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Manuscript ID:
IJWGAFES-2026-030206

DOI: [10.5281/zenodo.19591174](https://doi.org/10.5281/zenodo.19591174)

DOI Link:
<https://doi.org/10.5281/zenodo.19591174>

Volume: 3

Issue: 2

February

Year: 2026

E-ISSN: 3066-1552

Submitted: 06 Jan.2026

Revised: 10 Jan.2026

Accepted: 05 Feb 2026

Published: 28 Feb 2026

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How to cite this article:

Walankikikar, A. V. (2026). Socio-Economic Infrastructure as a Determinant of Regional Development: A Tahsil-Level Analysis of Parbhani District, Maharashtra. *International Journal of World Geology, Geography, Agriculture, Forestry and Environment Sciences*, 3(2), 25–28.
<https://doi.org/10.5281/zenodo.19591174>

Socio-Economic Infrastructure as a Determinant of Regional Development: A Tahsil-Level Analysis of Parbhani District, Maharashtra

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Abstract

Socio-economic infrastructure plays a critical role in shaping the level and pace of regional development. The present study examines the influence of infrastructural and institutional facilities on regional development at the tahsil level in Parbhani District, Maharashtra. Using a set of selected indicators related to education, irrigation, communication, banking, cooperative institutions, and health facilities, a Composite Index of Development (CID) was employed to assess development disparities. The results reveal marked inter-tahsil variations, indicating that regions with better access to socio-economic infrastructure demonstrate higher levels of development. Parbhani tahsil emerges as the most developed area, while Palam records the lowest development level. The study highlights the need for strengthening infrastructure and institutional support in lagging regions to achieve balanced regional development.

Keywords: Socio-Economic Infrastructure, Regional Development, Composite Index, Spatial Disparities, Parbhani District

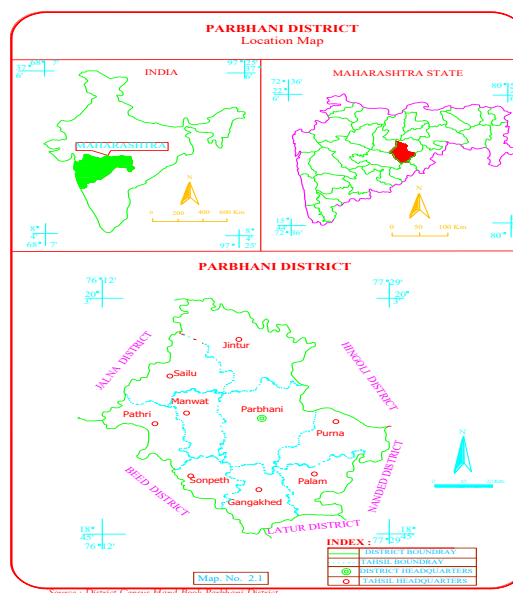
Introduction

Infrastructure and institutional facilities form the backbone of regional development by facilitating economic activities, improving living standards, and enhancing accessibility to essential services. In rural and semi-urban regions, disparities in the availability of socio-economic infrastructure often result in uneven development patterns.

Parbhani District in the Marathwada region of Maharashtra exhibits significant variations in irrigation facilities, educational attainment, communication networks, cooperative institutions, and health infrastructure across its tahsils. These variations have a direct impact on agricultural productivity, employment structure, and settlement development. The present study investigates the role of socio-economic infrastructure as a determinant of regional development at the tahsil level in Parbhani District.

Study Area

Parbhani District is located in the eastern part of Maharashtra and forms part of the Godavari river basin. The district comprises nine tahsils—Parbhani, Gangakhed, Palam, Sonpeth, Purna, Pathri, Manwat, Sailu, and Jintur. Agriculture is the dominant occupation, supported by varying levels of irrigation and institutional support. Differences in infrastructure and service facilities across tahsils provide a suitable framework for analyzing development disparities.



Objectives of the Study

The objectives of the present study are:

1. To examine the distribution of socio-economic and infrastructural facilities across the tahsils of Parbhani District.
2. To assess the level of regional development using a composite index approach.
3. To analyze the relationship between socio-economic infrastructure and development levels.
4. To identify infrastructurally lagging tahsils requiring priority intervention.

Data Sources and Methodology

• Data Sources

The study is based on secondary data obtained from the Census of India, District Statistical Abstracts, socio-economic reviews, and administrative records of Parbhani District. Indicators relating to literacy, irrigation, communication, banking, cooperative institutions, and health facilities were used.

• Methodology

A Composite Index of Development (CID) was constructed using selected socio-economic and infrastructural indicators. The Coefficient of Development Index (CDI) was calculated for each indicator by comparing tahsil-level values with the district mean. The CDI values were then aggregated to obtain the CID for each tahsil. Based on the composite index values, tahsils were classified into high, moderate, low, and very low levels of development.

Socio-Economic Infrastructure and Development Levels

• High Level of Development

Parbhani tahsil exhibits a high level of development due to the concentration of socio-economic infrastructure such as educational institutions, medical facilities, banking services, communication networks, cooperative societies, and better transport connectivity. These facilities support diversified economic activities and higher employment in secondary and tertiary sectors.

• Composite Index of Development

Sr. No.	Tahsil	CDI	CID	Classification
1	Parbhani	1853.49	123.56	High
2	Gangakhed	1228.79	081.92	Low
3	Palam	1103.93	073.60	Very low
4	Sonpeth	1400.77	093.38	Moderate
5	Purna	1464.85	097.65	Moderate
6	Pathri	1419.23	094.61	Moderate
7	Manwat	1530.84	102.05	Moderate
8	Sailu	1413.17	094.21	Moderate
9	Jintur	1192.29	079.48	Low

Source: - Compiled by the Author.

