

*Article***Spatial Pattern of Socio-Economic Development: An Analysis of Chakrata and Shillai Blocks in the Western Himalayas***Kumari Sapna*, D.D. Sharma**Department of Geography, Himachal Pradesh University, Shimla***Email: sapna.surya05d@gmail.com***Abstract**

Socio-economic development in mountain areas is uneven because of difficult terrain, poor road accessibility and very limited livelihood opportunities. Although research on mountain development exists, few village-level studies combine statistical data with people's perceptions, especially in the Western Himalayas. This study analyses the socio-economic development of Chakrata Block in Uttarakhand and Shillai Block in Himachal Pradesh based on Census of India data from 2001 and 2011, along with a household survey conducted in 2024 covering 386 households in 20 villages. The study used the Z-score method to combine eighteen socio-economic and infrastructural indicators to generate a Composite Standard Score (CSS). A perception index based on 14 indicators assessed residents' perceptions. Chakrata block has shown better development due to higher literacy, good accessibility, and well-implemented government programs. But Shillai block suffers from its remoteness, very little developed infrastructure, limited non-farm jobs and out-migration of young people. It also shows that a strong position in development indicators does not mean people there are satisfied. The study emphasised that implementing area-specific policies is crucial to improving connectivity, livelihood opportunities, and access to basic services in the Western Himalayas.

Keywords: Socio-economic development, regional disparity, Western Himalayas, migration, perception.

Introduction

Development is not only about earning more money, having a higher income, or building better roads and other facilities. It also means improving people's quality of life. It also includes quality education, good healthcare facilities, higher living standards and overall well-being. Human resource development is an important part of this process since people's knowledge, skills, and abilities shape their capacity to access opportunities and improve their quality of life (Sultana & Aktar, 2016). Development combines economic progress with improved human well-being. This overall concept is termed socio-economic development. It encompasses not only material progress but also people's quality of life. This is also relevant in the context of economic growth in developing countries where economic inequality is frequently accompanied by social and regional inequality (World Bank, 2023). Gross Domestic Product (GDP) and per capita income can also indicate development, but they do not provide a full picture. Education, healthcare, employment, social equality, and living conditions are also related to development (Nuralina et al., 2023). Many other factors also relate to quality of life. These include health, education, employment, the environment, and social relationships (Beltramo et al., 2024). This is also reflected in the Sustainable Development Goals (SDGs). They focus on inclusive development, improved living conditions, and addressing inequalities (UNDP, 2023).

Regional disparities are still a major challenge in India. Some areas have seen improved industrial development, technology, infrastructure, and governance. Other parts of the country are less developed. They tend to be heavily reliant on agriculture. They also lack infrastructure and employment opportunities. Consequently, people migrate to find jobs and better living

conditions elsewhere (Drèze & Sen, 2020; Chandrasekhar & Ghosh, 2021). So, regional inequality and migration are closely related. Migration often responds to uneven development, but it can also worsen existing regional imbalances by reducing the local workforce and slowing economic growth (Tiwari et al., 2022). These differences are particularly noticeable in mountain regions, where development is affected not only by economic conditions but also by difficult terrain, climate, and scattered settlement patterns. The Indian Himalayan Region (IHR) epitomises these challenges. Rugged mountains, remote locations and scattered villages limit economic opportunities and make access to basic services difficult. Over the years, large-scale out-migration from many Himalayan villages has led to declining populations, the feminisation of agriculture, and farmland abandonment, all of which have weakened local development (Kumar et al., 2025). Many rural communities still have poverty, poor infrastructure, weak transport links and limited access to health care and education (Rasul & Nepal, 2025). Therefore, migration is both a sign of underdevelopment and a process that can increase socio-economic inequalities (Tiwari et al., 2022).

The Western Himalayas, especially Uttarakhand and Himachal Pradesh, face many development challenges. Roads are often poor or limited, public services may be far away, children have fewer educational opportunities, families struggle to reach healthcare facilities, and farmers and small businesses may struggle to reach larger markets. These problems affect people's livelihoods and quality of life (Jodha, 2005; Karpouzoglou et al., 2020). In Uttarakhand, local job opportunities are often limited. Educational facilities are also weak in many remote areas. These conditions encourage young people to move to towns and cities. As a result, some villages have very few residents. Some villages have even become completely abandoned. This has increased regional differences (Kumar et al., 2025). Himachal Pradesh has generally shown better socio-economic development. This is linked with better infrastructure, stronger governance, and greater community participation (Devi & Tiwari, 2023; Raj et al., 2019). Inequalities still exist; even nearby villages can differ in road access, public services, terrain, and job opportunities (Kreutzmann, 2001). Development indicators do not always show people's real experiences. A village may have a road, school, or health centre. But people may still be unhappy if these facilities are difficult to access. Poor maintenance and low service quality can also reduce satisfaction. Therefore, people's views are important in development studies. This is especially true for rural and mountain areas (Wangdi, 2026; Beltramo et al., 2024).

