



Climate change impact on farmers in Karnataka

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Abstract

In the present years, climate change will have a significant influence on humans and ecosystems. Throughout decades of global mean temperature and precipitation changes. The purpose of this research is to better understand the socio-economic impacts of climate change on crops and food production in Karnataka. Karnataka is India's second most vulnerable state when it comes to climate change. Make use of ex post facto tabular analyses. To arrive at valid conclusions, this method is used. The district-level index is calculated using demographic and productivity, agricultural, and climatic factors. At the ecosystem level, communities adapt to changing climatic conditions. Zones where climatic change causes the permanent change from densely inhabited to low-density areas. Credit is reliant on local businesses due to a lack of information. In some parts of Karnataka, North Karnataka is the least developed. At the ecosystem level, it is accepted by local communities.

Key words: Climate change, agriculture, farmers, perceptions.

1. Introduction

The state covers 1,91,791 square kilometres, or 5.83 percent of the total land area of the country. In terms of size, the country (32.88 lakh sq km) is the sixth largest among major states. As of 2011, According to the census, the state's population was 611 lakhs (roughly), with nearly 75% of the people being literate. There are 968 females per thousand people. Karnataka is ranked ninth in terms of population and the population density, according to the 2011 Census, was 319 people per square kilometre, which was lower than the national average. The density in India is 382. The 322 km long coastline, with its fine sand beaches and turquoise waters, Against the backdrop of gorgeous mountains, lagoons are surrounded by miles and miles of tall, waving palm trees. Mountainous areas are breathtakingly gorgeous. From north to south, the Malnad extends for around 650 kilometres. a mountain range that is undulating. Hindus make up most of the population. Approximately 83.8 percent of the Hindus make up 12.23% of the population, Muslims 12.23%, Christian's 1.91 percent, Jains 0.78 percent, and Buddhists 0.73 percent. The others are Buddhists or follow other faiths.

The United Nations Framework Convention on Climate Change (UNFCCC) came into force on 21st March 1994. It is the "Rio Convention", one of three adopted at the "Rio Earth Summit" in 1992. Today this convention has 197 countries and is known as "Convention of Parties" Industrialized nations agree under the Convention to support climate change activities in developing countries by providing financial support for action on climate change. This was followed by first Conference of Parties (COP1) that took place in Berlin in 1995. The Kyoto protocol was adopted in Kyoto, Japan, on 11 December 1997. It commits its Parties by setting internationally binding emission reduction targets. The Kyoto Protocol places a heavier burden on developed nations under the principle of "common but differentiated responsibilities", owing to high level of GHG emissions by developed nations by their industrial activity for approximately 150 years. The detailed rules for the implementation of the Protocol were adopted at COP 7 in Marrakesh, Morocco, in 2001, and are referred to as the "Marrakesh Accords." Its first commitment period started in 2008 and ended in 2012. The Cancun Agreement came up in 2010 at COP-16 in Cancun, where Governments decided to establish a "Green Climate Fund". The fund will support projects, programmes, policies and other activities in developing country Parties using thematic funding windows. The objective was to enhance action on adaptation, international cooperation and coherent consideration of matters relating to adaptation under the Convention. At COP17, Durban Platform, Enhanced Action drafted, where

governments clearly recognized the need to draw up the blueprint for a fresh universal, legal agreement to deal with climate change beyond 2020, where all will play their part to the best of their ability, and all will be able to reap the benefits of success together. The Durban outcome recognized, in its spirit and intention that smart government policy, smart business investment, and the demands of an informed citizenry, all motivated by an understanding of mutual self-interest, must go hand in hand in pursuit of the common goal.¹ Globally, climate change and agriculture are two intertwined phenomena. Floods, droughts, cold spells, heat waves, hurricanes, typhoons, salt access and soil degradation all have a greater impact on agriculture than other sectors of the economy. Agriculture is one of the few sectors in India where most operations are environmentally conscious. Climate change poses a great threat to the development of India's livestock industry. The expected negative impacts of climate change on Indian agriculture will have a severe impact on animal production by exacerbating food and forage shortages. Heat stress in dairy cows is estimated to worsen as a result of the expected rise in temperatures of 2.2 to 4.7 degrees Celsius nationwide, with Karnataka paired with higher rainfall as a result of climate change.

Climate is a long-term model of weather conditions at any given location. Mixed methods approach including quantitative and qualitative data were employed. Primary data were collected using a structured questionnaire through a household survey during September and October 2020. The study respondents were 50 Marginal farmers in the flood-prone areas of Hyderabad Karnataka. The data were analysed using descriptive statistics, coefficient of correlation and stepwise regression. This will have a major impact on agricultural production. Climatic extremes have led to a high rate of land degradation, resulting in increased soil erosion and lack of nutrients.² This analysis gathers detailed information on the vulnerability of farmers to climate change for the first time, and how climate change has a positive impact on farmers' well-being. Crop yields fall, impacts production, Crop and pulses prices go up, and consumption of cereals declines, which reduces calorie intake and Malnutrition is high among farmers, which in turn affects the sickness of farmers. Various types of health care should be provided to the people of Hyderabad Karnataka in to ensure high levels of healthcare and function effectively.³ Farmers in the rain-fed agriculture in arid regions are highly exposed to the adverse effects of climate change due to complete reliance on frequency, intensity, and timing of the rainfall. Adaptation, in such condition, becomes crucial to remain in farming in climate change regime. In the rural settings of the less-developed areas, farm households mostly adapt to risks posed by climate change individually. However, the benefits of private adaptation can be private and public depending on the type of adaptation strategies. The present study investigates different adaptation strategies of farmers using cross-sectional data collected from semi-arid region of Punjab province of Pakistan. The study also examines the role of socioeconomic characteristics of farmers on adaptation to climate change. Private adaptations for private and public benefits are considered in the present study.⁴ The governmental adaptations may not be perfectly efficient, but it is very unlikely that governments at all levels would do nothing. Consequently, one should expect to see that farmers will shift crops so they grow in new conditions, and foresters will plant trees where they will prosper. Water is likely to be reallocated to more valuable uses as it becomes scarcer. Developed coastlines around the world will be protected. New health threats from climate change will be met by relatively inexpensive public health measures.⁵ Impacts of global climate change will be felt among the populations, predominantly in developing countries, referred to as "subsistence" or "smallholder" farmers. Their vulnerability to climate change comes both from being predominantly located in the tropics, and from various socio-economic, demographic, and policy trends limiting their capacity to adapt to change.⁶

