

Climate Change is Affecting the Farmers of Agriculture in Karnataka State

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Abstract

The agricultural sector in Karnataka is suffering due to climate change. Farmers have had to adapt to rapidly changing climatic conditions, and the study's findings indicate that farmers' output, rising temperatures, and India's unpredictable and low rainfall are all consistent with climate data. Farmers in Karnataka have routinely and frequently implemented comprehensive adaptation strategies. Agriculture often uses interpretative and utilitarian resources, labour, and crop practises. Climate change might modify rainfall or temperature in Indian land areas, which can have an impact on cropping practises. But as farmers' adaptation strategies are a direct outcome of climate change in their output, the study highlights the need for more investment in the Indian agricultural sector as well as in enhancing farmers' ability to produce. A successful policy must be developed in response to the farmers' shifting climatic circumstances and the outcomes they produce.

Keywords: Climate Change, affecting, agricultural, Farmers.

1. Introduction

Climate change is one of the world's largest concerns today, which is why it is a huge concern. Human everyday pollution from air conditioning, air coolers, refrigerators, and factory-emitted carbon emissions is a result of the climate problem. The IPCC on Climate Change was founded. Climate change and agriculture are mutually dependent. Recognising the effects of climate change on a global scale, agriculture must receive more attention, particularly at the regional level where conditions related to the climate may affect food supplies. Reducing the influence on the environment and improving our lifestyle are highly significant. Operationally, it is described as a farmer's capacity to deal with and emerge from a climate-related catastrophe. Decision-making skills, flexibility, and financial performance are the metrics used to evaluate this capacity.

The ability of farmers to select the best production options in a practical manner and using a methodical approach to maximise returns in a given agricultural scenario is known as decision-making capability. Operationally speaking, adoption is described as the current problem and the survival tactics used to address the projected future issue. Crop production, horticulture, fisheries, livestock, land use patterns, flooding, irrigation, farmers, and economic and family management are the only areas where these measurements are applicable. Governments, donors, and practitioners urgently need to step up their efforts to support farmers in adjusting to the current effects of climate change and strengthening their resistance to it in the future. Our results show that there is a need to adopt climate adaptation policies and programs to the diverse socioeconomic conditions, biophysical conditions and climate stresses that farmers face.

Reliable estimates of the impacts of climate change on nations are valuable in understanding the impacts of climate change distribution and the potential benefits of policies to reduce or increase its impact. Possible to do, I think the damage is severe unless it is quick and complete to adapt to high temperatures.[3] The term "climate change" refers to an increase in the average temperature that has been observed. Recent decades have seen an increase in winds near the Earth's surface and in the oceans. Its impact, particularly on children, is significant. Developing countries are envious of their riches and talents. There aren't many difficulties. Everyone is impacted by the effects of climate change. People who reside in areas with limited resources, lowland beaches, deltas, and other changing settings The dry and semi-arid desert parts of Karnataka are particularly vulnerable. That's accurate. This is because the great majority of people who live in these areas depend on agriculture as their primary source of income. The first island, biological resources, and water as a revenue stream. Changes caused by the climate have an effect. It sinks as the sea level increases. When these lowlands flood, the atmosphere's dynamics remain unchanged. Karnataka experiences far milder and more variable weather.