Earlier studies also found a gap between physical development and people's satisfaction. This gap is more common in remote areas (Bhattacharyya et al., 2021; Bernard, 2018). If they don't see meaningful change in their lives, people may move. Migration can further undermine local development. It can foster an out-migration-decline cycle (Beltramo et al., 2024). Research in India too indicates that migration can raise household earnings. However, it is not necessarily associated with the overall quality of life of poor families (Tiwari et al., 2022). For this reason, researchers should examine both quantitative and qualitative measures of development. The study was conducted in two blocks: Chakrata block of Dehradun district, Uttarakhand, and Shillai block of Sirmaur district, Himachal Pradesh. Both the blocks are in the western Himalayas. Some of their common problems are rough terrain, shifting weather, and not enough farmland, and they have some distinct differences too. Chakrata has more scattered settlements than other places. It is also less well connected to the road networks. Settlements in Shillai are smaller. It also has a little better road access (Census of India, 2011). These similarities and differences allow the two blocks to be compared. These are quantifiable indicators, such as infrastructure, population and economic conditions, which have been the focus of earlier research. These kinds of studies are beneficial. However, less attention has been

paid to people's views on development. Few village-level studies still integrate development indicators with people's perceptions. This study aims to fill these gaps. It integrates socio-economic development indices from the Census with household survey data. This provides a wider perspective of development and regional disparities in the Western Himalayas.

The study has two main objectives. This paper first investigates the pattern of socio-economic development at the village level in Chakrata and Shillai. Second, it explores people's perceptions of development in the selected villages. The study uses secondary data and people's perceptions to better understand development in remote Himalayan communities.

Study Area

The study area comprises the Shillai Block of Sirmaur District, Himachal Pradesh and Chakrata Block of Dehradun District, Uttarakhand. Both the blocks are situated in the western Himalayas. They lie between 77°33'E-78°03'E longitude and 30°37'N-31°00'N latitude (Fig. 1). The region lies within the Middle Himalayan Mountain belt. It is rugged, with steep slopes and deep valleys. The physical environment creates challenges for settlement growth. They also make road and infrastructure construction challenging (Jodha, 2005). Poor road connectivity is a major problem in many areas. Subsistence farming is also the primary means of livelihood for people. Very few employment opportunities are available in the area. Seasonal migration is also seen. These factors have led to unequal socioeconomic development in the region (Karpouzoglou et al., 2020; Tiwari et al., 2022).

Shillai Block is located in Trans-Giri. The terrain is challenging, and road access is limited. Local life and opportunities are also shaped by the socio-cultural identity of the Hatti community, as well (Negi, 1998; Bharadwaj et al., 2024). The Chakrata Block is a part of the Jaunsar-Bawar region. It also faces problems due to geographical isolation. Winter often brings heavy snowfall, which can negatively affect road transport. It can also limit economic activity for extended periods (Berreman, 1963; Kreutzmann, 2013). The Tons River creates a natural divide between the two blocks and affects the drainage patterns, land use, and regional flow in and out of the area (Singh & Singh, 2011).

Overall, Shillai and Chakrata are remote Himalayan areas where harsh terrain, climate, social characteristics, and inadequate infrastructure shape living conditions and local progress. Although the two blocks share a broadly similar physical setting, they differ in several socio-economic aspects. These similarities and differences make them suitable for examining spatial inequalities at both the block and village levels.

Methodology

The study draws on secondary and primary data sources. The authors collected secondary information from the Census of India (2001 and 2011), District Census Handbooks, District Statistical Abstracts (2020–21), and official publications from the governments of Himachal Pradesh and Uttarakhand. These sources were used to assess changes in socio-economic conditions over time. Because Census 2021 data were unavailable due to administrative delays, the temporal analysis is restricted to 2001-2011.

Primary data were collected through a structured household survey carried out between May and November 2024. In total, the study surveyed 386 households from the selected villages. Household-level surveys are useful in rural development research because they capture people's day-to-day experiences and perceptions, which official statistics or other secondary sources may not reflect (Wangdi, 2026).

To maintain consistency, the study includes only revenue villages; it excludes forest villages and the statutory town. Their administrative status and functions differ from those of revenue villages. Including them could have affected the comparison between the two study areas.

