



Spatial Pattern and Regional Disparities of Human Resource Development in Solapur District, Maharashtra

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Abstract:

Human resources constitute one of the most significant determinants of regional development and play a vital role in the efficient utilization, management, and conservation of natural resources. The quality and development of human resources directly influence economic growth, social progress, and sustainable development. The present study examines the spatial pattern of human resource development in Solapur District, Maharashtra, using secondary data obtained from the Census of India and other government publications. The analysis reveals considerable spatial disparities in human resource development across the district. These variations are largely associated with differences in the distribution of natural resources, physiographic conditions, socio-economic characteristics, educational attainment, and infrastructural facilities. The study highlights the interrelationship between human resource development and natural resource availability, emphasizing that regions endowed with better physical and socio-economic conditions tend to exhibit higher levels of human resource development. The findings underscore the need for balanced regional planning and targeted policy interventions to reduce disparities and promote sustainable development throughout the district.

Keywords: *Human Resource Development, Natural Resources, Sustainable Development, Regional Disparities, Solapur District, Maharashtra.*

Introduction:

Human resources constitute one of the most valuable assets for the socio-economic development of any region. The quality, productivity, and efficiency of human resources significantly influence the pace and pattern of regional development. In the contemporary era, Human Resource Development (HRD) has emerged as a critical component of

sustainable development, as it enhances the capabilities, skills, knowledge, and well-being of the population. The concept of human resource development extends beyond population growth and encompasses improvements in education, health, employment, and access to essential social infrastructure.

The level of human resource development varies across regions due to

differences in physical environment, resource availability, socio-economic conditions, infrastructural facilities, and public investment. Consequently, the spatial distribution of human resources is rarely uniform. Regions characterized by higher literacy, better healthcare services, greater employment opportunities, and improved communication networks tend to exhibit higher levels of human resource development. Conversely, areas with inadequate infrastructure, limited educational facilities, and adverse environmental conditions often lag behind in the development process.

In India, regional disparities in human resource development have become an important concern for planners and policymakers. Despite significant progress in education, healthcare, and economic development, substantial variations continue to exist between and within states. These disparities are particularly evident at the district and sub-district levels, where differences in demographic characteristics, socio-economic opportunities, and access to public services create unequal development outcomes. Therefore, an assessment of human resource development at the local level is essential for identifying backward regions and formulating appropriate developmental strategies.

Maharashtra is one of the most economically advanced states in India; however, considerable regional inequalities persist across its districts.

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Solapur District, located in the south-eastern part of the state, presents a unique geographical and socio-economic setting. The district is characterized by a semi-arid climate, recurrent drought conditions, agricultural dependence, and varying levels of urbanization. While some talukas have benefited from industrialization, educational expansion, and infrastructural development, others continue to face challenges related to water scarcity, limited employment opportunities, and inadequate social services. These variations have contributed to significant differences in the quality and development of human resources across the district.

The present study examines the spatial pattern and regional disparities of human resource development in Solapur District, Maharashtra. The analysis is based on selected demographic and socio-economic indicators, including population, literacy, urbanization, employment, educational facilities, postal services, and health infrastructure. By employing a ranking coefficient approach, the study identifies variations in human resource development among the talukas of the district and classifies them according to their level of development. The findings are expected to contribute to a better understanding of regional inequalities and provide useful insights for policy formulation, balanced regional planning, and sustainable development.

The study is particularly relevant in the context of contemporary development

planning, as the quality of human resources increasingly determines regional competitiveness, economic productivity, and social progress. An assessment of spatial disparities in human resource development can help policymakers prioritize investment, strengthen social infrastructure, and promote inclusive growth across all regions of Solapur District.

Study Area:

Solapur District is located in the south-eastern part of Maharashtra State and forms an important component of the Deccan Plateau region. Geographically, the district extends between 17°10' N and 18°32' N latitudes and 74°42' E and 76°15' E longitudes. It is bounded by Ahmednagar District to the north, Osmanabad District to the northeast, Kalaburagi (Karnataka) to the east, Vijayapura (Karnataka) to the south, and Satara and Pune Districts to the west. The district occupies a geographical area of approximately 14,895 square kilometres, making it one of the largest districts in Maharashtra.

