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Regional Variation in the Level of Socio-Economic Development in Uttar Dinajpur District, West Bengal

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ABSTRACT

Regional disparity is a universal phenomenon. It is observed at the macro level and found at the meso and micro levels. A method by which people's quality of life can be enhanced is known as socio-economic development. Therefore, one of the major goals of the developmental programs has been a progressive reduction in regional differences in the rate of development; socio-economic planning has been used in our country as a tool for bringing about uniform regional development. This paper deals with the regional disparity in the level of socio-economic development in Uttar Dinajpur district at the block level. Thirty-five (35) indicators have been taken to measure the level of socio-economic development. The Z-Score and Composite Mean Z-Score methods have been used to analyze the data and also correlation matrix has been adopted to assess the relationship among developmental variables.

Keywords: Regional Disparities, Socio-Economic Development, Developmental Indicators, Z-Score and Composite Mean Z-Score methods.

Introduction:

Regional disparity is a universal phenomenon. It is observed at the macro level and found at the meso and micro levels. A method by which people's quality of life can be enhanced is known as socio-economic development. Therefore, one of the major goals of the developmental programs has been a progressive reduction in regional differences in the rate of development; socio-economic planning has been used in our country as a tool for bringing about balanced regional development. Substantial and persistent inequities afflict our country's economy. Regional disparities exist on various levels and are caused by multiple factors. Besides, the Indian government's efforts have prioritized eradicating regional disparities through various programs and regulations, and the results have fallen short of expectations. Disparities in numerous aspects of the socio-economic and cultural elements of the area can be seen at the macro, meso and micro levels areas. At the macro and meso levels, the government and academicians do much of the work. Still, relatively few researches have been conducted at the micro-level, such as; block, gram panchayat and village levels. Since the dawn of the age of planned development, the government has emphasized eliminating regional disparities. However, due to a lack of appropriate planning, the country's current pattern of socio-economic development has increased the disparity level at the inter-state level but also visible at the intra-state and intra-district levels. The issue is with our national plans because there is no adequate identification of backward areas, no proper appraisal of potentially productive resources, and no adequate understanding of the nature of the problem faced by any region at the micro level before they are implemented. Overall, micro-level planning is weak in the government's programs and policies and if it is present, it is just on paper and has not reached ground level. Because Uttar Dinajpur district is a part of the country, resembling regional disparities prevail at the micro-level, such as at the block, gram panchayat, and village levels.

Ohlan (2013) have examined the inter-district pattern of regional variation in socio-economic development in India. Industrial infrastructure, agriculture and socio-economic conditions have been taken to measure the level of development. The result shows that wide variations in the level of socio-economic development prevail within the different districts and between various regions of India. Sultana and Akter (2016) have analyzed a case study on the regional imbalance in the levels of socio-economic development. They have used the co-efficient of variation and Kandell's ranking methods to identify the backward regions of Malda district in West Bengal. Minocha (1983) said that regional disparities are governed mostly by socio-economic factors and party by regional factors. Ahmad and Hussain (2013) have assessed the inter-block regional disparities using the UNDP Development Index (Deprivation Index) for the Malda district of West Bengal. They have taken education, health, communication and transportation, market, electricity and water, agriculture, finance and recreation as parameters of development. Ramesh et al., (2016) calculated the development level using a composite index that combined the most relevant socio-economic data. Separate estimates of the degree of development have been made for agriculture, animal husbandry, industry, transport, and communication. Bengaluru district came out on top in the Kumar and Sharma (2017) studied on micro level planning for spatial variation of the level of rural development by applying the standardization Method and taking Raghopur Block of District- Supaul (Bihar) as a study area. Ahmad, Islam and Bano (2019) have focus on a micro level analysis of regional variation in socio-economic conditions for Hathras district. They have used two different methodological principles, i.e., Development Index prepared by UNDP and PCA (Principle Component Analysis) to identify the position of each block in terms of socio-economic development.

Hoque and Hashmi (2020) have analyzed the regional disparity in the level of educational development in Uttar Dinajpur. They used Z-score and Composite Z- score techniques to measure the level of educational development. Their study shows a wide range of variation in the level of educational development in terms of the number of educational facilities. It also shows that the number of educational facilities and the level of educational development are positively related.

Study Area:

The latitudinal extend of the Uttar Dinajpur district is 25°11' N to 26°49' N and the longitudinal extent is 87°49' E to 90°00' E longitude and surrounded by Bangladesh on the east, Bihar on the west, Darjeeling and Jalpaiguri district on the north and Dakshin Dinajpur district on the south. The total geographical area of the district is 3140 sq.km. According to the 2011 Census, the district's total population is 3007134 persons. The literacy rate of the district is 59.07 percent. Male and female literacy rate is 66.65 percent and 53.15 percent respectively. For administrative convenience district has been divided into nine blocks (i.e., Chopra, Islampur, Goalpokhar-I, Goalpokhar-II, Karandighi, Raiganj, Hemtabad, Kaliaganj and Itahar) and 98 gram panchayats covering 1484 inhabited settlements, including 5 census towns and 4 municipalities.
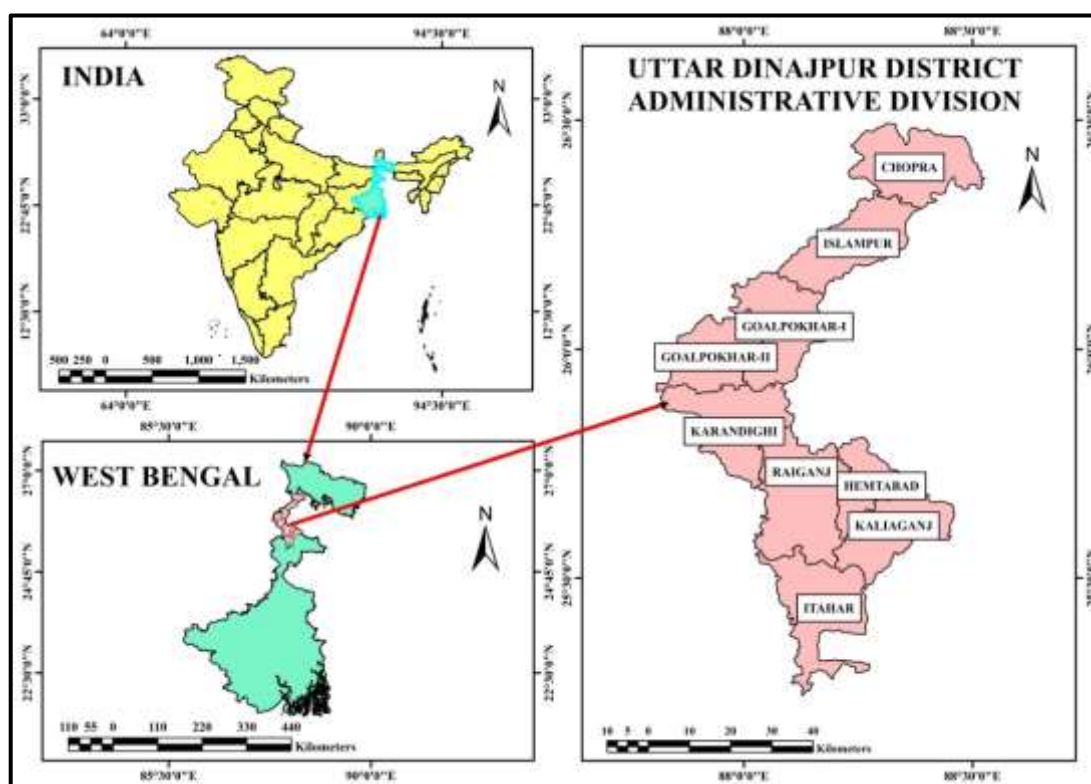
Location Map of Study Area

Figure 1

Objectives:

The present study aims to fulfill the following objectives:

   i.   To analyze the areal variation in the level of socio-economic development and identify the least developed blocks of the district.

   ii.   To assess the causes responsible for the disparity and spatial variation in the development.

