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# Infrastructural development in Churah Tehsil of Himachal Pradesh - a village level analysis

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**Abstract**

*Churah is one of the economically and socially backward tehsils of Chamba district in Himachal Pradesh. The present study, based on secondary data pertaining to the 1991 and 2011 census, evaluates the progress in the levels of development in social and economic infrastructure in this tehsil using village-level data. Six sectoral indicators such as education, health, transport, communication, drinking water and electrification have been considered at the village level for the analysis. A composite index of these six sectors of infrastructure has been computed by assigning differential weightages to different facilities according to their relative importance and relevance in rural socio-economic development. The differential Z-score has also been used to show the pace of infrastructural development. The study reveals that there has been a considerable expansion in infrastructural facilities in different villages during the study period though intra-tehsil disparities have accentuated.*

***Keywords:*** *Infrastructure, Development, Spatial Variations, Churah Tehsil.*

## Introduction

Chamba being one of the 115 backward districts as identified by the NITI Aayog, occupies a unique place in the history of Himachal Pradesh. Churah is one of the backward *tehsils* (sub-district) of this 'aspirational district' chosen for development. The aspirational district programme was launched by NITI Aayog in January 2018. It is an outcome-focused, data-driven framework aimed at bringing expeditious improvements in the socio-economic indicators of the most underdeveloped regions in the country. At present, there are 112 such pockets in the country. Continued inadequacy of basic infrastructure largely an outcome of the constraint posed by difficult terrain of this *tehsil* located in the Himalayan region, has kept this *tehsil* deprived both socially and economically.

The basic infrastructure required in rural areas is education, health, housing and drinking water to list a few which unfortunately are still poor in most villages (Srikanth and Kavuri, 2019:92-96) of India. Rural infrastructure plays a key role in reaching the benefits of development to the large masses of the rural poor. Poor rural infrastructure limits the ability of the traders to travel and communicate with remote farming areas, limiting market access from these areas and eliminating competition for their produce. Construction of rural roads inevitably leads to an increase in agricultural production and productivity by intensifying existing land use to take advantage of expanded market opportunities (Samanta, 2015:86-93). The access to public infrastructure could have a

direct or indirect role in increasing the income-generating opportunities for the rural poor (Satish, 2007). Infrastructure is a country's bedrock of economic, social and human development. It is the key to the efficiency of investment, manufacturing competitiveness, employment, quality of life and reducing poverty. Infrastructure like health, roads, telecommunication, electricity, irrigation, etc. has a strong effect on economic growth (Kumar, 2017:1-21). These infrastructural investments are inherently place-based and are often geared either to economically backward areas to grow or to potentially fast-growing areas to further accelerate growth.

Infrastructural development contributes to output growth by stimulating economic activity, productivity and enhancing the quality of life (World Bank, 1994: 2-3). The absence of rural infrastructure in an area serves as a push factor of migration leading to rural depopulation. This simply means that the provision of infrastructure will discourage rural-urban migration and increase the working force and boost agriculture production which is the mainstay of the rural economy (Toyobo et al., 2014: 29-34). The disparity in infrastructure tends to increase the disparities in the aggregate level of development as lack of these basic facilities reduces the efficiency of resource use in the backward regions (Kaur and Ghuman, 2009:15-26). The investment in rural infrastructure has manifold effects which lead to create new economic opportunities, generate additional employment, enhance credit absorption and also ensure the delivery of related services (Singh and Vidyarthi, 2015: 442-447). Thus, infrastructure is the hallmark of socio-economic development as the superstructure of a nation's overall wealth hinges on it (Thakur and Lal, 2014:205-222). It is against this backdrop that the present study aims at evaluating the development of rural infrastructure in the Churah *tehsil* of Himachal Pradesh. There are twofold objectives of the present study i.e. to evaluate the progress in the levels of infrastructural development and to examine the pace of infrastructural development in the study area.

