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TRENDS AND PATTERN OF DEVELOPMENT OF EDUCATIONAL INSTITUTIONS IN ROHRU BLOCK OF SHIMLA DISTRICT, HIMACHAL PRADESH

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Abstract

Education plays an important role in the overall development of any region. It strengthens the other sectors by forming human capital and provides human resource to the society. It further shapes the cultural aspects and means and end of economic growth of any region. Development of educational facility is the threshold that can transform all the sectors of social and economic development. In the present study, an attempt has been made to identify the changing pattern and current status of development of educational institutions in Rohru block of Shimla district, Himachal Pradesh. The study reveals that the share of villages having primary school availability increased from 43.37 per cent to 69.82 per cent during the 1991-2019 period. Villages having the availability of middle and high school have also witnessed an increase from 13.25 and 6.63 per cent to 36.09 and 22.48 per cent, respectively. There has not been any senior secondary school at any village during 1991, but 24 new senior secondary schools have been opened during the study period. The study area has a noticeable regional disparity in the levels of development of educational institutions. However, decreasing trends of disparity in the levels of development of educational institutions have been witnessed during the study period.

Keywords: Education, Educational institutions, Development, Disparity, Composite index, Rohru.

Introduction

Education is the basic requirement for human beings. Education provides humans an ability to read and write, participate in economic growth, developing skills, creating an efficient workforce and provides basic skills to human capital for higher earning and better living (Mukherjee, 2004; Sharma and Sharma, 2017). Education is an indicator of the status of living, a path for the advancement of any nation, a gateway towards knowledge and a major contributor to the overall development of any nation (Ahmed, 2013; Wedam et al.,

2015; Kumari et al., 2020). Out of eight Millennium Development Goals (MDGs) launched by United Nations in 2000, two have been directly focusing on educational development (Ngwaru and Oluga, 2015). Education is called to be an instrument for social change and it can bring equality and improve social mobility as well as interactions among different social groups of society (Sarkar and Kasemi, 2020). It acts as a tool for social transformation, poverty reduction and a base for social transformation (Rani and Jaglan, 2020). Education is an important avenue that

provides a wide range of opportunities for all-round development (Singh and Singh, 2005). Education is one of the greatest needs of our time as it brings improvement in the quality of life and plays a pivotal role in social reconstructions (Singh and Patidar, 2011). Some of the important indicators of educational development such as literacy rate, schools per 1000 population, single teacher school, drop-out rate, enrolment ratio and pupil teacher ratio have been studied and explained by Vijender and Kaushik (2015) at district level for Himachal Pradesh.

At the time of Independence, there have been only 20 universities and less than 500 colleges all over the country. After independence, in 1950, constitutional committee made provision of free and compulsory education up to the age of 14 which further converted to the right to education for 6-14 years of age by the constitutional amendment of 2002 (CREATE, 2009). This constitutional amendment has strengthened the education sector in India. Economic reforms of 1991 have boosted the private sectors to institutionalized education and improved the status of education sector in India (Kumari et al., 2020).

Many scholars have conducted studies on different areas of education over the world and in India. Ahuja and Filmer (1995) have analyzed the educational attainment in developing countries and projected the level of educational attainment by the year 2020. The study projected rising trends in the gender gap in education. Wedam et al. (2015) have critically examined the community participation in educational infrastructure development and management in Ghana. They have further observed that the local community has a considerable knowledge and understanding at the local level for the betterment and develop-

ment of educational infrastructure. Mukherjee (2004) has examined the educational attainments in India with respect to trends, patterns and policy issues. She has observed that providing elementary education to all in India still remains an un-assailed frontier and there are still regional variations and disparity in the post-reform period in education with a moderate rate of success. Khan and Butool (2013) have analyzed the state-wise educational status of Muslims in India and concluded that the educational status of Muslims in India is not satisfactory and requires special attention. Sharma and Sharma (2017) have examined the trends and patterns of education in India and suggested a complete structural reform to improve the quality. Kumari et al. (2020) have analysed the spatial and temporal variations in educational attainments in India and observed increasing trends and patterns of educated persons at secondary and higher level of education. Bhunia et al. (2012) have tried to map the existing school infrastructure at primary and upper primary level in Paschim Medinipur district in West Bengal and observed that Sarva Shiksha Abhiyan has contributed significantly in improving the infrastructure up to the upper primary level. Before independence, Himachal Pradesh was also far behind in terms of educational infrastructure. But after independence from the first to sixth five-year plan, special emphasis has been given to develop educational infrastructure in the state (Lal, 2013). In terms of literacy, Himachal Pradesh has made a remarkable progress. Rana and Jyoti (2018) have found that in 1950, total literacy rate of Himachal Pradesh has been only 4.8 per cent which has increased to 83.78 percent in 2011. Similarly, Vijender and Kaushik (2015) have observed an increase in

the enrolment of the students between the age group of 6-14 and school dropout rate has also fallen considerably especially among the girls of SC/ST families in Himachal Pradesh.

Although, all these studies addressed different aspects of the educational infrastructure and educational policies, yet the issue of availability of educational institutions at village level remain untouched. This gap has necessitated to carry out a village-level study on the status of development of educational institutions in Himachal Pradesh. It is the institution that provides the base on which the structure of educational development can be erected. In this context, this study has been conducted to evaluate spatio-temporal variations in the availability of educational institutions and disparity in the level of development of educational institutions in the Community Development block Rohru of Himachal Pradesh.

Objectives

Major objectives of the study are:

- to examine the current status and changing pattern of availability of educational institutions, and
- to evaluate the trends and pattern of disparity in the levels of development of educational institutions in Community Development Block Rohru of Himachal Pradesh.

Study Area

The study area constitutes Community Development (CD) Block Rohru of Shimla district. The block is situated in eastern part of the Shimla district of Himachal Pradesh. The block is located between latitudes of 31° 6' 39" to 31° 17' 32" north and longitudes of 77° 40' 15" to 77° 55' 35" east. The block spreads over

an area of approximately 324 km² and falls in the lesser Himalayan region (Fig. 1). CD block Rohru covers the south-eastern part of Shimla district which is a water divide of two major river systems of India i.e., Ganga river system and the Indus river system. This area has a complex physiographic mosaic of hills, valleys and snow-clad peaks. The relief of this area ranges from a minimum of 1378 meters to a maximum of 3409 meters. This area is drained by Sai khad and Dogra khad which are tributaries of Pabbar river. Pabbar river rises from Chandra Nahan north of Rohru and joins Tons river near Tuini in Uttarakhand. The study area comprises of 188 villages out of which 170 have been inhabited with 12,480 households in 2011. The total population of the study area has been 56,421 persons in 2011, constituting 29,050 males and 27,371 females. The density and sex ratio of population in the study area have been 186 persons per km² and 942 females per thousand males, respectively in 2011. The literacy rate of the study area has been 76.75 per cent and there has been only 0.11 per cent of gender disparity in literacy. The economy of the study area is agro-based. The study area is dominated by apple cultivation and is one of the major apple producers in the state. More than 45 per cent of the study area is under cultivation in which 43 per cent area is under the cultivation of horticultural crops. In 2011, about 31 per cent of the total population has been of cultivators and agricultural labourers.

Database and Methodology

The study is based on secondary data collected from the Census of India for the decades of 1991, 2001 and 2011. Data have also been collected from the Directorate of Elementary and Higher Education, Shimla,