Database and Methodology

The present study based on Secondary sources of data. Data has been collected from the District Census Handbook, 2011 and Census of India 2011. The Z-score and Composite mean Z-score methods have been used for the present analysis because it is a simple and commonly used measure of regional disparity. Before applying this method, all 35 indicators were converted to absolute units of measurement rather than the number of facilities. Correlation matrix has been used to assess the relationship among the developmental variables. The Z-score method has been used to analyze the levels of socio-economic development at the block level. Each variable's raw data has been standardized using this method. The model is as follows;

$$zi = \frac{X - \overline{X}}{\sigma}$$

Where, zi = Standard score or Z-score of the ith variable.

Xi = Individual observation, and

$\overline{X}$ = Mean of the variable and σ indicates standard deviation.

The indicators of development of each block have been estimated using the composite mean Z-score (C.S) of all the variables in the appropriate category and are divided into three tiers of development: high, medium, and low. The model is as follows:

$$C.S = \frac{\sum Zij}{N}$$

Where, C.S = Composite Mean Z-Score,

Zij = Z-score of an indicator j in the area (block) i, and

N = Number of variables.

Table 1: List of Selected Socio-Economic Indicators and Variables

Indicators	Variables	Variables
1. Education	X_1	Number of Primary School Per 10,000 Populations
	X_2	Number of Middle School Per 10,000 Populations
	X_3	Number of Secondary School Per 10,000 Populations
	X_4	Number of Higher Secondary School Per 10,000 Populations
	X_5	Number of College Per 10,000 Populations
	X_6	Number of Professional Training Institute Per 10,000 Populations
2. Health	X_7	Number of Primary Health Centre Per 10,000 Populations
	X_8	Number of Primary Health Sub-Centre Per 10,000 Populations
	X_9	Number of Maternity and Child Welfare Centre
	X_{10}	Number of Hospital Per 10,000 Populations
	X_{11}	Number of Dispensary Per 10,000 Populations
	X_{12}	Number of Nursing Home Per 10,000 Populations
3.Transportation and Communication	X_{13}	Number of Bus Stand Per 100 Sq. Km. Area
	X_{14}	Number of Railway Station Per 100 Sq. Km. Area
	X_{15}	Number of Settlements With Pucca Road Facility to Total Inhabited Settlements
	X_{16}	Number of Branch Post Office Per 10,000 Populations
	X_{17}	Number of Sub-Post Office Per 10,000 Populations
	X_{18}	Number of Settlements with Telephone Facility to Total Inhabited
	X_{19}	Number of Post and Telegraph Office Per 10,000 Populations
4.Electricity and Drinking Water	X_{20}	Electricity for Domestic Purpose to Total Inhabited Settlements
	X_{21}	Number of Settlement Having Tap Water Facility to total Inhabited Settlements
	X_{22}	Number of Settlement having Tube Well Water Facility to Total Inhabited Settlements
5.Market and Finance	X_{23}	Number of Daily Market Per 10,000 Populations
	X_{24}	Number of Periodic Market Per 10,000 Populations
	X_{25}	Number of Regulated Market Per 10,000 Populations
	X_{26}	Number of Commercial and Cooperative Bank Per 10,000 Populations
	X_{27}	Number of Gramin Bank Per 10,000 Populations
6.Agro-economy and Veterinary	X_{28}	Number of Cold Storage Per 100 Inhabited Settlements
	X_{29}	Number of Seed Storage Per 100 Inhabited Settlements
	X_{30}	Number of Soil Testing Centre Per 100 Inhabited Settlements

X_{31}	Number of Settlement With Electricity For Agriculture to Total Inhabited Settlements
X_{32}	Number of Agricultural Credit Societies Per 100 Inhabited Settlements
X_{33}	Number of Veterinary Hospital Per 10,000 Populations
X_{34}	Number of Block Animal Health Centre Per 10,000 Populations
X_{35}	Number of State Animal Health Centre Per 10,000 Populations

Analysis and Discussion:

The recognition of backward regions holds the key to minimize or eradicate regional disparaties and formulation of developmental plans. The regions that are highly developed in terms of social, economic as well as demographic factors can also show significant growth and development in terms of appropriate land use and agricultural efficiency (Joshi and Dube, 1979)

Table 1: Uttar Dinajpur District: Computed Z- Score of Socio-Economic Variables

Sl. No	Block	Education						Health					
		X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}	X_{12}
1	Chopra	-0.88	-1.85	-0.38	-0.65	-0.80	-0.96	0.32	1.22	0.53	1.87	0.44	0.04
2	Islampur	-0.70	-0.41	-0.43	-1.09	1.34	0.57	-1.05	-1.04	-0.59	-0.48	-1.27	2.40
3	Goalpokhar-I	-0.77	-0.26	-1.19	-0.85	-0.80	-0.96	0.07	-1.56	0.92	-0.96	-0.74	-0.12
4	Goalpokhar-II	-0.36	1.12	-0.43	0.00	-0.80	-0.96	0.69	-0.15	0.05	-0.72	0.47	-0.60
5	Karandighi	-0.39	-0.17	-0.05	-0.04	-0.27	0.06	-1.18	-0.35	0.31	-0.40	0.11	-0.60
6	Raiganj	-0.40	-0.50	-0.11	0.00	0.00	1.58	-0.55	-0.56	-0.95	-0.31	-0.03	0.67
7	Hemtabad	1.86	1.56	2.32	0.60	-0.80	-0.96	2.06	0.53	-1.05	0.17	0.07	-0.60
8	Kaliaganj	0.16	-0.11	0.70	2.29	0.27	1.07	-0.55	0.49	-1.05	-0.64	-1.10	-0.60
9	Itahar	1.49	0.62	-0.43	-0.25	1.87	0.57	0.19	1.42	1.82	1.46	2.05	-0.60

(Contd. Table 1)

Sl. No	Block	Transportation and Communication							Electricity and Drinking Water		
		X_{13}	X_{14}	X_{15}	X_{16}	X_{17}	X_{18}	X_{19}	X_{20}	X_{21}	X_{22}
1	Chopra	0.15	-0.37	-0.88	0.61	0.21	-0.97	0.00	0.18	-0.49	-0.57
2	Islampur	-1.85	0.52	-0.27	-1.04	-0.44	-0.77	-0.91	0.18	-0.49	0.73
3	Goalpokhar-I	0.43	-0.97	-0.39	0.92	0.01	-0.82	-1.59	0.18	-0.25	0.37
4	Goalpokhar-II	-0.13	1.66	0.22	1.84	1.05	-0.63	0.68	0.18	-0.74	-0.97
5	Karandighi	-0.13	-0.40	0.95	-0.49	-1.02	-0.15	0.00	0.58	-0.25	-0.43
6	Raiganj	-0.43	0.39	-1.49	0.25	-1.93	1.20	0.23	-2.62	-0.49	0.55
7	Hemtabad	1.09	0.91	1.80	-0.25	1.11	1.96	1.59	0.58	1.97	1.89
8	Kaliaganj	-0.70	-0.08	-0.51	-1.29	0.79	-0.10	0.91	0.18	-0.74	-1.41
9	Itahar	1.58	-1.66	0.58	-0.55	0.21	0.28	-0.91	0.58	1.48	-0.16