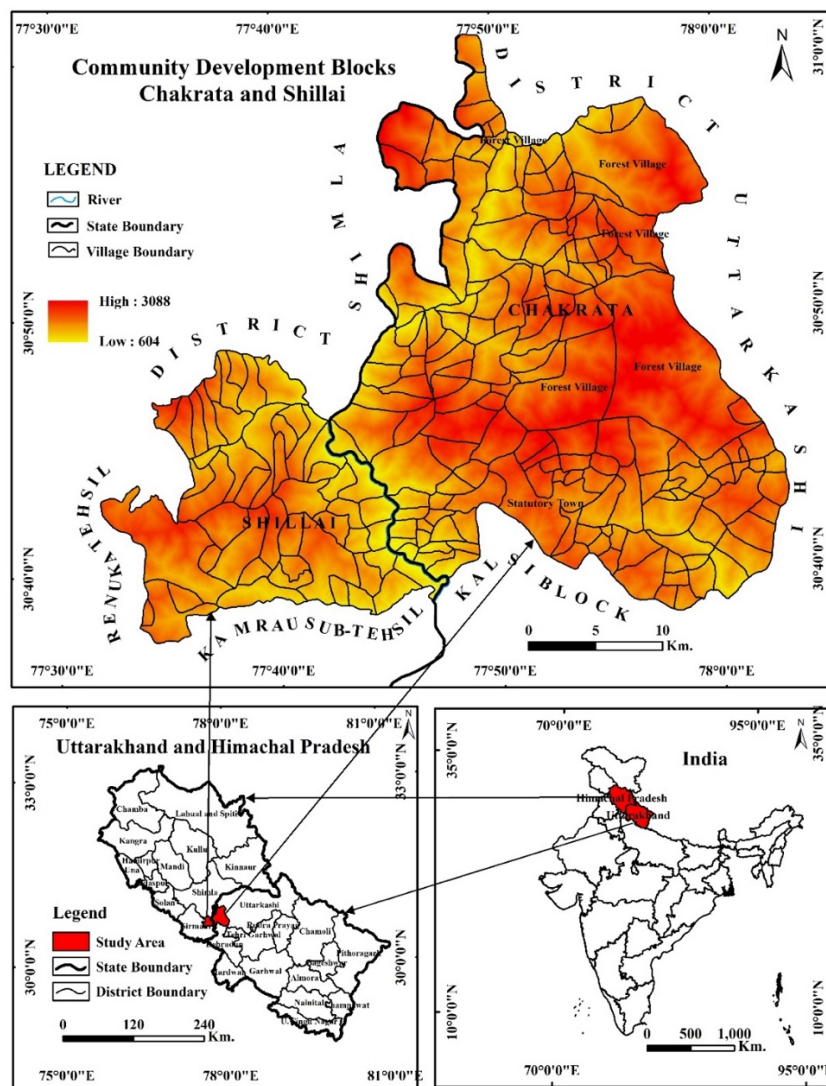


Fig. 1. Location Map of the Study Area

Source: Compiled and mapped by the authors based on the Census of India.

Standardisation of Indicators

We studied socio-economic development using 18 indicators. These indicators cover social conditions and basic infrastructure. For easier analysis, we divided them into four groups. Sex ratio and child sex ratio are components of the demographic group. Literacy includes total, male, and female literacy. The report includes three measures of work participation: total, male, and female. It also covers cultivators, agricultural labourers, household industry workers and other workers.

In the infrastructure sector, the report includes education, healthcare, transport, electricity, drinking water, and communication facilities. Using multiple indicators provides a more comprehensive picture of development. No single indicator can reflect a village's overall development status. This is particularly true in mountainous regions. Village size, employment, and access to basic services vary widely (Kreutzmann, 2001; Sati, 2015; Panakaje et al., 2025). Different units of measure were used for the indicators. Hence, they were normalised to a common form using the Z-score procedure:

$$Z = (x - \mu) / \sigma$$

where Z is the standardised score, x is the observed value, μ is the mean, and σ is the standard deviation. Standardisation placed all indicators on the same comparison scale, making integration much easier. The standardised values were then used to create an overall development score per village.

Composite Standard Score (CSS)

A Composite Standard Score (CSS) measures a composite set of items. This composite value, the Composite Standard Score (CSS), was derived by averaging the standardised score for all eighteen indicators for each village. This produced a composite index that enables comparison of overall socio-economic development across villages. Higher CSS values reflect relatively more favourable socio-economic conditions, while lower CSS values imply greater developmental disadvantage.

Sampling Framework

Villages were selected using stratified sampling to capture varying levels of development and scope types. First, villages were grouped into five clusters based on infrastructure development: very high, high, medium, low, and very low. From each infrastructure category, we randomly selected 10% of villages for the survey. This process yielded samples from 15 villages in Chakrata Block and 5 villages in Shillai Block. Based on these locations, we determined the number of households per village, for a total of 386 surveyed households across the 20 selected villages. Table 1 shows the sampled villages and surveyed households.

Table 1 Sampled Villages and Surveyed Households in the Study Area

Infrastructural Development Category	Chakrata Block- Village Name	10 per cent Sampled Households	Shillai Block- Village Name	10 per cent Sampled Households	Total sampled Households
Very High	Brinad-Bastil	37	Shillai	100	153
	Banachilar	16			
High	Mohana	16	Kando-Bhatnaul	25	51
	Mungad	10			
Medium	Luhari	9	Borar	18	77
	Malaitha	11			
	Jogyo	17			
	Kharsi	10			
	Haja	12			
Low	Raigi	25	Manal	22	89
	Bayala	9			

	Radu	13			
	Chhatad Hartad	9			
	Chatra	11			
Very Low	Jagthan	6	Sayasu	10	16
Total	15 Villages	211	5 Villages	175	386

Source: Compiled by the authors based on the methodology applied

Perception Variables

Fourteen variables were used to examine people's views on local development: Housing (X_1), Health (X_2), Sanitation (X_3), Food (X_4), Safety (X_5), Education (X_6), Status of Women (X_7), Economic Condition (X_8), Agriculture (X_9), Basic Household Amenities (X_{10}), Fuel Consumption (X_{11}), Communication (X_{12}), Transportation (X_{13}) and Political Dimension (X_{14}). These variables cover social, economic, and infrastructure-related aspects of life in rural communities.

