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IMPACT OF ERRATIC RAINFALL ON THE LIVELIHOOD OF FARMERS IN MARATHWADA REGION

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Abstract:

The Marathwada Region of Maharashtra is semi-arid region which impact the livelihood of farmers. The extent and consequences of irregular rainfall patterns on agricultural productivity and socio-economic condition of farmers in the region these all examined by the study. By using rainfall data, crop production data and their analysis this study identifies key challenges faced by farmers including crop failure, water scarcity and financial distress. There is a need for robust climate resilient policies, improved water management strategies and drought resistance crops. The research contributes to the discourse on climate change and agricultural sustainability, offering policy recommendations to enhance the resilience of farmers in Marathwada Region.

Introduction:

In the management of water resource and ecological stability rainfall plays a crucial role in agriculture productivity. In region agriculture dependent on monsoon. Monsoon's erratic rainfall patterns have become a significant challenge and also particularly in semi-arid regions. Volatile variations in intensity, timing, prolonged dry spells, unseasonal showers these are some characteristics of erratic rainfall. Deforestation, climate change and anthropogenetic activities these are some reasons for such irregularities in rainfall pattern which disturb natural weather system. Affecting crop yields, groundwater recharge, droughts, soil moisture availability, floods these all the threatening food security, rural livelihoods and overall economic stability. For the welfare of humankind, developing effective risk management strategies in agriculture, enhancing climate resilience and improving water conservation techniques understanding of erratic rainfall patterns and their impact is crucial.

Study Area:

Marathwada is semi-arid region where there is a deficiency of rainfall many times in seasons. Marathwada region coincides with the Chhatrapati Sambhaji Nagar Division of Maharashtra. 64590 square kilometres is geographical area of Marathwada Region and 1.87 crore is a population of region as per the census 2011. In the past, Marathwada Region faced several droughts these droughts were occurred in the years 1899, 1918, 1972, 2012 and 2015. Now in a drought there is a question for drinking water more important but in 1972 there was food and fodder these were main concerns. In Marathwada Region Aurangabad and Jalna districts these two districts have more industry as compared to other six districts in region and other districts in the region have little industry which is concentrated towards agricultural products in the region. In Marathwada Region there is a main occupation for the livelihood of people is agriculture. In the region Godavari River is a main river in Marathwada has tributaries are Purana, Sindhphana,

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Bindusara, Manzara, Dudhana etc and Godavari River, also known as South Ganga and have many large- and small-scale irrigation projects. The latitudinal degree of Marathwada is 17°37' North and 20°39' North although longitudinal extent is 74°33' East and 78°22' East longitudes. Because of consistent history of droughts in Marathwada Region life of farmers in the region becomes pitiable.

Map of Marathwada Region:

(Source: Census of India (2011))

Research Methodology:

Researcher has used descriptive method of the study and also it is depended upon secondary sources of data. In this involved such as rainfall patterns, crop area under cultivation, irrigation patterns and productivity trends these data are collected from government reports and also collecting information from various research articles.

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Objectives:

1) To know the trends and patterns of the rainfall in Marathwada.
2) To study relationship between rainfall and crop production.
3) To suggest policy for farmers welfare.

Rainfall:

Particularly in regions like Marathwada Region rainfall is important influencing factor for crop productivity. Overall agricultural risk, cropping patterns and irrigation requirements these factors are dependent on annual rainfall across different districts. This section represents detail analysis of rainfall in Marathwada Region.

District wise Rainfall in Marathwada Region (2015-16 to 2019-20)

Districts/Years	2015-16	2016-17	2017-18	2018-19	2019-20
Parbhani	340.5	838.1	540.8	497.7	804.1
Beed	407.1	835.1	677.3	635.3	725.3
Latur	413.7	1116	772.8	549.2	758.8
Osmanabad	376.3	836.9	848.2	450.9	672.2
Jalna	458.7	792	678.1	360	852
Aurangabad	518.5	617.2	563.9	360	790
Nanded	1080	1080	635.6	774	1013
Hingoli	572.1	858.9	651.5	670.1	910.1

(Source: Complied District Social and Economic Review Report of all Eight District)