## Data and Methodology

The present study is based on secondary data relating to rural infrastructure which have been gathered from District Census Handbooks, Directorate of Census Operations, Shimla. The development of infrastructure has been evaluated at the village level for a period beginning 1991 and up to 2011. The study is based on the analysis of 312 villages reported as per the 2011 census. However, there were 211 inhabited villages in 1991 but the number of these villages decreased to 181 in the 2011 census. The evaluation is based on six sectoral indicators which include education, health, drinking water, transportation, communication and electrification which constitute the most basic needs of infrastructure.

Educational infrastructure includes the availability of primary, middle, high schools and degree colleges. The health infrastructure includes dispensaries, health sub-centres, primary health centres, community health centres and sub-district hospitals. Drinking water facilities include the sources of potable water which cover taps, tanks, wells and others. Communication facilities include the village level availability of post-offices, landlines and mobile phones. The roads and transport facilities include the availability of surfaced un-metalled and metalled roads and bus services in the villages. A composite

Table 1: Weightage Scheme

| Infrastructure Component | Sub-Component Facilities | Weightage assigned |
|---|---|---|
| Education | Primary School | 1 |
| | Middle School | 2 |
| | High School | 3 |
| | Senior Secondary School | 4 |
| | Degree College | 5 |
| Health | Dispensary | 1 |
| | Primary Health Sub-Centre | 2 |
| | Primary Health Centre | 3 |
| | Community Health Centre | 4 |
| | Civil Hospital | 5 |
| Transport | Unmetalled Road | 1 |
| | Metalled Road | 2 |
| | Bus-stop | 3 |
| Communication | Post-office | 3 |
| | Landlines | 2 |
| | Mobile Phones | 1 |
| Water Facility | River Water | 1 |
| | Tank/Pond | 2 |
| | Well/Hand Pump | 3 |
| | Tap Water | 4 |
| Electrification | Domestic Purpose | 1 |
| | Non-Domestic Purpose | 2 |

index of these six sectors of infrastructure has been worked out by assigning differential weights (Table-1) to the facilities according to their relative importance in the socio-economic development of the villages in this mountainous region. Differential weights have been assigned to various facilities based on their perceived relative importance. Facilities such as healthcare are a measure of human survival, education as a key driver of awareness, employment and human development have all been accorded higher weight. The score increases as the grade and value of a particular facility increase hierarchically.

The composite weighted score has been categorized into 5 classes - less than 5 (very low), 5-10 (low), 10-15 (medium), 15-20 (high) and more than 20 (very high). The equal interval classification method has been used to classify the data into these five classes. In order to examine the pace of infrastructural development at the village level, the values of Z-score have been subtracted from each other and classified into four categories i.e. relatively retrogressive, slow, developing and progressive. The Z-score has been computed with the help of the following formula:

$$Z\ score = \frac{X - Mean}{S.D.}$$

Where,

X = Raw score or observed value

Mean = Mean of the observation

S.D. = Standard deviation of the observation

The pace of development in village infrastructure has been analyzed by using descriptive statistics i.e. mean and standard deviation computed for all the variables for both the census periods.

**Study Area**

The Churah *tehsil* is situated in the northern part of the Chamba district of Himachal Pradesh. Spread over 1069 $km^2$ of geographical area, it has a population of 78,988 as per the 2011 census accounting for about 15% of the total population of Chamba