Perception-Based Assessment

Respondents' answers were translated into a measurable index of perceived development using a Composite Index and Standard Deviation technique. Bracey (1952) suggested it, and R. L. Singh and Rana P. B. Singh (1979) revised it, as noted by Jha and Tripathi (2014). Researchers have applied it in regional development studies to translate qualitative responses into comparable quantitative measures.

This approach suits mountainous regions where regional-level aggregates may not accurately reflect village-level conditions (Kreutzmann 2001). It also aligns with recent studies in the Himalayas that have used household surveys and Likert-scale responses to gauge people's opinions on various aspects of development (Wangdi, 2026). Still, other methods used in rural settings to study household socio-economic conditions and perceptions of development are worth exploring (Panakaje et al., 2025).

Respondents rated each variable on a 5-point scale. A score of 1 meant the condition was the worst; 5 meant it was the best. For example, kuccha house received the lowest score, semi-pucca house the middle score, and pucca house the highest score in the housing variable (X_1). To standardise assessment of the variables, the same scoring method was used for each of the fourteen variables. The scores were then normalised using the min–max normalisation method:

$$\text{Normalised Value} = \frac{X - X_{\min}}{X_{\max} - X_{\min}}$$

X is the score obtained, $X_{\min}$ is the minimum score, and $X_{\max}$ is the maximum score. The scores are transformed to have a common range of 0 to 1. We then calculated average normalised values to obtain a composite perception score for each village. Higher scores indicate more positive views on development, while lower scores indicate greater dissatisfaction with local conditions. We tabulated the findings and plotted them in ArcGIS to show spatial variation in perceived development across the sampled villages.

Results and Discussions

Overall Development: A Comparative Analysis (2001-2011)

Table 2 and Figures 3 and 4 present the spatial development pattern and the number of villages in various development categories for 2001 and 2011, respectively. Based on the Composite Standard Score (CSS), villages were grouped into five development levels.

Areas of Very High Development (CSS above 0.50)

The distribution of villages in the very high development category changed clearly between 2001 and 2011 (Table 2; Figures 3 and 4). This category includes villages with relatively good socio-economic conditions and infrastructure. Chakrata Block improved significantly, with 10 villages moving into this group in 2011. Shillai Block, by contrast, had only one village in the same category. These disparities likely reflect differences in infrastructure investment, road connectivity, and access to government development programmes. These factors are particularly significant in mountainous areas, where the challenging topography may hinder access to services and economic opportunities (Devi & Tiwari, 2023). Across all villages, Lakha Mandal, Chakrata, and Shillai were in the very high development category in both 2001 and 2011. Over time, some villages moved to lower categories. This does not necessarily mean their conditions worsened, but neighbouring villages may have improved faster. Overall, Chakrata had more villages in the Very High Development category, while Shillai had relatively few villages in the study period.

Areas of High Development (CSS 0.21 - 0.50)

The number of villages in the High Development category also varied between 2001 and 2011, although the rate of development differed between the two blocks (Table 2; Figures 3 and 4). In 2001, villages were grouped under this category and showed a fairly similar level of development in both Chakrata and Shillai. The number of such villages in Chakrata decreased slightly, while in Shillai it increased by 2011. In general, villages in this category had higher literacy rates, workforce participation, and access to basic services. These outcomes appear linked to improved road infrastructure, the spread of government initiatives, and more varied livelihood options. Previous research has also emphasised these factors in improving rural development outcomes in India (Ghosh, 2017; Drèze & Sen, 2020). Others fell into the same classification because they were geographically isolated and had limited access to services and employment opportunities. Previous studies also indicate that infrastructure and connectivity are important factors influencing the development of rural mountain regions (Devi & Tiwari, 2023).

Areas of Moderate Development (CSS -0.20 - 0.20)

The moderate development category had the highest number of villages in both blocks (Table 2). This implies that many villages were at an intermediate level of socio-economic development. In the initial phase of the study period, over half of the villages in Chakrata and nearly 44 per cent in Shillai were in this category. Over time, some villages moved to higher development groups. This change was primarily linked to literacy, employment, and a decrease in gender gaps in education and employment. By 2011, 19 villages in Chakrata and 9 villages in Shillai had moved into the high or very high development categories. Despite this progress, 42 villages in Chakrata and 10 villages in Shillai remained in the moderate development group. The continued presence of many villages in this category reflects the influence of remoteness,

inadequate infrastructure, and youth out-migration. These factors often slow socio-economic improvement in Himalayan rural areas (Jodha, 2005; Karpouzoglou et al., 2020; Kreutzmann, 2001; Kumar et al., 2025).

Areas of Low Development (CSS -0.50 to -0.21)

Villages with low levels of socio-economic and infrastructural development were found in both Chakrata and Shillai blocks, though they were slightly more concentrated in Shillai (Table 2). At the beginning of the study period, this category included nearly 22 per cent of villages in Chakrata and slightly more than one-fourth of the villages in Shillai. Over time, the proportion of villages in this category declined modestly, falling to 19 per cent in Chakrata and 22 per cent in Shillai. This change is a gradual improvement in both blocks. However, the gap was wider in Chakrata, where 18 villages progressed to higher development categories, while only eight villages progressed in Shillai. Several factors still restricted development in these villages (Fig. 2 & 3). Low literacy, wide gender gaps in education and employment, moderate or low work participation, and limited agricultural improvement affected their overall progress. Some villages made progress, but their development was slower than that of others that did better. For this reason, they remained in the low development class.

