International Journal of Advance and Applied Research
www.ijaar.co.in
ISSN – 2347-7075 Impact Factor – 7.328
Peer Reviewed Bi-Monthly
Vol.9 No.5 May – June 2022

A STUDY OF CLIMATE CHANGE AND INDIAN AGRICULTURE

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Abstract
Rising temperature affects flowering and leads to pests and disease build flood and excess rain over a short duration of time cause extensive damage to crops. Extreme weather events have caught attention of agrarian experts and scientist a like and they are now focusing on nature farming to arrest the impacts of climate change, Agriculture sector in India is vulnerable to climate change. Higher Temperature tends to reduce crop yields and favour weed and pest proliferation. Climate change can have negative effects on irrigated crop yields across agro ecological regions both due to temperature rise change in water availability rainfall agriculture will be primarily impacted. due to rainfall variability and reduction in number of rainy days analysis of impact of climate change under national innovations in climate resilient agriculture project has found that climate change is expected to affect yields. Particularly in crops like rice wheat and maize.

Government of India has initiated various actions to mitigate affects of climate change.

1. Varieties and cultivars tolerant to abiotic stress are developed under strategic research component of Nicra.
2. The technology demonstrations aim at enhancing the adaptive capacity of the farmers and also to cope with climate variability in the vulnerable districts to achieve climate resilient agriculture under NICRA, climate resilient technology demonstrations are implemented in 151 climatically vulnerable districts of the country
3. Districts agriculture contingency plans have been prepared by ICAR – CRIDA, Hyderabad for 648 districts in the country to address the adverse weather conditions.

Introduction

Indian agriculture remains vulnerable to the vagaries of weather and the looming threat of climate change may expose this vulnerability further. This article presents findings from a study that uses new data to analysis the impact of weather shocks on agriculture productivity in the short run and that of climate change in the long run. It shows that climate change could reduce farm incomes by 15-18% and by 20-25% in unirrigated areas. Agriculture is important in India for the obvious reason of its centrality given that is accounts for a large share in GDP (gross domestic Product)(16%) and an even large share in employment (49%) perhaps it is even more important because as the experience of the potential to hold back Indian development poor agriculture performance can lead to high inflation, rural distress, and political restiveness. Agriculture in India continues to be vulnerable to the vagaries of weather and the looming threat of climate change has the potential to expose this vulnerability further A small but growing literature has focused on estimating the impact of weather and climate on economics performance. However most of these are either cross country studies or focus on developed countries, primarily for data reasons and therefore may not be applicable to a large climatically diverse country such as India.

Objective:-

1. To study the Indian scenario of Agriculture.
2. To study the impact of climate change on world agriculture.
3. To study the impact of climate change on Indian agriculture.
4. To study the crop responses to expected climate change factor.
5. To study the agriculture productivity and food security.

Assumption:-

1. The productivity of Indian agriculture today to be increasing exponentially.
2. Climate change is likely to occur in the future.
3. Agriculture productivity and food security must be ensured in the future.
4. The world climate change need for to be considered.

5. Governments and businesses need to work on climate change.

Research Methodology :- The information required for this dissertation has been complied by primary and secondary data including. The use of tools like, annual report, books, internet, various agriculture and climate change web- site News Paper etc.

Indian scenario of climate change:-

The warming may be more pronounced in the northern parts of India the extreme in maximum and minimum temperatures are expected to increase under changing climate few place are expected to get more rain while some remain dry leaving Punjab and Rajasthan in the north west and Tamilnadu in the south, which show a slight decrease on an average a 20percent rise is all India summer monsoon rainfall over all states are expected number of rainy days may come of the down (MP) but the intensity is expected to rise at most of the part of India. (north east)

Impact of climate change on world agriculture:-

Climate change is likely to directly impact on food production across the globe increase in the mean seasonal temperature can reduce the duration of many crops and hence reduce final yield in areas where temperature are already close to the physiology maxima for crops warming will impact yields more immediately. World agriculture faces a serious decline within this century due to global warming overall. Agriculture productivity for the entire world is projected to decline between 3and16% by 2080 developing countries many of which have a average temperature that are already near or above crop tolerance levels are predicted to suffer an average 10to25% decline in agriculture productivity the 2080 rich countries.