(Contd. Table 1)

Sl. No	Block	Market and Finance					Agro-Economy and Veterinary							
		X_{23}	X_{24}	X_{25}	X_{26}	X_{27}	X_{28}	X_{29}	X_{30}	X_{31}	X_{32}	X_{33}	X_{34}	X_{35}
1	Chopra	-0.20	0.46	1.96	0.59	-1.95	-1.19	-0.64	-0.33	-1.30	-0.18	1.33	0.77	-0.65
2	Islampur	-0.87	-1.24	1.34	-0.32	-0.73	1.13	0.41	-0.33	-0.62	-1.05	-1.01	0.19	1.85
3	Goalpokhar-I	-0.64	-0.35	0.10	-0.47	-0.11	0.44	-0.71	-0.33	-0.99	0.25	-1.01	0.19	-0.65
4	Goalpokhar-II	-0.52	0.00	-0.83	-0.24	0.91	-1.19	-0.30	-0.33	-0.73	1.30	-0.65	-1.54	-0.65
5	Karandighi	-0.20	0.53	-0.83	-0.92	0.09	1.18	-0.65	-0.33	1.25	-1.62	-0.47	-0.38	1.02
6	Raiganj	-0.70	-0.85	-0.36	0.36	0.09	0.92	2.43	2.67	0.36	-0.09	-0.65	1.35	1.02

7	Hemtabad	2.31	-1.17	-0.83	-0.47	0.91	-1.19	0.35	-0.33	1.56	-0.13	0.34	-1.54	-0.65
8	Kaliaganj	0.82	1.70	-0.21	2.32	-0.52	0.04	-0.47	-0.33	-0.05	-0.04	0.43	0.77	-0.65
9	Itahar	-0.01	0.92	-0.36	-0.84	1.31	-0.13	-0.41	-0.33	0.52	1.57	1.69	0.19	-0.65

Source: Computed from Census of India, Village Directory and Town Directory, 2011

Table 2: Uttar Dinajpur District: Composite Mean Z- Score of Socio-Economic Development, 2011

Sl. No	Block	Education	Health	Transportation and Communication	Electricity and Drinking Water	Market and Finance	Agro-Economy and Veterinary	Overall Socio-Economic Development	Rank
1	Chopra	-0.92	0.74	-0.18	-0.29	0.17	-0.28	-0.13	5
2	Islampur	-0.12	-0.34	-0.68	0.14	-0.36	0.07	-0.22	8
3	Goalpokhar-I	-0.81	-0.40	-0.34	0.10	-0.29	-0.35	-0.35	9
4	Goalpokhar-II	-0.24	-0.04	0.67	-0.51	-0.14	-0.51	-0.13	6
5	Karandighi	-0.15	-0.35	-0.18	-0.03	-0.26	0.00	-0.16	7
6	Raiganj	0.10	-0.29	-0.25	-0.85	-0.29	1.00	-0.10	4
7	Hemtabad	0.76	0.2	1.17	1.48	0.15	-0.2	0.59	1
8	Kaliaganj	0.73	-0.57	-0.14	-0.66	0.82	-0.04	0.02	3
9	Itahar	0.65	1.06	-0.07	0.63	0.20	0.31	0.46	2

Source: Computed by Researcher.

Level of Educational Development

Table 2 and Figure 2 show a significant regional disparity in the distribution of educational facilities in the district. Hemtabad (0.76) block has the highest educational facilities, while Goalpokhar-I (-0.81) block has the lowest. The district's blocks are divided into three categories (Figure 2) based on their composite mean Z-score, i.e., high (0.64 to 0.76), medium (-0.24 to 0.10) and low (-0.92 to - 0.81).

Table 2 reveals that three blocks in the district with a composite mean Z-score ranging from 0.64 to 0.76 are categorized as having a high level of educational development. One of them, Itahar (0.65) block located in the southern part of the district, whereas the other two, Hemtabad (0.76) and Kaliaganj (0.73) blocks are located in the southeast corner of the district. This group extends over an area of 877.98 sq. km (28.08 percent) of the total area; it has 723406 persons (24.06 percent) of the total population (3007134 persons) of the district, it covers 526 settlements (35.44 percent) of the total inhabited settlements (1484 settlement) of the study area. This area of the district is located in south and southeast corners. The region is dominated by Scheduled Castes and Scheduled Tribes people, who benefit from the specific governmental provision of educational institutions for their betterment.

The medium level (-0.24 to 0.10) of educational development is found in four blocks in the district. They are Islampur (-0.12), Goalpokhar-II (-0.24), Karandighi (-0.15), Raiganj (0.10). The Goalpokhar-II and Karandighi blocks are located in the central part of the district, while Raiganj block is located in the central south of the district, and Islampur block is located in the northern part of the district. This group occupies an area of 1512.77 sq. km (48.38 per cent) of the district's total area. It has a population of 1673205 persons (55.64 percent) and 696 settlements (46.90 percent) of the district. The density of the population and uneven distribution of educational institutions lead to these blocks' medium level of development.

Table 2 shows that there are two blocks found in the low level (-0.85 to -0.29) of educational development in the district, i.e., Chopra (-0.92) and Goalpokhar-I (-0.81). Chopra block is located in the northernmost part of the district, while Goalpokhar-I block is located in the central upper part. This group extends over an area of 736.14 sq. km (23.54 per cent) of the district, it has a population of 610523 persons (20.30 percent) of the total population of the district and it covers only 262 settlements (17.65 percent) of the total settlements of the study area. The region's low level of educational development is linked to the unplanned deployment of educational institutions in accordance with the population of settlements.
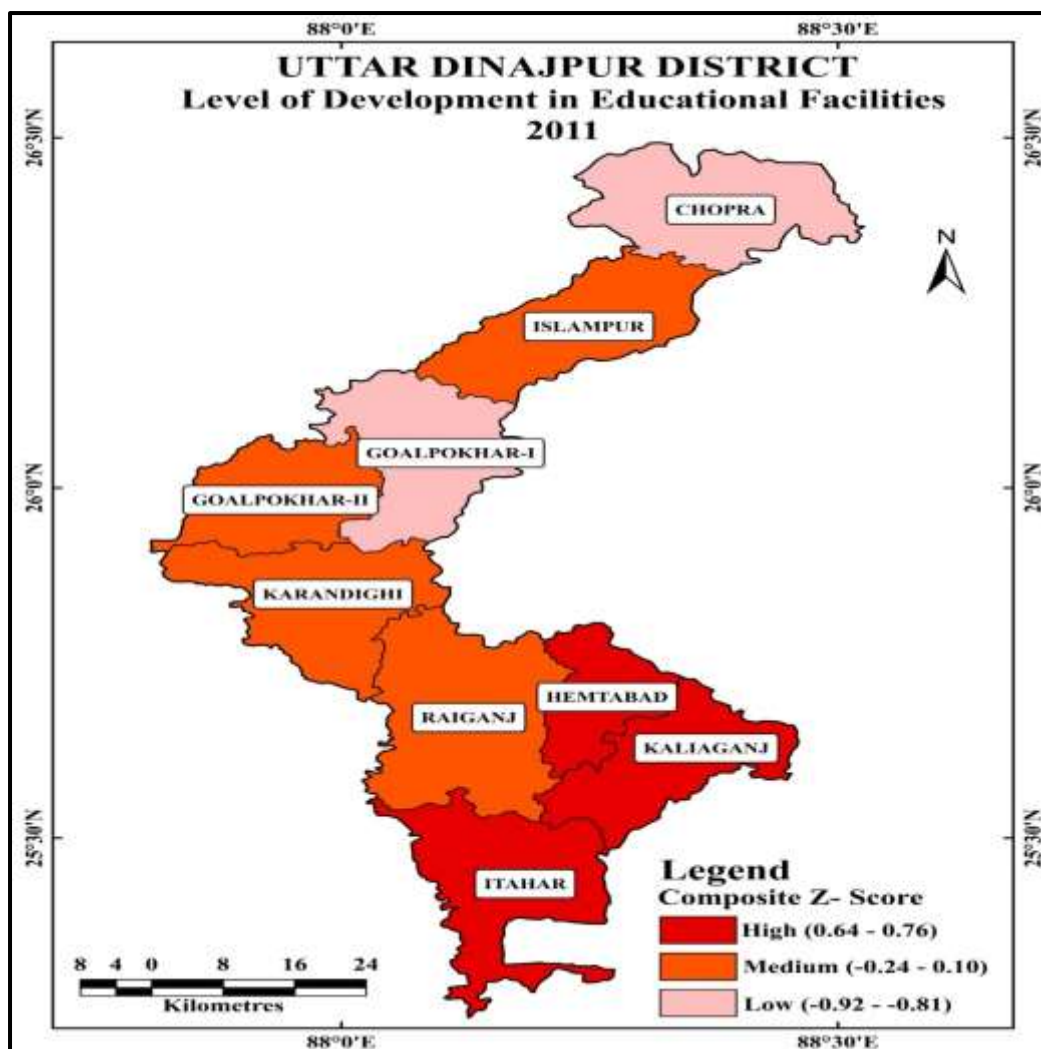
Figure 2

