



Climate Change and its Impacts on Asia

Meenakshi

M.A. (GEOGRAPHY), P.U. (Chandigarh),

ABSTRACT

Climate change is an international issue which affect the life of people across the border. United Nations climate change conference, 2009 was held in bella center in Copenhagen, Denmark. Apart from Copenhagen meet many other international conferences and agreements were devoted to this issue. The basic purpose of all these conferences was to reduce the impact of climate change. Reports which are presented by different agencies indicate the rate of climate change and the impact on several regions.

This paper is focused on Asia. As heterogeneities exist in the different parts of world due to these heterogeneities the impact of climate change on different regions will also vary at regional level. In Asia agriculture will be worse effected sector but these changes will neither be entirely negative nor entirely positive as Asia is largest continent so all three major climatic zones are passing through this continent and the shift in these climatic zones will change the cropping pattern and not only cropping pattern but also the crop production. In result this change will affect the food security conditions, hunger rate, and eating habits of the people of different regions.

This paper deals with the issues of climate change and its impacts on agriculture of Asia.

KEYWORDS

Introduction

According to IPCC report "climate change will cause declines in agricultural productivity in many sub-regions of Asia for crops such as rice."

While we are talking about climate change the picture of future world is not yet clear. If the climate zone shift takes place it will affect the various sectors, for some sectors the affect will be positive while for others it may be negative. This change will be seen not only in context of various sector but also at regional level if we will talk about largest continent of the world the most of its countries are developing which means that a huge population of continent is involved in agricultural activities either directly or indirectly and this is the matter of concern for the people because according to a report of IPCC this climate change will going to affect the agricultural sector of Asia.

As the agriculture gets affected by change in climate. Despite technological advancement and conquest over nature, the agricultural patterns are closely controlled by the physical factors and among these physical factors climate (temperature, rainfall, humidity, fog, frost, wind, sunshine) is very important it plays significant and determinant role. All the elements of climate and weather individually or collectively determine the agricultural patterns of a region. A particular crop can be grown at a particular temperature and in a fixed amount of rainfall. If these conditions get changed it will be difficult to grow that plant in that particular region. The importance of climate on agriculture can be judge from the fact that various scholars attempted to demarcate the countries in agro-climatic regions and prime objective behind this demarcation is to optimize agricultural production, increase farm income and create more employment opportunities through the scientific utilization of agricultural resources. Even in India various scholars and government agencies have worked in this and still working this is enough to show the impact of climate on agriculture the scientific methods and instruments are of no use without observing the climate of that region. Present paper is an attempt to see these climatic factors and their impacts on climate.

Methodology Adopted

Based on the report of various organization this paper is an attempt to find out the impact of climate change on Asia and

the major impact of climate change for this region could be seen in agricultural sector so the paper is divided into two parts the first part deals with changing climate of Asia and in second part the implications of climate change of agriculture of Asia.

The data's are collected from the reports of IPCC and other agencies working on climate change and various books on agriculture and climate change.

Changing climate of Asia:- climate change is inevitable and unstoppable in its nature. However the 20th century global warming has been linked directly with anthropogeographical impacts, such as burning of fossil fuel, excessive emission of greenhouse gases and urbanization climate variability is concerned with changeability in the mean state and other statistics of climate elements on all spatial and temporal scale beyond those of individual weather events climate change on the other hand is variability that continues over a large period and is statistically significant.

Past and present climate trends and variability in Asia are generally characterised by increasing surface temperature which is more pronounced during the winter than the summer. Increasing trends have been observed in entire Asia. The observed increase in some parts of Asia during the recent decade ranged "between" less than 1 degree c to 3 degree c per century. The entire Asia is divided into seven sub-regions and if we look into these sub-regions we will find that increase in the temperature is most pronounced in north Asia. (savelieva et al., 200)

Interseasonal interannual and spatial variability in rainfall trends has been observed during the past few decades all across Asia. Decreasing trends in annual mean rainfall are observed in Russia, north east and north China, coastal belt and arid plains of Pakistan, parts of north-east India Indonesia, Philippines and some areas of japan. Annual mean rainfall exhibits increasing trends in western china, changjiang valley and the south eastern coast of China, Arabian Peninsula Bangladesh and along the western coast of Philippines.

