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Regional Geographical Disparities in Satara District, Maharashtra

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Abstract

Geographical regional disparities play an important role in the development of Satara district in the state of Maharashtra. Geographical disparity is evident in terms of rainfall, landform, water resources, agricultural activities and other livelihood aspects. This study analyses the impact of regional disparities based on primary data gathered from 45 respondents, where the 15 respondents are from Western, Central and Eastern regions. The information was gathered using a structured questionnaire, and data analysis was done through the use of frequencies and percentages. From the results, there is evidence of disparity between the regions, especially rainfall, water resources, irrigation and drought situation.

Keywords: *Regional Disparities, Geography, Rainfall, Agriculture, Water Resources.*

Introduction

Geographical conditions have an important role in the development of a region. Factors like rainfall, topography, soil, water resources, climate, and availability of land for agriculture affect economic activity and quality of life of the people. Satara district is one of the important districts in western Maharashtra. There is a lot of geographical diversity in this district. While the western part of this district comprises the Sahyadri mountain ranges and experiences more rainfall, the eastern part of the district is relatively dry. Differences in geographical conditions lead to variations in agricultural practices, availability of water, and irrigation. Regional geographical disparities mean differences in physical and economic conditions of various geographical regions. The present study focuses on the perceptions and experiences of 45 respondents from different geographical regions of Satara district. Primary data have been used to understand how people perceive differences in rainfall, water resources, agriculture and development.

Statement of the Problem

The Satara district contains significant geographical diversity. There are areas which experience heavy precipitation whereas there are others which suffer from water shortage and drought conditions. Such diversity may affect agricultural practices and socio-economic development. Hence, the current research tries to solve the problem statement as follows: "To what extent does geographical diversity affect agriculture and regional development in the Satara district?"

Objectives of the Study

1. To study the geographical disparities in Satara district.
2. To examine regional differences in rainfall and the availability of water resources.
3. To study the impact of geographical conditions on agriculture.

Research Questions

1. Do geographical conditions differ significantly between different parts of Satara district?
2. Does rainfall variation affect agricultural activities?
3. Is water scarcity a major problem in some regions?
4. Do irrigation facilities differ between geographical regions?
5. Does geography influence agricultural productivity?
6. What are the major geographical problems faced by respondents?
7. What measures can reduce regional geographical disparities?

Hypotheses

$H_0 1$

There is no significant relationship between geographical conditions and agricultural development in Satara district.

$H_1 1$

There is a significant relationship between geographical conditions and agricultural development in Satara district.

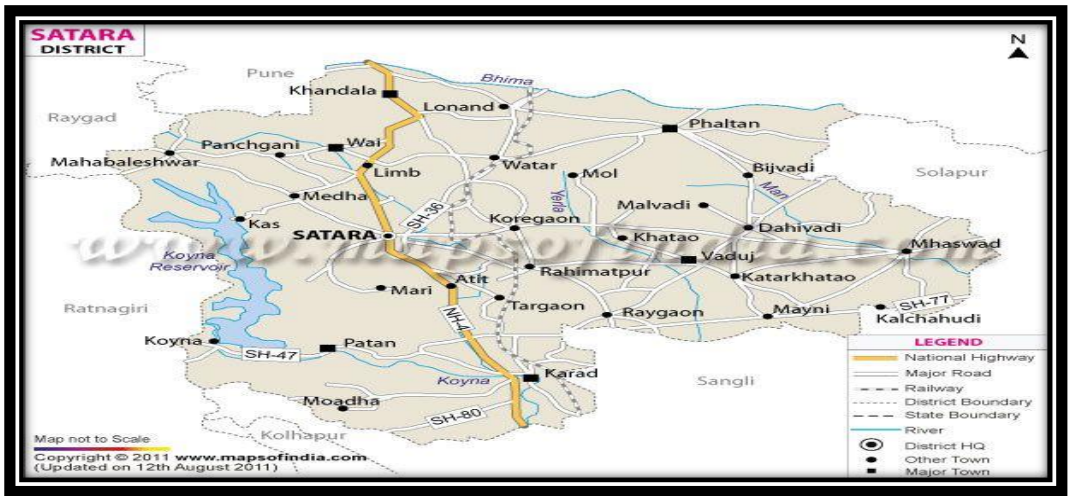
Research Methodology

1 Research Design

The present study is designed based on the descriptive and analytical research methodology to study regional geographical disparity in Satara district of Maharashtra state. Descriptive methodology is used in the study to learn about the geographical, agricultural, and socio-economic situations of various regions of the district. On the other hand, the analytical methodology will be used for the comparison of situations and to find out the main reasons for regional disparity.