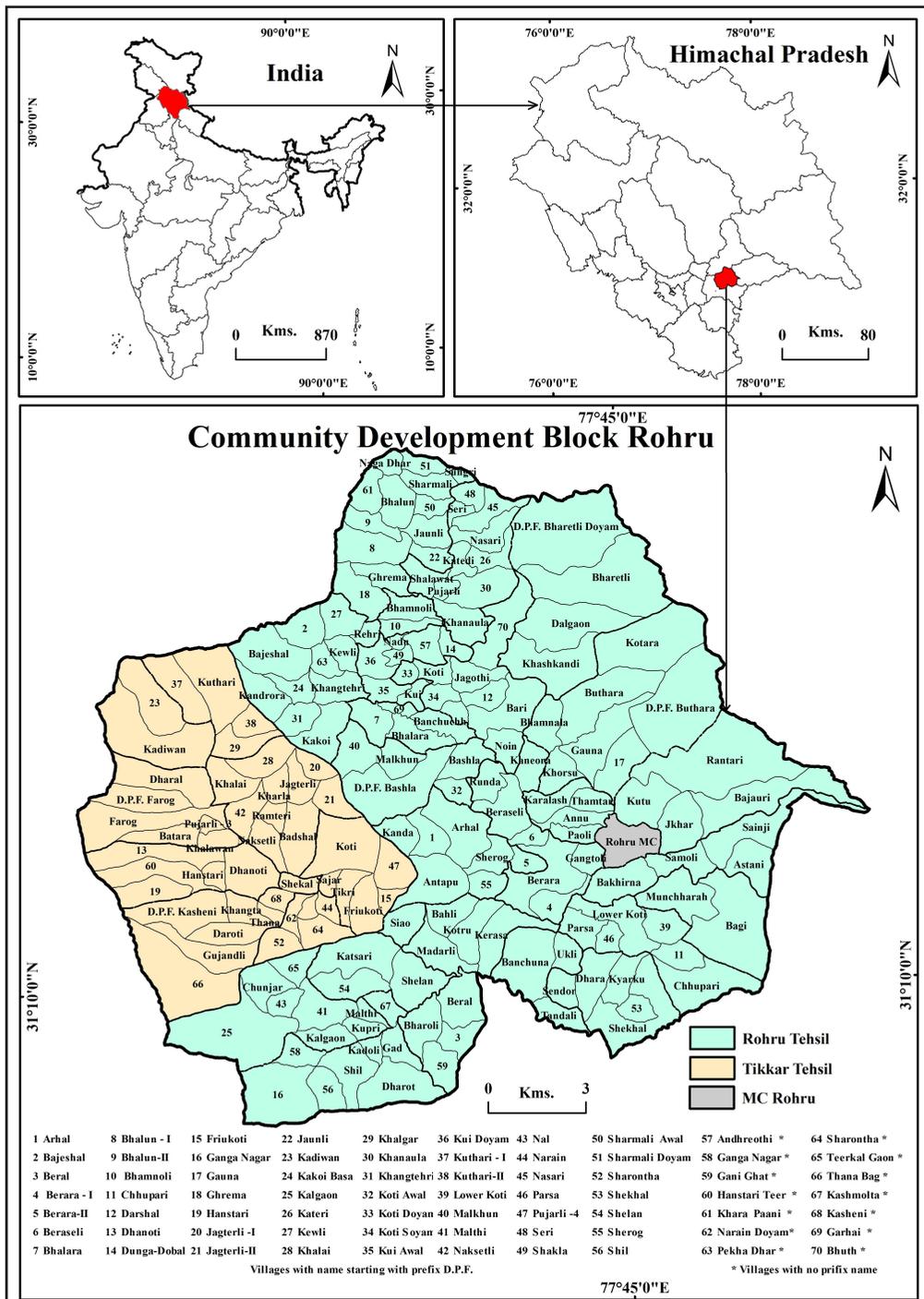


Fig. 1

Himachal Pradesh for the year of 2019. The census year 1991 has been taken as base year because the study intended to compare two decades prior to Right to Education (RTE; 1991, 2001) and almost two decades after RTE (2011 and 2019) since census 2021 is yet to be conducted. It provides almost 30 year long period to study the development of educational institutions in the study area. The village is the primary unit of study. To study the levels of development of educational institutions, the availability of primary school, middle school, high school, senior secondary school and college in a village has been given scores according to their hierarchy as 1 for primary school; 2 for middle school, 3 for high school, 4 for senior secondary school and 5 for college. The scores have been added together for the particular village to know the composite score. To evaluate the overall development of educational institutions in the study area statistical technique of z-score has been used. Village-wise raw data of each indicator have been computed into a standard score which may be expressed as:

$$Z_{ij} = \frac{X_{ij} - \bar{x}}{\sigma}$$

where, Z_{ij} is standard value of the indicator i in village j , x_{ij} is actual value of indicator i in village j , \bar{x} is the mean value of indicator i in all villages and σ is standard deviation of indicator i in all villages. Population estimation for the year 2019 has been done by following the equation developed by Al-Eideh and Al-Omar, (2019), which is mathematically expressed as: $Nt = P \times e^{r \times t}$ where, Nt represents the number of people at a future time, P is the population at the beginning time, e is the base of the natural logarithms (2.71828), r is the rate of increase (natural increase divided by 100) and t represents the period involved.

Results and Discussions

Availability of Primary Schools

In Himachal Pradesh, a primary school can be opened if there is a walking distance of 1.5 km from the neighbourhood school and a minimum of 25 children in the age group of 6-11 years are available and willing to get enrolment in that school. Table 1 shows that except a minor decline in 2019, there has been a constant increase in the number of primary schools during the study period. In 1991, there have been 72 villages (43.37 per cent, of the total inhabited villages) having primary schools. The spatial distribution of villages having primary school reveals that in 1991, villages on the central, eastern and southern parts of the study area have a noticeable availability, while northern, western, north-western, south-western and south-eastern parts are having fewer villages with the availability of primary school facility (Fig. 2). In 1991, 96 inhabited villages have been lacking primary school facilities. Table 1 further shows that in 1991 the number of schools per 300 persons has been only 0.48. In 2001 the number of villages with primary school facility increased to 104 villages (62.65 per cent) with having a total of 118 primary schools. In 2001, 46 new primary schools have been added in 32 villages. These villages are distributed in the northern, north-eastern, eastern, central, southern, western and north-western parts. The study shows that the number of primary schools per 300 persons increased to 0.69 in 2001 from 0.48 in 1991.

In 2011, there have been 136 primary schools located in 115 villages. With respect to 2001, 11 new villages with 18 primary schools have been added in 2011. Out of these 11 villages, 5 villages (D.P.F. Kui Awal, Anu, Kerasa, Kalgaon and D.P.F. Nal) have been

Table 1
C.D. Block Rohru: Availability of Educational Institutions

Institutions	Villages having Facility Available											
	1991			2001			2011			2019		
	Villages	Number of Institutions	Primary Schools (per 300 Persons) Other Institutions (per 1000 Persons)	Villages	Number of Institutions	Primary Schools (per 300 Persons) Other Institutions (per 1000 Persons)	Villages	Number of Institutions	Primary Schools (per 300 Persons) Other Institutions (per 1000 Persons)	Villages	Number of Institutions	Primary Schools (per 300 Persons) Other Institutions (per 1000 Persons)
Primary Schools	72 (43.37)	72	0.48	104 (62.65)	118	0.69	115 (68.05)	136	0.72	118 (69.82)	133	0.61
Middle Schools	22 (13.25)	22	0.49	46 (27.72)	46	0.90	63 (37.27)	64	1.13	61 (36.09)	62	0.94
High Schools	11 (6.63)	11	0.24	26 (15.66)	26	0.51	34 (20.12)	34	0.60	38 (22.48)	38	0.58
Senior Secondary Schools	0 (0.00)	0	0.00	15 (9.04)	15	0.29	27 (15.98)	27	0.48	24 (14.20)	24	0.37
Schools Colleges	1 (0.60)	1	0.02	1 (0.60)	1	0.02	1 (0.59)	1	0.02	2 (1.18)	2	0.03
Total Population	45,004			50,870			56,421			65,159 (Estimated Population)		

Source: Compiled by authors. The figure in parentheses shows the percentage of villages having the facility.

