

cial forest revenues and 55 per cent of forest-based employment. Nearly 55 million people living in and around forests in India depend upon non-timber forest products as a critical component for their sustenance. Climate is an important determinant of the geographical distribution, composition and productivity of forests. Therefore, changes in climate could alter the configuration and productivity of forest ecosystems. These changes in turn, could have profound implications for traditional livelihood, industry, biodiversity, soil and water resources, and hence, agricultural productivity. " Agriculture and allied activities constitute the single largest component of India's economy. This sector contributes 24% to the Gross Domestic Product and also employs two-third of the country's workforce. Several major Indian industries, such as sugar, textiles, jute, food and milk processing depend on agriculture. However, 65% of the net sown area of 142 million hectare is dependent on rainfall, Indian agriculture continues to be fundamentally dependent on the weather.

Agricultural productivity is sensitive to two broad classes of climate-induced effects: (a) direct effects from changes in temperature, precipitation, or carbon dioxide concentration and (b) indirect effects through changes in soils, distribution and frequency of infestation by pests, insects, diseases of weeds. Several studies predict that rice and wheat yields could decline considerably with climatic changes in India. Another estimate tells a decrease in rice yield at the rate of 0.71 tonnes/ha with the temperature increase from 220C to 230C. Noted agriculture scientist M.S. Swaminathan estimates that a 20C increase in mean air temperature could decrease rice yield by about 0.75 tonnes/ha in the high yield areas and by about 0.06 tonnes/ha in the low yield coastal regions. Further, a 0.50C increase in winter temperature would reduce wheat crop duration by seven days and reduce yield by 0.45 tonnes/ha. This increase in winter temperature would thereby translate into a 10% reduction in wheat production in the high yield States of Punjab, Haryana and Uttar Pradesh. Another group of scientists believe that in North India, a 10C rise in mean temperature would have no significant effect on wheat yields, while a 20C increase would reduce yields in most places. Some scientists believe that even after accounting for farm-level adaptation, the loss in farm level net revenue would range between 9% and 25% for a temperature rise of 20C- 3.50C. An assessment in 1998 tells that a 20C rise in mean temperature and a 7% increase in mean pre-

cipitation would reduce net revenues by 12.3% for the country as a whole. Agriculture in the coastal regions of Gujarat, Maharashtra and Karnataka is found to be the most negatively affected. Small losses are also indicated for the major foodgrain producing regions of Punjab, Haryana and Western Uttar Pradesh. On the other hand West Bengal, Orissa and Andhra Pradesh are predicted to benefit to a small extent from warming.

" India receives about 4000 cubic kilometers water annually through precipitation, but it is not evenly distributed. The per capita water availability in the year 2000 was estimated to be 2100 cubic metre. The availability for the years 2025 and 2050 have been estimated as 1700 cubic metre and 1236 cubic metre respectively. The single largest demand for water comes from irrigation. Irrigation consumes more than 80% of the available water. The Inter-Governmental Panel on Climate Change in its Third Assessment Report predicts that the global temperature will rise by about 1.40C to 5.80C by the year 2100. This change would be much larger than any climate change experienced over the last 10,000 years. Water resources will be affected as precipitation and evaporation patterns change around the world. Reduced water supplies would place additional stress on people. Agriculture and the environment. Already approximately 1.7 billion people - a third of the world's population - live in water stressed countries. A figure expected to rise to 5 billion by the year 2025. The most vulnerable regions are arid and semi-arid areas, low-lying coasts, deltas and small islands. The most vulnerable people are the landless, poor and isolated. Many of these at-risk population live in India.

Conclusions:-

By the end of this century global average temperatures could be 60C higher than they are today. In an effort to reduce or remove this global environmental threat, nations around the world have adopted the framework convention on climate change. The current policy is to reduce global greenhouse gas emission by 5.2% by 2008-2012, relative to 1990. In India global environmental problems do not occupy priority positions in the government's policy. However various measures have been undertaken which have direct relevance of for these issues, for instance the promotion of renewable energy programme and afforestation activities. The encouragement of new and renewable sources of energy has direct implication for the problem of climate change.

REFERENCE

- 1) Archana Mishra - Global Climate Change 2) Economic and Political weekly- Vol XLV No 22, May 29 - June 4, 2010 3) Mahendra Pandey - Global Warming and climate change 4) M.V. Joshi - Environmental Economics 5) Yojana - April 2010