

A Review on “Impact of Climate Change on Crop Yeild in Pune District

Harshad Shendage¹, Sabir Mujawar², Prajwal Madane³, Shivraj Nikam⁴, AmarChipade⁵

^{1, 2, 3, 4} Dept of Civil Engineering

⁵ Asst Prof, Dept of Civil Engineering

^{1, 2, 3, 4, 5} Dr.D.Y.Patil Institute of Technology, Pimpri Pune-18

Abstract- Since the Industrial Revolution, deforestation, agricultural practises, and human emissions of greenhouse gases from the burning of fossil fuels are responsible to global warming and climate change. Higher temperatures, altered rainfall patterns, shifts in the frequency and distribution of meteorological events including droughts, storms, floods, and heat waves, sea level rise, and resulting effects on human and ecological systems are only a few of the observed and projected changes in the climate. One of the biggest environmental problems the world is now experiencing is climate change.

The paper investigates how three important crops and farmer livelihoods in the State of Maharashtra are impacted by climate change. Due to climate change, farmers in Central and Eastern Maharashtra are already facing challenges. The research highlights the existing issues and potential hazards faced by farmers in the state based on an examination of climate data (combining historical climate data analysis and future estimates), farmer interviews, and secondary literature assessments.

The study's findings are meant to enable adaptation plans that would reduce farmer susceptibility to climate change in Pune district of Maharashtra. Determining which mitigation techniques farmers may use will depend on their understanding of the current situation and their awareness of the specific threats the future holds.

Also this study's objective was to discover how accessible soyabeen, and Crops of wheat were severely impacted by local weather patterns. Within each of its major development phases.

Keywords- Vulnerable, Climate, Rainfall, Temperature.

I. INTRODUCTION

Crops are vulnerable to their surroundings. Plants require air, water, and sunshine to thrive on a large scale, but other variables that influence plant growth are far more complex. Sunlight, cloud cover, wind, rainfall, soil moisture,

soil nutrients, dust, atmospheric gas concentrations, humidity, and temperature are abiotic (non-living) factors that affect healthy plant growth. Biologic (living) factors include soil microbial communities, pollinators, agents of seed dispersal, insects, fungi, and animals, including humans. Plants are unable to move, hence they are at the whim of the ecology and climate in which they are found. In current agricultural systems, humans may influence a number of abiotic and biotic elements to encourage high crop yields, but most of them, like temperature and rainfall, are beyond of their control.

The mean annual rainfall of the state is 1363 mm, with a standard deviation of 118.9 mm. The average annual minimum temperature of Maharashtra is 15.05°C and average annual maximum temperature is 30.3°C, with a standard deviation of 0.97°C and 1.25°C respectively.

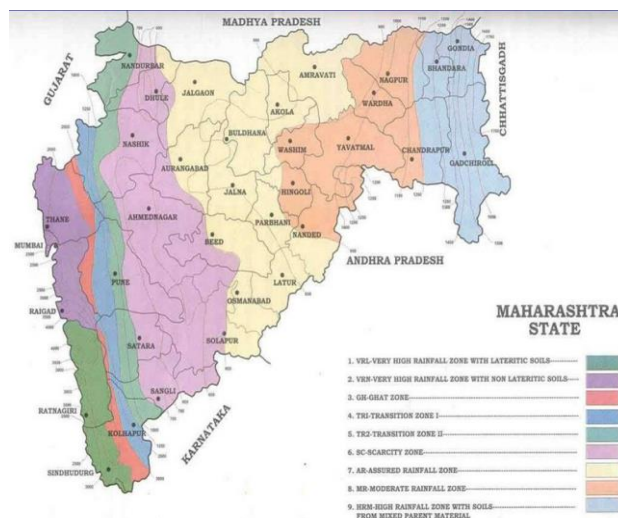


Fig.1 Agro Climatic zones of Maharashtra

II. STUDY AREA

The Pune district is situated between 73°19' and 75°10' East longitude and 17°54' and 10°24' North latitude. The district's total size is 15.642 square kilometres. Pune district is bordered to the north and east by Ahmadnagar district, to the south and east by Solapur district, to the south and south-east by Satara district, to the west and north-west by

Raigad district. It occupies 5.10% of the state's total geographic area and is the second-largest district in the state. The study was carried out in Pune districts of Maharashtra, where the main crops are soyabean, wheat, and gram.