Level of Health Development

Table 2 shows that Itahar (1.06) block has the highest composite mean Z- score of health development, whereas Kaliaganj (-0.57) block has the lowest. All the blocks of the district are divided into three categories for determining health development levels (Figure 3), i.e., high (0.74 to 1.06), medium (-0.04 to 0.20) and low (-0.57 to -0.29).

Table 2 displays that a high level of health development (0.74 to 1.06) has been registered in the Itahar (1.06) and Chopra (0.74) blocks of the district. Itahar and Chopra blocks are located in the district's southernmost and northernmost parts. It occupies an area of 753.57 sq. km (24.10 percent) of the overall area of the district and these two blocks contain 588081 persons (19.56 percent) of the total population of the study area and 337 settlements (22.71 percent) of the overall 1484 inhabited settlements of the district. These two blocks are highly developed due to the good communication and proper allocation of health facilities.

Table 2 and Figure 3 depict that the medium level of health development (-0.04 to 0.20) has been recorded in two blocks of the district, i.e., Goalpokhar-II (-0.04) and Hemtabad (0.2). Goalpokhar-II block is located in the central west of the district and the hemtabad block is located in the southeast of the district. It represents an area of 490.57 sq. km (15.69 percent) out of the entire area of the district. It has 433308 persons (14.41 percent) of the overall population (3007134 persons) of the district, and it covers 283 settlements (19.07 percent) of the total inhabited settlements of the district.

The low level of health development (-0.57 to -0.29) has been found in five blocks of the district (Table 2 and Figure 3) such as Islampur (-0.34), Goalpokhar-I (-0.4), Karandighi (-0.35), Raiganj (-0.29) and Kaliaganj (-0.57). It covers an area of 1882.75 sq. km (60.21 per cent) of the total area, includes 1985745 persons (19.07 percent) of the total population and it covers 864 settlements (58.22 percent) of the total inhabited settlements of the study area. These blocks are least developed because of inadequate infrastructure and less accessibility to the facilities.
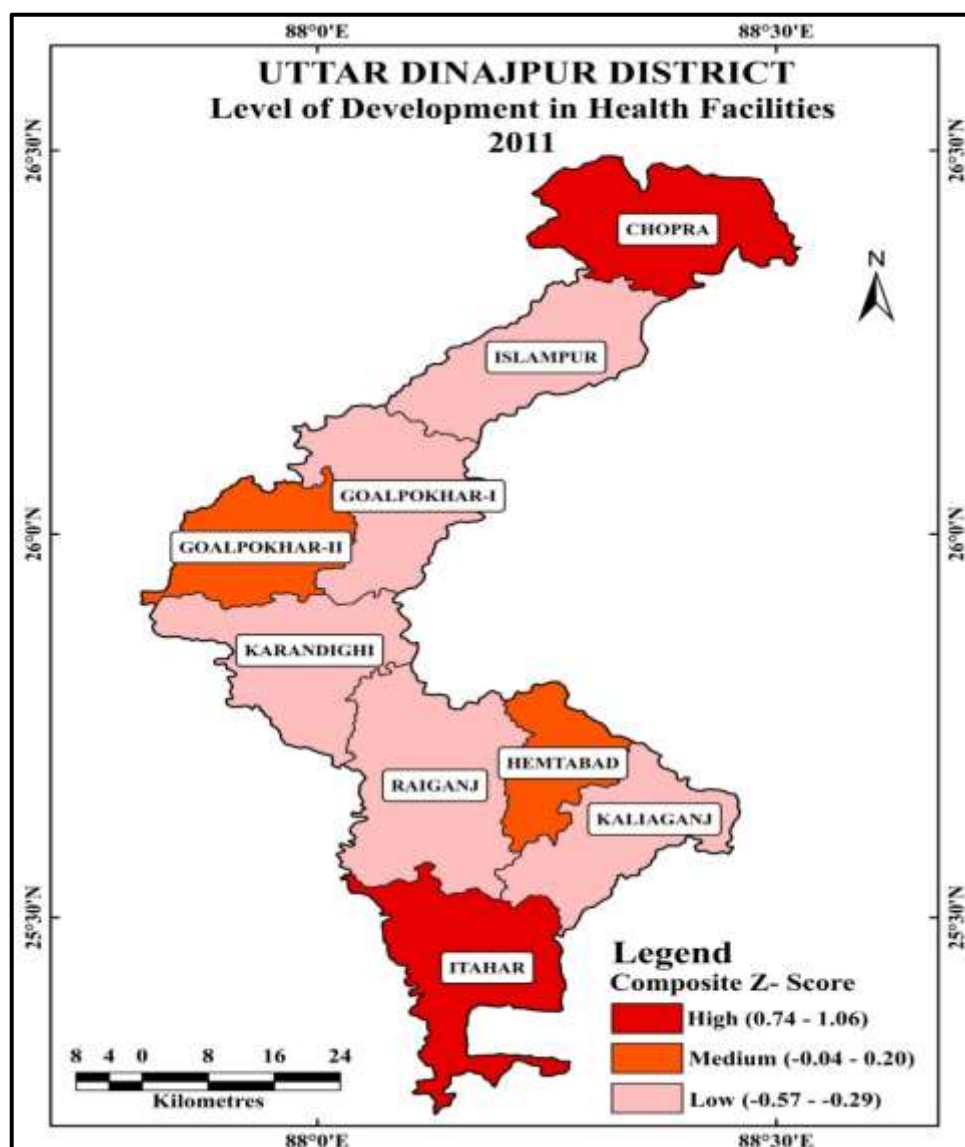
Figure 3

Level of Transportation and Communication Development

Table 2 shows that the highest composite mean Z-score value of transportation and communication development has been recorded in Hemtabad (1.17) block, whereas Islampur (-0.68) has the lowest development value. The three stages of transportation and communication development in the district are displayed in Figure 4.