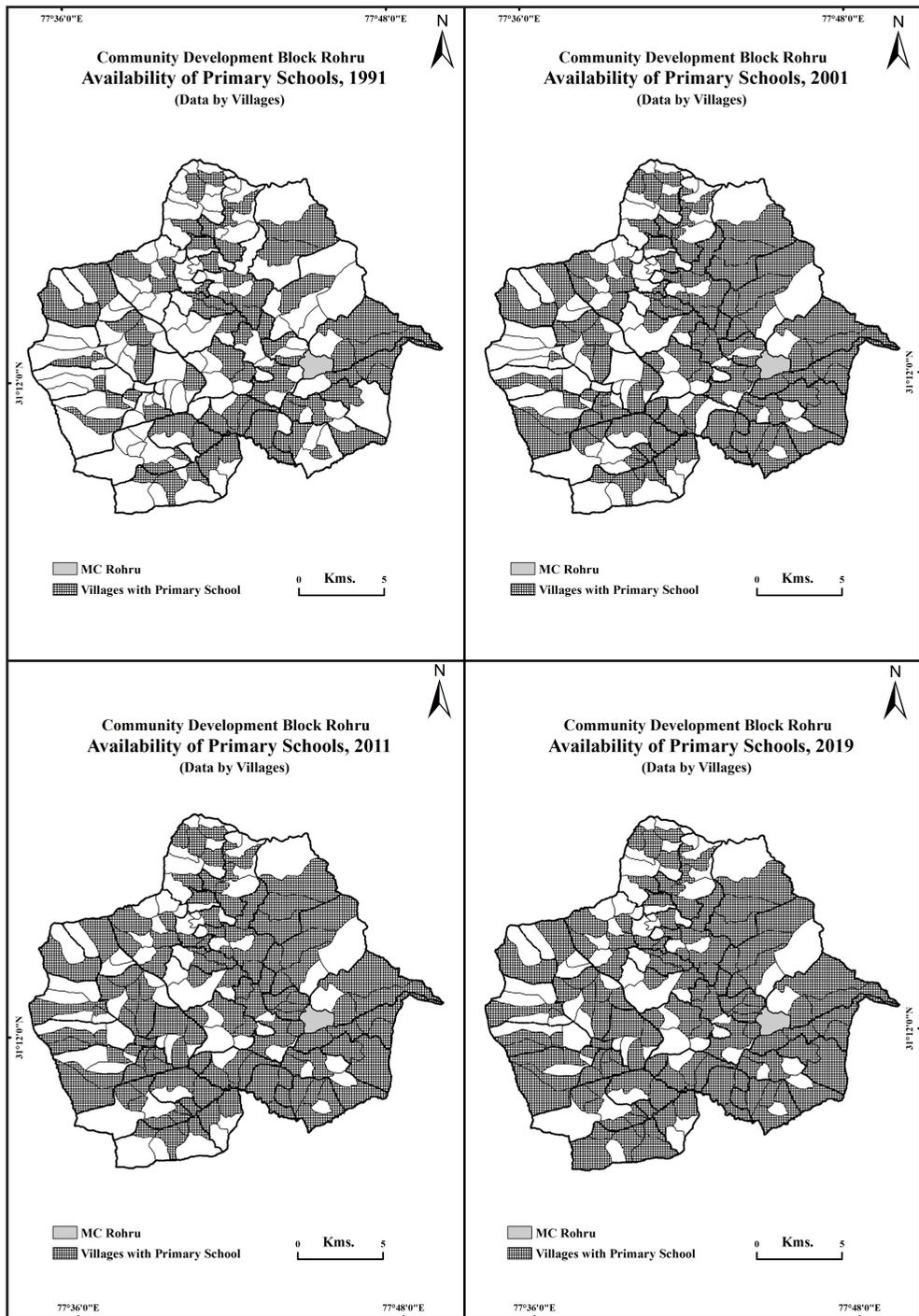


Fig. 2

from Rohru tehsil, while 6 villages (Farog, D.P.F. Hinstari, Naksetli, Koti, Shekal and D.P.F. Narain) have been from Tikkar tehsil (Fig. 2). Table 1 further shows that there have been 0.72 schools per 300 persons in 2011, suggesting a slight improvement for the year with respect to 2001. In 2019, there have been 133 primary schools in 118 villages (69.82 per cent of total inhabited villages), suggesting degradation of 3 schools with respect to 2011. These three schools are GPS Shardu, GPS Barla and GPS Galon located at Sainji and Banchuchh villages of Rohru tehsil and Naksatli village of Tikkar tehsil, respectively. These schools have been discontinued by the Directorate of Elementary Education due to decreasing strength of the students. The number of primary schools available per 300 persons also declined from 0.72 in 2011 to 0.61 in 2019. However, the study reveals that with the state government's initiatives regarding the expansion of primary school facilities in the block, the Right to Education Act, awareness of the public and improvement of education among the people have led to the expansion of primary schools, as the facility recorded about two times improvement during the study period. Although, there has been an increase in the number of primary schools, yet the facility is still far behind the state government norm i.e., a primary school per 300 persons and one school per 1.5 km of travel distance.

Availability of Middle Schools

According to the government norms of Himachal Pradesh, a middle school also known as upper-primary school can be opened if there is a walkable distance of 3 km from a neighbourhood school having not less than 25 children in class 5th and are willing for enrolment in that school. In 1991, there have

been only 22 villages (13.25 per cent to total inhabited villages) having middle schools (Table 1). There has been a random distribution pattern of the villages having middle school facility in 1991 (Fig. 3). Out of these, there have been only 7 middle schools for 46 villages with 11,450 population in Tikkar tehsil. While, in Rohru tehsil there have been only 15 middle schools for 141 villages having 33,554 population. Thus, middle school facility has been better in Tikkar tehsil with respect to Rohru tehsil. Table 1 further shows that in 1991, the number of middle schools per 1,000 persons has been only 0.49 in the study area. The number of villages having middle school increased to 46 (27.72 per cent) in 2001. Thus, an addition of 24 new middle schools has been witnessed in 2001. Out of these 24 villages, 21 villages (Bashla, Berara, Bhamnoli, Chhupari, Dalgaon, Gangtoli, Garhai, Jaunli, Katsari, Kewli, Khangtehri, Khara Paani, Kupri, Madarli, Malthi, Nasari, Pujarli, Rantari, Seri, Shalawat and Sharmali) have been from Rohru tehsil, while 3 villages (Hanstari, Hanstari Teer and Kharla) have been from Tikkar tehsil. These villages have been distributed randomly all over the study area (Fig. 3). The study shows that in 2001 the number of middle schools per 1000 persons increased to 0.90 with respect to 0.49 schools per 1000 persons in 1991.

In 2011, the number of villages with middle school facilities further increased to 63 (37.27 per cent) having 64 middle schools. In 2011, 18 new middle schools have been opened. Out of these 18 villages, 13 villages (Andhreothei, Banchuchh, Bhalara, Bharoli, D.P.F. Kui Awal, Kanda, Kerasa, Khashkandi, Koti, Munchharah, Parsa, Sheroog and Tandali) fall in Rohru tehsil, while 5 villages (Farog, Khalai, Koti, Thana Bag and Kuthari) have been from Tikkar tehsil. These villages have