2. Literature review

1. Research on smallholder farmers agricultural adapting to climate change Bringing in some relevant findings and recommendations for the study. Moreover, the government may take initiatives to provide some logistic Supports such as pesticide sprayers, easy access to electricity and subsidy Shallow or deep tube wells in the study area. Socio-economic characteristics General farming, farming experience and training experience There have been major factors affecting farmers 'perception of climate change Effects. So, programs that focus on these aspects are probably, Increases farmers 'perception and adaptability to climate change Effects. Finally, there is a need for an integrated approach, including government and both, to significantly address supplier solutions.[4]
2. Changes in climate could significantly impact agriculture. Crop diversification has been used as an indicator to study the impacts of climate change on agriculture in recent literature. Besides climatic factors, crop diversification also depends on economic factors such as farmers' revenues, consumer demands, and market conditions. We estimate Composite Entropy Index (CEI) as a measure for crop diversification in Karnataka and quantify the impacts of climatic and economic factors. We construct CEI for all the districts across Karnataka from 1998 to 2014. The results from our model indicate that after controlling for economic factors, climatic factors impact crop diversification significantly. Crop diversification increased in Karnataka due to climate change.[5]
3. The Consumer Protection Act is dedicated, as its preamble shows, to provide for better protection of the interests of consumers and for that purpose to make provision for the establishment of consumer councils and other authorities for settlement of consumer disputes and for other connected matter. In the statement of objects and reasons it is said that the Act seeks to provide speedy and simple redressal to consumer disputes.[6]
4. totally climate change in this covid 19 pandemic personal health effect but environmentally very useful our nation and state in climate change is good condition of marginal farmer agriculture and health body pure air all human corbans reduce very low in atmosphere and heavy rainfall coming helpful crops yield. Local scale plays a key role in mitigating regional climate scenarios in climate change assessment, its future projections, impacts, major crop assessment and future climate change impacts, crop productivity, Hyderabad Karnataka region. This is because it is an important complex factor and according to different growth stages and crop development, projections, unprecedented temperatures,

- weather, and crop phenology, as well as abnormal heat stress and seizures during thermal farming operations can affect farmers' physical lives.[7]
5. It is observed that majority of the farmers are growing sugarcane in Bidar district, but due to the attitudes of Sugar Factories for not paying appropriate prices for the sugarcane grown and supplied to these factories, these farmers are facing many of the economic problems such as indebtedness, poverty, under-employment, etc. The primary data collected on social background and social problems faced by the respondents is analysed, interpreted and discussed as under.[8]
 6. Agricultural development in Karnataka should focus on reducing greenhouse gas emissions through measures such as significant reduction in deforestation, Improving forest conservation and management, Agroforestry promotion for effective control of food or energy of wildfires, Soil carbon sequestration Restoring land through controlled grazing, Improving nutrition for ruminant livestock, Developing strategies to conserve soil and water resources by improving the quality, availability and utilization efficiency of livestock waste and transfer and dispersal among farmers. Focus on the impact of climate change on different sectors of agricultural production.[9]
 7. The impact of climate change was evaluated using a crop-coconut simulation model validated for 13 agro-climatic zones represented by 16 centres. These regions contribute more than 90% to coconut production in India. For 3 scenarios in 2020, 2050, and 2080, outputs are obtained annually for 30 years, and average effects of 30 years are used to calculate the relative effects on current yields. The relative impacts on yields have been worked out for the district level in each ago-climatic zone and have been increased for state and national projections assuming that the coconut area remains unchanged in future scenarios.[10]
 8. The most important factor contributing to the relatively large number of crop estimates in the current crop estimation system is the large variations in growing seasons across the country and the delay in compilation of yield estimates based on crop cutting experiments. Since agriculture is a state matter, the central government relies on state governments for the accuracy of these estimates.[11]
 9. The preservation of sacred groves and landscapes, sacred species, groves, forests, and landscapes is an important aspect of the ethics of Indian culture. Sacred groves, forests are important repositories of flower and animal diversity, which are preserved in a sustainable manner by local communities. Sacred groves in Himachal Pradesh, Maharashtra, Kerala, Karnataka and elsewhere highlight the community-managed conservation efforts as well as the potential for carbon isolation. Planting trees is seen as virtuous or 'karma' profitable activity.[12]
 10. Human food increases the level of micronutrients in grains through bio-reinforcement and their enhanced bioavailability affects the health of a large portion of the population, especially children and pregnant women. Specific varieties are identified for use in the product. Work on understanding the genetic components of the starch biosynthetic pathway has been started to manipulate the anti-nutrient content and starch properties of the grain. Improve quality and yield.[13]
 11. farm production, all paid costs. Paid costs are the costs paid to buy inputs such as fertilizers, pesticides, rental equipment, hired labour, irrigation fees, seeds, etc., and the net worth is calculated by subtracting the total cost of the product, such as seeds and fertilizers. Pesticides, irrigation, and turnover costs. Total agricultural production includes the production of all crops and their by-products. By-product revenue includes stems, straws, etc. at their market price.[14]