Administratively, Solapur District comprises eleven tahsils: Solapur North, Solapur South, Akkalkot, Barshi, Madha, Karmala, Malshiras, Pandharpur, Sangola, Mohol, and Mangalvedha. According to the Census of India (2011), the district had a population of 4,317,756 persons. Recent demographic projections for 2024–25 indicate that the population has exceeded 5

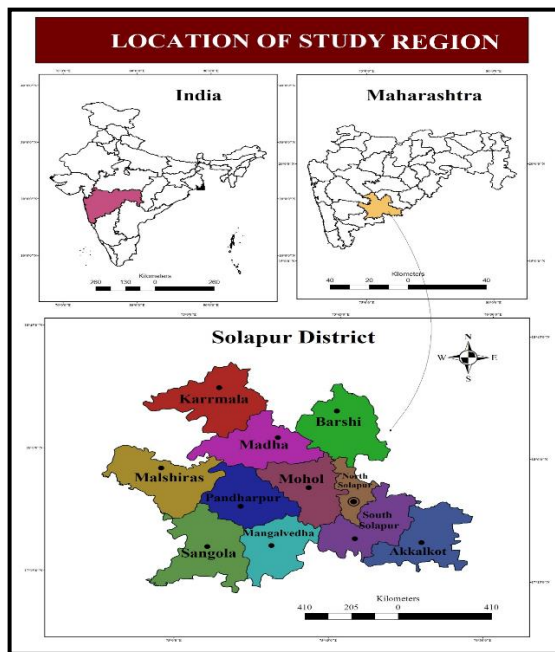
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million, reflecting continuous population growth and increasing pressure on regional resources and infrastructure.

Physiographically, the district is characterized by an extensive plateau landscape with generally undulating topography. The average elevation ranges from 450 to 600 metres above mean sea level. The region experiences a semi-arid tropical climate marked by high temperatures and low to moderate rainfall. The average annual rainfall ranges between 500 and 700 millimetres, with significant spatial variations across the district. Frequent drought conditions and rainfall variability constitute major environmental challenges affecting agriculture and rural livelihoods.

The Bhima River and its tributaries, including the Sina, Man, Bori, and Nira rivers, form the principal drainage system of the district. These rivers play a crucial role in supporting agricultural activities, domestic water supply, and industrial development. Agriculture remains the dominant economic activity, with crops such as jowar, sugarcane, wheat, pulses, and oilseeds occupying a significant proportion of cultivated land.

Map No. 1



A substantial share of the district's population resides in rural areas, where agriculture and allied activities provide the primary source of livelihood. Variations in physical environment, water availability, agricultural productivity, infrastructure, educational facilities, and economic opportunities have contributed to regional disparities within the district. Consequently, Solapur District presents a diverse geographical and socio-economic setting that is highly suitable for studies relating to human resource development, regional planning, and sustainable development.

Objectives:

The specific objectives of the study are as follows:

1. To assess the status of human resources in terms of both

quantitative and qualitative dimensions.

2. To analyze the spatial variations in the level of Human Resource Development at the tahsil level.
3. To examine the factors influencing regional disparities in Human Resource Development.
4. To suggest appropriate planning and policy measures.

Database And Methodology:

The present study is based entirely on secondary sources of data. The required information was collected from the Census of India (2011), District Socio-Economic Abstract of Solapur District, publications of the Directorate of Economics and Statistics, Government of Maharashtra, and various government reports and statistical handbooks. Recent demographic and developmental information available up to 2023–24 was also consulted to understand the current status of human resource development in the district.