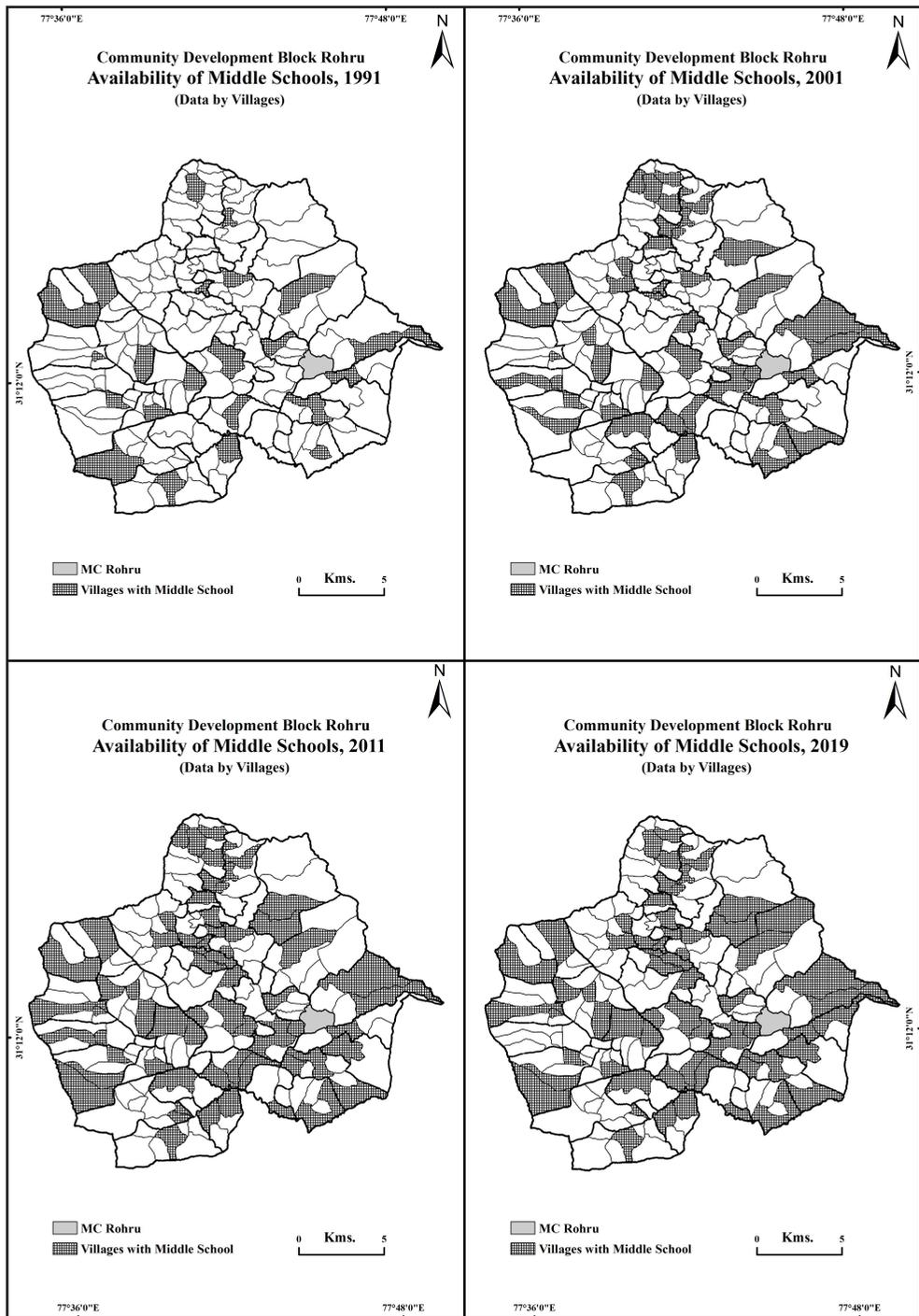


Fig. 3

been distributed in the central, western, southern and south-eastern parts. Table 1 further shows that middle school per 1000 persons increased to 1.13 in 2011 from 0.90 in 2001. However, in 2019, the number of villages with middle schools decreased to 61 (39.09 per cent) with a total of 62 middle schools, because two schools (Shekhal village of Rohru tehsil and Katlah village of Tikkar tehsil) have been degraded due to a drop in student enrolment. There have been 0.94 middle schools available per 1000 persons in 2019, suggesting a decline in school population ratio with respect to 2011 (Table 1). Thus, the middle schools in the study area increased from 22 to 62 in number during the study period of 1991-2019. However, the number is still not sufficient as per the government norms. Students from 93 villages still have to walk up to 5 km to reach a middle school. Students from 12 villages like Bari, Bhamnala, Chunjar, D.P.F. Beraseli, D.P.F. Hanstari, D.P.F. Malkhun, D.P.F. Sharmali Doyam, Kaneora, Kasheni, Kutu, Runda and Thana have to walk 6 to 10 km to reach a middle school and students from D.P.F. Bhalara village have to walk more than 10 km to avail the facility of middle school.

Availability of High Schools

A middle school can be upgraded to a high/secondary school if the enrolment of students in 8th class is at least 40 and it should be at a 3 km distance from the neighbourhood secondary school. The availability of high schools also has shown increasing trends with an increase in the population. Table 1 shows that there have been only 11 villages (6.63 per cent) in 1991 having high schools' facility. There have been only 4 high schools in Tikkar tehsil at D.P.F. Kalgaon, Khangta, Pujarli-3 and D.P.F. Pujarli-4 villages. These schools have

been serving 46 villages having 11,450 population. While, in Rohru tehsil there have been only 7 high schools at Arhal, Bhutara, Katedi, Kotru, Kui, Lower Koti and Shil villages serving 141 villages having 33,554 population. Table 1 further reveals that the number of high schools per 1,000 persons has been 0.24 in 1991. The number of villages with high school facility increased to 26 (15.66 per cent) in 2001. Thus, an addition of 15 new high schools has been witnessed in 2001. Out of these 15 villages, 12 villages like Bhalun, Jagothi, Jaunli, Khara Paani, Kupri, Malathi, Nasari, Pujarli, Samoli, Seri, Shalawat and Sharmali fall in Rohru tehsil, while 3 villages (Kuthari, Sharontha and Badshal) have been from Tikkar tehsil. These villages have been distributed in northern, central, south-western and western parts (Fig. 4). In 2001, there have been 0.51 high schools per 1,000 persons, which is an improvement of more than two times with respect to 1991.

With the addition of 8 new high schools in 2011, the number of villages with high school facility increased to 34 (20.12 per cent). Out of these 8, 7 villages like Bajauri, Bashla, D.P.F. Kui Awal, Dalgaon, Karalash, Kerasa and Rantari) are from Rohru tehsil, while only one village (Kadiwan) falls in Tikkar tehsil. These villages have been distributed in the central, western, and eastern parts of the study area. Table 1 further shows that the number of high schools per 1,000 persons increased to 0.60 in 2011 from 0.51 in 2001. In 2019 with the addition of 4 new schools the number of villages with high school facility increased to 38 (22.48 per cent). The new high schools have been opened in Kotara, Munchhara, Khangtheri and Shekhal villages. There have been 0.58 high schools available per 1000 persons in 2019, recording a slight decline with

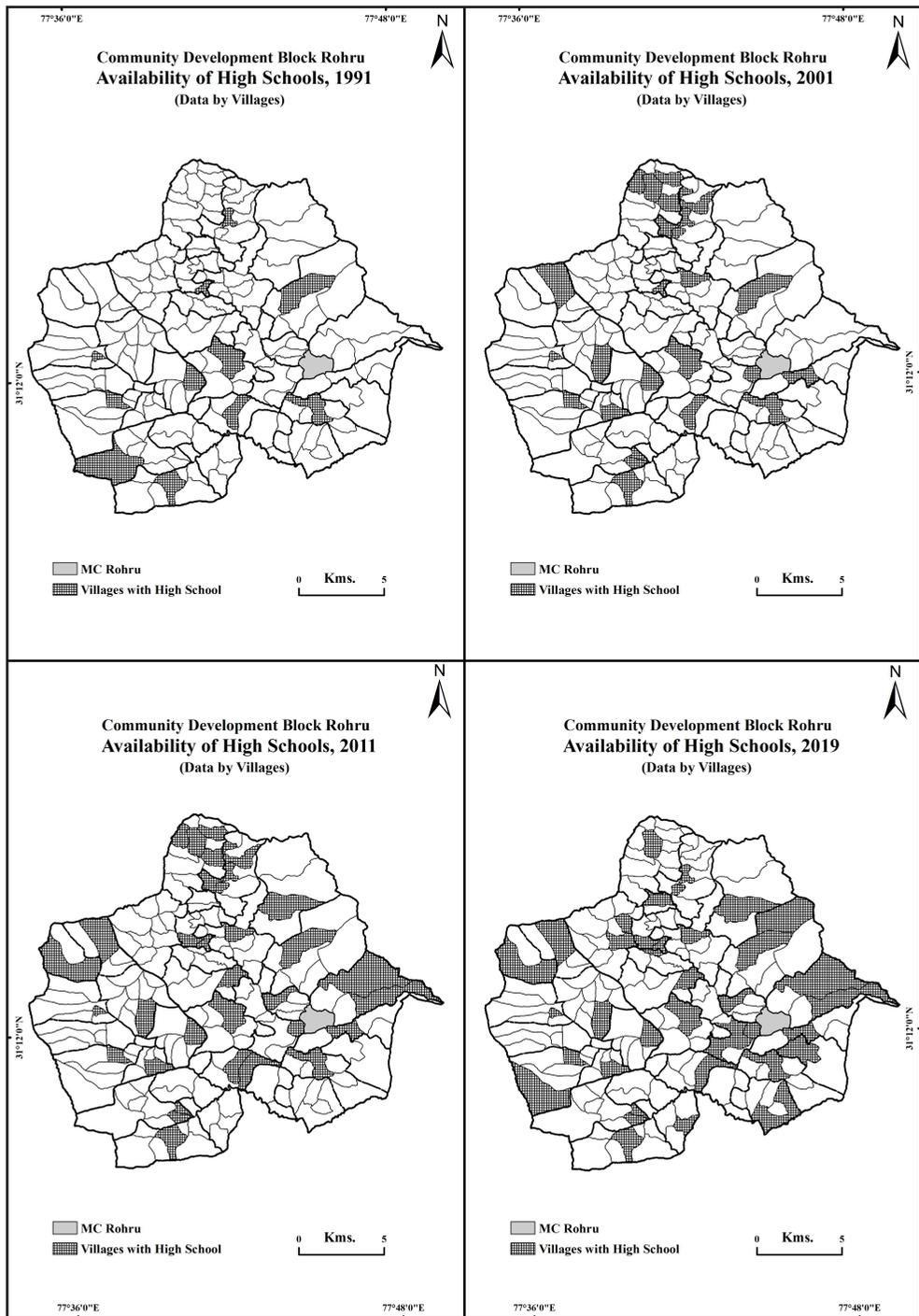


Fig. 4

respect to 2011. Although, the number of high schools increased from 11 in 1991 to 38 in number in 2019, recording more than 3 times improvement, yet the number is still not as per the government norms. Students from 40 per cent of villages have to walk up to 5 km to reach the school. Students from 28 per cent of villages have to walk 6 to 10 km to reach a high school and students from 9 per cent of the villages have to walk more than 10 km to avail the facility of high school, while as per government norms the facility should be available within the distance of 3 km from the neighbourhood.

Availability of Senior Secondary Schools

A senior secondary school can be opened if there is a walkable distance of 5 km from the neighbourhood and a minimum of 60 children in the 10th class. It is evident from the study that there has been no senior secondary school in any village till 1991. During the 1991-2001 period, 15 senior secondary schools have been opened in 15 villages (9.04 per cent of total inhabited villages). Out of these, 2 senior secondary schools have been at Khangta and D.P.F. Pujarli 4 villages of Tikkar tehsil serving 46 villages having 12,501 population. While, in Rohru tehsil there have been only 13 senior secondary schools at Arhal, Bashla, Bhalun, Gangtoli, Jaunli, Khara Paani, Kui, Malthi, Nasari, Pujarli, Seri, Shalawat and Sharmali serving 141 villages having 38,369 population. These schools have been distributed in the northern, central and western parts (Fig 5). Table 1 further shows that in 2001 the number of senior secondary schools per 1,000 persons has been 0.29.

