Connectivity and Accessibility: The Road Network of Rural Periodic Market Centers in Dakshin Dinajpur District, West Bengal, India

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ABSTRACT

The road network plays a crucial role in shaping the spatial and functional dynamics of rural periodic market centres, particularly in agrarian regions like Dakshin Dinajpur district in West Bengal, India. The road network of this district is predominantly composed of a mix of paved roads, rural link roads, and district highway, which vary in quality and reliability. Periodic markets which commonly held once or twice a week are often located at strategic points such as road junctions, village cores, or near transport corridors. However, many of these centres suffer from limited all-weather connectivity, which hampers the efficient movement of goods and people, particularly during the monsoon season. The analysis highlights significant spatial disparities in transport access, with western and middle parts of the district enjoying better connectivity compared to the more remote or Bangladesh border areas. Improved road infrastructure, last-mile connectivity, and integration with regional transport plans are essential for enhancing the viability and sustainability of these rural market centres. Strengthening the transport network would not only bolster local livelihoods and agricultural marketing but also contribute to rural development and regional integration. This study examines the structure, connectivity, and accessibility of transport infrastructure supporting these rural markets, which serve as vital nodes for local trade, agricultural exchange, and socio-economic interaction. Graph theory has been used to measure the connectivity of road network. The indices of Graph theory are α, β and γ. For describe the degree of network accessibility the Shimbel Index (based on Shortest Path Matrix) and Associated Number Index have been calculated for each of the blocks of this district.

Keywords: Road Network, Connectivity, Accessibility

INTRODUCTION

A transport network is a system of interconnected infrastructure and routes that allows the movement of people, goods and services. This network generally refers to a set of links, nodes and lines, that playing a more important role in connectivity. Transport networks are important for a region livability, economic activity and mobility. At any given stage of economic development, a country or region required a certain level of transport facilities in order to maximize its resource potentialities (Amadi, 1988). A well-developed transport network is important for the rural periodic market development as it allows movement of people and agricultural and manufactural goods to and from the markets, which can help the market growth. It is seen as a promoter of accessibility. Travel satisfaction experienced by rural residents is closely related to personal, physical and mental health as well as rural economic conditions. A better rural road environment increases villagers' satisfaction with market visits. A market with good connectivity and accessibility always attracts traders and consumers towards it. The well connectivity helps for arriving the more verities of commodities in the periodic markets. So, it is clear that the level of trade of a market depends on the level of connectivity and accessibility. A developed transportation helps connect a rural area with its nearest rural markets, town markets and urban regions that improved the internal

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trade of rural area to the markets.

Objective of the Study

The main objective of the study is to evaluated and measurement of connectivity and accessibility of the rural periodic market centres in Dakshin Dinajpur district.

Study area

The study would be conducted in the area of the selected Rural Periodic Markets of Dakshin Dinajpur district in West Bengal. Dakshin Dinajpur district extends from 25°10'55" North to 26°35'15" North latitudes and from 87°48'37" East to 89°00'30" East longitudes. This district is covered an area of 2,162 sq. km. As per Dakshin Dinajpur Zilla Regulated Market Committee Report (2018), there are 182 rural periodic markets are scattered in Dakshin Dinajpur district.