Two blocks fall under the high level (0.67 to 1.17) of development in terms of transportation and communication facilities, namely Goalpokhar-II (0.67) and Hemtabad (1.17). It occupies an area of 490.57 sq. km (15.69 percent) out of the total area. It has 433308 persons (14.41 percent) of the overall population of 3007134 persons, and it covers the small number of 283 settlements (19.07 percent) of the total inhabited settlements of the district.

The medium level (-0.34 to -0.07) of transportation and communication development has been recorded in six blocks of the district, such as Chopra (-0.18), Goalpokhar-I (-0.34), Karandighi (-0.18), Raiganj (-0.25), Kaliaganj (-0.14) and Itahar (-0.07) blocks. It extends over an area of 2295.82 sq. km (73.42 percent) of the total area, it shares 73.52 percent (2210968 persons) of the population of the total population and it has 1099 settlements (74.06 percent) of the total inhabited settlements of the district. It has been observed that most of the blocks fall under the medium level of transportation and communication development in the district.

Table 2 and Figure 4 shows that Islampur (-0.68) block is the least developed in terms of transportation and communication facilities in the district. It covers an area of 340.5 sq. km (10.89 percent) of the total area, shares a low number population of 362858 persons (12.07 percent) of the total population, and it also has a few numbers of 102 settlements (6.87 percent) of the district.
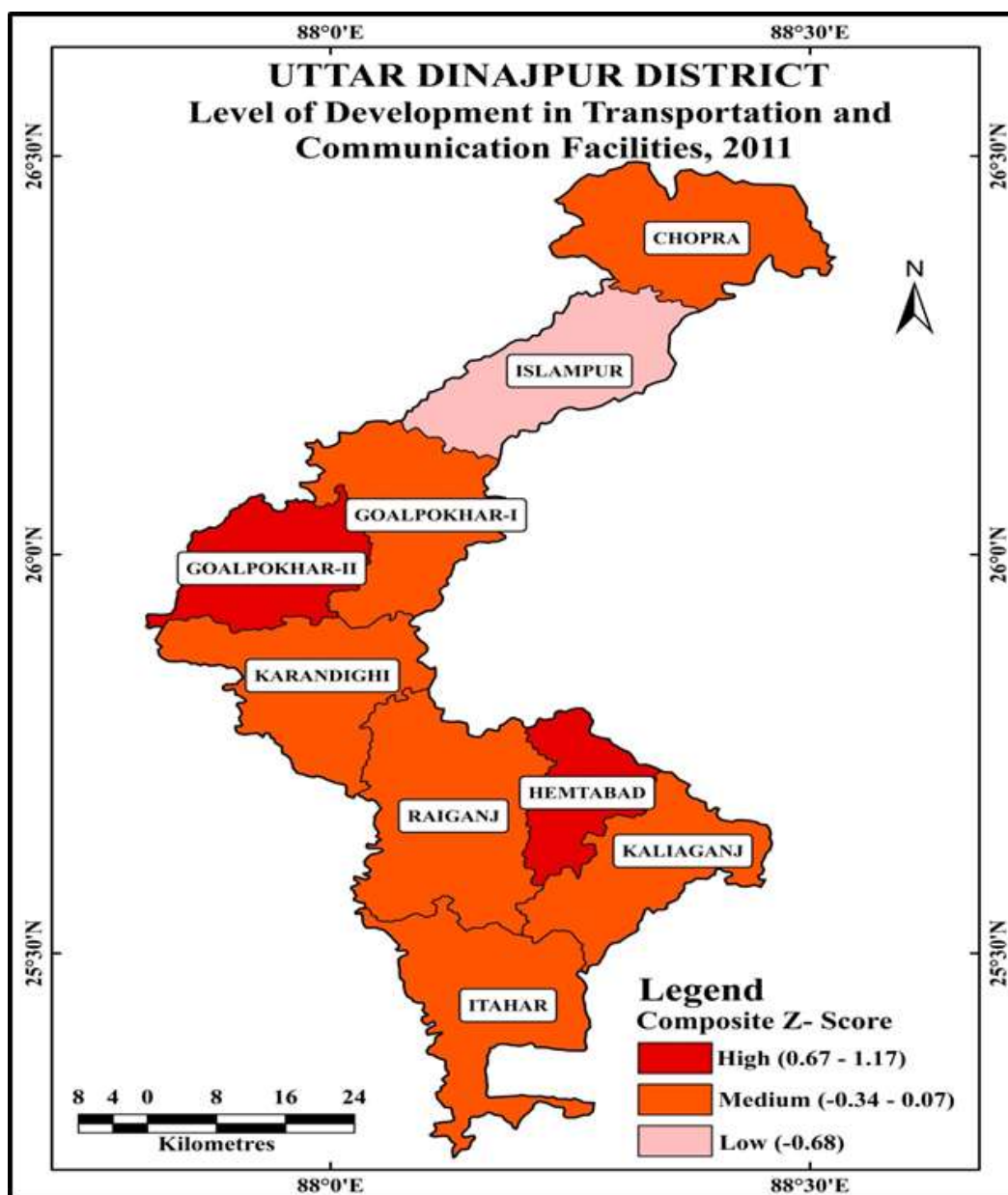
Figure 4

Level of Electricity and Drinking Water Development

It has been observed from Table 2 that the highest composite mean Z- score of electricity and drinking water facility is found in Hemtabad (1.48), whereas the lowest is recorded in Raiganj block (-0.85). Figure 5 shows the differences in electricity and drinking water development, which are divided into three categories, i.e., high, medium and low.

The high level (1.48) of electricity and drinking water development (Table 2) is only recorded in Hemtabad (1.48) block. It is located in the southeast part of the district. It occupies an area of 191.84 sq. km (6.4 percent) of the district and covers a low number population of 142056 persons (4.72 percent) and 114 inhabited settlements (7.68 percent) of the district.

The medium level (-0.03 to 0.63) of electricity and drinking water development (Table 2 and Figure 5) has been found in Islampur (0.14), Goalpokhar-I (0.1), Karandighi (-0.03) and Itahar (0.63). This group encompasses 1458.8 sq. km area (46.65 percent) of the total area. It contains 1397918 persons (46.49 percent) of the total population and 668 settlements (45.01 percent) of the total settlements of the district.

The low level (-0.85 to -0.29) of electricity and drinking water development (Table 2 and Figure 5) has been observed in Chopra (-0.29), Goalpokhar-II (-0.51), Raiganj (-0.85) and Kaliaganj (-0.66). This group occupies 1476.25 sq. km (47.21 percent) area of the total area. It shares 1467160 persons (48.79 percent) of the total population, and it covers 702 settlements (47.30 percent) of the total inhabited settlement of the district. The low degree of

