

Adverse Impact of Climate Change on Agriculture and Economy

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ABSTRACT

Climate change is due to natural and manmade causes. Deforestation is main cause of climate change due to human activities. On the other hand earthquakes and volcanic eruption are natural causes of climate change. It is not important to trace the causes of climate change rather to consider its impact on human being and his source of livelihood i.e. agriculture. Agriculture is the backbone of Indian rural population. Therefore, Mahatma Gandhi has said very rightly that the “Future of India lies in its villages” further he argued that “If the villages perish, India will perish too”. In other words sound development of the country may be possible after development of villages. It is true that the urbanization is responsible to provide assured jobs. Since, the rural population is migrating towards cities, urbanization is increasing and rural population is gradually on decline. Even though up to seventy percent population i.e. 743 million people, as per census 2011 living in villages. But it is to be noted that agriculture gives employment to half of the country's population despite of declining share of agriculture and GDP. Therefore, agriculture development for increasing farm production is always given priority to eradicate poverty. Since, use of pesticides and chemicals is the need of time. But it is affecting very badly the climate. Since, Indian agriculture is always at the mercy of the climate, it is bound to be affected by the increased manure and pesticides used. The government has assured to double the farmers income by 2022. The climate change has very adverse impact on Agriculture. This research paper is an endeavor to explain and illustrate this fact with necessary illustrations and justification. It is also criticized that the public investment in agriculture is very negligible. The supply chains and processing facilities are not properly developed. Hence, input prices are growing steadily while market links are highly inadequate. Moreover, the growth of population is continually reducing the size of ownership and operational land holding. Similarly the factors like shrinking of community resources, overuse of fertilizer, insecticides, and underground water in some regions of the country has resulted in intoxication of soil and other environmental problems which has serious implications not only to agricultural production but also on health of people. Thus, climate may have adverse impacts on agriculture and economy of country.

Key Words -Global warming, agriculture, deforestation, landfills, industrialization, biodiversity, nourishment, health, carbon dioxide, climate change, atmosphere, food production, variability, severity threat, survival, extinct, dangerous, and diseases.

1. INTRODUCTION

The successive dry spells and floods have influenced in all respects gravely the employment of billions of individuals who rely upon land for the greater part of their needs. The worldwide economy is antagonistically being impacted in all respects as often as possible because of outrageous occasions, for example, dry spells and floods, cold and warmth waves, woodland fires, landslips and so forth. The characteristic cataclysms like tremors, tidal waves and volcanic emissions, however not identified with climate fiascos, may change synthetic of the air. It will thusly, lead to climate related debacles. Increment in mist concentrates (environmental poisons) because of discharge of ozone harming substances, for example,

Carbon Dioxide because of copying of petroleum derivatives, chlorofluorocarbons (CFCs), hydro chlorofluorocarbons (HCFCs), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and so forth., Ozone consumption and UV-B sifted radiation, ejection of volcanoes, the "human hand" in deforestation as backwoods flames and loss of wet grounds are causal variables for climate change. The loss of forest, which ordinarily blocks precipitation and enables it to be consumed by the soil, makes precipitation reach over the land disintegrating top soil and causes floods and droughts. Incomprehensibly, absence of trees likewise worsens dry season in dry a long time by making the soil dry all the more rapidly. It suffers agriculture and economic growth of country.

2. NEED OF STUDY

The climate change has different adverse impacts not only on the human being but also on the agriculture. Since, climate change is responsible to increase the temperature of the globe; it causes adverse impacts on the agriculture and economic growth of the country. Agriculture offers wealth to a country. The agriculture wealth includes development of harvests, fruits, vegetables, blooms and rising of domesticated animals etc. In other words it is called as the investment in to soil. But similar to share market investment it is risky and not a secure investment. Because there are different factors is affecting on farming production. It includes geology of soil, climate change, rain, diseases etc. it causes adverse effect on farm production and economy of country. Therefore, there are international and national laws to minimize these hazardous effects. The area of climate change and its adverse effects on agriculture, economy and rules to tackle it is most neglected area. Hence, the researcher is inclined towards the research topic.

3. OBJECTIVES OF THE STUDY

1. To study the climate change.
2. To study the impact of climate change on the agriculture.
3. To study the adverse impact of climate change on agriculture production.
4. To give the suggestions for sustainable agriculture.

HYPOTHESIS

1. The climate change is responsible to increase the global temperature which may adversely affect the agriculture production.

NATURE AND SCOPE

Climate change has certain impact on agriculture. Impact may be understood as negative and unfriendly impacts brought about by an advancement, mechanical, or infrastructural venture or by the arrival of a foreign substances on the earth. Climate change can upset nourishment accessibility, diminish access to sustenance, and influence sustenance quality. For instance, globally increments in temperatures, changes in precipitation designs, changes in extraordinary climate occasions, and decreases in water accessibility may all bring about diminished agriculture production and downward economic growth of the country. Therefore, climate change, factors causing climate change, its impact on agriculture production, economic growth

and laws of country to minimize the adverse impact, etc. is the scope and nature of this research paper.