With addition of 12 new schools, the number of villages having senior secondary school increased to 27 (15.98 per cent) in 2011.

Out of these 12 villages, 9 villages of D.P.F. Kui Awal, Dalgaon, Karalash, Katedi, Kerasa, Kotru, Lower Koti, Rantari and Samoli have been from Rohru tehsil, while 3 villages of Kuthari, Pujarli-3 and Badshal have been from Tikkar tehsil. These villages have been distributed in the northern, central, eastern western and north-western parts (Fig. 5). In total there have been 4 senior secondary schools for 46 villages having 13,970 population in Tikkar tehsil and 23 senior secondary schools for 141 villages having 42,451 population in Rohru tehsil. The institutional population ratio has increased from 0.29 in 2001 to 0.48 in 2011. However, it must be mentioned that Census of India has shown the availability of senior secondary schools in nine villages of Bashla, Jaunli, Khara Paani, Kotru, Nasari, Pujarli, Seri, Shalawat and Sharmali in 2001 as well as in 2011 but the data received from Directorate of Elementary and Higher Education and field check revealed that there have been no such schools in these villages. Thus, actually there have been 6 and 18 senior secondary schools in the block in 2001 and 2011.

With the addition of 6 new schools, there have been 24 (14.20 per cent) senior secondary school in 2019. There have been 0.37 senior secondary schools available per 1000 persons in 2019 as compared to 0.48 schools available per 1000 persons in 2011, suggesting a decline in school population ratio (Table 1). These schools are distributed in northern, central, eastern, southern, western and north-western parts (Fig. 5). Thus, the senior secondary schools in the study area increased from 0 in 1991 to 24 in 2019. However, the number is still not sufficient as per the government norms. Students from 73 villages still have to walk up to 5 km to reach a senior secondary school. Similarly, the

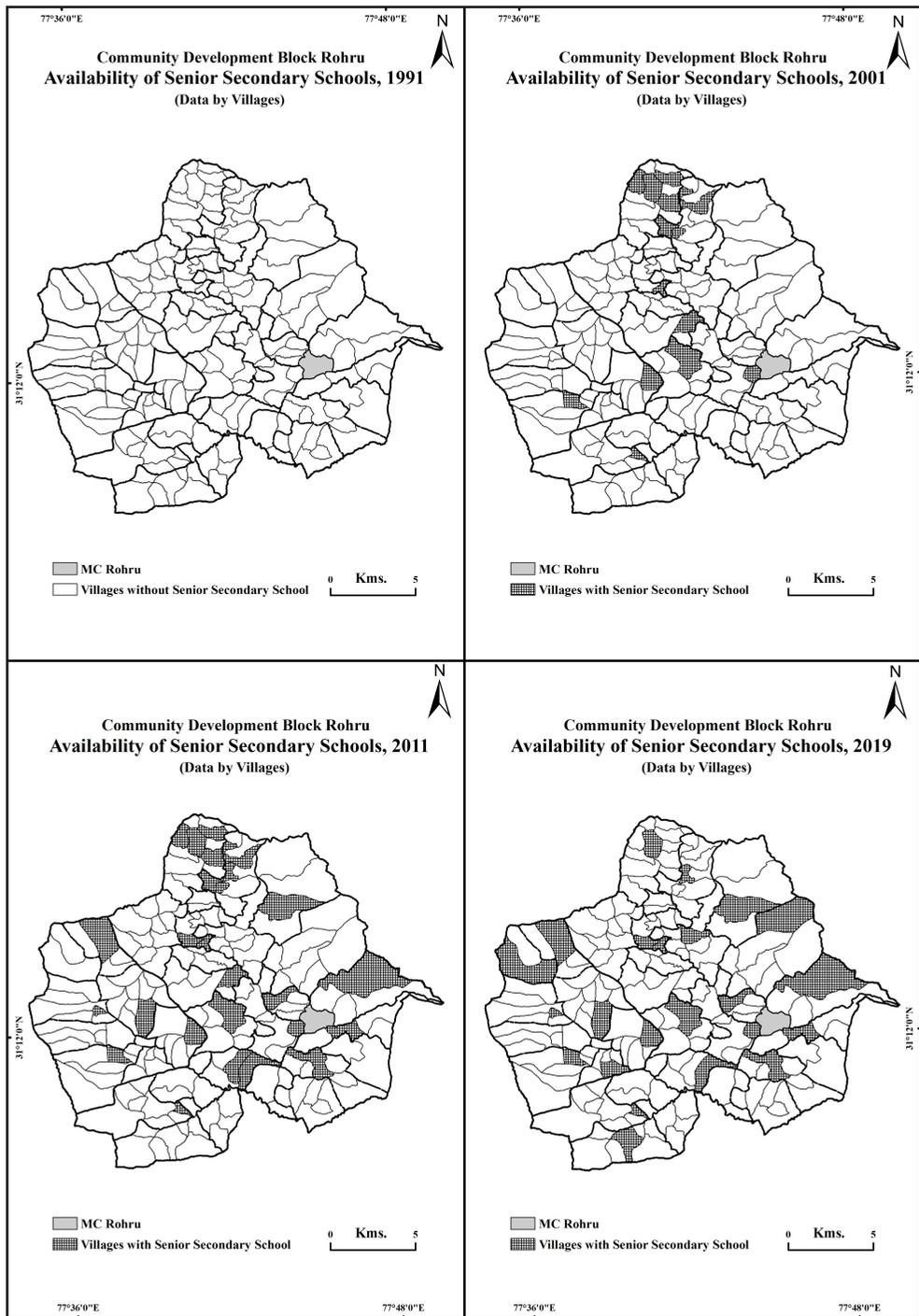


Fig. 5

students from 52 villages have to walk 6 to 10 km to reach a senior secondary school and students from 17 villages have to walk more than 10 km to avail the facility of a senior secondary school.

Availability of Colleges

A degree college can be opened if there is a walkable distance of 25 km from the neighbourhood college. The study shows that there has been only one college in the study area during 1991-2011, located at Seema village. However, a new college at village Khangta (Tikkar) has been opened in 2016 improving the accessibility for higher education.

Disparities in Levels of Development of Educational Institutions (1991-2019)

To highlight the regional variations in disparities in the levels of development of educational institutions, z scores have been calculated and the results have been discussed as under.

Areas with High Level of Development

The villages recording composite z score values of more than 1.50 fall in this category. In 1991, 12 villages comprising 7.23 per cent of total inhabited villages witnessed high level of educational institutional facility (Table 2; Fig. 6). In 2001, the number of villages falling in this category increased to sixteen. Only 5 villages (Arhal, Bajauri and Kui from Rohru tehsil and D.P.F. Pujarli-4 and Khangta from Tikkar tehsil) could maintain their position from 1991 to 2001 period. 11 new villages entered to this category in 2001. The addition of new primary, middle, high and senior secondary schools in Gangtoli, Junli, Pujarli, Seri and Khara Paani villages and addition of the middle school, high school and

senior secondary schools in Malthi, Nasari, Shalwat and Sharmail villages has shifted these villages to the high level of educational facility in 2001. Similarly, the addition of middle and high schools in Bhalun village and addition of middle and senior secondary schools in Bashla village has led to the improvement in their development of educational institutions. Seven villages (D.P.F. Kalgaon and Pujarli-3 from Tikkar tehsil and Buthara, Katedi, Kotru, Lower Koti, and Shil from Rohru tehsil) recorded no expansion of educational facilities in 2001 as compared to other villages in 1991, therefore due to this factor these villages could not retain their position and shifted to the lower levels of educational facility.