development is due to the unplanned and disorganized distribution of these amenities and facilities, resulting in their inadequate access to the common people.
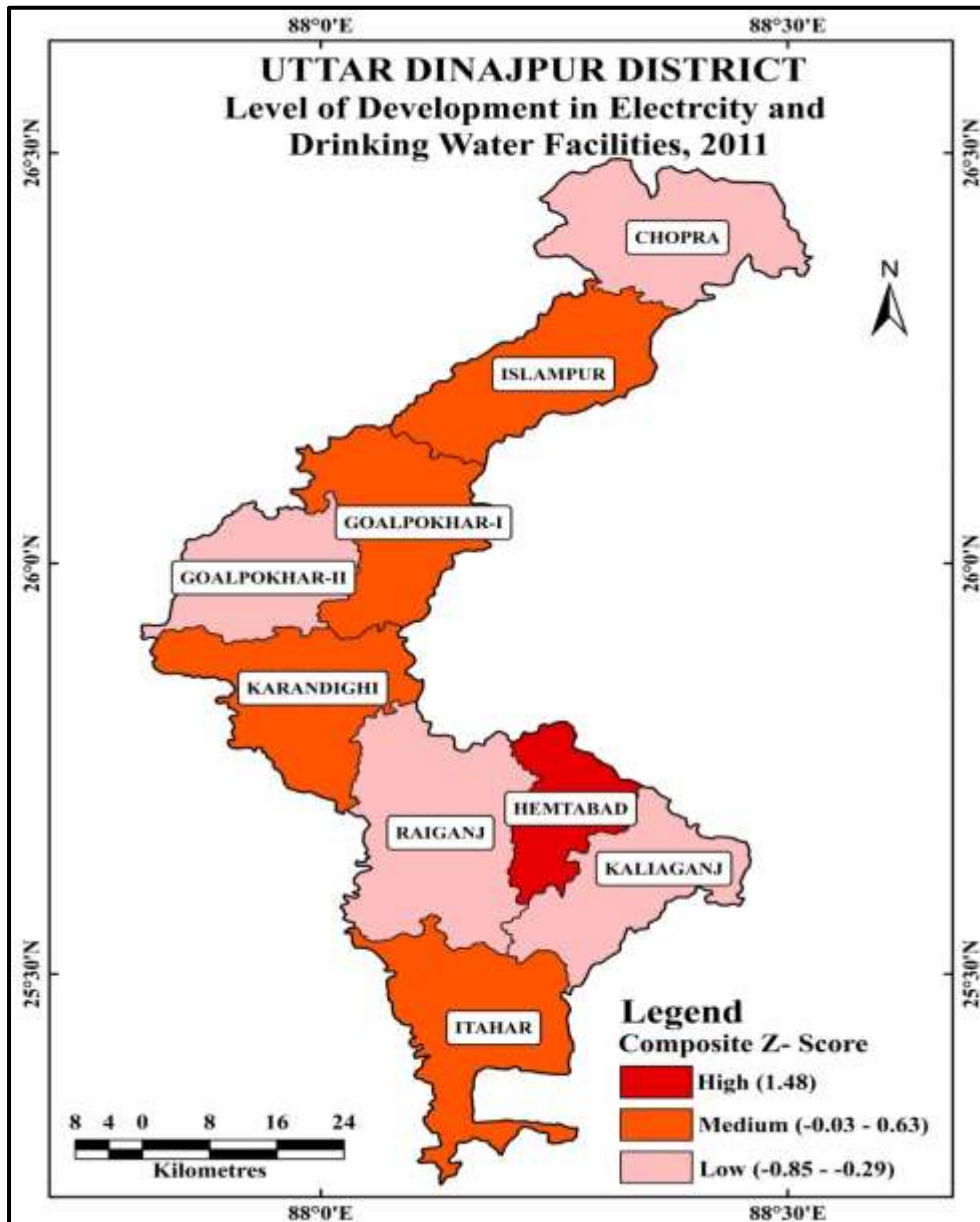

Figure 5

Level of Market and Finance Development

It has been observed from Table 2 that the highest composite mean Z- score of market and finance facilities is registered in Kaliaganj (0.82) block, while the lowest is recorded in Islampur (-0.36). Figure 6 shows the differences in market and finance development, which are divided into three categories, i.e., high, medium and low.

The high level (0.82) of market and finance development is recorded in Kaliaganj (0.82) block. It is located in the southeast part of the district. It occupies an area of 313.6 sq. km (10.03 per cent) of the total area, it has a low number population of 277672 (9.23 percent) the total population, and it shares only 192 settlements (12.94 percent) of the total inhabited settlements. The central location of a regulated and periodic market, surrounded by densely inhabited areas with good road transport links, made this region highly developed.

The medium level (0.15 to 0.20) of market and finance development is found in Chopra (0.17), Hemtabad (0.15), and Itahar (0.20) blocks. This group covers an area of 945.41 sq. km (30.23 percent) of the total area; it accounts for 730137 persons (24.28 percent) of the total population and 451 settlements (30.39 per cent) of the total inhabited settlement of the district.

The low level (-0.36 to -0.14) of market and finance development is recorded in Islampur (-0.36), Goalpokhar-I (-0.29), Goalpokhar-II (-0.14), Karandighi (-0.26) and Raiganj (-0.29) blocks. This group covers an area of 1867.88 sq. km (59.74 per cent) of the district. It accommodates 1999325 persons (66.49 percent) of the district's total population and has 841 settlements (56.67per cent) of the total inhabited settlements. The uneven distributions of market and finance facilities are significant causes of the low level of development.
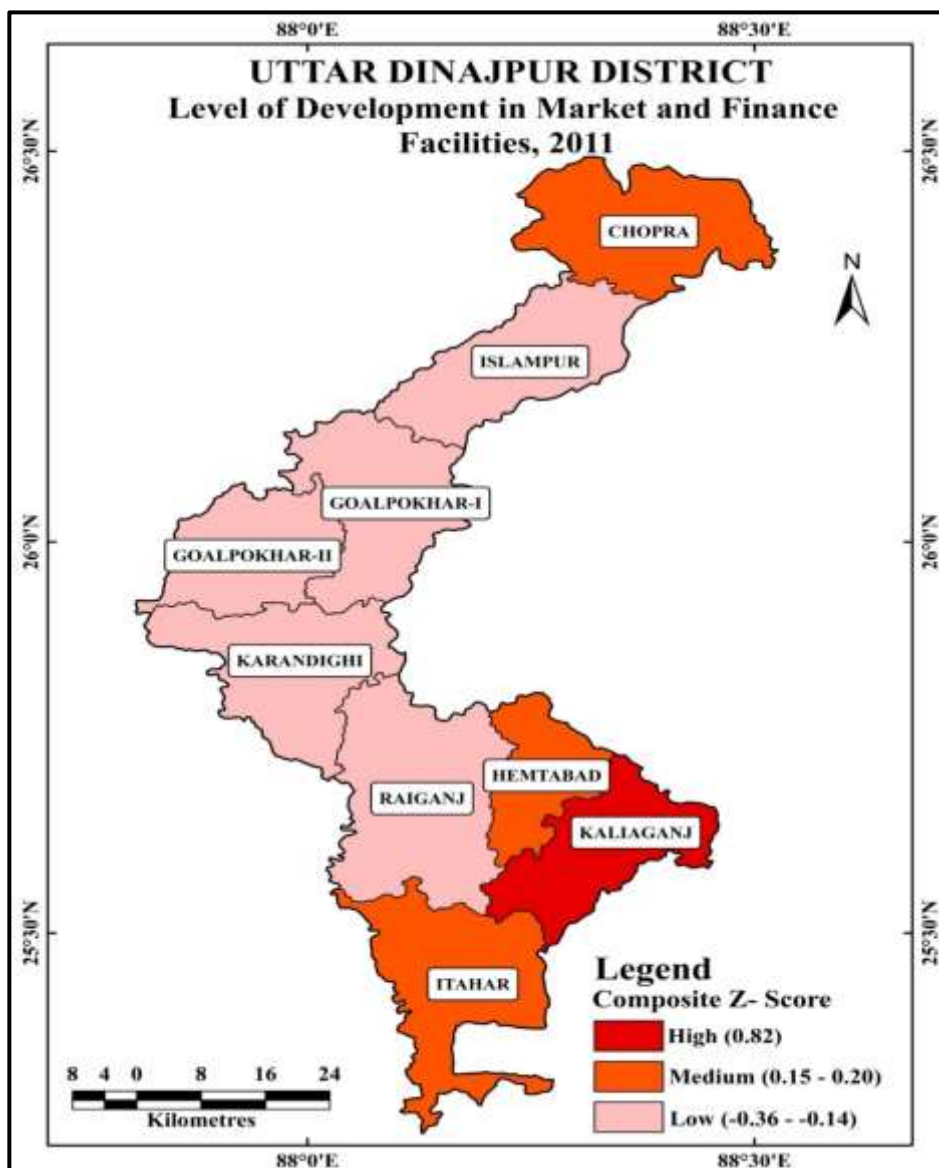