4. RESEARCH METHODOLOGY

This is an arm chair research. Therefore, the researcher used the secondary data to complete the research paper. Since, it is essential to use the relevant books, journals; thesis, websites, the global warming, online subject material, case laws, and the Indian Constitution, the Environmental law etc are the secondary sources which are used to complete the research paper. The terms like the global warming, its adverse impact on weather is necessarily to be studied in detail for the completion of the research paper.

5. REVIEW OF LITERATURE

Winters et al. (1998) considered the effect of worldwide environmental change on agriculture production of the countries. It is illustrated by the example of poor oat production in countries of Africa, Asia and Latin America. The goal was to look at the impacts of environmental change on macroeconomic execution, agricultural portion, and family welfare.

Kumar and Parikh (2001) evaluated the practical connection between farmer annual net-income and atmosphere factors. They had shown the direct relationship between raised temperatures, irregular precipitation etc. and its effect on climate change so as to affect the Indian agriculture.

Aloke Kashyap (2007) has clarified about purpose behind climate change and luxurious culture for human living is responsible to climate change. He concentrated upon the woodlands, deforestation etc.

Rajiv K. Sinha and SunderlalBahuguna (2007) have discussed about in environmental crisis and humans at risk. They stated that deforestation as the main cause of climate change which is making the danger the worldwide.

Susie Hodge (2009) has mentioned that there is unnatural weather change is due to increasing of temperature. It causes global warming. It results in melting of icebergs. It gives rise to floods. It affects adversely on human being and other living organism.

6. DEFINITION OF CLIMATE CHANGE

Therefore, climate change means Environmental change implies a critical change in the proportions of atmosphere, for example, temperature, precipitation, or wind, going on for an all encompassing period decades or more. The Earth's atmosphere has changed ordinarily during the planet's history, with occasions going from ice ages to extensive stretches of warmth.

7. AGRICULTURE

Agriculture means the science or practice of farming, including cultivation of the soil for the growing of crops and the rearing of animals to provide food, wool, and other products. Therefore, agriculture describes the practice of growing crops or raising animals. Someone who works as a farmer is in the agriculture industry. The word agriculture is combination of two latin words i.e. agri means field and cultura means cultivation. Thus, cultivating a piece of land, or planting and growing food plants on it, is broadly called as agriculture.

8. ADVERSE IMPACT OF CLIMATE CHANGE ON AGRICULTURE AND ECONOMIC GROWTH**1. REDUCTION IN WHEAT PRODUCTION**

It is proved by Indian Agriculture Research Institute (IARI) and others through research that rise of every 1°C temperature reduce wheat production by 4-5 Million Tons. Thus, rabi crop is affected adversely due to climate change.

2. MICROORGANISM POPULATION DISTURBED

It is found that a small increase in temperature and irregular precipitation pattern adversely affect the microorganism. Therefore, the production of organic products, vegetables, tea, espresso, fragrant and restorative plants, and basmati rice etc. may be reduced.

3. AGRICULTURE SUPPORTING BUSINESS IS AFFECTED

Climate change may affect badly the agriculture supporting business like dairy, fish rearing, honey bee rearing, and poultry production etc. Therefore, it is very rightly predicted by Worldwide reports that there me decrease of agriculture supporting business production up to 40% by 2100.

4. MONSOON WIND DISTURBANCE

Indian rain is mostly depended upon the monsoon winds. Therefore, it is responsible to bring rain in major portion of India. It is the main source of drinking and agrarian water. But it may be adversely affected due to increasing carbon dioxide and rising temperature of the globe. Moreover, soil fertility is also reduced due to increasing use of pesticides and fertilizers and changed climate. It reduced rice and wheat production.

5. POOR FINANCIAL SUPPORT TO AGRICULTURE

The agriculture in India not only depends upon climate change but on financial support of government to tackle the climate change. Therefore, there is need of financial support to handle the situations like flood and famine. It is necessary to give strength to Indian agriculture through strong financial support.

6. SEASIDE STATE'S AGRICULTURE IS PRONE TO SUFFER

Agriculture in the seaside areas of Gujarat, Maharashtra, and Karnataka is observed to be the most seriously influenced. It is due to rising temperature, global warming and glacier melting has given rise to flooding of those areas. Therefore, agriculture may affect adversely there. But states like West Bengal, Orissa, and Andhra Pradesh may be benefited due to global warming.

6. NEGATIVE PRECIPITATION IN FEW STATES

Climate change has given rise to critical negative precipitation patterns in the Eastern states like Madhya Pradesh, Chhattisgarh and parts of Bihar, Uttar Pradesh, portions of northwest and northeast India and furthermore a little part in Tamil Nadu. But increment in precipitation has additionally been seen in Jammu and Kashmir and in a few portions of southern peninsular.

7. TEMPERATURE RANGE OF 23°C TO 35°C DURING BLOSSOMING STAGE

It is found that the temperature range of 23°C to 35°C has positive impact on basmati rice cultivation. But it is also very difficult to maintain such type of range of temperature due to climate change and raised temperature. Therefore, there is need to find new seed varieties of rice which may be able to tackle the situation so as to increase the basmati rice production.