As per the table rainfall in all districts fluctuate highly in years 2015-16 to 2019-2020. In Latur district 1116 mm rainfall was recorded in 2016-17 which was the highest in Marathwada Region and lowest rainfall was recorded in Parbhani district which was 340.5 mm in 2015-16. As per the information given in the table 2015-16 this year was the drought year for the most of the districts in the region with the highest rainfall was recorded in Nanded district which was 1080 mm and lowest in Parbhani District. In year 2016-17 there was improvement in rainfall in Marathwada Region across all districts and highest rainfall recorded in Latur district 1116 mm. Moderate rainfall was received in 2017-18 with highest rainfall received in Osmanabad and Latur districts. For the rainfall, 2019 20 year was a deficit year in Marathwada Region with lowest rainfall in Jalna and Aurangabad districts. For the agriculture in year 2019-20 good rainfall received in most of the district where highest rainfall received in Hingoli and Nanded districts. These all the data show that in

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Marathwada Region agriculture was facing problem of erratic rainfall of monsoon.

Crop Production: Data in the table-2 provides overview of production of four major crops categories cereals, pulses, cotton and sugarcane in Marathwada Region, across all districts from 2015-16 to 2019-20.

Table- 2

Crop Production of Various Crops in Marathwada Region (2015-16 to 2019-20)

(Ottum in '00' tonnes)

Crop	District	2015-16	2016-17	2017-18	2018-19	2019-20
Cereals	Parbhani	579	3,117	1,180	913	1,663
	Beed	1,379	5,044	4,330	518	1,790
	Latur	627	2,285	1,114	827	939
	Osmanabad	510	1,570	1,776	1,139	1,779
	Jalna	1,046	4,066	2,522	1,034	3,330
	Aurangabad	3,383	5,625	3,599	1384	3,182
	Nanded	629	1,762	1,546	1,276	1,117
	Hingoli	440	873	806	571	718
Pulses	Parbhani	211	1,555	1,586	735	1,182
	Beed	315	1,992	1,525	509	1,117
	Latur	533	6,040	2,873	1,449	3,461
	Osmanabad	273	1,358	1,845	777	2,219
	Jalna	254	1,845	926	396	1,236
	Aurangabad	306	1,517	1,161	367	980
	Nanded	424	2,791	2,442	2,542	2,984
	Hingoli	464	1,831	1,699	1,153	1,587
Cotton	Parbhani	1,077	7,684	3,676	3,273	2,972
	Beed	1,010	4,769	2,778	1,352	3,764
	Latur	16	118	117	50	96
	Osmanabad	68	211	80	83	130
	Jalna	1,491	6,988	1,746	3,473	7,712
	Aurangabad	2,713	9,923	4,152	3,743	6,119
	Nanded	2,406	6,354	3,117	3,649	2,585
	Hingoli	465	1,574	1,342	1,637	1,180
Sugarcane	Parbhani	7,636	5,786	13,750	19,194	10,327
	Beed	7,976	4,959	20,729	17,651	12,410
	Latur	12,479	5,093	24,400	37,741	20,327
	Osmanabad	6,137	4,279	15,750	28,392	16,219
	Jalna	13,341	6,116	14,174	20,016	14,902
	Aurangabad	5,707	8,731	11,729	13,277	7,413
	Nanded	5,295	8,604	14,950	7,457	19,661
	Hingoli	4,628	3,127	6,650	7,840	4,011

Note: - (1) Yield of Sugarcane is in hundred Metric Tonnes per ha.

(2) Production of Cotton is in hundred bales of 170 kg. Each.

(Source: Statistical Abstracts of Maharashtra State)

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With noticeable variations year on year cereals production demonstrate fluctuating trends across all districts in the region. In the year 2016-17 and 2019-20 Beed and Aurangabad districts recorded the highest production of cereals among all the districts and in Hingoli district there was a lowest production of cereals occurred through the study period. In the year 2018-19 most of the districts in the region could be attributed to decline in production of cereals. There is significant increase in production of cereals in year 2019-20 particularly in Jalna and Beed because of improved monsoon season. Dependency on rainfall and limited irrigation facilities production of pulses had also experience high variability. In Year 2016-17 and 2017-18 Latur district showed high growth in production of pulses and Nanded district shows a consistent upward trend in production of pulses. There is more stable production of pulses in Hingoli, Parbhani and Jalna districts. In Year 2018-19 there is a lower production of pulses because of drought effect. Production of cotton is dependent on monsoon and pest control. In 2016-17 Aurangabad, Beed and Jalna districts recorded the highest production of cotton. Parbhani district also shows the good production of cotton and Latur and Osmanabad districts had lower production of cotton throughout the study period. The decline of production in cotton in year 2018-19 across all the districts. Sugarcane is water intensive crop as per the influence by water availability this crop shows major fluctuations. Latur district shows the highest production of sugarcane in 2018-19 and followed by Osmanabad and Beed districts and lower production of sugarcane was shown in Hingoli district across all the years. The decline in production of the sugarcane in year 2019-20 in most of the districts in Marathwada Region.