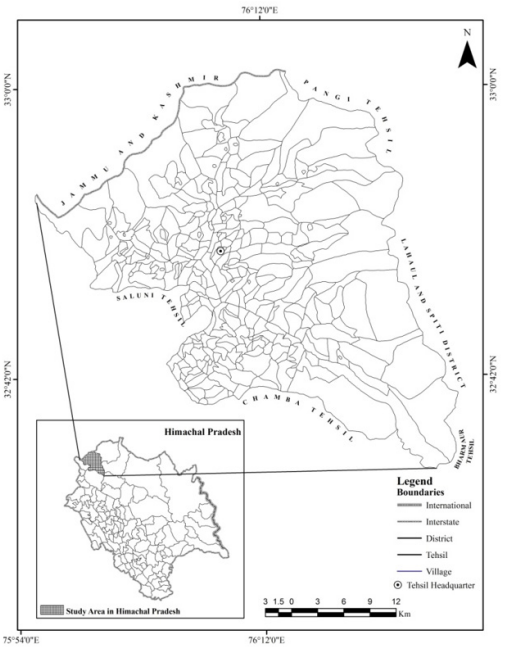


Figure 1: The Study Area

*Source: Administrative Atlas Census of India, 2011. P. 148.*

district. The longitudinal extent of the *tehsil* ranges between 75º55′21″ and 76º26′43″ E and extends latitudinally between 32º35′47″ and 33º01′27″ N (Fig. 1). It covers about 16% of the total geographical area of the district. Unlike all-district headquartered *tehsils* of the state, Churah *tehsil*, by virtue of its location in the vicinity of Pir-Panjal range and situated far away from state capital headquarters, received scant attention from developmental agencies. It continued to be backward due to its geographical remoteness, fragile attention from administrators and policymakers. The *tehsil* is characterised by a lack of education (evident from the lowest literacy rate of only 60.44% in 2011) transportation facilities involving huge travel time. Many villages are without basic infrastructural facilities.

Tissa is the headquarters of Churah *tehsil*. It is located about 75 kms away from the district headquarters at Chamba. The elevation varies from about 6608 metres to 874 metres above the mean sea level. The Pir-Panjal range looks in supreme majesty over the Churah *tehsil* which adds to the mountainous and rugged terrain of the area. A number of passes like Sach, Ariu, Charda, Drati pass etc. are found in the high altitude areas of the *tehsil*. Historically, these passes acted not only as gateways to the surrounding territories but also sustained human cultures through ages in these harsh geographical conditions. The major rivulets of the area are Chanju Nala (22.42 kms) and Baira Nala (21.60 kms). During the early 1990s, about 75% of the population excluding the 0-6 age group was illiterate. However, the average literacy rate of the *tehsil* has improved to 60.44% by the year 2011 (Census of India, 1991 and 2011).

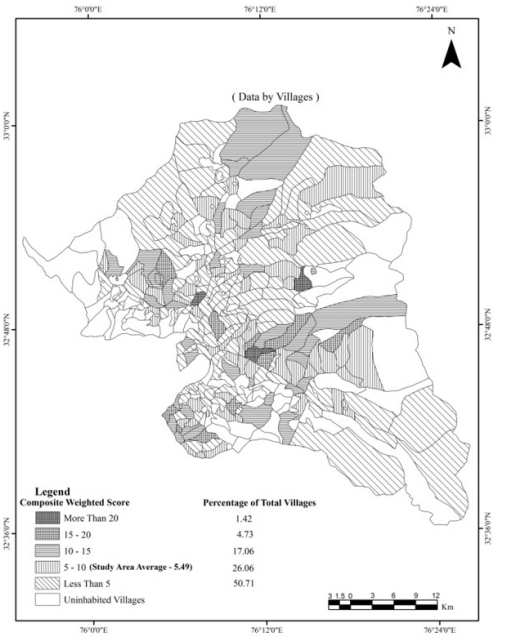


Figure 2: Levels of Infrastructural Development, 1991

Table 2 Churah Tehsil: Levels of Infrastructural Development

| Census Year | Composite Weighted Score | | | | | | Study Area Average |
|---|---|---|---|---|---|---|---|
| | Very Low (< 5) | Low (5 - 10) | Moderate (10 - 15) | High (15 - 20) | Very High (> 20) | Inhabited Villages | |
| 1991 | 107 (50.71) | 55 (26.06) | 36 (17.06) | 10 (4.73) | 3 (1.42) | 211 (100.00) | 5.49 |
| 2011 | 0 (0.00) | 0 (0.00) | 11 (6.07) | 63 (34.80) | 107 (59.11) | 181 (100.00) | 23.76 |

Agriculture is the mainstay of the people of this *tehsil* and cultivators constitute about 67% of the total main working population in 2011. The mountainous topography along with the prevalent socio-economic setup of the area posed challenges in building rural infrastructure in the area.

