

The Impact of Atmosphere Change on Indian Agriculture

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ABSTRACT

In the recent period the influence of the climatic changes on the agricultural production and the productivity has a considerable impact, as reported by large numbers of studies, carried out from time to time. It is due to a significant change in the climatic which have been taken place during different successive periods. It has been witnessed that global economy is being considerably affected by the climatic events like frequent floods and droughts, cold and hot waves, particularly the agrarian economy where the most of the rural population, either directly or indirectly is engaged in the agriculture and the allied activities. In this countries, the most of the developing Asian, African and the Latin American countries, where the majority of the population of the country's is engaged in the agricultural sector. The current problem of the climatic impact on the agriculture is related to steady growing problem of the 'Greenhouse Effect' which is a problem of all the developed, under developed and the developing countries which have experienced a significant growth of the average mean monthly temperature due to global warming at a global level, as a result.it has given rise to disrupted the eco-systems of various agro-ecological zones at the global level.This research paper aims to examine the contribution of agriculture in sustainable development change in Indian economy

Keywords:-Productivity, Witnessed, Agro-ecological, Contribution, Sustainable Development.

INTRODUCTION

The changing scenario of the climate is one of the most pressing problems which is faced by almost each and every country of this World which has reshaped or in the process of altering the eco-systems of the earth. Although climatic change is a constant process which has been occurring on earth, but in the recent period, it was observed from a study that for last 100 years that the pace of this variability has been aggravated many times. It is because of the anthropogenic relating activities which had led to increase in the mean monthly temperature by 0.9 °C since the 9th C. It was mainly because of the emissions of the greenhouse gas (GHG) in this environment. According to estimates that this growth in the temperature is forecasted to be raised up to 1.5 °C by the end of the year 2050. The unprecedented growth in the temperature has lead to given rise in the events like floods, droughts, heat waves, irregular rainfall and other extreme impact on the agricultural activities across the World. According to an annual report on the Climate, Whether and the Catastrophe; All these disasters led to an adverse impact on the economy with the lost of USD 225 billion in the world in the year 2018. However, in the year 2016, the aggregated losses because of the natural calamities which was mainly due to steady rise in the temperature which has given rise to the loss even up to USD 220 billion annually. There the loss of 95 per cent in the economy was due to frequent adverse weather conditions. All these whether relating natural hazards like cyclones, drought, floods and other natural calamities which have been the key players which have direct impact on the agricultural relating activities, mainly in those countries, where a considerable numbers of the work force either directly or indirectly, engaged in the agriculture and allied activities.

REVIEW OF LITERATURE

There is a considerable impact of the changes in the climatic conditions on the agricultural production and the productivity is quite visible, as reported by various national and International conferences on this current issue. It is because of the climatic changes which have been taken place during different successive periods. It has been witnessed that global economy is being considerably affected by the climatic events like frequent occurring of the droughts and floods and cold waves, particularly the agrarian economy where the majority of the rural segment of population, as main stay of the rural Indian economy is agriculture and the allied activities. In this countries, the most of the developing countries of Asian, African and the Latin American countries, where the majority of the country's population is engaged in the agriculture and allied activities.

Shivani & Shruti George (2020) have reviewed on the scenario of the climate changing scenario and its Impact on the Indian agronomic practices in the different states of the country. Further, the authors have analyzed the current problem of the climatic impact on the agriculture is related to steady growing problem of the 'Green house Effect' which is a problem of all the developed, under developed, under-developed and the developing nations which have experienced a significant growth of the average mean monthly

temperature due to global warming at a global level, as a result, it has given rise to disrupted the eco-systems of various agro-ecological zones at the global level. It is because of rapid growth of urbanization and the industrialization during last three decades in all the developed and the developing countries like India, where there has been experienced a significant impact of the changing climate and its impacts on the crops' production and per acre out to a considerable extent in the several drought prone states.

Tripathi, A. Mishra, A.K. (2017), have highlighted the role of indigenous knowledge which has been proved very helpful to adapting the agronomic practices in accordance with change of climate by covering the probability of risk across the country. With the help of indigenous preventive and curative measures, the Indian farmers have been successfully coped with the adverse climatic situation in the extreme weather conditions. Agriculture is not only sensitive to the climatic changes which have taken place but also one of the major agents who has played a vital role in the climate change. The sensitivity of the climatic impact on the agronomic practices to a considerable uncertain, as there is regional variability in the temperature, precipitation, crops production and the cropping pattern, the soils and the agronomic practices by the farmers. It was projected that the crop tend to losses may increase; provided the climate change keep on increase the climatic skew nature to a considerable extent, as a result, the indigenous know how will surely find out the effective strategies with its feasible solutions to cope the changing climatic scenario in the coming period.

Aggarwal, P.K (2008), has reviewed the global changing scenario in the climatic conditions its impact on adaptation and the rural- urban mitigation during the drought affecting conditions. The study show that the declining in the land efficiency in terms of the agricultural productivity with a growth in the mean annual temperature in the most of the agricultural and horticultural crops. An adverse impact of changes, taken place in the climatic conditions on the agricultural production and the productivity which shows that the threat on the food security for the small and the marginal farmers with the adverse impacts have developed by the periodic climatic fluctuations. Further, the study shows that a rise in temperature would tend to reduce the agricultural productions and the productivity and also reviewed the situation of the agricultural sensitivity in India in terms of the climate change. All these adverse aspects of the impact on the agronomic practices has led to expedite the rural –urban migration by the small and marginal farmers as well as by the agricultural labours towards the towns to find the alternative jobs for their survival. The seasonal migration from **Bihar** and **Jharkhand states** is a good illustration of this type of the rural to rural migration from the agricultural depressed areas to the well off areas.