2 Study Area

The research has been done in the district of Satara, located in the state of Maharashtra. The district of Satara has great geographical variation with respect to the region's topography with the western region being mountainous and getting heavy rainfall, whereas the eastern part of the district does not receive much rainfall. In order to collect primary data and compare regions, we have divided the area chosen for our study into three major regions, which are Western Satara, Central Satara and Eastern Satara.



3 Population of the Study

The population of the study comprises mostly farmers and people residing in villages from selected regions of the district of Satara. These respondents are deemed to be suitable because they are familiar with the local rains, water, irrigation, agricultural practices, and geographic issues in their respective regions. The responses of these people can serve as primary data on regional geographic disparities.

4 Sample Size

The sample size of forty-five respondents was proposed to be used for the study purposes in terms of data collection. In order to ensure representation of different geographical locations, the sample was equally split into three selected geographical locations. Thus, fifteen respondents each were selected from the Western Region, Central Region, and Eastern Region. Such an equal distribution of the respondents allows conducting a comparison of the geographical conditions of all three regions.

5. Sampling Technique

This research employs a stratified purposive sampling approach. Three broad geographical zones of the district have been identified based on differences in physical and climatic features. Respondents were then chosen from each of these zones using purposive sampling. This method has been employed in order to ensure that the respondents chosen for the primary survey belonged to different geographical areas. Despite being unrepresentative of the whole district, the sample will help compare these different areas.

6 Sources of Data

The data collection for the study is done using primary and secondary sources. The primary source of data collection will be direct data collected from respondents using a pre-designed questionnaire and face-to-face interviews. The questions in the questionnaire would focus on rainfall, availability of water, irrigation, agriculture, drought, geographical challenges and regional development. The secondary source of data will be gathered from Census of India reports, District Administration of Satara, Government of Maharashtra, Ground Water Surveys & Development Agency, Department of Agriculture, India Meteorological Department and others.

The secondary data was obtained from government records, census reports, and authentic institutional records. The data pertaining to rainfall, population, agriculture, irrigation, and socioeconomic conditions of the Satara district helped in explaining the findings of the primary research conducted.

7. Sampling Method

A stratified purposive sampling method is proposed to ensure representation of different geographical regions.

Table: 1
Sample Selection

Region	Selected Areas	Respondents
Western Region	Mahabaleshwar, Jaoli, Patan	15
Central Region	Satara, Wai, Karad	15
Eastern Region	Man, Khatav, Phaltan	15
Total		**45**

The table shown above highlights the distribution of the respondents chosen for the study in terms of the regions. There is an even distribution of the chosen sample among the three regions of Satara district. The Western region, which includes Mahabaleshwar, Jaoli, and Patan, has 15 respondents (33.33%). The Central region, which includes Satara, Wai, and Karad, also has 15 respondents (33.33%). Likewise, the Eastern region, which includes Man, Khatav, and Phaltan, has 15 respondents (33.33%).

Data Analysis and Interpretations

The primary data collected from 45 respondents are classified, tabulated and analyzed using frequency and percentage techniques. Percentage analysis is particularly useful for presenting respondents' opinions in a simple and understandable manner. Comparative tables are prepared to examine differences between the Western, Central and Eastern regions. Graphs and charts may also be used to present the results visually. Where sufficient numerical data are available, correlation or other statistical techniques can be applied to examine relationships between

Table: 2
Comprehensive Analysis of Regional Geographical Disparities in Satara District