• Moderate Levels of Development

The tahsils of Purna, Sonpeth, Pathri, Manwat, and Sailu fall under the moderate development category. These tahsils possess moderate irrigation facilities, functional cooperative institutions, and basic health and educational infrastructure. Although infrastructural support exists, its coverage and efficiency remain uneven.

• Low Levels of Development

Gangakhed and Jintur tahsils exhibit low levels of development due to inadequate irrigation coverage, limited banking and cooperative institutions, and insufficient transport and communication facilities. These constraints restrict agricultural productivity and non-farm employment opportunities.

• Very Low Level of Development

Palam tahsil represents a very low level of development, characterized by poor infrastructure, limited institutional support, and weak connectivity. The absence of adequate socio-economic facilities hampers overall development and perpetuates regional disparities.

Relationship between Infrastructure and Development

The analysis indicates a strong positive relationship between socio-economic infrastructure and regional development. Tahsils with better access to irrigation, education, healthcare, banking, and cooperative institutions exhibit higher composite index values. Conversely, infrastructural deficient tahsils record lower development levels, underscoring the importance of infrastructure-led development strategies.

Results and Discussion

The analysis of socio-economic infrastructure and regional development in Parbhani District reveals marked **spatial disparities among tahsils**. The Composite Index of Development (CID), derived from selected socio-economic and infrastructural indicators, provides a comprehensive understanding of development levels and their spatial manifestation.

Tahsil-wise Levels of Socio-Economic Development

The computed Composite Index values indicate that Parbhani tahsil occupies the highest level of socio-economic development, followed by a group of tahsils showing moderate development. In contrast, Gangakhed, Jintur, and Palam tahsils exhibit relatively lower development levels.

The high CID value of Parbhani tahsil can be attributed to:

- Higher urban population share
- Better access to education and health facilities
- Greater availability of banking and cooperative institutions
- Improved communication and transport infrastructure

These factors collectively enhance economic opportunities and service accessibility, reinforcing Parbhani's role as a dominant regional centre.

Spatial Pattern of Infrastructure Distribution

The spatial distribution of socio-economic infrastructure across the district is uneven and polarized. Infrastructure facilities such as hospitals, banks, post offices, and communication services are concentrated in developed tahsils, while peripheral and rural tahsils experience limited access.

Moderately developed tahsils such as Purna, Sonpeth, Pathri, Manwat, and Sailu benefit from:

- Irrigation facilities associated with river basins
- Agricultural cooperatives
- Moderate road connectivity

However, the quality and density of infrastructure in these tahsils remain inferior to the district headquarters.

Central Places and Development Relationship

A clear relationship is observed between the levels of development and the hierarchy of central places. Highly developed tahsils contain fewer but larger and functionally diversified central places, whereas low-developed tahsils exhibit a higher number of small and less specialized central places.

This pattern supports classical Central Place Theory, where:

- Higher development leads to service concentration and functional specialization
- Lower development leads to spatial fragmentation of service centres

The scatter diagram analysis confirms a positive correlation between CID values and functional strength of central places, emphasizing the role of infrastructure in shaping settlement hierarchy.

Regional Disparities and Developmental Implications

The study highlights persistent regional disparities within Parbhani District. Peripheral tahsils suffer from:

- Inadequate irrigation
- Poor transport connectivity
- Limited institutional infrastructure

Such disparities restrict economic diversification and reinforce dependence on primary activities. Without targeted infrastructural investment, these regions may continue to lag behind the district core.

Key Findings

- Socio-economic development in Parbhani District is spatially uneven
- Infrastructure availability plays a decisive role in determining development levels
- Central places are functionally stronger in high-development zones
- Low-developed regions show fragmented and weak service centres

Policy Implications

- Decentralization of health, education, and banking services
- Strengthening rural transport connectivity
- Promotion of agro-based and service-sector activities
- Focused infrastructure investment in low-development tahsils

Findings

- Significant disparities exist in socio-economic infrastructure across tahsils of Parbhani District.
- Higher development levels are associated with better infrastructural and institutional facilities.
- Irrigation, communication networks, and cooperative institutions play a crucial role in regional development.
- Infrastructurally lagging tahsils require focused policy interventions.

Conclusion

The study demonstrates that socio-economic infrastructure is a key determinant of regional development in Parbhani District. Strengthening irrigation facilities, transport networks, educational and health services, and institutional infrastructure in low and very low development tahsils can contribute to balanced and sustainable regional development. The findings provide valuable insights for planners and policymakers engaged in micro-level regional planning.

Acknowledgment

I would like to express my sincere gratitude to all those who supported and guided me in the successful completion of this study titled "*Socio-Economic Infrastructure as a Determinant of Regional Development: A Tahsil-Level Analysis of Parbhani District, Maharashtra.*"

First and foremost, I extend my heartfelt thanks to my teacher/supervisor for their valuable guidance, continuous encouragement, and constructive suggestions throughout the course of this research. Their academic support and insightful feedback greatly contributed to the development and completion of this work.

I am also grateful to my institution for providing the necessary academic environment, facilities, and resources required for conducting this study. I would like to acknowledge the government departments, statistical offices, and published census and district reports that provided essential data and information used in this analysis.

My sincere appreciation goes to the scholars and researchers whose studies and publications helped shape the conceptual and analytical framework of this research.

Financial support and sponsorship

Nil.

Conflicts of interest

The authors declare that there are no conflicts of interest regarding the publication of this paper

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