Table 2: Overall Development: Comparative Analysis of Chakrata and Shillai Blocks (2001-2011)

Development Category	Name and No. of Villages			
	Chakrata		Shillai	
	2001			
Very High	Mailoth, Mohana, Lakha Mandal, Anu and Bhattar	5 (3.25)	Shillai, Gawali Pashmi and Dahar	3 (6.00)
High	Jadi, Maghgaon, Sujau, Chunauti, Jogyo, Buraswa, Rampur Sarana, Banpur, Jhitand, Bhatgarhi, Seriya, Brinad Bastil, Bagi, Maindrath, Hanol, Chatra, Raigi, Mundhola, Radu, Hartal, Katardie, Bhandroli, Silaura, Koti (Bamtad) and Tuna	26 (16.88)	Gangtoli, Bambal, Nawna Bhatwar, Kharkan, Naina, Naya Panjor, Halan, Dev Thal, and Jhakandon	9 (18.00)
Moderate	Luhari, Mungad, Sijla, Haja, Danduwa, Kitrauli, Kota, Gamari, Gawaila, Malaitha, Kandar, Majhgaon, Mendal, Sawara, Indroli, Samog, Khatuwa, Punaha Pokhari, Siribarkoti, Rangyo, Thanta, Pati, Rawana, Mahrawna, Bagoti, Shirwa, Jashta, Kota (Taplad), Kharwi, Mahpavata, Vaimoo, Kolaha, Kotuk, Silamu, Sahiya, Dhananta, Derio, Nada, Lawari, Bhatar Chhautar, Kondori Bondar, Maurhi, Dhaura Pudia, Guthar, Megar, Myvada, Kunna, Bhagawat, Meghatu, Kuna, Koti (Babar), Kanda, Chhumara, Tiutad, Purtad, Phanar, Bagoor, Obraser, Dirnad, Bhoot, Nirmaga, Chhatad Hartad, Bhunar, Kistur, Sunir, Sarni, Paturi, Eithan, Banachilar, Kunaun, Kharaura, Amarad Jhabrad, Dungri, Chanjoi, Dimich, Kaba Khera, Pinguwa, Punig, Baigi, Bulad, Undawa, Bayala, Hartar Santar, Mangtar and Masak	85 (55.20)	Milla Magnal, Ashyari, Pab (224), Bandli, Kando Bhatnaul, Shiri Kiyari, Diyandon, Bela, Matiana, Manal, Jarwa Juneli, Panog, Bindauli, Ajrouli, Borar, Bonch, Koti, Rasat, Loja Manal, Tandiyan, Darabal and Dharwa	22 (44.00)
Low	Matiyana, Sunoda, Bhoopau, Matad, Daudha, Dunwaa, Baniyana, Kiurar Khanarsichae, Kharsi, Bijanu, Kandidhar, Dawala, Bisau, Kandi Chamagata, Ninus, Derasa, Pivnal, Kulaha, Sainj, Pheirij, Chausal, Darmigar, Sunoi, Sainj, Kholara, Raitad, Penuwa, Thartha, Kunwa, Gorchha, Kandoi, Bagani, Rajanu and Buraila	34 (22.08)	Gundahan, Pab, Kota, Koti Utrou, Kuhant, Banga, Sayasu, Bobri, Chamra Morar, Bali Koti, Kinu Kulah, Jasvi and Sakhauli	13 (26.00)
Very Low	Birpa/Virpa, Chultar, Asoi and Jagthan	4 (2.59)	Kiyana, Juwan and Bindla Digwa	3 (6.00)
2011				
Very High	Maghgaon, Mahrawna, Lakha Mandal, Bhagawat, Seriya, Brinad Bastil, Hartal, Banachilar, Sunoi, Koti (Bamtad)	10 (6.49)	Shillai	1 (2.00)
High	Daudha, Sawara, Sujau, Punaha Pokhari, Pati, Rawana, Kota (Taplad), Kharwi, Sahiya, Bhatar Chhautar, Kandi Chamagata, Dhaura Pudia, Kunna, Bhatgarhi, Kanda, Raigi, Mundhola, Anu, Phanar, Dirnad, Bhattar, Dungri, Penuwa, Baigi, Bulad	25 (16.23)	Mila Magnal, Ashyari, Kuhant, Bandli, Bobri, Jarwa Juneli, Kinu Kulah, Panog, Borar, Kharkan, Naina, Rasat, Loja Manal, Darabal	14 (28.00)