Conclusion:

From above discussion it is conclude that the reduced yields, crop failure and increased dependency on groundwater irrigation these are the unpredictable monsoon traits which are clearly shown in analysis. As per the analysis it was clearly indicated that in which year precipitation is below normal there is a lower production of crops. In case sugarcane this effect is seen in next year of drought because sugarcane needed one year for harvesting from plantation. In Marathwada Region farmers are in indebtedness, socioeconomic distress and their migration because of drought and poor irrigation facilities that reduce production of agriculture. There is urgent need for climate resilient agricultural practise because of the fluctuations in crop production of cereals, pulses, cotton and sugarcane, etc. The lack of adequate irrigation infrastructure, poor risk management strategies and reliance on rainfed farming these are the main reasons for the fluctuations in agricultural production. In Marathwada region, there is a need of watershed development programmes and promotion of micro irrigation techniques. To reduce reliance on groundwater irrigation there is a need of improvement in canal and dam project for irrigation. To minimise the risk of crop failure there is a need to encourage drought resistant crop varieties and crop diversification.

References:

1) **Gore, P. G., & Pawar, B. T. (2023).** Climate change impacts on Marathwada agriculture: A study on rainfall variability and crop productivity. *International Journal of Novel Research and Development*, *8*(6), 223-230. https://www.ijnrd.org/papers/IJNRD2306223.pdf
2) **Kale, A., & Ingle, S. (2022).** Rainfall distribution and trends over the semi-arid Marathwada region. *Arabian Journal of Geosciences*, *15*(3), 11006. https://doi.org/10.1007/s12517-022-11006-4
3) **Shinde, R., & Jadhav, A. (2021).** Understanding the agrarian distress in Marathwada: Role of climate change and policy interventions. *Economic & Political Weekly*, *56*(32), 41-50.

ISSN–2278-5655

AMIERJ Aarhat Multidisciplinary International Education Research Journal

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OPEN ACCESS Original Research Article

4) **Nath, A., & Deshmukh, M. (2020).** Water crisis in Marathwada: The impact of erratic monsoons on agricultural sustainability. *Environmental Research Journal*, *14*(2), 78-94.

5) District Statistical Office, (2020) District Socio Economic Review (2015-16 to 2019-20) Districts of Parbhani, Beed, Latur, Osmanabad, Jalna, Aurangabad, Nanded, and Hingoli, Directorate of Economics and Statistics, Planning Department, Government of Maharashtra.

6) Directorate of Economics and Statistics, Government of Maharashtra. Statistical Abstract of Maharashtra State 2015-16 to 2019-20. Government of Maharashtra.

7) **Patil, A., & More, S. (2019).** Effect of drought on livelihood and migration patterns of farmers in Marathwada, Maharashtra. *Indian Journal of Agricultural Economics*, *74*(3), 512-527.

8) Anjum, Shabana & Madhulika, (2018). "Growth and instability analysis in Indian agriculture" International Journal of Multidisciplinary Research and Development Volume 5; Issue 11; pp. 119-125.

9) Patil A.K. (2018). "Present Status of Agriculture in Maharashtra, India" International Journal in Management and Social Science Volume 6 Issue 07, pp 308-317.

10) Fadina, Roland & Barjolle, Dominique. (2018). Farmers' Adaptation Strategies to Climate Change and Their Implications in the Zou Department of South Benin. Environments. 2018. 17. 10.3390/environments5010015.

11) Kulkarni, Ashwini & Gadgil, Sulochana & Patwardhan, Savita. (2016). "Monsoon Variability, the 2015 Marathwada Drought and Rainfed Agriculture" Current Science. 111. 1182-1193. 10.18520/cs/v111/i7/1182-1193.

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