Table 3 reveals that 33 villages have been abandoned during the period of study in the Churah *tehsil*. 3 newly inhabited villages have also been found in the study area in 2011. It was confirmed that these 33 villages are the pasture lands used by local shepherds and farmers practicing transhumance and inhabiting these lands for a few months during the summer. However, in the 2011 census, these villages were enumerated as uninhabited.

**Progress in Levels of Infrastructural Development (1991-2011)**

The progress in infrastructural development has been examined by classifying the study area into the following five categories based on the level of infrastructural development:

***Areas of very high infrastructural development-*** Table 2 and Fig. 2 show that only 3 villages namely Tikarigarh, Khajwa and Kuther had the best infrastructural development in 1991with a composite score of 21 each. The proportion of such villages witnessed a massive increase to about 59% of the total inhabited villages in 2011. These villages are distributed in central, centre-western and some scattered villages in south-western parts of the study area (Fig. 3). Provision of educational and health institutions, development of means of transportation and communication, improvement in the supply of potable water and increase in electrification for domestic and commercial purposes led to this phenomenal increase in the proportion of the villages registering very high infrastructural development in the *tehsil* within a short span of 20 years.

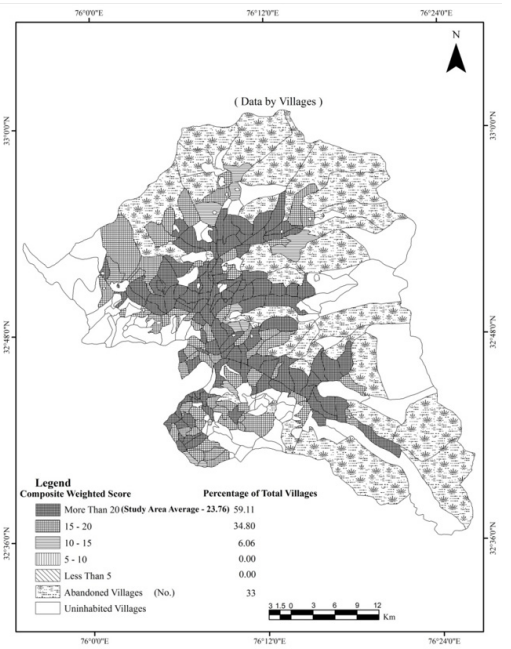


Figure 3: Levels of Infrastructural Development, 2011

***Areas of high infrastructural development*** **-** Table 2 reveals that only 5% of the total inhabited villages of Churah *tehsil* had a high level of infrastructural development in 1991. These 10 villages (Fig. 2) in 1991 had a composite score between 15 and 20. The share of these villages increased to about 35% in 2011 showing remarkable improvement in the rural infrastructure in the *tehsil*. These villages are concentrated mainly in the central, western and south-western parts of the *tehsil* (Fig. 3). An increase in the level of schooling and health facilities, connectivity through roads and communication have been key contributing factors for the high level of infrastructural development achieved by these villages.

***Areas of moderate infrastructural development*** **-** There were about 17% of the total inhabited villages which had a moderate composite score (10-15) of infrastructural development in 1991 (Table 2). Fig. 2 shows that the areas recording moderate level of infrastructural development were scattered all over the *tehsil*. Relatively low development of means of transportation and communication, moderate level of educational facilities and health services were mainly responsible for this moderate level of infrastructural development during the study period. Table 2 shows that the share of villages achieving a moderate level of infrastructural development declined to about 6% of the total inhabited villages in 2011 as many of these villages moved up in terms of infrastructural development in the intervening period These are the villages which were mainly located in central, northern and southern parts of the study area (Fig. 3).

***Areas of low infrastructural development*** **-** A little over a quarter of the inhabited villages had a low level of infrastructural development in the year 1991 largely concentrated in the central part and the northern part of the *tehsil* (Fig. 2). Poor road connectivity, slow expansion of communication facilities and sluggish increase in educational and health infrastructure were responsible for this low level of infrastructural development in these villages. Such villages are no more found in the year 2011 as all of them improved their position to move into better infrastructural categories (Table 2).