Moderate	Jadi, Mungad, Matiyana, Dasson, Haja, Danduwa, Kota, Bhoopau, Gamari, Gawaila, Mailoth, Dunwaa, Malaitha, Baniyana, Mendal, Mohana, Kiurar Khanarsichae, Khatuwa, Kharsi, Siribarkoti, Rangyo, Birpa/Virpa, Chunaui, Jogyo, Thanta, Buraswa, Bagoti, Dawala, Jashta, Mahpavata, Kotuk, Silamu, Rampur Sarana, Dhananta, Derio, Nada, Lawari, Chhultar, Kondori Bondar, Guthar, Myvada, Banpur, Jhitand, Kuna, Bagi, Maindrath, Hanol, Chatra, Ninus, Koti (Babar), Chhumara, Derasa, Kulaha, Radu, Pheirij, Tiutat, Chausal, Darmigar, Purtad, Bagoor, Obraser, Bhoot, Nirmaga, Chhatad Hartad, Katardie, Kistur, Sarni, Paturi, Eithan, Sainj, Kunaun, Kharaura, Bhandroli, Silaura, Chanjoi, Dimich, Pinguwa, Kandoi, Bagani, Asoi, Hartar Santar, Tuna	82 (53.25)	Gundahan, Koti Utrou, Bambal, Pab (224), Shiri Kyari, Bela, Bali Koti, Manal, Dahar, Bindauli, Ajrouli, Jasvi, Bonch, Koti, Sakhauli, Tandiyan, Naya Panjor, Halan, Dev Thal, Jhakandon, Dharwa	21 (42.00)
Low	Luhari, Sijla, Kitrauli, Sunoda, Kandar, Majhgaon, Indroli, Samog, Bijanu, Shirwa, Vaimoo, Kolaha, Maurhi, Megar, Meghatu, Pivnal, Sainj, Bhunar, Sunir, Kholara, Raitad, Kaba Khera, Thartha, Gorchha, Punig, Undawa, Rajanu, Mangtar, Masak, Buraila	30 (19.48)	Kota, Kiyana, Juwan, Bindla Digwa, Gangtoli, Kando Bhatnaul, Banga, Sayasu, Chamra Morar, Gawali Pashmi, Matiana	11 (22.00)
Very Low	Matad, Kandidhar, Bisau, Amarad Jhabrad, Kunwa, Bayala, Jagthan	7 (4.55)	Pab, Nawna Bhatwar, Diyandon	3 (6.00)
Total Villages (2001 & 2011)		154 (100.00)		50 (100.00)

Source: Compiled and computed by the authors from Census of India data, UK and H.P. 2001 & 2011. Figures in parentheses show the percentage value of the total inhabited villages.

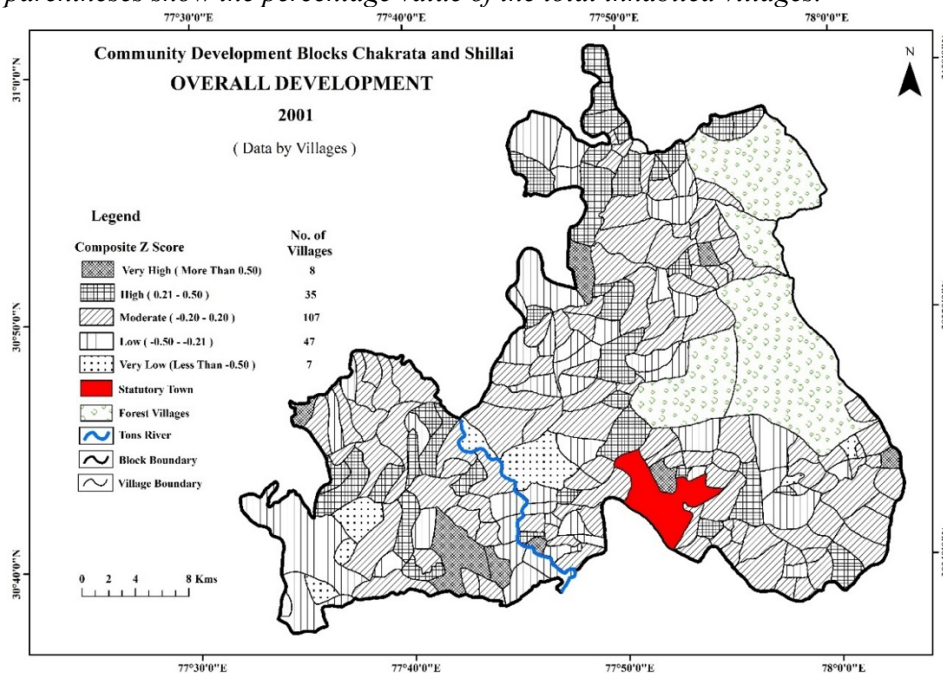


Fig. 2. Overall Development in 2001

Source: Prepared by the authors based on secondary data from the Census of India.