In 2011, the number of such villages increased to 28 (Table 2). All the sixteen villages from 2001 maintained their position in this category in 2011. Twelve new villages (Pujarli-3, Kuthari and Badshal from Tikkar tehsil and Katedi, D.P.F. Kui Awal, Dalgaon, Karalash, Kerasa, Rantari, Lower Koti, Kotur and Samoli from Rohru tehsil) entered to category in 2011. The addition of new primary, middle, high and senior secondary schools in D.P.F. Kui Awal and Kerasa villages and the addition of either middle, high school and senior secondary schools at Bashla, Rantari, Badshal, Katedi, Kotru, Karalash, Pujarli-3, Dalgaon, Lower Koti and Samoli villages has led to the improvement in their composite z scores for joining this category in 2011. However, in 2019, only twenty-four villages witnessed a high level of development of educational institutions. Nineteen villages could maintain their position of 2011 in 2019 (Table 2). While, Jagothi, Kotara, Shil, Kadiwan and Sharontha villages joined this category with improvement in the composite score with the addition of middle, high and

Table 2
Rohru CD Block: Decade-wise Villages Falling under Various Levels of Development in Educational Institutions

Levels	Rohru Tehsil	Tikkar Tehsil	No.
	1991		
High	Arhal, Bajauri, Buthara, D.P.F.Pujarli-4, Katedi, Kotru, Kui, Lower Koti, Shil	D.P.F. Kalgaon, D.P.F. Pujarli-4, Khangta	12
Moderate	Beral, Bhalun, D.P.F.Shekhal, Jagothi, Karalash, Samoli	Badshal, Kadiwan, Kuthari, Sharontha	10
Low	Andhreothei, Astani, Bashla, Bajeshal, Banchuchh, Banchuna, Bari, Berara, Bhalara, Bhamnoli, Bharetti, Bharoli, Chhupari, Dalgaon, Dhara, Gad, Ganga nagar, Garhai, Ghrema, Jkhar, Kalgaon, Kancora, Katsari, Kewli, Khanaula, Khangtehri, Kerasa, Madarli, Noin, Munchharah, Paoli, Parsa, Runda, Sainji (Majhgaon), Sendor, Shelan, Sherog, Nasari, Malthi, Tandali, Rantari, Shalawat, Sharmali	Batara, D.P.F.Khalai, Gujandli, Hanstari, Jagterii, Kashiani, Kharla	50
No Institution	Annu, Antapu, Bagi, Bahli, Bakhirna, D.P.F.Arhal, Beraseli, D.P.F.Kuiawal, Bhamnala, Bhuth, Chunjar, D.P.F.Bajeshal, D.P.F.Bashla, D.P.F.Beral, D.P.F.Berara - I, D.P.F.Berara-II, D.P.F.Beraseli, D.P.F.Bhalara, D.P.F.Bhalun - I, D.P.F.Bhalun-II, D.P.F.Bhamnoli, D.P.F.Bharetti Doyam, D.P.F.Darshal, D.P.F.Ganganagar, D.P.F.Gauna, D.P.F.Kadiwan, D.P.F.Khangtehri, D.P.F.Koti , Awal, D.P.F.Koti Soyam, D.P.F.Malkhun, D.P.F.Sharonta, D.P.F.Nagselti, D.P.F.Seri, D.P.F.Sharmali Awal, D.P.F.Sharmali Doyam, D.P.F.Shelan, D.P.F.Sherog, D.P.F.Shil, Dharot, Gani Ghat, Kutu, Nadu, Naga Dhar, Pekha Dhar, Gangtoli, Sungri, Jaunli, Gauna, Kadoli, Kakoi, Kanda, Kandrora, Kashmirla, Kupri, Khashkandi, Khorsu, Koti, Kotara, Kyarku, KharaPaani, Malkhun, Shekhal, Siao, Pujarli, Teerkal Gaon, Thamtari, Ukli, Seri	D.P.F.Jaunli, D.P.F.Kewli, D.P.F.Kui Doyam, D.P.F.Malthi, D.P.F.Shakla, Daroti, D.P.F.Jagterli-II, D.P.F.Hanstari, D.P.F.Nal, Dhanoti, Farog, Friukaroti, Dharal, Khalawan, Hanstari Teer, Sajar, Khashi, Koti, Nagselti, Thana, Narain Awal, Narein Doyam, Ramteri, Tikri, Shekal, Thana Bag	94
2001			
High	Arhal, Bajauri, Bashla, Bhalun, Gangtoli, Jaunli, Khara Paani, Kui, Malthi, Nasari, Pujarli, Seri, Shalawat, Sharmali	D.P.F. Pujarli-4, Khangta	16
Moderate	Buthara, Jagothi, Katedi, Kotru, Kupri, Lower Koti, Samoli, Shil	Badshal, Kuthari, Pujarli- 3, Sharontha	12
Low	Andhreothei, Astani, Bagi, Bajeshal, Bakhirna, Banchuchh, Banchuna, Bari, Beral, Berara, Beraseli, Bhalara, Bhamnala, Bhamnoli, Bharetti, Bharoli, Bhuth, Chhupari, Chunjar, D.P.F.Sharonta, Dalgaon, Dhara, Gad, Ganga nagar, Garhai, Gauna, Ghrema, Jkhar, Kadoli, Kakoi, Kanda, Kandrora, Kancora, Karalash, Kashmirla, Katsari, Kewli, Khanaula, Khangtehri, Khashkandi, Khorsu, Kotara, Koti, Kyarku, Madarli, Malkhun, Munchharah, Noin, Paoli, Parsa, Rantari, Runda, Sainji (Majhgaon), Sendor, Shekhal, Shelan, Sherog, Siao, Tandali, Teerkal Gaon, Thamtari, Ukli	D.P.F.Khalai, Friukaroti, Gujandli, Hanstari, Hanstari Teer, Jagterli, Kadiwan, Kashiani, Khalai, Kharla, Narain Awal, Narein Doyam, Ramteri, Thana Bag	76
No Institution	Annu, Antapu, Bahli, D.P.F.Arhal, D.P.F.Bajeshal, D.P.F.Bashla, D.P.F.Beral, D.P.F.Bhalara, D.P.F.Bhalun-II, D.P.F.Bhamnoli, D.P.F.Darshal, D.P.F.Dunga Dobal, D.P.F.Ganganagar, D.P.F.Ghrema, D.P.F.Kakoi Basa, D.P.F.Kashiani, D.P.F.Khanaula, D.P.F.Khangtehri, D.P.F.Koti Awal, D.P.F.Koti Dom, D.P.F.Koti Soyam, D.P.F.Kuiawal, D.P.F.Malkhun, D.P.F.Nagselti, D.P.F.Narain, D.P.F.Sharmali Awal, D.P.F.Shelan, D.P.F.Shil, Dharot, Gani Ghat, Kalgaon, Kerasa, Kutu, Nadu, Naga Dhar, Pekha Dhar, Rehri, Sungri	Batara, D.P.F.Dhenoti, D.P.F.Friukoti, D.P.F.Hanstari, D.P.F.Jagterli-I, D.P.F.Jagterli-II, D.P.F.Jaunli, D.P.F.Kalgaon, D.P.F.Kewli, D.P.F.Kuidoyam, D.P.F.Malthi, D.P.F.Nal, D.P.F.Shakla, Daroti, Dhanoti, Dharal, Khalawan, Koti, Nagselti, Sajar, Shekal, Thana, Tikri	62
2011			
High	Arhal, Bajauri, Bashla, Bhalun, D.P.F.Kuiawal, Dalgaon, Gangtoli, Jaunli, Karalash, Katedi, Kerasa, KharaPaani, Kotru, Kui, Lower Koti, Malthi, Nasari, Pujarli, Rantari, Samoli, Seri, Shalawat, Sharmali	Badshal, Khangta, Kuthari, Pujarli-3, D.P.F.Pujarli-4	28
Moderate	Buthara, Jagothi, Kupri, Shil	Kadiwan, Sharontha	06
Low	Andhreothei, Annu, Astani, Bagi, Bajeshal, Bakhirna, Banchuchh, Banchuna, Bari, Beral, Berara, Beraseli, Bhalara, Bhamnala, Bhamnoli, Bharetti, Bharoli, Bhuth, Chhupari, Chunjar, D.P.F.Narain, D.P.F.Sharonta, Dhara, Gad, Ganganagar, Garhai, Gauna, Ghrema, Jkhar, Kadoli, Kakoi, Kalgaon, Kanda, Kandrora, Kancora, Kashmirla, Katsari, Kewli, Khanaula, Khangtehri, Khashkandi, Khorsu, Kotara, Koti, Kyarku, Madarli, Malkhun, Munchharah, Noin, Paoli, Parsa, Runda, Sainji (Majhgaon), Sendor, Shekhal, Shelan, Sherog, Siao, Tandali, Teerkal Gaon, Thamtari, Ukli	D.P.F.Hanstari, D.P.F.Khalai, D.P.F.Nal, Farog, Friukaroti, Gujandli, Hanstari, Hanstari Teer, Jagterli, Kashiani, Khalai, Kharla, Koti, Nagselti, Narain Awal, Narein Doyam, Ramteri, Shekal, Thana Bag	81
No Institution	Antapu, Bahli, D.P.F.Arhal, D.P.F.Bajeshal, D.P.F.Bashla, D.P.F.Beral, D.P.F.Berara-I, D.P.F.Beraseli, D.P.F.Bhalara, D.P.F.Bhalun-I, D.P.F.Bhalun-II, D.P.F.Bhamnoli, D.P.F.Darshal, D.P.F.Dunga Dobal, D.P.F.Ganganagar, D.P.F.Ghrema, D.P.F.Kakoi Basa, D.P.F.Kashiani, D.P.F.Kateri, D.P.F.Khanaula, D.P.F.Khangtehri, D.P.F.Koti Awal, D.P.F.Koti Soyam, D.P.F.Malkhun, D.P.F.Nagselti, D.P.F.Sharmali Awal, D.P.F.Sharmali Doyam, D.P.F.Shelan, D.P.F.Shil, Dharot, Gani Ghat, Kutu, Nadu, Naga Dhar, Pekha Dhar, Rehri, Sungri	Batara, D.P.F.Dhenoti, D.P.F.Friukoti, D.P.F.Jagterli-I, D.P.F.Jagterli-II, D.P.F.Jaunli, D.P.F.Kalgaon, D.P.F.Kuidoyam, D.P.F.Malthi, D.P.F.Shakla, Daroti, Dhanoti, Dharal, Khalawan, Sajar, Thana, Tikri	54
2019			
High	Arhal, Bajauri, Bhalun, D.P.F.Kuiawal, Dalgaon, Gangtoli, Karalash, Jagothi, Katedi, Kotara, Kerasa, Kui, Lower Koti, Malthi, Shil, Rantari, Samoli	Badshal, Khangta, Kuthari, Pujarli-3, Kadiwan, Sharontha, D.P.F.Pujarli-4	24
Moderate	Bashla, Berara, Bhamnoli, Buthara, Garhai, Kewli, Khangtehri, Munchharah, Shekhal, Pujarli	Thana Bag	11
Low	Andhreothei, Annu, Astani, Bagi, Bajeshal, Bakhirna, Banchuchh, Banchuna, Bari, Beral, Beraseli, Bhalara, Bhamnala, Bharetti, Bharoli, Bhuth, Chhupari, Chunjar, D.P.F.Beral, D.P.F.Ganganagar, D.P.F.Kashiani, D.P.F.Narain, D.P.F.Sharonta, Dharot, Dhara, Gad, Ganga nagar, Jaunli, Gauna, Ghrema, Jkhar, Kadoli, Kakoi, Kalgaon, Kanda, Kandrora, Kancora, Kashmirla, Katsari, Kupri, Khanaula, Khashkandi, Khorsu, Koti, Kyarku, Madarli, Khara Paani, Malkhun, Kotru, Noin, Paoli, Parsa, Runda, Sainji (Majhgaon), Sendor, Shelan, Sherog, Nasari, Siao, Tandali, Teerkal Gaon, Thamtari, Ukli, Seri, Shalawat, Sharmali	D.P.F.Jagterli-II, D.P.F.Hanstari, D.P.F.Khalai, D.P.F.Nal, Farog, Friukaroti, Gujandli, Hanstari, Hanstari Teer, Jagterli, Kashiani, Khalai, Kharla, Koti, Narain Awal, Narein Doyam, Ramteri, Shekal	84
No Institution	Antapu, Bahli, D.P.F.Arhal, D.P.F.Bajeshal, D.P.F.Bashla, D.P.F.Berara-I, P.F.Bhalun-I, D.P.F.Bhalun-II, D.P.F.Bhamnoli, Doyam, D.P.F.Buthara, D.P.F.Darshal, D.P.F.Dunga Dobal, D.P.F.Ghrema, D.P.F.Kakoi Basa, D.P.F.Kateri, D.P.F.Khanaula, D.P.F.Khangtehri, D.P.F.Koti Awal, D.P.F.Koti Soyam, D.P.F.Malkhun, D.P.F.Nagselti, D.P.F.Sharmali Awal, D.P.F.Sharmali Doyam, D.P.F.Shelan, D.P.F.Shil, Gani Ghat, Kutu, Nadu, Naga Dhar, Pekha Dhar, Rehri, Sungri	Batara, D.P.F.Dhenoti, D.P.F.Friukoti, D.P.F.Nal, Farog, Friukaroti, Gujandli, Hanstari, D.P.F.Kalgaon, D.P.F.Kuidoyam, D.P.F.Malthi, D.P.F.Shakla, Daroti, Dhanoti, Dharal, Khalawan, Sajar, Nagselti, Thana, Tikri	50