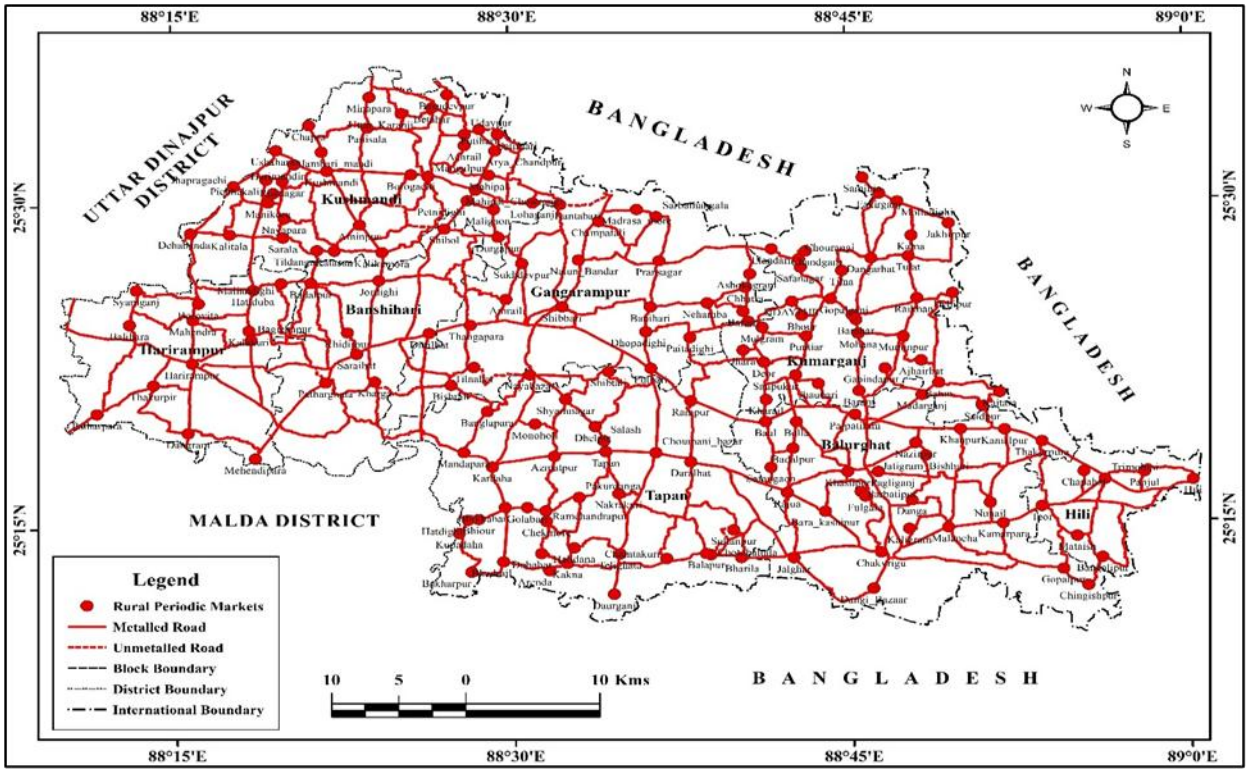


Figure 1: Road Network of Dakshin Dinajpur District

METHODOLOGY

Dakshin Dinajpur district is more or less well connected of road network. The all-road networks are digitised by ArcMap. Connectivity indices are computed using the Network Analyst extension of ArcGIS. For measured the connectivity of transport network the 'Graph theory' has been used. The Eta index, Theta index and network density are also measured to access the network intensity and

efficiency of network connectivity. For describe the degree of network accessibility the Shimbel Index (based on Shortest Path Matrix) and Associated Number Index have been calculated for each of the blocks. These indices give us an overview of the connectivity and accessibility of the road network of the study area.

Connectivity of Road Network

Connectivity refers to the density of connections of road network. It is a measure of how well connected the road and how direct are the connections between destinations. A well-connected road network has many short links, intersections and few endpoints. This allows for more direct travel between destinations, which can lead to many benefits.

Measurement of Connectivity

Graph Theory: A graph is a symbolic representation of a network and its connectivity. It implies an abstraction of reality so that it can be simplified as a set of linked nodes. A graph (G) is a set of vertices (nodes) 'v' connected by edges (links) 'e'. The goal of a graph is to represent the structure, not the appearance of a network. The conversion of a real network into a planner graph is a straight forward process that follows some basic rules:

- Every terminal and intersection point become a node.
- Each connected node is then linked by a straight segment.

The graph theoretical studied of networks purpose to ascertain the structure of network in terms of specific measures for this purpose and the relation of these measures to the characteristics of the region (Ramaswami, 1976). Graph theory relies on several measures and indices that assess the efficiency of transport network. In the present case the selected measures are:

(a) Alpha Index (α): It is a measure of connectivity which evaluated the number of cycles in a graph in comparison with the maximum number of cycles. The alpha index in planar network is defined as:

$$\text{Alpha } (\alpha) = \frac{e-v+1}{2v-5}$$

Where, e means number of edges or links and v means number of nodes or vertex. The value of alpha varies from 0 to 1. The higher the alpha value, the more a network is connected. Trees and simple networks will have a value of 0. A value of 1 indicates a completely connected network. It is very rare that a network will have an alpha value of 1, because this would imply very serious redundancies. This index also multiplied by 100 to express the redundancy in percentage. This index is also called Meshedness Co-efficient in the literature of planar networks.

(b) Beta Index (β): It measures the level of connectivity in a graph and is expressed by the relationship between the number of links (e) over the number of nodes (v). It calculated as follows:

$$\text{Beta } (\beta) = \frac{e}{v}$$

For a planar graph the value of Beta index ranges from 0 to 3. The values 0 indicates the complete unconnected network (i.e. zero edge). Trees and simple networks have Beta value of <1. A connected network with one cycle has a value of 1. More complex networks have a value of >1.