2. Objectives

To Identify the impact of climate change on Karnataka farmers

To understand the effects of climate change on Karnataka farmers

3. Formation of Hypothesis in Research Design.

Climate change is change of society economic status

Effect of climate to change environment human activities

4. Methods of the study.

The research was conducted in two agro-climatic zones of Karnataka, Southern Transition Zone and Northern Dry Zone in 2021-22. For the study, all districts were selected from each of these zones. The study was conducted in Karnataka Districts from Northern Transition Zone and Karnataka Districts from North Dry Zone. The ex-post-facto research design was used to conduct the study because the variables selected for investigation were already occurring and established facts. Karnataka has been selected in the last two decades due to widespread rainfall, temperature, relative humidity and sunshine. One village was deliberately selected from each taluk to symbolize the north, south, east, west and center of the taluk. Farmers were randomly selected from different villages from each village and one of the study requirements was that farmers should be between the ages of 18 and 45 years. This has been done in order to achieve a better response to climate change over time. The study listed the participation of all 300 farmers. The impact of climate change on agricultural practices and livestock activities has been independently investigated, as perceived by respondents over the past two decades. A number of farming methods are listed, ranging from soil preparation to post-harvest farming methods that cover grains and crop wastes. We did not find any positive, negative and climatic effects on each of these practices. Frequency and percentage of answers were calculated against each of these practices. In addition, respondents' perceptions of the range of other influences, if any, were aggregated by temperature, rainfall, crop, etc., and average values were given for interpretation. Starting with breed selection, fodder and feed production and use were enrolled, and the same procedure used for crop husbandry practices to solicit replies and display the results was used. A structured interview schedule was designed by speaking with experts and referring to relevant literature relating to the influence of climate change on agriculture, keeping in mind the study's objectives and factors. The schedule was pre-tested in the non-sample area to ensure that it was practical and relevant. Based on the findings of the pre-testing, the final schedule was created by making appropriate changes, additions, and deletions. The personal interview method was utilized to collect data using a pre-tested and structured interview plan.

The following is the rainfall distribution in different Met Divisions of the State throughout different seasons in 2021:

S I No.	Region/ State	Annual		
		Normal (mm)	Actual (mm)	Dep (%)
1	South interior Karnataka	714	1050	47
2	North interior Karnataka	702	780	11
3	Malanad	1950	2100	8
4	Coastal	3518	3784	8
State		1153	1337	16

Source: Secondary data, Karnataka State Natural Disaster Monitoring Centre.

The statement outlines the amount needed for flood relief, protection, and emergency work in 2021.

Sl No.	Item	Quantity	Estimated Loss	As per SDRF norms
1	Agriculture crop Loss (in Ha)	789563	6207.25	619.22
2	Horticulture crop loss (in Ha)	125442	1348.01	143.69
3	Plantation Crop loss (in Ha)	74530	1401.90	89.53
4	Desilting & Agriculture land loss (in Ha)	417	3.75	0.51
5	Sericulture Crop (in Ha)	243	4.86	0.12
6	Animal death	376	2.63	0.51
7	House damage	20083	316.71	79.36
8	Relief camps	20		0.11
9	Other relief items		0.19	2.80
	Total		9285.31	935.87

Source: KSNDMC.

5. Findings and implications

6. Results summary

Rising temperatures and high relative humidity can cause pests and diseases, resulting in lower agricultural yields, lower fertility, more pests and illnesses, and higher food prices. Some farmers believe that infections are carried by the wind from the northwest. Farmers noted the detrimental effects of climate change on pasture quality, and they estimated the decline in meat flavour, milk thickness, and livestock power indirectly. Several years. Because of the poor quality of fodder, soil nutrients have leaked during the recent heavy rains. Due to excessive grazing pressure, weed dominance, and overflow, farmers have reported decreasing feed availability from common lands. A major result is a reduction in the availability of dry fodder. Crop loss incidents and changes in crop methods due to flooding or protracted dry weather conditions have led to most farmers preferring to produce commercial crops such as cotton and pepper. Farmers are only allowed to graze in the morning and evening to minimize heat stress and searing heat, which can result in sterility, heat stress, shortness of breath, reduced crop yields, energy limits, and a variety of insects and diseases consequences. Farmers noted a good influence in the case of cattle prices.

7. Conclusion

According to farmers, climate change has primarily had a detrimental impact on many foods production and animal husbandry techniques over the past two decades. Educating farmers on how to grow is crucial. They should also be taught about a mix of livestock species, including drought-resistant strains and livestock transport and management practices, to reduce the negative impacts of rising temperatures and low rainfall.

8. References

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