Source: Compiled by Authors.

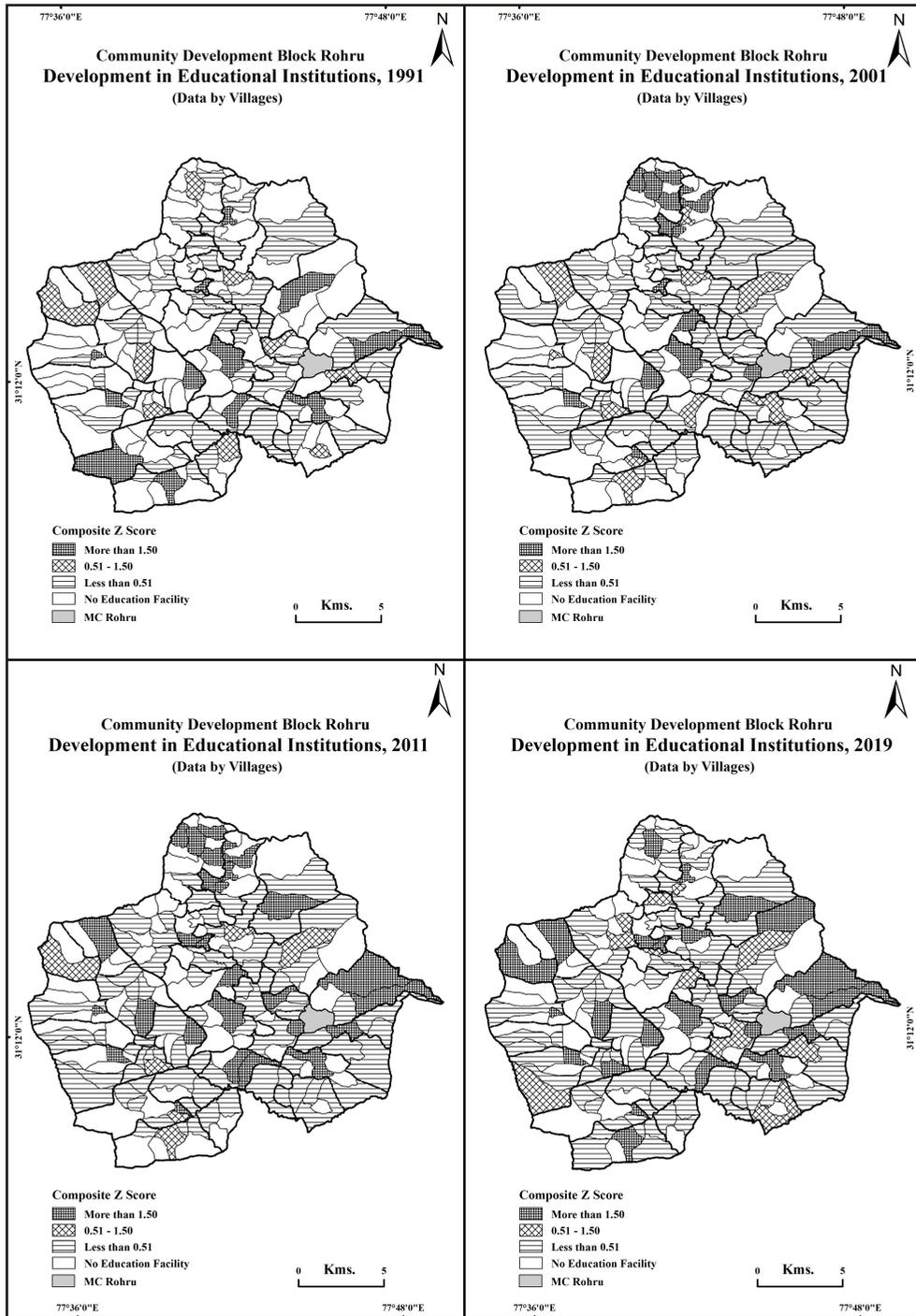


Fig. 6

senior secondary schools. It can be observed from the above discussion that there has been a continuous change in the number as well as the spatial pattern of the villages witnessing a high level of the educational institutional facility.

Areas with Moderate Level of Development

The villages recording composite z scores ranging from 0.51 to 1.50 fall in this category. The study shows that only 10 villages have recorded moderate level of development of educational institutions in 1991 (Table 2; Fig. 6). In 2001, the villages witnessing moderate level of educational facility increased to 12. Only 5 villages (Badshal, Kuthari and Sharontha villages from Tikkar tehsil and Jagothi and Samoli villages from Rohru Tehsil) could maintain their position in areas of moderate category from 1991 to 2001 period. Seven new villages such as Buthara, Katedi, Kotru, Lower Koti, Pujarli-3, Shil and Kupri have entered this category in 2001. The opening of new primary, middle and high schools in Kupri village has led to its entry in this category, while the other six villages recorded no expansion of educational facilities as compared to other villages, due to this factor these six villages have been shifted from high level of development in 1991 to moderate level educational facility in 2001.