3. Objectives

1. To study the effect of climate on household marginal farmers Agriculture
2. To analyse residence and gender Farmers Agriculture in Karnataka

4. Formation of Hypothesis in Research Design

1. Agriculture is facing greater challenges from climate change.
2. The Karnataka government should be concerned about the problems facing the Agriculture Farmers

5. Defining the nature of the study

was chosen for the current study from Karnataka's eastern dry microclimatic zones and northern microclimatic zones (NEDZ). The research region's temperature ranges from 120°C to 460°C, and rainfall varies from 210mm to 1100mm. In contrast to national and global balance evaluation studies, it has been observed that there are insufficient methods for assessing the strength and vulnerability of adjustments at the household level in this study. Studies conducted at the household level can shed light on the various factors contributing to vulnerability and facilitate comparisons across individual choices, tiers of access and response, and alignments.

A family is a suitable unit of analysis since it may make decisions independently of finances within a broader social framework, representing the flows of social capital and information. The observation of energy dynamics, the gendered character of decision-making, and the significance of family size and composition in defining strength and vulnerability are all made possible by the house. In order to ascertain whether members of the same household or those from unrelated groups eat together, the study primarily concentrated on the compatibility of farm families.

Large-scale study on adaptations cannot be conducted unless farmers have some grasp of the surrounding environment and changes in nature, as perception is a necessity for adaptation. In the short term, annual climate change is an urgent necessity for most of the poor world to respond. However, exposure to increased social capital and agricultural experience are the primary sources of knowledge and comprehension regarding climate change. There may have been both large- and small-scale studies into local understanding of climate threats and adaptive methods. Comparative quantitative data on the degree to which people react or act, however, has not been investigated, nor has the possibility of action been investigated. Grown products. Therefore, it's critical to comprehend the regional agroclimatic circumstances as well as several other aspects that primarily govern agricultural income in the various study areas. With proper selection, such knowledge greatly contributes to an increase in agricultural productivity. It is essential to choose farming techniques, crop and animal types, crop patterns, and farming methods carefully. To adapt to climate change, it is also essential to collect traditional knowledge and implement a flurry of punishments.

Maintaining stock to mitigate climate change impacts will set up the system to mitigate climate change impacts. As the environment is changing now, so too will the future. It can be challenging for farmers to adapt to climate change; it makes little sense to find ways to deal with inter-annual climate fluctuation. But if the environment is changing permanently, it might not be wise to implement a shift that is only meant to last a year. It makes sense to adjust investments over time in response to climate change, but not in response to climate tremors. Adjusting the weather and adjusting to it are not comparable concepts.

As a result, the emphasis is on examining the variables or determinants that affect farmers' capacity to adapt to changing environmental conditions. Advocacy tactics for the impoverished, grounded in life

results and assets, institutional frameworks, and means of influencing their decision-making, become paramount.

6. Sample design

The focus is on identifying the factors that influence adaptability and vulnerability as well as the extent of adaptive actions at the household level. This is true even though the study considers various aspects of vulnerability and climate-imposed adaptations among farm households in the Karnataka region that is vulnerable to climate change. Although primary field research has its benefits, the current study has limitations and offers room for more research. Therefore, the study has tried to highlight significant constraints in tropical areas where farming is very vulnerable to warming and precipitation, even when studies conducted at the farm level have found the environment to remain same.

Significant inland revenue concessions may result from the adjustment. To the extent that it currently occupies the area, general studies maintain that cross-sectional and time-series data cannot be produced to grasp the time dimension, as it is strongly dependent on people's compatibility and vulnerability. In-depth regional community-level studies help explore underlying causes, processes, and relationships that may complement one another; perhaps because such a complementary approach is time- and resource-intensive, the current study uses such a data set to be able to produce comparisons between different points in time and indicate what is going on.