Rainfall in the area is dispersed unevenly due to its physical characteristics. mainly due to its mountainous terrain and forest cover, the district's western portion, which is near to the west coast, has more intense rains than its eastern portions. The southwest monsoon winds, which are responsible for 87% of all rainfall throughout the monsoon months, bring the majority of this rain during the summer. The monsoon season begins in the month of June, with July and August seeing the most rainfall. Velha, Mulshi, and Maval Talukas are located in the area with the highest rainfall intensity. Bhor, Ambegaon, Junnar, Khed, Haveli, Pune City, and Purandar is taluka that lie within the zone of moderate rainfall intensity. Talukas having the least amount of rainfall, the dry.

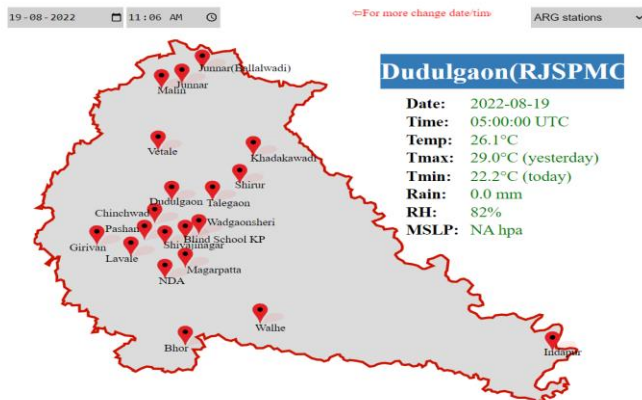
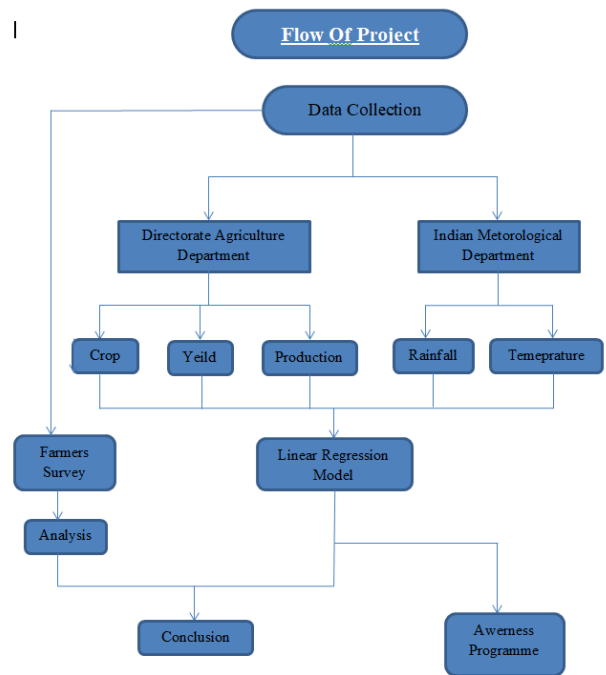


Fig.2 ARG Stations in Pune District

III. METHODOLOGY

The results of a climate study, a review of the literature on how climate change affects crop phenology, and interviews with farmers on existing adaptation strategies were all coupled to provide a comprehensive picture of how vulnerable the agriculture industry in Maharashtra is.



IV. EXPECTED OUTCOME

Prediction of climate for the next five years using a linear regression model. Analysing climate change parameters such as temperature and rainfall. Providing a set of guidelines for farmers against climate change.

REFERENCES

- [1] Sourabh Kelkar, Ashwini Kulkarni, Koteswararo Kundeti, "Impact of Climate Variability and Change on Crop Production in Maharashtra, India" Current science, vol. 118, no. 8, 25 april 2020
- [2] Chaiti Bhagawat and Divya Nazareth "Climate Change Impact on Maharashtra". The IUP Journal of Environmental Sciences, Vol. VI, No. 1, 2012.
- [3] Kishor Bharat Shinde And Parag Khadake, The Study of Influence of Rainfall on Crop Production in Maharashtra State of India
- [4] Muniyandi Balasubramanian, "Climate Change and its Impact on India". The IUP Journal of Environmental Sciences, Vol. VI, No. 1, 2012.
- [5] Rajesh Kumar Mall, Akkhilesh Gupta, Ranjeet Singh, Govindarajalu Shirinivasan- "Impact of climate change on Indian Agriculture, A review".
- [6] Komal Khandar, G.R. Bamnote, S.G. Pundkar- "Review Paper on Crop Yeild Recommendations", ISSN: 2321-9653; Volume 10 Issue II Feb 20