Five villages (Bhalun, Kadiwan, Beral, D.P.F. Shekhal and Karalash) falling in this category in 1991 could not maintain their position in levels of moderate development of educational institutions in 2001. Bhalun village recorded the addition of high and senior secondary schools, therefore shifted to a high level of educational infrastructure facility in 2001. Beral, Kadiwan and Karalash recorded no expansion of educational facilities as compared to other villages, therefore recorded

a decrease in the composite score as compared to other villages and shifted to a low level of educational infrastructure facility in 2001. D.P.F. Shekhal witnessed closing of primary and middle schools, therefore, recorded no educational facility in 2001 (Fig. 6).

In the year 2011, only 6 villages recorded a moderate level of educational infrastructure facility (Fig. 6; Table 2). Five villages (Buthara, Shil, Jagothi, Sharontha and Kurpi) could maintain their position of 2001 in 2011. While, Kadiwan village entered this category with the addition of a high school in the village. Seven villages (Katedi, Badshal, Lower Koti, Kuthari, Samoli, Pujarli-3 and Kotru) which have been in this category in 2001, have joined the category of a high level of development of educational institutions due to the addition of senior secondary schools in these villages in 2011. In the year 2019, 11 villages witnessed a moderate level of educational infrastructure. Only Buthara village could maintain its position in this category in 2019 with respect to 2011. Ten new villages such as Bashla, Berara, Bhamnoli, Garhai, Kewli, Khangtehri, Munchharah, Pujarli, Shekhal and Thana Bag entered moderate level of development of educational institutions in 2019. Thana Bag village from Tikkar tehsil and Berara, Bhamnoli, Garhai, Kewli, Khangtehri, Munchharah and Shekhal villages from Rohru tehsil recorded addition of the primary, middle and high school, therefore joined the areas of a moderate level of development of educational institutions in 2019. Five villages (Jagothi, Kupri, Shil, Kadiwan and Sharontha) that have been in this category in 2011 could not maintain their position in 2019. Out of these Jagothi, Shil, Kadiwan and Sharontha villages recorded the addition of the senior secondary school, therefore, shifted to

high level of educational infrastructure category in 2019. Kupri village could not be able to retain its position in moderate level of development of educational institutions in 2019 as compared to 2011.

Areas with Low Level of Development

The villages recording composite z score 0.50 or less fall in this category. In the year 1991, 50 villages, comprising 30.12 per cent of the total villages witnessed a low level of development of educational institutions (Fig. 6; Table 2). In 2001, the number of such villages has increased to 76, comprising 45.78 per cent of the total villages. Only 42 villages could maintain their position in the low category from 1991 to 2001 period (Fig. 6). Thirty-four new villages have joined this category due to the addition of new primary and middle schools (Table 2). Eight villages (Bashla, Batara, Kerasa, Kalgaon, Malthi, Nasari, Shalawat and Sharmali) which have been in this category in 1991 could not retain their position in this category in 2001. The addition of middle and high schools in Bashla, Malthi, Nasari, Shalawat and Sharmali villages has shifted these villages to the moderate level of educational facility in 2001. While Batara, Karasa and Kalgaon villages witnessed closing down of primary schools and therefore recorded no educational facility in 2001 as compared to 1991.

Further in 2011, 81 villages consisting of 47.93 per cent of total villages witnessed low levels of development of educational institutions. Out of these, 72 villages are from the list of 2001 (Table 2). Nine new villages of Annu, Kalgaon and D.P.F. Narain from Rohru tehsil and Farog, Koti, D.P.F. Hanstari, D.P.F. Nal, Nagsetli and Shekal from Tikkar tehsil have joined this category by recording an increase in

the composite score due to the opening of primary and middle schools in 2011. Four villages (Karalash, Dalgaon, Rantari and Kadiwan) from the list of 2001 have been shifted to the upper category of educational development in 2011 by having the addition of high and senior secondary schools (Fig. 6). However, in 2019, 84 villages witnessed low level of educational infrastructure facilities. Out of these, 71 villages are from the list of 2011 that could maintain their position in the low category in 2019 (Table 2). Thirteen new villages entered the category of low level of educational infrastructure in 2019. Among these, D.P.F. Beral, D.P.F. Ganga Nagar, D.P.F. Jagterli-II, D.P.F. Kashiani and Dharot villages witnessed an addition of the primary school, therefore joined this category in the year 2019. Jaunli, Khara Paani, Kotru, Kupri, Nasari, Seri, Shalawat and Sharmali have been shifted from category of high level of educational facilities in 2011 due to data fallacy as there have been no senior secondary school in 2019 in these villages but the census data have shown the availability of senior secondary schools in these villages in 2001 and 2011. Ten villages (Berara, Bhamnoli, Garhai, Kewli, Kotara, Khangtehri, Munchharah, Shekhal, Nagsetli and Thana Bag) from the list of 2011 have been shifted to moderate level of educational facilities in 2019 due to the addition of middle school and high school facilities. It can be observed from the above discussion that a high proportion of villages that have witnessed low level of development of educational institutions are having only primary and middle school facility.

Areas having No Educational Institution

In 1991, a total of 94 villages comprising 56.63 per cent of the total villages of the

block have been without any school (Table 2). Among these, 68 have been from Rohru tehsil and 26 have been from Tikkar tehsil. In 2001, the number of such villages decreased to 62 villages comprising of 37.35 per cent to total villages, out of which 38 and 24 villages have been from Rohru and Tikkar tehsils, respectively. Thirty-seven villages that have been in this category in 1991 witnessed improvement in educational infrastructure with the opening of either new primary middle or high schools in all of them, therefore these villages have been shifted to the upper category in 2001 (Fig. 6). Five villages (Batara, D.P.F. Kalgaon, D.P.F. Shekhal, Kalgaon and Kerasa) which have been in high, moderate and low categories in 1991 have joined this category due to closing down of primary, middle and high school from D.P.F. Kalgaon and D.P.F. Shekhal villages and closing down of primary school from Batara, Kalgaon and Kerasa villages in 2001.

Further in 2011, the number of villages falling in this category decreased to 54 comprising 31.95 per cent of total villages, out of which 37 villages have been from Rohru tehsil and 17 have been from Tikkar tehsil. Eleven villages (Annu, D.P.F. Kui Awal, D.P.F. Hanstari, D.P.F. Nal, D.P.F. Narain, Farog, Kerasa, Kalgaon, Koti, Nagsetli and Shekal) which have been in this category in 2001 witnessed improvement in their educational infrastructure due to addition of new schools, therefore joined the categories of a higher level of educational infrastructural facilities in 2011. In 2019, the number of such villages further decreased to 50 out of which 33 villages have been from Rohru tehsil and 17 have been from Tikkar tehsil. Five villages (D.P.F. Ganga Nagar, D.P.F. Kashiani, Dharot, D.P.F. Baral and D.P.F. Jagterli-II) shifted from no educational facility in 2011 to a low level of educa-

tional facilities in 2019 due to the addition of primary schools. Naksetli village witnessed a decrease in composite score due to the close-down of only primary school in the village, therefore entered in this category. It can be observed from the above discussion that there have been decreasing trends in the number of villages with no educational facilities which shows the improvement in availability of educational institutions, but still over one-third of the total villages are away from the basic educational facilities.

Conclusions

Educational institutional facility plays an important role in the overall development of any region. The study shows remarkable improvement in the village-wise availability of educational institutions at all the three levels (elementary, secondary and higher) in the study area during 1991-2019. In 1991, there has been a total of 105 schools at elementary, secondary and higher secondary level accounting for 2.33 schools per thousand persons, in 2019 the number of institutions increased to 257 and availability increased to 3.94 schools per thousand persons. This shows improvements in the availability of educational institutions in the study area during the study period.

Villages with primary school facilities within the village have increased from 38.50 per cent in 1991 to 63.10 per cent in 2019. The ratio of primary schools per 300 population has improved from 0.48 schools in 1991 to 0.61 schools in 2019. The percentage of villages having middle schools has also increased from one-tenth in 1991 to near about one-third of the total villages in 2019. The number of high schools has witnessed an increase from 11 to 38 during the study period, while the number of senior secondary schools has increased from

nil in 1991 to 24 in 2019.

The study also shows that the inter-village disparity in terms of availability of educational institutions has gone down. The number of villages having high and moderate composite scores has increased while a decreasing trend has been witnessed in the number of villages with low composite scores. According to the government norms there should be a primary school within the distance of 1.5 kilometers from the neighboring school but near about thirty per cent of the total villages of the study area are deprived of this facility, where the students have to walk more distance to reach the school. There are seven villages namely Daroti, Batara, Tikri, Bahli, Khalwan, Antapu and Nagsetli with more than 300 population but without a primary school. As per population criteria these villages qualify to have a primary school. This anomaly should be addressed.

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