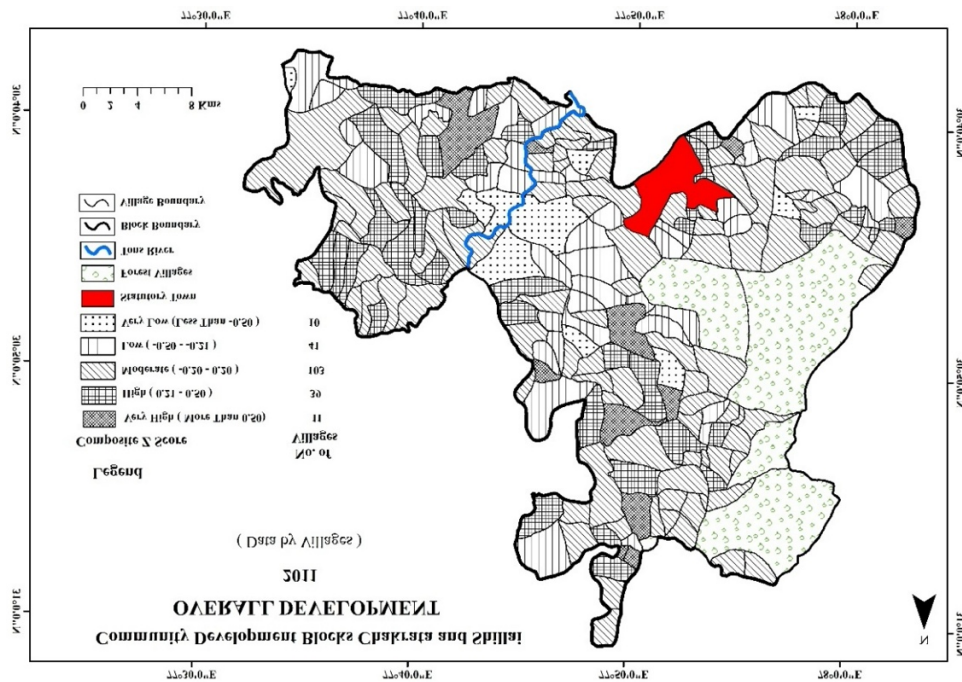


Fig. 3. Overall Development in 2011

Source: Prepared by the authors on the basis of secondary data from the Census of India

Areas of Very Low Development (CSS Less Than -0.50)

Very few villages were classified in this category, but these villages indicated the worst and most persistent levels of deprivation. Most were in areas with limited road and service access and limited markets. Overall, they had low literacy, significant gender disparities, small landholdings for farming, and few non-agricultural employment opportunities. The percentage of very low development villages increased slightly in Chakrata and remained unchanged in Shillai from 2001 to 2011. For Chakrata only, this change should not be interpreted as a deterioration of the village conditions. Instead, it indicates that other villages made greater strides and, consequently, Chakrata lost its relative standing. The backwardness of these settlements correlates with dependence on subsistence agriculture, low levels of non-farm work, youth out-migration, and low implementation of development programmes. Similar conditions have been observed in other Himalayan regions, where migration and the gradual abandonment of villages have weakened local livelihoods and reduced communities' ability to maintain agriculture and basic services (Kreutzmann, 2001; Kumar et al., 2025; Tiwari et al., 2022).

Overall, the comparison between 2001 and 2011 shows progress in both blocks, although Chakrata advanced faster than Shillai. At the same time, the large number of villages in the moderate development category shows that progress has been uneven and that many settlements are still in a transitional stage. The next section complements this census-based assessment by examining how residents perceive development in their own villages.

People's Perception of Overall Development: A Comparison of Chakrata and Shillai Blocks

After examining development through Census-based indicators, the study also considered local residents' views using data from the household survey. The study calculated a composite perception score for each of the 20 sampled villages using fourteen indicators (Table

3). The mean score was 21.10, with a standard deviation of 1.28. These scores were then used to categorise villages according to their perceptions of development into five categories (Table 3).

There was no village in either block in the very high development. This finding reflects ongoing problems in mountain communities rather than a data limitation. Socio-economic indicators were improving in certain villages, but everyday life and livelihoods still face difficult terrain, poor accessibility, inadequate services, and limited livelihood opportunities (Jodha, 2005; Karpouzoglou et al., 2020). It also suggests a disconnect between residents' perceptions and the positive outcomes of infrastructure improvements. A person's satisfaction depends on the facility's availability in remote rural areas, as well as its quality, regularity, affordability, and accessibility. Other geographically isolated rural communities have been found to experience similar situations (Bernard, 2018; Bhattacharyya et al., 2021). Research on community participation and rural development also indicates that infrastructure investments are not sufficient to ensure development results. Development is meaningful only if residents experience real improvements in their social and economic status (Wangdi, 2026). Two villages scored high: Brinad Bastil in Chakrata Block and Shillai in Shillai Block. Residents in these villages had relatively good access to infrastructure and public services, as shown by their higher composite scores and more positive responses.

Most sampled villages fell in the Moderate range. This group included 13 villages from Chakrata and 3 from Shillai. However, these villages had experienced a mixed picture in some areas, for example, in education, roads or basic facilities, while other areas had not. Only one village in Chakrata and none in Shillai fell into the Low category. This means that while development in the villages is still uneven and incomplete, most sampled villages did not experience poor conditions across all fourteen indicators. Only one village (Sayasu, Shillai Block) was classified as Very Low. The village is a concentrated area of disadvantages, including a lack of infrastructure, limited access to essential services, and its geographical location. The location is indicative of intra-regional differentials in development, as earlier studies on the differentials in mountain areas suggested (Sati, 2015 and Sharma, 2019).

