

CLIMATE CHANGE- IMPACT ON CROP PRODUCTIVITY: A CASESTUDY OF KAMAREDDY DIVISION

ABSTRACT:

Climate change is projected to have a significant impact on temperature and precipitation profiles, which in turn poses a major challenge for global food security via, changes in population growth, income dealing out, nutrient choice, disease tendency, expanded trade for land water resources for urban development and rates of improvement in agricultural productivity. The responsiveness of yields will depend partly on the crops themselves, including any genetic improvements made to reduce sensitivity to temperature or improve responsiveness to CO₂, as well as flexible administration adjustment by farmers in selecting what, when, where, and how to grow their crops. The profit of wheat and soybeans could increase by 30% or more under a doubling of CO₂ concentrations whereas, maize presentation a much smaller response (less than 10% increase). Still, a few aspects be allowed prevent these possible increases in yield. Example if temperature is superior to a crop's optimum level or if adequate water and nutrients are not available, yield increases may be reduced or inverted. An increase of 2 degrees centigrade over normal during flowering will reduce the yield of wheat by 15-20%. An increase in 1 degree centigrade at night can reduce the yield of rice by 10%. India's average temperature is supposed to rise by at least 1 degree centigrade by 2050.

Keywords: Climate, Climate Change, Crop Production, Kamareddy Division.

INTRODUCTION:

Climate change is projected to have a significant impact on temperature and precipitation profiles, which in turn poses a major challenge for global food security via, changes in population growth, income dealing out, nutrient choice, disease tendency, expanded trade for land water resources for urban development and rates of improvement in agricultural productivity. Agriculture in India is prime occupation. National progress is vitally linked with increasing production of crops. A major factor influencing growth, sustense and yield of crops is climate. In fact, climate is significant in nearly every phase of agricultural activity from the preparatory tillage to harvesting and storage. Successful farming, therefore, calls for appropriate decisions in relation to climate for choice of crops, sowing, transplanting, scheduling of irrigation, fertilizer application, use of pesticides; etc. Every climate sequence favourable or adverse has its impact on the growth and development of the plant. The climate as a single factor could be responsible for as much as 50 per cent of variations in yield which occur from year to year, the remaining 50 per cent being due to other factors. The climate influence various plant characters and the yield, correlating the climate factors with the morphological features like the plant height, the number of leaves or branches, the number of flowers and so on does not represent the full story of the plant development. Though plant growth and development are governed by the environmental conditions of the soil and climate, the success or failure of farming is intimately related to the prevailing climate conditions.

Climate assumes significance in nearly every phase of agricultural activity from the preparatory tillage to harvesting and storage.

STUDY AREA:

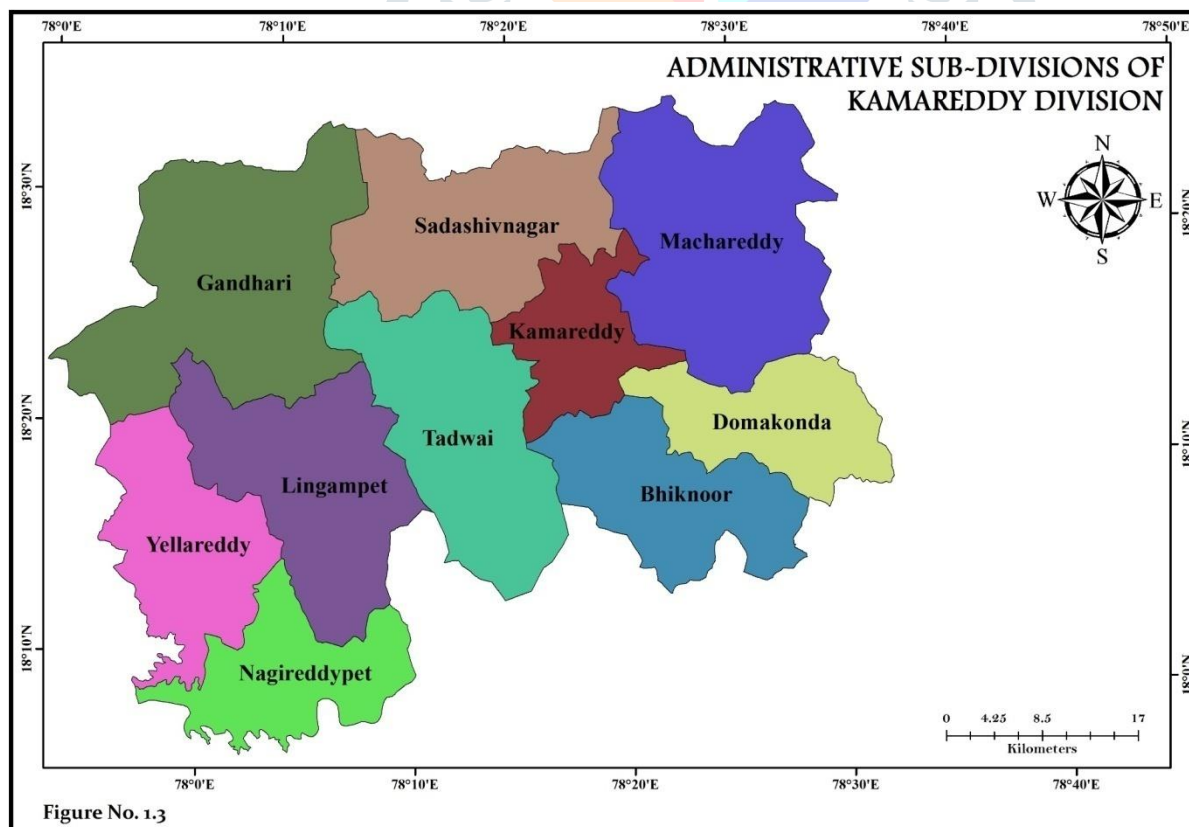
Kamareddy is located at 18.316°N, 78.350°E it covers an area of 3652.00 square kilometres. It is 110 Km northwards from the state capital Hyderabad and 55 Km south from the east while district headquarters of Nizamabad. Population (2011)-972,625, sex ratio is 1000:1036. Literacy-65% and climate is tropical climate. Avg.annual rain fall is 1081mm and avg. Temp 33°C. Division is mainly sandy loams and red chelka soils. Natural slope of the division is from North to South. Kamareddy division occupation is main Agriculture.

SCOPE AND STUDY:

The scope of the study involves preparation of the report on Crop production details of the Kamareddy Revenue division. Using latest possible satellite imageries and studying the topography and the drainage pattern.

LOCTION OF THE PROJECT:

The Kamareddy division is located in Southern part of the Nizamabad District. This division covered in Kamareddy, Sadashiv nagar, Tadwai, Bhiknoor, Gandhari, Lingampet, Yellareddy, Nagireddypet, Domakonda and Machareddy mandals.



OBJECTIVES:

1. To analyse the Climate changes and its impact on crop production of the division.
2. To estimate the impact of climate variability on Paddy, Maize, Wheat & Rabi pulse's production and productivity.

METHODOLOGY:

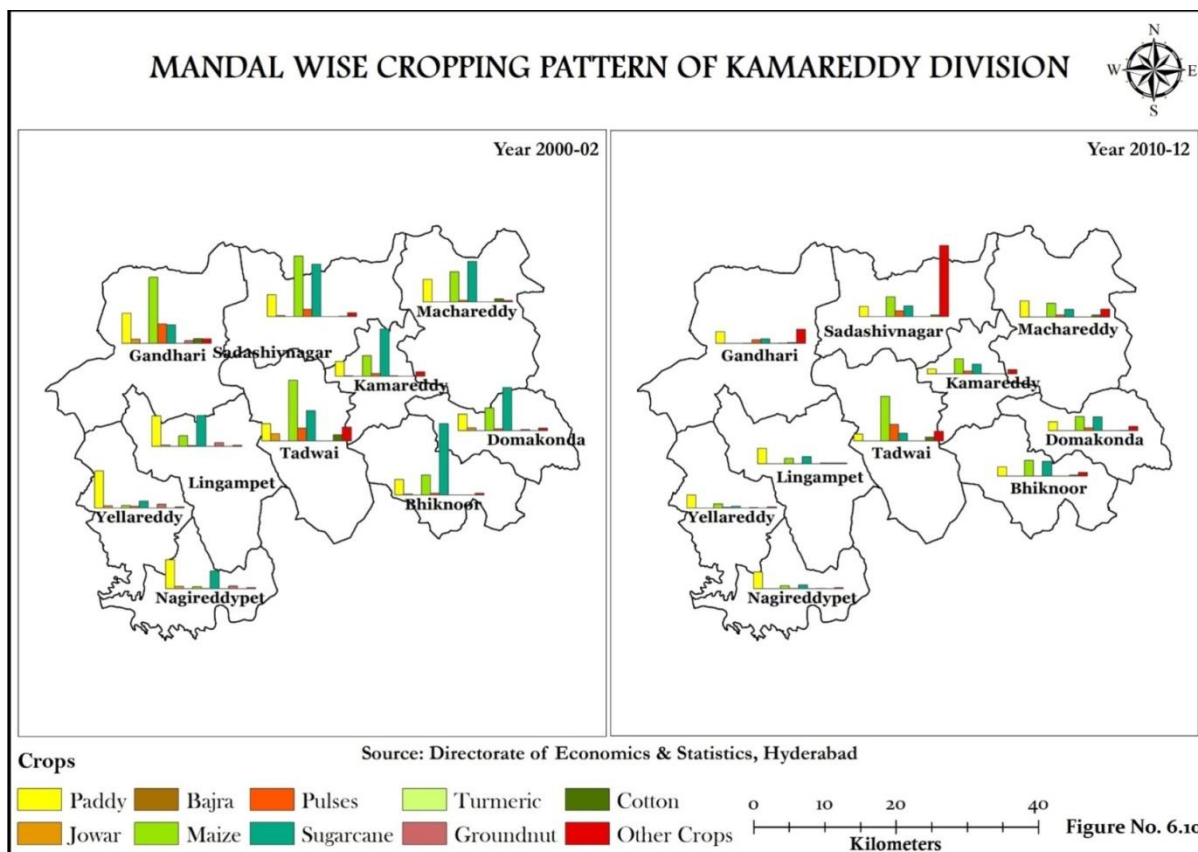
For the present study secondary data have been applied which is published in Agricultural Statistical Abstract of Kamareddy division during 2000-02 and 2010-12. Mandals have selected as an aerial unit. Crops have been considered for the present investigation. Bhatia's Location Quotient Method has been used for the calculation of Crop Production. Whereas, calculated data depicted by Choropleth maps.

CROP PRODUCTION:

Kamareddy division is spread over an area of 63209 ha with nearly 28% of forest cover. While gross cropped area is 75,127 ha, net sown area is 25% of the total geographic area.

Kamareddy Division-Area and Production of Principal Crops**(2000-02 & 2010-12)**

Crops	2000-2002			2010-2012		
	Area('000Hects)	Production ('000 Tonnes)	Yield (kgs/Hect)	Area('000Hects)	Production ('000 Tonnes)	Yield (kgs/Hect)
Paddy	190026	679605	3576	121270	389058	3208
Maize	68072	341963	5024	75128	253259	3371
Sugarcane	9409	88840	9442	9778	90231	9228
Turmeric	2365	6181	2613	2050	5274	2018
Jowar	5961	7059	1184	10147	9868	973
Bajra	7026	4454	634	7950	3848	484
Groundnut	2878	6394	2222	2550	3697	1450
Pulses	28416	70415	2478	26415	47547	1800
Cotton	11832	88740	7500	15121	114831	7594
Wheat	1304	1777	1363	1679	1828	1089



CONCLUSION:

Out of the total cropped area of 1, 07,554 hectares in the Kamareddy Division during 2000-02, where it is 75,707 hectares in 2010-12. The important crops of this Division are Paddy, Sugarcane, Wheat, Maize, Bajra and pulses. The Crop productivity is decreased to 2000-02 to 2010-12 in Kamareddy division due to climate changes like changes in temperature and precipitation and its impacts.

Climate change, the outcome of the "Global Warming" has now started showing its impacts worldwide. Climate is the primary determinant of agricultural productivity which directly impact on food production across the globe. Agriculture sector is the most sensitive sector to the climate changes because the climate of a region/country determines the nature and characteristics of vegetation and crops. Increase in the mean seasonal temperature can reduce the duration of many crops and hence reduce final yield. Crop production systems are extremely sensitive to climate changes like changes in temperature and precipitation, which may lead to outbreaks of pests and diseases thereby reducing harvest ultimately affecting the crop productivity. The net impact of food security will depend on the exposure to global environmental change and the capacity to cope with and recover from global environmental change. Coping with the impact of climate change on agriculture will require careful management of resources like soil, water and biodiversity. To cope with the impact of climate change on agriculture and crop production, India will need to act at the global, regional, national and local levels.

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