

# CHAPTER-1

## Introduction

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Earth has experienced many episodes of dramatic climate changes with different periods in earth history. There have been periods during which the entire planet has been covered in ice and at another time it has been scorchingly hot and dry. In this regards, earth has experienced at least three major periods of long- term frigid climate and ice ages interspersed with periods of the warm climate.

Human civilization has been created, evolved and keeps on evolving in consolation and confrontation with nature. It is in last part of 18<sup>th</sup> century and beginning of 19<sup>th</sup> century we started applying science and technology and took its highest momentum during the renaissance period. The history of industrialization, urbanization, and history of global warming go hand in hand. No such issue as the climate change as well as global warming has taken the present day global perception by storm. The IPCC reports are turning main brick than the yesterday to predict the mandate to the lethal

impact of global warming where in agriculture is going to be the worst recipient of climate change. With 1° C change in nocturnal temperature accounts to an equivalent of 20 percent yield loss in wheat and 12 percent yield loss in the rice. The risk and threats of the pest and disease attack, extreme weather calamities, colossal impact on human health, a plethora of mutant genes and unabated sea level rise are just to simmer up the situation to turn it worse to worst from decadence to apocalyptic consequences.

Climate change is a major challenge for agriculture, food security and rural livelihoods for billions of people including the poor in the Asia-Pacific region. Agriculture is the sector most vulnerable to climate change due to its high dependence on climate and weather and because people involved in agriculture tend to be poorer compared with urban residents. More than 60 percent of the population is directly or indirectly relying on agriculture as a source of livelihood in this region. Agriculture is part of the problem and part of the solution. Asian agriculture sector is already facing many problems relating to sustainability. To those already daunting challenges, climate change adds further pressure on agriculture adversely affecting the poor. The climate change is already making an adversely impact on the lives of the population particularly the poor. It is already evident in a number of ways. Consistent warming trends and more frequent and intense extreme weather events such as droughts, cyclones, floods, and hailstorms have been observed across Asia and the Pacific in recent decades.

One of the potential threats to agriculture is the impact of climate change in attaining sustainable development of agriculture coupled with food security. Climate change phenomenon is now a global reality. India is one of the

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most vulnerable countries to climate change that is affecting agricultural production. Climate change is projected to reduce timely sown irrigated wheat production by about 6% by 2020. In the case of late sown wheat, the projected levels are alarmingly high, to the extent of 18%. Similarly, a 4% fall in the yield of irrigated rice crop and a 6% fall in rain-fed rice are foreseen by 2020 due to climate changes. The warming trend in India over the past 100 years is estimated at 0.60°C. The projected impacts are likely to further aggravate yield fluctuations of May crops with impact on food security. It requires a serious attention on adaptation and mitigation strategies to overcome the problems of climate change.

The scientific rendezvous on climate change will be faded out unless it is well been drenched into community mobilization and perception. Both the adaptation and mitigation of climate change impacts need community mobilization, community perception, and community capacity building. The brunt of climate change has been humongous reflected in the status and prospects of livelihood and food security and the worst sufferer are the small and marginal farmers and landless laborers. The incorrigible migration along with its volcanic eruption to ooze out the magma of economic entropy will also lead to a social cause and jeopardy. So, the present work is eminent community estimation of climate change on one side, on the other side the livelihood and food security of millions of economically marginalized farmers.

Having this brief background in place, the present study has got the following objectives:

**Objectives of the study:**

1. To assess the level and nature of climate change perception through a quantitative approach.
2. To estimate the level of food security and livelihood security as the impacted consequences due to perceived climate as the dependent variables.
3. To estimate the agro-ecological, socio-economical and psycho-perceptual variables as the independent characters and to estimate the level direction with the level of interaction with the consequent variables food security and livelihood.

**Importance of the Study:**

Climate change is already affecting the planet and society and will continue to do so for generations to come. The physical and chemical changes of human activities are being felt in natural ecosystems on land and at sea, on farms and ranches, and in cities and suburbs, but the changes are not happening uniformly. Differences in how regions are affected by varying degrees of warming, precipitation, and changes of animal and plant species are likely to get even more extreme as climate change continues. Some areas may actually get a bit cooler for a while! Similarly for rainfall, some parts of the planet will get drier, while others will get more precipitation in more extreme events. No area on the planet has remained unaffected by climate change.

- Studying climate change helps to understand what causes the changes in the research area,

- Prepares us for any natural hazard or extreme changes that can be predicted,
- Helps identify both man-made and natural causes for climate change,
- Helps to understand how climate change has an impact on agriculture, food security, livelihood security, human health and the environment.

### **Some axiomatic statements over the study:**

- People's perception of climate change is based on their routine observation as to how what and why the biodiversity is declining.
- The impact of global warming and climate change is well discernible through the change in the local market landing of different vegetables, fishes and cereals, e.g. local species are increasingly being replaced with exotic ones.
- People of a given social and biophysical ecology can perceive the brunt of climate change vis-à-vis global warming because of their education, interaction, strategic location, settlement, increasing stress on public health, cattle's etc.
- The community has got their own unique way of perceiving climate change which can be attuned to their generic socio-economic and cultural traits.