***Areas of very low infrastructural development*** **-** More than half (50.71%) of the villages were characterised by the very low level of infrastructural development in 1991(Table-2) with composite scores often below 5. These areas were found concentrated in the central, western, northern, south-eastern and south-western parts of the *tehsil* (Fig. 2). Lack of development of transportation and communication facilities, negligible health services were some of the factors leading to poor infrastructural development in the study area. However, such villages are no more found in the *tehsil* as all of them have improved their position after substantial changes made to the provision of essential infrastructure in these villages.

It is evident that all these villages registered significant improvement and moved upwards to moderate, high and a very high category of infrastructural development by 2011. As many as 107 villages reportedly displayed very low level of development in the year 1991. All of these moved upwards in the level of their infrastructure by the year 2011 though with different speeds. Of these 19 were found deserted while 3 of them moved to the moderate category. Another set of 35 villages moved upwards to register a high level of development in terms of infrastructural access. Significantly, over 40% of these

Table 3 Churah Tehsil: Pace of Infrastructural Development (1991-2011)

| Differential Z-Score | | | | | Study Area Average |
|---|---|---|---|---|---|
| Relatively Retrogressive (< 0.00) | Slow (0.00 - 1.00) | Developing (1.00 - 2.00) | Progressive (> 2.00) | Abandoned Villages | |
| 80 (44.94) | 56 (31.46) | 30 (16.85) | 12 (6.74) | 33 | 178 (100.00) |

*Figures in parentheses show the percent of total inhabited villages.*

villages (50) moved to the category of such villages which had the best infrastructure. It is imperative therefore to analyse the pace of infrastructure development experienced by these villages.

## The Pace of Infrastructural Development (1991-2011)

The pace is the degree of progress achieved reflecting the magnitude of change. In order to understand the pace of infrastructural development, the difference in the z-score values of each village for both periods was computed. On the basis of differential Z-score, the villages were categorized into four categories of infrastructural development i.e. relatively retrogressive, slow, developing and progressive.

Relatively *retrogressive* villages are those where the pace of infrastructural development is the poorest in comparison to the rest of the villages. Those villages have been termed 'retrogressive' where the value of the Z-score for the latest year is observed negative. It happened as the rate of expansion of rural infrastructural facilities was relatively much better in other villages. *Developing* villages connote receiving more facilities during the study period. *Progressive* villages are those where the pace of infrastructure development is relatively fast in comparison to other villages. It has happened in those villages where rural infrastructure was very less in 1991 and the experienced spurt of expansion subsequently. The differential Z-score has been calculated for 178 villages that existed during both the census years. Three newly inhabited villages that appeared in the 2011 census have not been considered to study the pace of infrastructural development in the villages common to both the census years.

Table 3 and Fig. 4 show that there were 12 villages accounting for about 7% of the total inhabited villages which have witnessed progressive infrastructural development in Churah *tehsil*. Fig. 4 reveals that progressive villages constituted merely 2.16% of the total area and a little less than one-tenth of the total population of the study area. These villages are found adjacent to the administrative headquarter i.e. Tissa of the *tehsil*. Some isolated villages showing progressive infrastructural development are found in the central-western parts of the *tehsil*. These villages are found in close proximity to the administrative headquarters of Saluni *tehsil* of Chamba district. Thus, the villages adjacent to the incipient core of rural development i.e. *tehsil* headquarters have shown a higher pace of expansion of infrastructural facilities and services. These infrastructural facilities include the opening of primary, middle and secondary schools, the opening of dispensaries and primary health centres, functioning of the civil hospital in Tissa, rising road connectivity and access to tap water.

