

Climate Change & Indian Agriculture



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Abstract

Of India's more than one billion people, about 68% are directly or indirectly dependent on agriculture even today. Despite rapid technological interventions, about two thirds of India's agriculture areas remain rain fed and vulnerable to present day climate variability. The implications of climate change is yet not very clear, although scholars agree that global climate change will lead to greater unpredictability of weather conditions at local levels this warrants serious deliberation on implication of climate change for agriculture in general and rural livelihoods in particular.

Global warming, progressive gradual rise of the earth's surface temperature, is at present being held responsible for changes in global climate patterns. Increase in atmospheric temperature affects various aspects of global hydrological cycle. As a result, we can expect changes in rainfall, evaporation and run off which are projected to cause significant impacts on crops, livestock fisheries, insect, microbes and more.

Keywords: Climate variability, Rain fed, Vulnerable, Climate change, Hydrologic cycle, GHG emission, hot spots, LLES, minimum support price, Food security, Watershed, Atmospheric Brown clouds (ABC), Pathogen, Varroa mite, Global unrest.

AREA

The whole Indian agriculture affected by climate change has been humbly taken in this research paper. With inferences from UNEP, IPCC, WAO has been aptly used.

METHODOLOGY

This research paper is based on primary and secondary sources. Studies of various research papers, departmental reports i.e. NATMO, IARI, IMD, UNEP, IPCC, who has been used in this research paper. A spatial temporal study of Indian Agriculture has been done.

Crops and Climate Change

India's agriculture is subject to climate variability which is likely to be exacerbated by climate change. The agriculture sector in India contributes 28% of the total GHG¹ emissions primarily due to methane emission from rice paddies, enteric fermentation in ruminant animals and nitrous oxides from application of manures and fertilizers to agricultural soils.

1. Green House Gases

The emissions from Indian agriculture are likely to increase significantly, in future due to our need to increase food production. Broadly wheat production in the Indo-Gangetic plain zones is likely to be affected negatively, while the crops in coastal and Island zones are likely to suffer from sea water inundation.

Productivity of fruit crops will be affected in the hill zones due to rise in temperature and precipitation. Changes in climate are expected to impact Kharif (Southwest monsoon) more than Rabi (northeast monsoon). During Kharif in 2020, 1 to 15% reduction in rice yield is expected due to increase in temperature and change in rainfall consequently, in 2050, 30 to 35% yield reduction are expected in Tamil Nadu, Aromatic rice, such as Basmati, being more sensitive to high temperature will experience a reduction of test weight, grain elongation and aroma.

GIS studies on prediction of suitability of growing ginger in Orissa and West Bengal, now a highly appropriate region, have **shown** that these areas would turn hostile with rising temperatures of about 1.5° to 2°c. coconut yields too are likely to be affected and plains Karnataka, Eastern