One constraint is only the study of afro-climatic zones. The extensive sample derived from different acroclimatic zones in Karnataka may play a significant role in offering more essential policy inputs because of the localised impacts of the worldwide phenomena known as climate change.

7. Data collection in Research Design

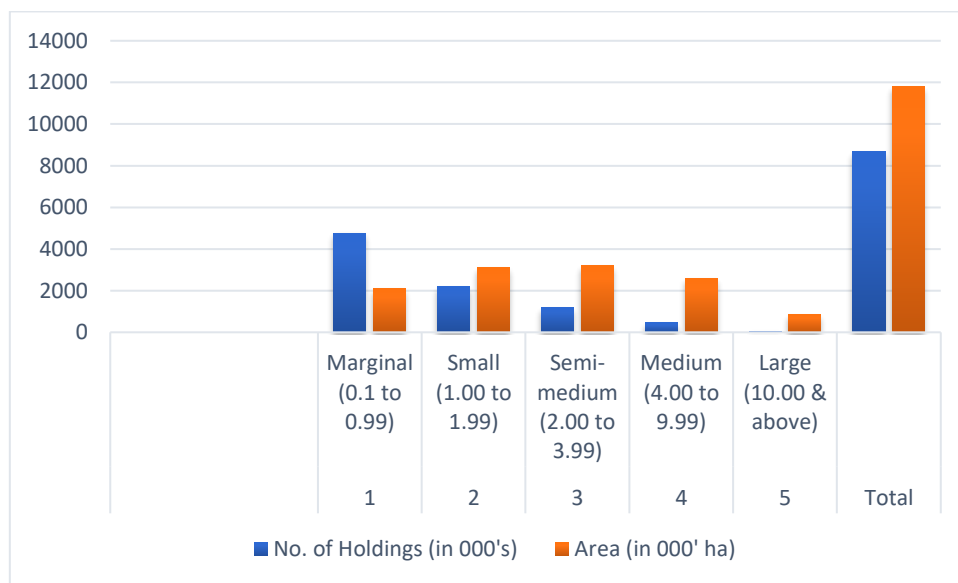
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8. Data analysis and Results

| Sl No. | farmers | No. of Holdings (in 000's) | Area (in 000' ha) |
|--------|----------------------------|----------------------------|-------------------|
| 1 | Marginal (0.1 to 0.99) | 4767 | 2080 |
| 2 | Small (1.00 to 1.99) | 2214 | 3107 |
| 3 | Semi-medium (2.00 to 3.99) | 1193 | 3188 |
| 4 | Medium (4.00 to 9.99) | 451 | 2569 |
| 5 | Large (10.00 & above) | 56 | 861 |
| Total | | 8690 | 11805 |

Source: Govt of Karnataka Agriculture Census 2015-16.



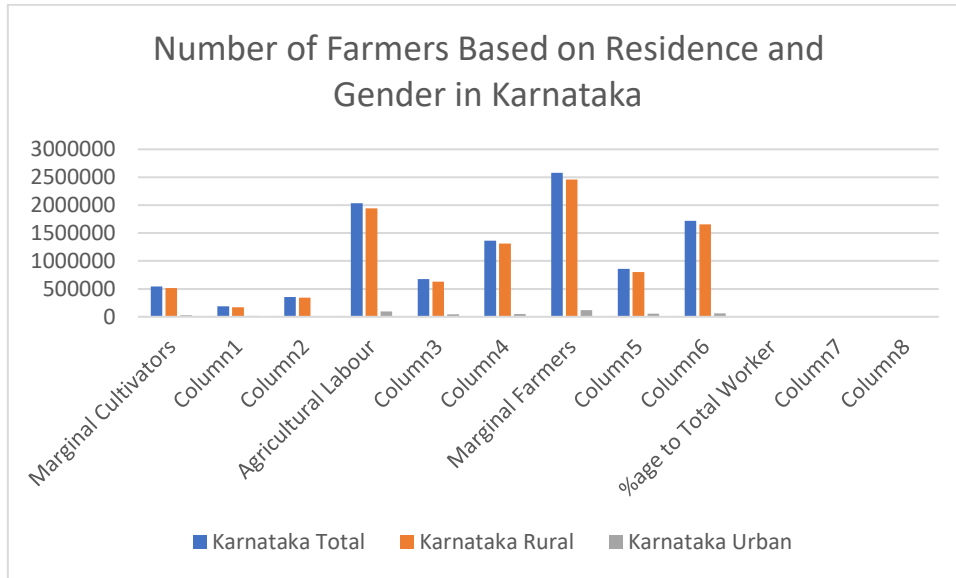
Source: India stat census 2011.