Lal, M., (2003): has evaluated the changing global climatic scenario in relation to India's monsoon and its variability, as observed during the recent years. The whole scenario of the change in the climatic conditions which is very closely associated with raising the green house gases and the hum an derived the green house gases, evolved in the atmosphere and lead to make dis-equilibrium position between them and uncertainty in a periodic change in the behaviour of the monsoon across the country. **Food & Agriculture Organization report** (2015) According to FAO report on the risk factors, relating to climatic changes, take place on the food security, confirms that the main findings, based on the previous report of the IPCC on the impact of the climatic gradual evolution and its physical impacts on the agronomic practices, by the farmers who have been cultivating their lands across the World. it becomes imperative to form a model which may be proved helpful to coup with the adverse condition, faced by the climatic change in the recent years. In the many regions of the World, increased irrigation water scarcity under the climate change will prevent the major challenges for the climatic adaptation, as highlighted by the report of Food & Agriculture Organization.

OBJECTIVS OF THE STUDY

1. The study is aimed at examine the concept of greenhouse effect at the global level with special reference to India;
2. The study is aimed at examine the trend of impact of the change in climate on the agriculture at the global level;
3. To evaluate the impact of the climatic change on the agricultural production and the productivity across the Indian states.
4. To recommend some of suggestions to mitigate the impact of change in climatic conditions on the agriculture.
5. To review the policy implication in terms of climatic impact on agriculture.

METHODOLOGY

There are some of the methodological tools which have been used to analysis the trend of global waning and its impacts on the agriculture which are as follows:

The study is based on the secondary source of information which has taken from the various published reports at various levels. In this context, the other sources are the review of the literature which includes the published books, journals and other scholarly articles and the research papers, published in national and international journals from time to time. Apart from these sources, there are some of the reports which have been published by the FAO, Ministry of Agriculture and Farmers welfare of the Government of India from time to time to make the impact appraisal of the climatic changes on the Indian agriculture.

Significant Climate extremes conditions and their Influence at the World Level

In the year 1998, the country has faced a very severe summer which was declared the year as the weather related disaster. There were the natural disasters such as floods and the hurricane in the Central and the Latin America and far eastern countries like Japan and Korea and the eastern China. Among the South East Asian countries like India, Bangladesh, Sri Lanka have faced these natural disasters during late 90s. In case of New England and Canada which were heavily hit by the *norwesters* in the January months whereas in Argentina, Turkey, and Paraguay which were affected by the flood situation, as a result, a huge loss of the standing crops had been in the Maharashtra state.

Main projections for the change in climate at the World Level: The projections of the climatic behaviour is mainly based on the "Computer-based Models" which shows the climatic systems which include the affecting factors atmospheric processes and the marine scenario, include the expected rise in the greenhouse gases in accordance with changing the socio-economic status of the people in the forthcoming period. The IPCC has reviewed the published reports, based on various other models. On the basis of the evidence, they have projected the change of the climatic scenario and its likely impact on agriculture by the year 2025, which is not too far away; the climate and its associated phenomena are projected variability as follows:

- The global warming on the earth's surface (surface air temperature changes) will be increased by 1.1-6.4°C.
- The expected rise in the sea level is within the range 18 and 59 cm.
- These seas and the ocean will turn more acidic.
- It is very much likely that the summer conditions will be extremes, with very much heat waves with heavy precipitation and it will continue to occur with close frequency.
- It is very much probability to have more precipitation at the higher latitudes and less precipitation in the most areas of the subtropical regions.
- It is also a higher probability that the tropical cyclones will be more intensified, with comprehensive speed of the peak wind and the precipitation associated with current increases in temperature of the tropical sea and the surface.

Hence, it is obvious that the impact of climate on the production and the productivity has been justified with numerous of studies which have been carried out by the authors, belonged to different streams. Most of the authors have tried to establish a 'cause-effect relationship' between the climatic and the various institutional factors which have been affecting the whole agricultural scenario in the developed and the developing countries, as indicated by these studies, carried out from time to time by the agricultural economists of the developed and the developing countries. It is clear that the frequency of drought and flood occurrence which are common across the world because of the climate change. All these have a considerable impact on farming practices and the livelihood to a considerable way. The probability is more in the country like India; where over 45 % of the population segment depends on the agriculture alone. Interestingly, weather relating extreme conditions of the just contrary to each other in terms of the nature such as heat and the cold waves and lead to frequency of the drought and the floods, as observed during last twenty years.

CONCLUSIONS

Conclusions and Policy Implications in relation to impact of the changing climatic conditions assessment are essential to formulate the vision of the future scenario of the agriculture and the directions of the administration to administrate the various problematic areas. The ground level study on the climatic conditions and its impact on the food grain production and the productivity have been studied by the scholars, belonged to various streams. The findings of the studies, carried out by the agricultural scientists and the agricultural economists shows that the adaptable seeds and the availability of the agricultural facilities with improved agronomic practices can pave the way to fight and mitigate the crops from the steady rise in temperature with increasing the lack of rainfall can have a considerable control on the influence of the growing variability in the climatic condition on the agriculture. This study which have been carried out with some of the scientific suggestions to prevent against climate change through exchange of the common sharing of

the information and periodic diagnosis of the climatic changes and the in-depth analysis of the changing scenario of the climatic conditional had a considerable impacts on the agricultural sector. The green innovative system is to be established; whereas the researchers, the policymakers, the farmers. Relating organizations, and other stake-holders are supposed to make the combined efforts to address the multiple challenges posed on the farmers in India; in terms of the periodic climatic transformation, cultivating the disequilibrium position in the earths' ecosystems and striking an equilibrium position in terms of long terms sustainability for reducing the plight of the farmers across the country.

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