If we divide India into seven regions North Asia (Russia, magnolia), central Asia (north west China) Tibetan plateau, western Asia (Iran), East Asia(China, Japan, Korea) south east

Asia(Indonesia, Philippines) than we can observe the change in climate at regional level.

Regions	Change in Temperature	Change in Precipitation
North Asia	2 to 3 degree c. rise in past 90 years more pronounced in spring and winter	Highly variable, decrease during 1951 to 1995, increase in last decade, 7.5% decrease in summer and 9% increase in winter
Central Asia	1-2% rise in temperature per century	Between 22% and 33% increase in rainfall
Tibetan Plateau	0.16 degree increase in temperature per decade	Generally increasing
West Asia	Significant decrease in frost days due to rise in surface temperature	In some stations there is decrease while in others increase in rainfall
East Asia	Rise in temperature but more pronounced in winter than in summer	There is decrease in mean annual rainfall
South Asia	Rise in temperature specifically in post monsoon period and over Himalayan region	Increase in the variations in rainfall
South East Asia	Increase in mean annual maximum temperature	Except Philippines there is decrease in rainfall and rainy days.

Significantly longer heatwaves duration has been observed in many countries of Asia, as indicated by the pronounced warming trends and several cases of severe heatwaves.

Generally, the frequency of occurrence of more intense rainfall events in many parts of Asia has increased causing severe flood, landslide and debris and mudflow, while the no. of rainy days and total amount of precipitation has decreased.

Increasing frequency and intensity of drought in many parts of Asia are attributed largely to a rise in temperature, particularly during the summer and normally drier months and during ENSO events.

Recent studies indicate that the frequency and intensity of tropical cyclones originating in Pacific have increased over a last few decades in contrast, cyclones originating from Bay of Bengal and Arabian sea have been noted to decrease since 1970 but intensity has increased. In both cases by intense cyclones has risen significantly.

Impacts of climate change on agriculture:- the climate change effect agriculture to a great extent. Due to increase and decrease in temperature, frequent occurrence of flood and droughts fluctuations in intensity of rainfall and change in no. of rainy days production area and productivity of agriculture get effected due to climate change are different continents. In Asia agriculture is the sector which is affected by the climate.

In central Asia, cereal production in northern and eastern Kazakhstan could benefit from the longer growing season, warmer winters, and slight increase in winter precipitation, while droughts in western Turkmenistan and Uzbekistan could negatively affect cotton production, increase water demand for irrigation and exacerbate desertification. The effectiveness of potential and practiced agricultural adaptation strategies is not well understood.

Future projection of precipitation at sub regional scales and thus the freshwater available in most parts of Asia is uncertain, but increased water demand from population growth ,increased water consumption per capita, and lack of good

management will increase water scarcity challenges for most of the region.

The scarcity of water for the irrigation purpose is not the only challenge in front of the agricultural sector of Asia. Every region of the continent is experiencing the increase in the temperature which is an important element of climate that effect the agriculture of any region and with the change in temperature the cropping pattern will also get affected. Similarly the precipitation and other climatic elements also affect the agriculture.

The climate change will decrease agricultural production which will be dangerous not only for food security but also for those farmers who are involved in agriculture and whose livelihood will be affected due to decrease in agricultural productivity.

Conclusion

The relations between climate change and agriculture has to be explored in relation to the impact on crop productivity and hence food production for instance wheat and rice that indicate decreased crop duration of wheat as a consequence of warming and reduction in yield of rice of about 5% at decrease of 1 degree c rise above 32 degree c. these effects of the temperature were considered sufficiently determinant that they are decreasing as a consequence of increasing in carbon concentration. The studies were conducted on the effect of climate change reveal that the impacts of climate change on Asia will increase the food insecurity.

References:

1. Report of IPCC: 2014
2. Husain Majid, agricultural geography, Jaipur, rawat publications, 2012.
3. Singh jasbir and S.S. dhillion, 1994, agricultural geography, new delhi, tata mcgraw-hill pub.co.