For social farmers that are wholly owned and self-operating, the average operational holding size is 1.36 hectares. It was discovered that major farmers owned an average of 15.45 hectares of operational holdings. Nonetheless, the average area of the smallest number of farmers who own the maximum number of operational properties is 0.44 hectares. With an average area of 5.69 hectares, middle farmers come in second, followed by semi-medium farmers (2.67 hectares) and small farmers (1.40 hectares).

| State | Residence | Cultivators | Column | | Agricultural Labour | Column | | Marginal Farmers | Column | | %age to Total Worker | Column | |
|-------|-----------|-------------|--------|--------|---------------------|--------|--------|------------------|--------|--------|----------------------|--------|--------|
| | | | n1 | n2 | | n3 | n4 | | n5 | n6 | | n7 | n8 |
| | | Person | Male | Female | Person | Male | Female | Person | Male | Female | Person | Male | Female |
| Kar | | | | | | | 136 | | | 171 | | | |
| nata | Tot | 542 | 185 | 357 | | 674 | 186 | 257838 | 859 | 899 | | 4.7 | 17. |
| ka | al | 340 | 203 | 137 | 2036042 | 181 | 1 | 2 | 384 | 8 | 9.25 | 0 | 90 |

| | | | | | | | | | | | | | |
|------|-----|-----|-----|-----|---------|-----|-----|--------|--------|-----|-----|-------|-----|
| Kar | | | | | | | 130 | | | | | | |
| nata | Rur | 516 | 171 | 345 | | | 631 | 999 | 245767 | 802 | 802 | | 7.0 |
| ka | al | 228 | 064 | 164 | 1941450 | 459 | 1 | | 8 | 523 | 523 | 13.28 | 9 |
| Kar | | | | | | | | | | | | | |
| nata | Urb | 261 | 141 | 119 | | | 427 | 518 | | 568 | 638 | | 0.8 |
| ka | an | 12 | 39 | 73 | 94592 | 22 | 70 | 120704 | 61 | 43 | | 1.29 | 2 |
| | | | | | | | | | | | | | 5 |

Source: According to the 2011 census.



In the state of Karnataka, there are 542340 male cultivators, 185203 female 357137, and 2036042 male 674181 female 1361861. Next, there are 2578382 male 859384 female 1718998 marginal farmers, and the total percentage of people is 9.25% male 4.70% female 17.90%. The total percentage of people in Karnataka is 13.28% male 7.09% female 23.02%. Agricultural labourers make up 1941450 male 631459 female 1309991, while marginal farmers make up 2457678 male 802523 female 802523. In Karnataka, there are 26112 male marginal cultivators, 14139 female 11973, and 94592 male 42722 female 51870 agricultural labourers. There are also 120704 male marginal cultivators, 56861 female 63843, and the total percentage of people is 1.29% male 0.82% female 2.65%.

9. Conclusion

According to the present analysis, there is less precipitation, more warmth, and more individuals who are, Issues Comparable to This is among the most dangerous flood-related problems, especially considering the current drought. Food security is at risk because agricultural land is disappearing due to a lack of precipitation. The water's edge Farmers and the green cover have been impacted by soil erosion on the river, excessive groundwater extraction, and harvesting structures. Sources with variety Dietary modifications are habits; the lack of whole grains, legumes, and millets compromises their food security and often results in illness and lowered immunity.

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