Table 3 and Fig. 4 show that about 17% of the total inhabited villages accounting for

6% of total geographical area and about one-fifth of the total population have witnessed 'developing' pace of infrastructural development during 1991-2011. The central, western and south-western parts of the study area have witnessed more of 'developing' type of infrastructural facilities. Expanding village roads connectivity, the opening of educational institutions such as primary and middle schools, expanding electrification and potable water connections are some of the reasons for the fast pace of infrastructural development in these villages during 1991-2011.

About 31% of the total inhabited villages have experienced a slow pace of infrastructural development (Table 3). Fig. 4 shows that about 12% of the total area supporting 31% of the total population has witnessed a slow pace of infrastructural development in the *tehsil*. These villages are mainly found in central, north-western and some isolated pockets in the southern and south-western parts of the study area. Lack of schooling and health facilities and sanction of new roads and their slow construction in these villages explain this sluggish infrastructural development. These areas are characterised by relatively more inhospitable terrain and thus, the development of transportation and communication facilities is not easy in these areas.

Close to 45% of the inhabited villages have registered retrogressive development of infrastructure during the two decades included for this analysis. Fig. 4 shows that these villages constituted about 15% of the total geographical area and 39% of the total population of the *tehsil*. The expansion of both physical and social infrastructural facilities, mainly educational institutions and provision of drinking water and health services continued to be at the bare subsistence level in these villages.

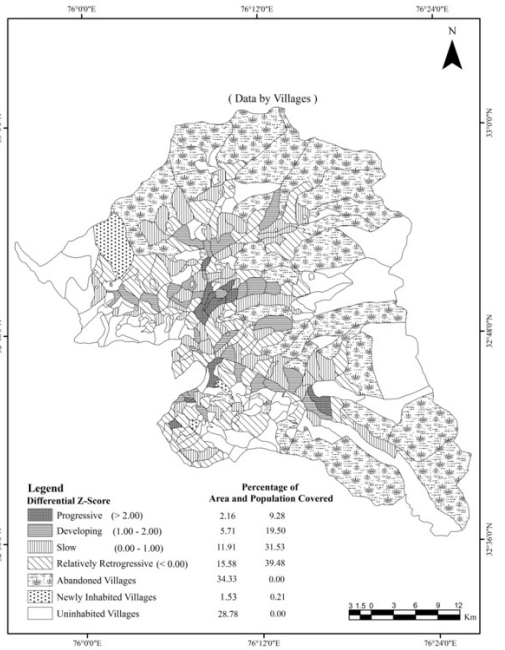


Figure 4: Pace of Infrastructural Development, 1991-2011

Although infrastructural development has taken place in the *tehsil* in the intervening period of 1991-2011, the pace of development has been rather slow for over 70 percent of the population which has witnessed percent retrogressive or slow pace of development further increasing disparity in regional development.

## Summing Up

The distributional pattern of overall levels of infrastructural development shows significant improvement in facilities like education and health institutions, drinking water, electricity, communication and transportation between 1991 and 2011. The study shows a rise of about 18.27 percent points in the overall level of infrastructural development during the

20 years preceding 2011. The study clearly shows that the central and western parts of the *tehsil* have witnessed the high and very high levels of infrastructural development. An overwhelming majority (over 75%) of the inhabited villages which had low development of rural infrastructure in 1991 registered considerable improvement and moved upwards to moderate, high and very high categories of infrastructural development. The composite weighted score shows progress in the access to basic infrastructural services such as schools, dispensaries, primary health centres, electricity, roads and communications in 2011.

Although one-fourth of the total inhabited villages with 30% of total population witnessed a fast pace of infrastructural development, the pace of infrastructural development has been mainly confined to the areas surrounding the Churah and Saluni *tehsil* headquarters. The areas which share boundaries with Jammu and Kashmir state, Lahaul-Spiti District and Pangi *tehsil* of Chamba district have shown poor or relatively retrogressive pace of infrastructural development. The interior location of these areas, sluggish expansion of roads, health services, schools and electrification have resulted in a poor pace of infrastructural development. There is a need to pay special attention to those lagging villages in order to achieve more balanced infrastructural development in the *tehsil*.

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