Sr. No.	Indicator / Variable	Response / Category	Respondents	Percentage
1	**Gender**	Male	31	68.89%
		Female	14	31.11%
2	**Age**	Below 25 years	5	11.11%
		25–35 years	13	28.89%
		36–45 years	14	31.11%
		46–55 years	8	17.78%
		Above 55 years	5	11.11%
3	**Region**	Western	15	33.33%
		Central	15	33.33%
		Eastern	15	33.33%
4	**Geographical Differences**	Yes	37	82.22%
		No	5	11.11%
		Can't Say	3	6.67%
5	**Rainfall Variation**	Yes	39	86.67%
		No	4	8.89%
		Can't Say	2	4.44%
6	**Rainfall Impact on Agriculture**	Strongly Agree	20	44.44%
		Agree	16	35.56%
		Neutral	4	8.89%
		Disagree	3	6.67%
		Strongly Disagree	2	4.44%
7	**Water Availability**	Adequate	14	31.11%
		Partially Adequate	16	35.56%
		Inadequate	15	33.33%
8	**Irrigation Facilities**	Adequate	17	37.78%
		Partially Adequate	15	33.33%
		Inadequate	13	28.89%
9	**Impact of Geographical Conditions on Agriculture**	Very High	18	40.00%
		High	16	35.56%
		Moderate	7	15.56%
		Low	3	6.67%
		Very Low	1	2.22%
10	**Drought Experience**	Frequently	13	28.89%
		Sometimes	17	37.78%
		Rarely	9	20.00%
		Never	6	13.33%

11	**Major Geographical Problem**	Water Scarcity	16	35.56%
		Drought	11	24.44%
		Rainfall Uncertainty	8	17.78%
		Soil Problems	5	11.11%
		Excess Rainfall/Runoff	3	6.67%
		Other	2	4.44%
12	**Effect of Water on Agricultural Production**	Very High	16	35.56%
		High	15	33.33%
		Moderate	8	17.78%
		Low	4	8.89%
		No Effect	2	4.44%
13	**Regional Development Differences**	Very Significant	17	37.78%
		Significant	18	40.00%
		Moderate	7	15.56%
		Low	2	4.44%
		Very Low	1	2.22%
14	**Alternative Livelihood Opportunities**	Adequate	12	26.67%
		Partially Adequate	18	40.00%
		Inadequate	15	33.33%
15	**Infrastructure Differences**	Significant Difference	28	62.22%
		Some Difference	12	26.67%
		No Significant Difference	3	6.67%
		Can't Say	2	4.44%
16	**Government Intervention**	Yes	40	88.89%
		No	3	6.67%
		Can't Say	2	4.44%
17	**Water Conservation**	Selected as Important Measure	14	31.11%
18	**Irrigation Development**	Selected as Important Measure	10	22.22%
19	**Crop Diversification**	Selected as Important Measure	7	15.56%
20	**Region-Specific Development Planning**	Strongly Agree	22	48.89%
		Agree	15	33.33%
		Neutral	4	8.89%
		Disagree	3	6.67%
		Strongly Disagree	1	2.22%

Source: Primary Data collected by the researcher from 45 respondents.

The comprehensive analysis of the primary data collected from **45 respondents** provides a clear understanding of the regional geographical disparities existing in Satara district of Maharashtra. These respondents were equally divided among Western, Central and Eastern regions with 15 respondents each in these regions, providing an equal basis of comparison among these regions. The demographic information reveals that male respondents comprised 68.89%, whereas female respondents comprised 31.11%. The largest age group was 36 to 45 years old with a percentage of 31.11%. The results of this survey reveal that geographic inequalities are an important factor in Satara district. As many as 82.22% of respondents have said that there is a lot of geographic variation within different areas of the district. This reveals that the geography of Satara is not homogeneous.

The variation in rainfall has been found to be one of the most crucial geographical factors. 86.67% of the respondents reported that there is great variation in rainfall within the regions of the Satara district. Such variations directly affect agricultural activities. 80% of the respondents agreed that rainfall variations have a significant impact on agriculture. In the same manner, 75.56% of the respondents reported that the geographical conditions have a high or very high impact on agricultural activities.

Water availability has been found to be another important factor causing regional disparities. 31.11% of the respondents found water availability sufficient, while 35.56% of the respondents felt it to be partially sufficient, and 33.33% of the respondents found it insufficient. Therefore, 68.89% of the respondents found water availability either partially sufficient or insufficient. The irrigation facilities have also been found to vary, where 37.78% of the respondents have found irrigation facilities sufficient. Drought is another geographical problem faced in Satara

district. According to the survey, 28.89% of respondents face drought conditions frequently and 37.78% of the respondents sometimes. Thus, nearly 66.67% of respondents face drought conditions frequently or sometimes. This geographical problem is significant especially in the relatively arid east parts of the district where rainfall and water scarcity become a problem.