For the assessment of Human Resource Development (HRD) in Solapur District, the Ranking Coefficient Method has been employed. This method facilitates inter-tahsil comparison by assigning ranks to selected demographic, social, and economic indicators. The indicators selected for the study include population density, work participation rate, sex ratio, literacy rate, level of urbanization, educational facilities, postal facilities, and health infrastructure. These

indicators collectively represent the quantitative and qualitative dimensions of human resources.

The collected data were classified, tabulated, and analyzed using statistical techniques. Each tahsil was assigned ranks based on its performance in the selected indicators. Subsequently, a Composite Coefficient Index was calculated to determine the relative level of human resource development among the tahsils. The coefficient index was computed using the following formula:

$$\text{Coefficient Index (CI)} = \Sigma R / N$$

Where:

- ΣR = Sum of ranks obtained by a tahsil
- N = Number of indicators considered for analysis

The coefficient index provides a comparative measure of human resource development. A lower coefficient value indicates a higher level of development, whereas a higher coefficient value signifies a relatively lower level of development.

Discussion:

Human Resource Development in Solapur District:

Solapur District occupies an important position in the south-eastern part of Maharashtra and covers an area of approximately 14,895 sq. km. According to the Census of India (2011), the district had a population of 4.32 million, of which

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nearly 67.6 percent resided in rural areas. Recent population estimates indicate continued demographic growth during 2023–24.

The analysis of Human Resource Development reveals considerable spatial disparities among the tahsils of Solapur District. Variations in educational attainment, health facilities, urbanization, employment opportunities, communication infrastructure, and demographic characteristics have resulted in differing levels of development across the district.

Tahsils such as Solapur North, Pandharpur, Barshi, and Akkalkot generally exhibit comparatively higher levels of human resource development owing to better educational institutions, healthcare facilities, transportation networks, urban growth, and economic diversification. The concentration of administrative, commercial, and service-sector activities has further enhanced the developmental status of these areas.

In contrast, tahsils such as Sangola, Mangalvedha, Malshiras, and certain drought-prone regions of the district experience comparatively lower levels of human resource development. The semi-arid climate, recurrent droughts, water scarcity, agricultural uncertainty, and limited infrastructural facilities have adversely affected socio-economic progress in these areas. These constraints have also influenced educational attainment, health conditions, and employment opportunities.

The spatial pattern of human resource development in Solapur District demonstrates a strong relationship between resource availability, infrastructural development, urbanization, and socio-economic advancement. Areas possessing better irrigation facilities, transportation networks, educational institutions, and healthcare services tend to exhibit higher levels of human resource development compared to regions characterized by environmental and infrastructural constraints.

Based on the coefficient index values, the tahsils of Solapur District may be classified into the following categories:

The findings indicate that human resource development in Solapur District is spatially uneven and closely associated with variations in socio-economic conditions, infrastructural facilities, and environmental resources. Therefore, balanced regional planning and inclusive development strategies are essential for enhancing the overall quality of human resources and promoting sustainable development across the district.

Table No.1: Human Resource Development in Solapur District

Taluka	Population (2011)	Literacy Rate	Urban Population	Post Office	Health Facility	Working Popualtion
Solapur North	1,057,352	82.06	951558	52	197	292663
Solapur South	260,897	73.42	0	33	05	25388
Akkalkot	241,425	69.63	63680	59	12	26419
Barshi	396,766	78.93	118722	65	46	18632
Karmala	304,541	75.52	23119	55	69	48417
Madha	342,622	77.12	22463	47	63	25699
Malshiras	421,244	76.63	64401	48	111	44583
Mangalvedha	184,108	72.25	21824	37	21	13151
Mohol	276,920	75.77	0	43	57	19642
Pandharpur	343,445	77.68	98923	50	131	45960
Sangola	288,524	72.89	34321	46	57	23235

(Source- Census of India-2011)