Impact of climate change on India's agriculture

Indian agriculture is more dependent on monsoon from the ancient periods any change in monsoon trend drastically affects agriculture even the increasing temperature is affecting the Indian agriculture in the Indo-gangetic plan these per monsoon changes will primarily affect the wheat crop in the states of Jharkhand Odisha and Chhattishgad alone rice production losses during severe droughts (about one year in five year) average about 40% of total production with an estimated value of $800(dolor) million.

Crop responses to expected climate change factors

Climate change scenarios include higher temperature changes in precipitation and higher atmospheric co2 concentrations which may affect. On yield (both quality and quantity) growth rates photosynthesis and transpiration rates moisture availability through changes of water use soil erosion land availability Reduction of crops diversity may also affect agriculture productivity.

Agriculture productivity and food security:-

Food security is both directly and indirectly linked with climate change any alteration in the climate parameters such as temperature and humidity which govern crops growth will have a direct impact on quantity of food produced events such as flood and drought which are projected to multiple as a consequence of climate change leading to huge crop loss and leaving large patches to global environmental change and the capacity to cope with and recover from global environmental change on a global level increasingly unpredictable weather patterns will lead to fall in agriculture production and higher food prices leading to food insecurity . Food insecurity could be an indicator for assessing valuer ability to extreme events and slow-onset changes this impact of global warming has significant consequences for agriculture production and trade of development countries as well as an increased risk of hunger the number of people suffering from chronic hunger has increased from under 800 million in 1996 to over one billion recently the additional population will be in countries that have difficulties feeding themselves preliminary estimates for the period up to 2080 suggest a decline of some 15 to 30 % of agriculture productivity in the most climate – change exposed developing country regions Africa and south Africa.

Conclusion:-

Climate change the outcome of the global warming has now started showing its impacts worldwide climate is the primary determinant of agriculture productivity which directly impact of food production across the globe agriculture sector is the most sensitive sector to the climate changes because the climate of a region country determines the nature and characteristics of vegetation and crops increase in the mean seasonal temperature can reduce the duration of many crops and hence reduce final yield food production systems are extremely sensitive to climate changes like changes in temperature and precipitation which my lead to outbreaks of fests and disease thereby reducing harvest ultimately affecting the food security of the country. The net impact of food security will depend on the exposure to global environmental changes and the capacity to cope with and recover from global environmental. Another reason to

undertake the analysis relates to data quality raw data on temperature and rainfall are recorded by ground weather stations which are spatially interpolated into standardized grids. THE Indian metrological department maintains data for more than 600 rainfall stations and around 300 temperature stations next we turn our attention to the effects of these changes in temperature on agriculture output and yield. A simple correlation at the district level say between average temperature and average agriculture productivity will not yield the casual effects of Interest. For example if we find that hotter districts have lower average productivity it could be because of temperature, but it could also be because of several other factors availability of water and so on. Short run impact, we conduct the analysis for each cropping season separately and our key finding are illustrated in figures 2 and 3 in these figures, the x-axis plots decide of rainfall, Long run impact, there are three central channels through which climate change will suppose a change in average rainfall and days but should the policy implications Given these stark findings in a context of already low farm income levels, it is crucial to develop policies to make agriculture more resilient to changes in climate.

Reference

1.impact of climate change. (pib.gov.in.)

2.internet – ideasforindia.in.

3.economic survey of india -2017-18.

4.web-site – econ.lse.ac.uk.

5.12 five year plan.

6.state of indian agriculture 2012-13, government of india, ministry of agriculture dept. oF agriculture and co-operation, directorate of economics statistics, new delhi.

7.indian economy – nirali prakashan , june 2010 (in marathi)

8.indian economy, development and environmental economics – dr. j.n.zamare (in marathi)

9.indian economy – bhagirath prakashan , by ranjan kolambe,(mpsc.upsc)