8. EXPANSION OF KHARIF AND RABI SEASON TIME SCALES

It is proved through researches that the most extreme and least temperature during the period 1960 to 2003 in northwest area of India is responsible to expand, kharif and rabi season time scales. The pace of increment of least temperature during rabi is a lot higher than during kharif.

9. LEGAL FRAMEWORK TO PROTECT CLIMATE CHANGE AT INTERNATIONAL LEVEL

Article 6 of Convention on Biological Diversity and Climate Change, 1992 has prescribed the general measures for conservation of biodiversity and sustainable use. Therefore it is obligation of each contracting party to develop national procedures, plans or projects for the preservation and supportable utilization of biological diversity or adjust for this reason existing systems, plans or projects which will reflect, inter alia, the measures set in this convention so as to sustainable use of biological diversity.

10. THE BIOLOGICAL DIVERSITY ACT, 2002

The Biological Diversity Act, 2002 is enacted to give the effect to Article 6 of Convention on Biological Diversity and Climate Change, 1992. Under section 18 of the Biological Diversity Act, 2002, the National Biodiversity Authority has given powers to access biological resources on fair and equitable grounds. Moreover, conservation of biodiversity may be advised to the appropriate government by the National Biodiversity Authority. Nevertheless, the National Biodiversity Authority may oppose to grant intellectual property rights beyond India on the biological resources obtained from India or knowledge associated to such biological resource derived from India.

9. CRITICISM

It is always a point of criticism that farming can moderate the environmental change firstly by decreasing the discharges of ozone depleting substances (GHGs) and secondly by increasing CO₂ from the climate. But the natural causes like volcanoes, earthquakes, storms, floods are not in control of human being. The use of pesticides and fertilizers are essential for increasing agricultural production to feed the rising population but it may give rise to climate change. The

agriculture fumes burning and suffering of Delhi's climate is its best example. Therefore, it should be balanced the need and its consequences. There should be sustainable approach in this regard. Since, Earth Summit 2019 is held at international level to limit the climate change. Thus, climate change and agriculture are relevant for economic development of any country.

10. HYPOTHESIS

1. THE CLIMATE CHANGE IS RESPONSIBLE TO INCREASE THE GLOBAL TEMPERATURE WHICH MAY ADVERSELY AFFECT THE AGRICULTURE PRODUCTION.

It is verified and found true on the basis of the secondary data.

11. FINDINGS

1. The agriculture production is decreased due to rising temperature.
2. The climate change has adverse impact on economic growth.

12. SUGGESTIONS

1. There is need to find new agriculture seeds capable to give more production in increased temperature.
2. If economic growth is to be maintained by executing public policy by giving fair price to farmers and by restricting import of goods from outside of country.

13. CONCLUSION

It is very clear from the above explanation that temperature rising is the main cause of global warming. It is also much traced that the agriculture production is also affected worst due to the climate change. Since, Indian economy is increasingly subject to agriculture. The climate change is the basic hindrance of economic development of the country. The entire climate change is related with expanding ozone harming substances. The excessive use of fertilizers and chemicals are also responsible to affect agriculture adversely. Therefore, the organic farming is the best solution to mitigate the effects of climate change on the agriculture. Since, sustainable agriculture is to be made compulsory, otherwise agriculture will be a cause and victim of the climate change. Agriculture offers wealth to a country, however the main wealth she can consider her own.

14. REFERENCES

- [1] Impact of Climate Change on Agriculture and Food Security in India Int. Jr. of Agril., Env. and Biotech. Vol. 4, No. 2 : June 2011 : 129-137
- [2] Singh. H.S. Potential Impact of Climate Change on Mangroves in India (0894-B2)
- [3] Prasad, R and Rana, R. 2006. A study on maximum temperature during March 2004 and its impact on rabi crops in Himachal Pradesh. J. of Agrometeorology, 8(1): 91-99

- [4] Prasad, R and Rana, R. 2006. A study on maximum temperature during March 2004 and its impact on rabi crops in Himachal Pradesh. *J. of Agrometeorology*, 8(1): 91-99
- [5] Ramakrishna, Y.S., Rao, G.G.S.N., Rao, S.G. and Vijayakumar, P. 2006. Impact of climate change in Agriculture. In: *Environment and Agriculture* (eds. Chadha, K.L. and Swaminathan, M.S.). Malhotra Publishing House, New Delhi, pp. 1-30
- [6] Shukla, P.R., Sharma, S.K and Ramana, V.P. 2002. *Climate Change and India - Issues, Concerns and Opportunities*. Tata – McGraw-Hill Publishing Company Ltd, New Delhi, 314p
- [7] Prasada Rao, G.S.L.H.V. and Alexander, D. 2008. Impact of climate change on the agricultural sector in tropical countries-. Recommendations. *Proceedings of the WTO Workshop*, held at College of Fisheries, Panangad, Kochi on 14th December, 2008, Kerala Agricultural University, 26p.