Figure 6

Level of Agro-Economy and Veterinary Development

Table 2 displays that a high level of development has been recorded in Raiganj (1.00) block, whereas Goalpokhar-I (-0.35) block stand at the bottom among the blocks in the district. Table 2 and Figure 7 reveal a regional variation in the level of agro-economy and veterinary facilities in the district. These inequalities are divided into three groups, i.e., high, medium and low.

The highest composite mean Z-score (1.00) of agro-economy and veterinary facilities development is only recorded in Raiganj (1.00) block. This block is located in the south-central part of the district. Raiganj covers an area of 482.89 sq. km of the total area. It has registered 613833 persons (20.4 percent) of the total population, and it encompasses 224 settlements (15.09 percent) of the total inhabited settlements of the district. This block is highly developed due to the well distribution of ago-economic and veterinary facilities and this is the district's headquarters, which will provide extra benefits among all the blocks.

The medium level (-0.04 to 0.31) of agro-economy and veterinary development has been shown by four blocks, i.e., Islampur (0.07), Karandighi (0.00), Kaliaganj (-0.2) and Itahar (0.31). This group covers an area of 1417.29 sq. km (45.33 per cent) of the total area. It has 1349470 persons (44.88 per cent) of the district and 715 settlements (48.18 percent) of the study area.

The low level (-0.51 to -0.20) of agro-economy and veterinary development has been found in Chopra (-0.28), Goalpokhar-I (-0.35), Goalpokhar-II (-0.51) and Hemtabad (-0.2) blocks (Table 2). This group is located in the district's north, middle and southeast parts. This group extends over an area of 1226.71 sq. km (39.23 percent) of the study area. It encompasses 1043831 persons (34.71 percent) of the district's total population, and it has 545 settlements (36.73 percent) of the district. The low degree of development might be associated with political partiality in providing organized agro-economic and veterinary facilities so that the benefits can be delivered evenly to the masses.
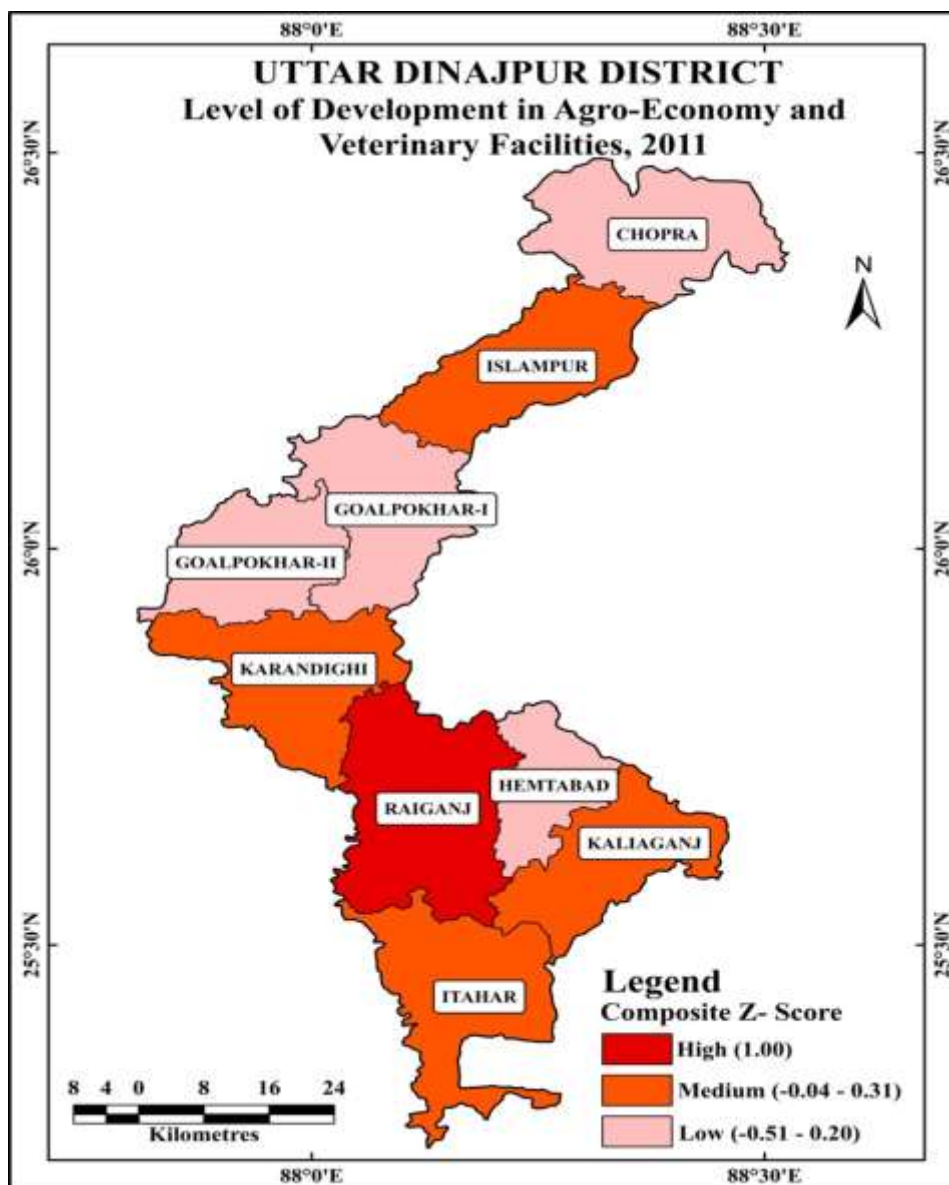

Figure 7

Level of Socio-Economic Development

The index of socio-economic development of each component area unit (block) of the district has been determined using composite mean Z-scores of 35 variables (i.e., X_1, X_2, X_3, X_4..... X_{35}). On the basis of their composite mean Z-score, the district's blocks were classified into three tiers (Figure 8) of socio-economic development, i.e., high (0.46 to 0.59), medium (-0.16 to 0.02) and low (-0.35 to -0.22). Table 2 displays that the highest composite mean Z-score is found in Hemtabad (0.59) block, ranking first in terms of socio-economic development, followed by Itahar (0.46) block. In contrast, the lowest composite mean Z-score is recorded in Goalpokhar-I (-0.35), which stands last (ninth) rank in terms of socio-economic development, followed by Islampur (-0.22) block of the district.

Two blocks of the district fall under the high level (0.46 to 0.59) of socio-economic development in the study area i.e., Hemtabad (0.59) and Itahar (0.46) blocks. It extends over only the district's 564.38 sq. km area (18.05 percent). It accommodates the small size of the population, i.e., 445734 persons (14.82 percent) of the total population, and it shares only 334 settlements (22.51 percent) of the total inhabited settlements of the study area. The high degree of

development in these blocks is attributable to communication and transportation accessibility and a more significant number of socio-economic services or facilities. These two blocks are adjacent to the district headquarters.

