



Impacts of Climate Change on Agriculture Sector

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ABSTRACT

Agriculture is one of the most climate-sensitive sectors. Climate change and variability are prime concerns of a human being. Climate change and Agriculture are inextricably linked in a picture of changing climate it affects biodiversity, crop yield, and water use, as well as soil health. Continuously variation in frequency and intensity of precipitation, heat waves, and CO₂ having impact on agricultural production. Particularly heat waves to cause heavy damages to agriculture and dampen economic condition because of the size of land holding and sensitivity of the sector. Climatic elements also reduce plant productivity, it may lead to an increased price for many important agricultural crops. Continued changes in the frequency and intensity of precipitation, heat waves, and other extreme events are likely, all which will impact agricultural production. The Net impacts of climate change on agriculture is to be negative, threatening global food security.

INTRODUCTION

Agriculture is the backbone of Indian economy, and climate change significantly affects agriculture. Agriculture sector is extremely vulnerable to climate change. Rise and fall in temperature reduce yields of crops and leads to more infestation of weed, pest and disease. Change in precipitation patterns increase the likely hood of short-run crop failures and long-run production decline. Although there will be gains in some crops in some region of the world. Impacts of Climate Change like hydrologic cycle, includes intense and more frequent floods and droughts in many agricultural regions. Temperature increase by at least 1.0 °C over the next 30-50 years it will decrease number of frost days along with longer growing season in temperate zones.

Climate Change

Climate change is one of the biggest environmental challenges in all countries in the world. Climate change refers to any change in climate over time, whether due to natural variability or as a result of human activity (IPCC, 2007). Climate change refers to a change of climate that is directly or indirectly by human activity that alters the composition of the global atmosphere and climate variability observed over comparable time periods. Climate encompasses the long-run pattern of numerous meteorological factors (e.g. temperature, humidity, atmospheric pressure, wind, rainfall, sunshine etc.) in a given location or larger region. A change in climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over a given period of time. The greenhouse gases prevent the heat radiated from the earth from being escaped into space. Human activities have led to an increase in the concentration of these greenhouse gases in the lower atmosphere, resulting in anthropogenic greenhouse effect which is resulting in global warming and its attendant “climate change”.

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While increases in atmospheric CO₂ are stimulate growth and improve water use efficiency in some crop species, climate impacts, particularly heat waves, droughts and flooding, will likely reduce yield potential. Indirect climate impacts include increased competition from weeds, expansion of pathogens and insect pest ranges and seasons, and other alterations in crop agroecosystems. Precipitation and temperature effects on soil moisture, Reductions in input use efficiencies, nutrient release through organic matter decomposition is not synchronized with the time when the plants nutrient requirement is at its peak level. Higher temperatures with moisture favour the germination of spores and spread of bacteria, fungi and nematodes. Climate change leads to excessive rainfall, nutrient losses through leaching and erosion it declines soil fertility. Heat stress and reduced water availability could result in the death of the plant. Extreme climatic events such as storms and windiness can be devastating to plants through logging and flooding. Increasing demands for food: Reducing/stagnating crop yields: fatigue of intensive agriculture; climate change impacts. Competition for resources: For land, water, capital, and labour from industry and urban settlements. Increasing demand for multi-functional agriculture: Produce food, feed, fiber, environmental services. Furthermore, compounded climate factors can decrease plant productivity, resulting in price increases for many important agricultural crops. The net effect of climate change on world agriculture is likely to be negative.

CONCLUSION

Climate change has emerged as one of the critical factors affecting agricultural productivity. The degree, frequency, and nature of climatic changes can have serious consequences for agriculture and farming practices. Rising a climatic variability create a pressure on agricultural systems and targeted future food production. One degree increases in temperature throughout the crop season have no effect. Whereas two degrees increase in temperature will reduce potential yields but will have small effect on irrigated yields. Climate variability can force the farmers to adopt new practices and adaptation strategies which can cope up with future impact of climate change on agriculture.

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