Out of all the geographical problems mentioned by the respondents, scarcity of water came out as the first problem, followed by drought and rainfall scarcity. Water scarcity was reported by 35.56% of the respondents, drought by 24.44% and rainfall scarcity by 17.78%. Soil problem was reported by 11.11% of the respondents and excess rainfall and runoff by 6.67% respectively. The above regional comparison shows further proof of geographical variability. Respondents from the Eastern Region were of higher concern about issues like water scarcity and droughts while respondents from the Western Region viewed excess rainwater and runoff as the issue. The Central Region had an intermediate pattern. It means that the challenges that people face in terms of geography are region-specific and that the development strategies might not work for all the regions in the district.

The research also proves the presence of disparities in development potential. For example, 77.78% of respondents viewed regional development disparities as significant or very significant. At the same time, 62.22% of respondents noted the presence of significant disparities between infrastructure development in various regions. Opportunities for alternative livelihoods were also found to be inadequate. Government intervention was stressed by the respondents in a significant manner. 88.89% of the respondents said that government intervention is required to overcome the disparities in the geography of the region. Water conservation stood first (31.11%), while irrigation development stood second (22.22%), and crop diversification came third (15.56%) among the proposed interventions. In all, from the primary survey findings, it appears that the regional geographical disparities in the Satara district have a strong link to rainfall, water, irrigation, drought, and agriculture. While the Western Region is faced with the problem of heavy rainfall, runoff and topography, the Eastern Region is more challenged with the problems of water shortage and drought. Thus, the results have clearly emphasized the need to adopt region-specific development planning policies. Rather than applying a generalized approach, the development policies should take into consideration the physical and geographical features of each region. High rainfall regions should emphasize water storage and prevent any runoff, whereas low rainfall regions should be given more emphasis through development of irrigation facilities and other such strategies. 82.22% of the respondents agree with the need for region-specific development planning. Thus, the study has clearly indicated the fact that geographical diversity is an important criterion which plays an important role in determining the development process in Satara district. Effective management of water resources, irrigation facility development, crop diversification, rural infrastructure development and other region-specific government schemes can make a lot of difference in reducing geographical disparities.

Major Findings

1. Existence of Geographical Variations: It was observed that 82.22% respondents found significant geographical variations among the western, central and eastern parts of Satara District.
2. Variation in Rainfall and Its Effects on Agriculture: Almost 86.67% respondents stated that there is variation in rainfall, whereas 80% respondents felt that variation in rainfall effects agriculture activities.
3. Lack of Water and Occurrence of Drought: Lack of water was mentioned as the most important geographical problem by 35.56% respondents, whereas drought was mentioned by 24.44% respondents. About 66.67% respondents found drought occurring frequently or sometimes.
4. Necessity of Government Interventions: Almost 88.89% respondents considered that government intervention is required in order to minimize the regional disparities.

Suggestions

1. Improve Water Conservation: Measures like rain water harvesting, watershed development, and recharging of ground water need to be undertaken, especially in drought prone regions.
2. Upgrade Irrigation Infrastructure: Efficient irrigation facilities like drip irrigation and sprinkler irrigation needs to be expanded and upgraded by the government.
3. Diversification of Agriculture Crops: The farmers must be motivated to plant drought resistant crops and undertake various agricultural activities in accordance with the geography of that area.
4. Region-wise Development Plans: Development plans need to be formulated in keeping with the geographical features of each region, with special emphasis on drought management in east and water conservation and runoff management in west.

Conclusions

`This study of "Regional Geographical Disparities in Satara District" suggests that there are notable geographical disparities between the Western, Central, and Eastern regions of the district. Using primary data obtained from 45 respondents, this research identifies notable disparities in rainfall, water availability, irrigation, drought and agricultural development in these three regions. The Western region of the district experiences more rainfall and water runoff than the other two regions, whereas the Eastern region suffers due to water shortage and drought problems. These geographical differences affect the agricultural practices in these regions. Hence, there is an obvious necessity for the government's involvement and region-based development plans. In order to balance the development in this region, efficient water conservation, proper irrigation system, crop diversity, rural infrastructure, and resource management are crucial.

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Conflicts of interest
The authors declare that there are no conflicts of interest regarding the publication of thesis paper.

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