The composite mean Z-score ranges from -0.16 to 0.02, regarded as the medium level of socio-economic development. This group has five blocks, i.e., Chopra (-0.13), Goalpokhar-II (-0.13), Karandighi (-0.16), Raiganj (-0.10) and Kaliaganj (0.02) blocks. This group occupies an area of 1886.9 sq. km (59.70 percent) of the district's total area. It contains the highest population of 1872422 persons (62.27 percent) of the district's total population and the highest number of 903 settlements (60.85 percent) of the total inhabited settlements of the study area. The high population density prevented them from reaching a high level of development. Still, the availability of educational, medical, electrical, drinking water, communication and transportation facilities placed them at a medium level of development.

The composite mean Z-score range varies from - 0.35 to -0.22, indicating the district's low level of overall socio-economic development. Two blocks are found in this category i.e., Goalpokhar-I (-0.35) and Islampur (-0.22). These two blocks are located in the northern part of the district and are connected to each other. The areas covered by these blocks are 695.61 sq. km (22.25 percent) of the district's total area. This group accounts low population of 688978 persons (22.91 percent) of the total population of the district, and it has a low number (247) of settlements (16.64 per cent) of the total inhabited settlements of the study area. Low socio-economic development is characterized by a lack of educational, medical, communication and transport, agro-economy and veterinary, financial and market facilities. Furthermore, due to political biases in the allocation of government funding and proper implementation of local problems, people's requests and requirements for development are not being fulfilled at the grass-roots level in Goalpokhar-I, resulting in the study area lagging behind.
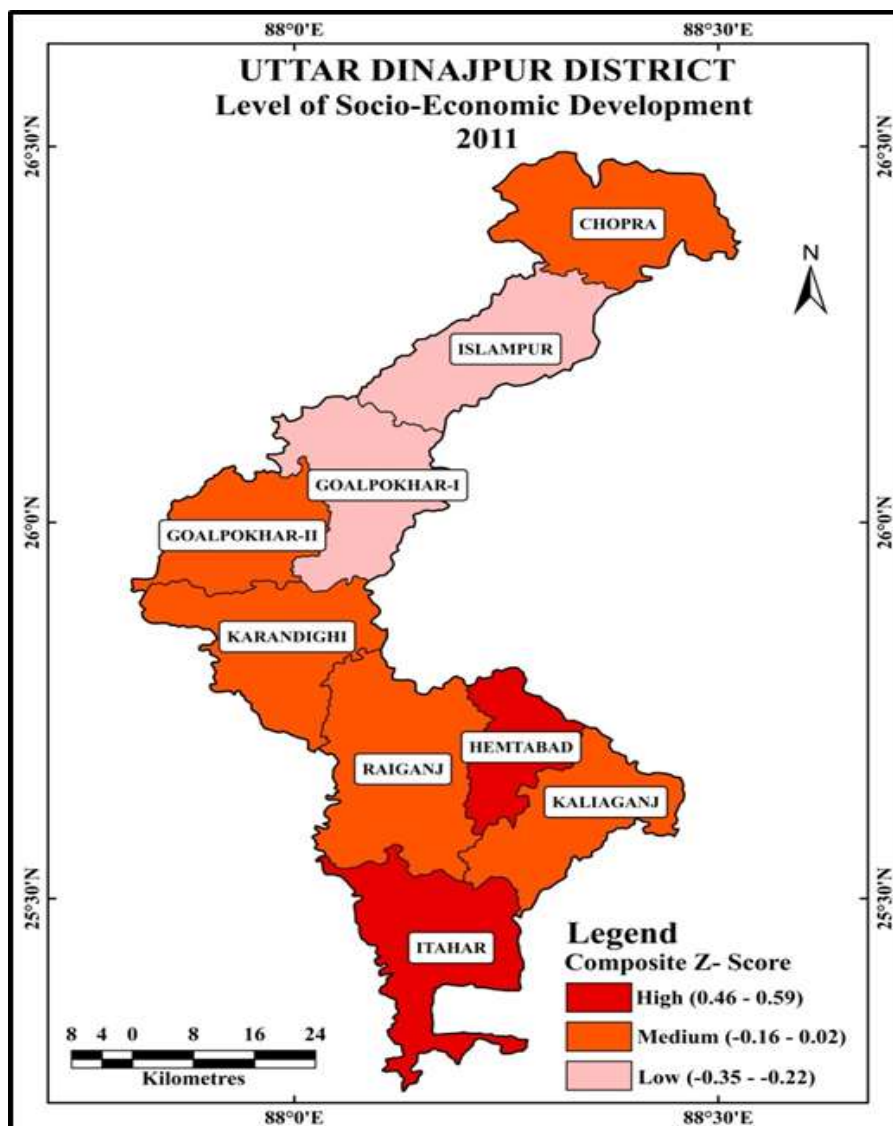

Figure 8

Correlation among the Major Developmental Variables

The correlation matrix of Table 3 reveals that education, health, transportation and communication, electricity and drinking water, market and finance, Agro-Economy and Veterinary and overall socio-economic development are positively and significantly correlated with each other. There is a highly positive correlation between education level and overall socio-economic development and insignificant relation with health, transportation and communication, agro-economy and veterinary. Level of health development has little association with overall socio-economic development and insignificant negative relation with agro-economy and veterinary. Transportation and communication also have little relation with overall socio-economic development and insignificant negative relation with agro-economy and veterinary. Electricity and drinking water has a positive relationship with overall socio-economic development. Market and finance have an insignificant negative relation with agro-economy and little relation with overall socio-economic development.

Table 3: Correlation Matrix

Category	Education	Health	Transportation and Communication	Electricity and Drinking Water	Market and Finance	Agro-Economy and Veterinary	Overall Socio-Economic Development
Education	1						
Health	0.047	1					
Transportation and Communication	0.392	0.230	1				
Electricity and Drinking Water	0.350	0.408	0.487	1			
Market and Finance	0.530	0.188	0.225	0.002	1		
Agro-Economy and Veterinary	0.345	-0.024	-0.356	-0.237	-0.141	1	
Overall Socio-Economic Development	0.779*	0.565	0.639	0.703*	0.464	0.119	1

Source: Based on Table 2

* Correlation is Significant at the 0.05 level (2 - tailed)

Conclusion:

The findings of the above analysis confirmed significant geographical differences in the level of socio-economic development in the district. The present study has been carried out considering thirty-five variables, categorized into six, i.e., education, health, transportation and communication, electricity and drinking water, agro-economy and veterinary, market and finance. The result shows that two blocks of the district fall under the high level of socio-economic development; i.e., Hemtabad (0.59) and Itahar (0.46) blocks. Five blocks show medium level of development i.e., Chopra (-0.13), Goalpokhar-II (-0.13), Karandighi (-0.16), Raiganj (-0.10) and Kaliaganj (0.02) blocks and two block shows least overall socio-economic development namely Goalpokhar-I (-0.35) and Islampur (-0.22). Goalpokhar-I block has the lowest degree of development among all the blocks of the district in terms of education, health, transportation and communication, electricity and drinking water, markets and finance, agro-economy and veterinary services or facilities. As a result, the Goalpokhar-I block has been require much more attention to balance the level of development among the blocks of the district. This study will help the policy maker, Government and Non-Government Organizations (NGOs) to plan for the district's future socio-economic development.

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