**Table No. 2: Tahsil-wise Ranking and Coefficient Index of Human Resource
Development in Solapur District**

Taluka	R1 Population	R2 Literacy	R3 Urban Population	R4 Post Office	R5 Health Facility	R6 Working Population	ΣR	CI
Solapur North	1	1	1	5	1	1	9	1.50
Pandharpur	4	3	3	6	2	3	20	3.33
Malshiras	2	5	5	7	3	4	24	4.00
Barshi	3	2	2	1	7	10	26	4.33
Karmala	6	7	8	3	4	2	29	4.83
Madha	5	4	9	8	5	6	35	5.83
Akkalkot	10	11	6	2	10	5	43	7.17
Sangola	7	9	7	9	6	8	44	7.33
Mohol	8	6	10	10	6	9	48	8.00
Solapur South	9	8	10	11	11	7	56	9.33
Mangalvedha	11	10	11	4	9	11	60	10.00

(Sources: complied by researcher)

Table No. 3: Classification of Human Resource Development Regions

Category	Coefficient Index	Talukas
Dynamic Region	Below 6.00	Solapur North, Pandharpur, Malshiras, Barshi, Karmala, Madha
Prospective Region	6.00 – 8.00	Akkalkot, Sangola, Mohol
Problematic Region	Above 8.00	Solapur South, Mangalvedha

(Sources: complied by researcher)

The analysis reveals significant spatial disparities in Human Resource Development across the talukas of Solapur District. The coefficient index ranges from **1.50 in Solapur North** to **10.00 in Mangalvedha**, indicating considerable variation in socio-economic development and human resource potential.

Solapur North emerges as the most developed taluka with the lowest coefficient index (1.50). The taluka ranks first in population, literacy rate, urban population, health infrastructure, and working population. As the district

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headquarters and the principal urban-industrial centre, Solapur North enjoys better educational institutions, healthcare facilities, communication networks, employment opportunities, and urban amenities. The concentration of administrative and commercial functions has substantially enhanced the quality of human resources in the region.

Pandharpur (CI = 3.33) occupies the second position in human resource development. The taluka benefits from a relatively high literacy rate, substantial urban population, extensive healthcare

facilities, and a strong working population. Religious tourism and associated economic activities have contributed to the growth of infrastructure and human capital formation.

Malshiras (CI = 4.00), **Barshi** (CI = 4.33), **Karmala** (CI = 4.83), and **Madha** (CI = 5.83) also fall within the dynamic category. These talukas demonstrate favourable performance in literacy, employment, and infrastructure-related indicators. Agricultural development, irrigation facilities, and expanding service sectors have positively influenced their human resource development levels.

The **Prospective Region** includes **Akkalkot, Sangola, and Mohol**, where coefficient index values range between 7.17 and 8.00. These talukas possess moderate levels of development but continue to face challenges related to educational attainment, urbanization, and access to healthcare facilities. With targeted investments in social and physical infrastructure, these regions have the potential to improve their human resource profile significantly.

The **Problematic Region** comprises **Solapur South** (CI = 9.33) and **Mangalvedha** (CI = 10.00). These talukas exhibit relatively lower literacy levels, limited urbanization, inadequate health infrastructure, and smaller working populations. Environmental constraints such as recurrent droughts, water scarcity, and dependence on traditional agriculture have hindered socio-economic

development. Consequently, the quality of human resources remains comparatively low.

The findings indicate a strong positive relationship between literacy, urbanization, healthcare accessibility, employment opportunities, and overall human resource development. Talukas with higher levels of urbanization and better infrastructural facilities consistently record lower coefficient indices, reflecting higher development. Conversely, predominantly rural and drought-prone talukas tend to experience lower human resource development.

Conclusion:

The study demonstrates that Human Resource Development in Solapur District is spatially uneven. Six talukas fall under the dynamic category, three under the prospective category, and two under the problematic category. Solapur North represents the highest level of development, whereas Mangalvedha exhibits the lowest level. The results emphasize the need for region-specific planning strategies focusing on education, healthcare, employment generation, and infrastructural development in the backward talukas. Such interventions are essential for reducing regional disparities and achieving balanced and sustainable human resource development across Solapur District.

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