A comparison of the two blocks indicates that Chakrata is in a better position than Shillai. Both blocks have 1 Village in the High development category, but Chakrata has no village in the Very Low category, whereas Shillai has 1 village in the Very Low category. Despite this disparity, the overall pattern is similar in both blocks. No village could be termed very highly developed, and most villages were in the Moderate category. This indicates that, although basic facilities and development initiatives have improved in many places, residents do not always experience these changes as a substantial improvement in their everyday lives.

Table 3. Levels of Development based on People's Perception

Levels of Socio-Economic Development	Statistical Value	Composite Score	Name of the Villages	
			Chakrata	Shillai
Very High	Mean + 2 SD and above	≥ 23.66	-	-
High	Mean + 1 SD to Mean + 2 SD	22.38 – 23.65	Brinad Bastil	Shillai

Levels of Socio-Economic Development	Statistical Value	Composite Score	Name of the Villages	
			Chakrata	Shillai
Moderate	Mean -1 SD to Mean + 1 SD	19.82 – 22.37	Raigi, Mohana, Haja, Mungad, Banachilar, Byala, Jagthan, Malaitha, Kharsi, Radu, Jogyo, Chhatad-Hartad, Chatra	Borar, Kando Bhatnaul, Manal
Low	Mean - 2 SD to Mean -1 SD	18.54 – 19.81	Luhari	-
Very Low	Below Mean - 2 SD	< 18.54	-	Sayasu

Source: Computed by the authors based on composite score value from field survey May to November, 2024.

This, therefore, is the gap between actual development and people's perception. The same has been observed in other rural areas (Bernard, 2018). Beltramo et al. (2024) studied the relationship between infrastructure and satisfaction and well-being in a rural mountainous region in Italy and found no direct correlation. They also found that low quality of life can lead to depopulation and further slow local development. Wangdi (2026) reported a similar scenario in Bhutan, where residents described development projects as only 'somewhat successful' even when they were implemented on time. The results indicate that development should not be limited to the construction of roads, buildings and other physical structures. It should also be accessible to people, used regularly, and have a real impact on their day-to-day lives.

Conclusion

This study analysed the socio-economic development of the villages of Chakrata and Shillai blocks at the local and spatial levels. It also examined differences between the changes shown in secondary data and local people's views of development in their own villages. The findings show improvements in both blocks, but also show differences between measured improvement and what people experience in their day-to-day lives, and between villages. In both 2001-2011, Chakrata and Shillai showed improvement in development. But the progress was more widespread and rapid in Chakrata. The block had more villages in the very high development category and fewer in the lowest development category. The improvement was less pronounced even in Shillai. Very few villages attained the highest level, and some continued in the very low development group. The highest number of villages in both blocks was in the moderate development category. This indicates that things have improved, but many settlements still lag behind what might be considered satisfactory across all dimensions. Progress has been driven by rising literacy, increasing labour market participation, better road infrastructure, and expanded government schemes. Meanwhile, several villages were adversely affected by poor infrastructure, limited non-farm employment, out-migration, and remoteness. The type of distress-induced migration reported here is comparable to that in other parts of the Indian Himalayan Region (Kumar et al. 2025).

These results are supplemented by the perception-based assessment. No village had a high perception rating in any of the very high categories. Overall, villagers in relatively successful villages were moderately satisfied with local development. Dissatisfaction was

greater in more remote villages where access to services and opportunities was less good. This implies that a road, school, health centre or government programme does not necessarily mean an improved quality of life. Development must involve people being able to access services regularly, access markets, and have stable income and security in their everyday lives. Many of these are challenging for households in the study area. Other authors, such as Beltramo et al. (2024), also highlight that quality of life in rural areas has multiple aspects and must be supported by local-level indicators to identify areas where it is low. However, Tiwari et al. (2022) note that the income benefits of migration are not always associated with reduced inequality within rural communities. The evidence identifies some policy priorities. Enhancing connectivity via roads is particularly crucial, as it affects access to education, healthcare, markets, employment and public services. Livelihood programs are also needed, especially in villages where young people have already started moving to seek employment. Less developed and distant settlements also need further development of education and health services. Government schemes need closer monitoring to ensure benefits are delivered in a timely fashion and as intended to isolated villages.

Overall, the study illustrates the need for local, place-based planning in mountain development. Plains or urban policies may not suit mountain communities because the physical landscape, elevation, climate, and isolation significantly affect daily life. Local geographical conditions and community needs should therefore inform development plans in the western Himalayas. Local quality-of-life indicators, as proposed by Beltramo et al. (2024), can help identify gaps that overall development statistics might miss. Kreutzmann (2001) also emphasises the need for sub-regional indicators when distinguishing true differences within mountain regions.

The study has a couple of limitations. Because Census 2021 data were unavailable, the temporal analysis was limited to 2001-2011. Consequently, it was not possible to adequately evaluate recent changes in village-level development. Forest villages and the statutory town were also excluded from the study, so the results apply only to the selected rural settlements. Future studies should use the latest primary household data and include more blocks across the Western Himalayan region. These studies will help ascertain whether the observed patterns are particular to the blocks of Chakrata and Shillai or common across the region. The indicators can be extended to include environmental change, vulnerability to environmental change, disaster risk, digital access, and the impacts of migration on household well-being.

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