(c) Gamma Index (γ): It is a measure of connectivity that considers the relationship between the number of observed links and the number of possible links. The value of Gamma is ranges from 0 to 1, where a value of 0 indicates a completely unconnected network, while a value of 1 indicates a completely connected network and would be extremely unlikely in reality. The Gamma index is calculated as:

$$\text{Gamma } (\gamma) = \frac{e}{3(v-2)}$$

Eta Index (η): It measure the average length of network (L) per link. Adding new nodes will cause a decrease of Eta value as the average length per link declines. Complex networks tend to have a low Eta value. It calculates as follows:

$$\text{Eta } (\eta) = \frac{L}{e}$$

Theta Index (θ): It measured the function of a node, which is the average amount of traffic per intersection. The measure can also be applied to the number of links (edges) where it represents the average load per link. The higher Theta value is the greater the load of the network. It defines as follows:

Theta (θ) $= \frac{L}{v}$

Pi Index (π): It represents the relationship between the total length of the graph (L) and the distance along its diameter (D). The high value of θ shows the developed network. It is calculated by the following formula:

Pi (π) $= \frac{L}{G}$

Road Density or Network Density (ND): It measures the territorial occupation of a transport network in terms of km of links (L) per square km of surface (S). The network density is an indicator of coverage of network. It expresses as follows:

ND $= \frac{L}{S}$

Parameters of Connectivity

To measure the aforesaid indices of connectivity, some parameters has been given, these are

1. Only the metalled and unmetalled roads are recognised as the determination of edges or links.
2. All the rural periodic markets of the district considered as the vertices or nodes which are connected with metalled and unmetalled roads.
3. Each intersection of edges is recognised as the additional vertex.

RESULTS AND DISCUSSION

On the basis of the given parameters all the periodic markets are selected as vertex and all vertex and additional vertex interconnected by the metalled and unmetalled roads which create a suitable transport network all over the district. With help of the nodes, edges and network various connectivity indices are calculated and the results are discussed below:

C.D. Block	Alpha Index	Beta Index	Gamma Index	Eta Index	Theta Index	Pi Index	Road Density
Balurghat	0.15	1.31	0.45	2.35	3.08	8.27	0.66
Hili	0.11	1.24	0.45	2.2	2.72	5.36	0.77
Kumarganj	0.12	1.25	0.43	2.64	3.32	8.25	0.63
Tapan	0.14	1.29	0.44	2.46	3.17	8.84	0.6
Gangarampur	0.09	1.19	0.41	2.44	2.92	6.68	0.6
Banshihari	0.06	1.14	0.4	2.3	2.62	5.59	0.67
Harirampur	0.08	1.18	0.41	2.36	2.78	6.58	0.66
Kushmandi	0.18	1.36	0.46	1.85	2.52	9.17	0.84

Table 1: Degree of Connectivity of the Rural Periodic Market Centres in Dakshin Dinajpur District

Source: Computed by the Researcher, 2024

Alpha Index: The alpha values of different blocks show a sign of the minimally connected network of the periodic markets of the district. Tapan, Kushmandi and Balurghat block having maximum alpha value while the lowest values are found at Banshihari, Gangarampur and Harirampur block.

Beta Index: The value of beta index is varied from 1.14 to 1.36 which indicates the road network is connected with a cycle. These values express the moderate connectivity network in the district. The highest beta value is

found in Balurghat, Tapan and Kushmandi block which have a greater number of edges in respect of vertices and denote the moderate connectivity.

Gamma Index*:* The calculated value of the ratio of number of observed links and possible links are ranged in between 0.40 and 0.46. The Gamma values of all blocks are more or less very a little variation. But in convenience it is said that the Kushmandi block having the maximum Gamma value which indicates the maximum road connection, i.e. 46% in comparison to the other blocks.

Eta Index: The lowest value of average length of network per link or Eta index is found in Kushmandi block, i.e. 1.85, which indicates the complex network than the other blocks.

Theta Index: The higher Theta value is the greater the load of the network. The higher Theta values are measured in Kumarganj, Tapan and Balurghat block, i.e. 3.32, 3.17 and 3.08 respectively.

Pi Index: The highest Pi value is found in Kushmandi (9.17), Tapan (8.84), Balurghat (8.27) and Kumarganj block (8.25), where the road network is more developed than the other blocks. That means all the rural periodic markets are well interconnected. That's why, most of the big periodic markets such as, Mohana, Jalghar, Kamarpara, Safanagar, Lohaganj etc. are located in these four blocks.

Road Density*:* The road density is an indicator of coverage of road network. I this district the highest road density is found in Kushmandi and Hili block, while moderate density is found in Balurghat and Harirampur block. Tapan and Gangarampur block having the lowest road network coverage in respect to their area, because some the rural periodic markets as well as villages are having no roads for transportation.

Figure 2: Indices of Graph Theory for the Measurement of Network Connectivity

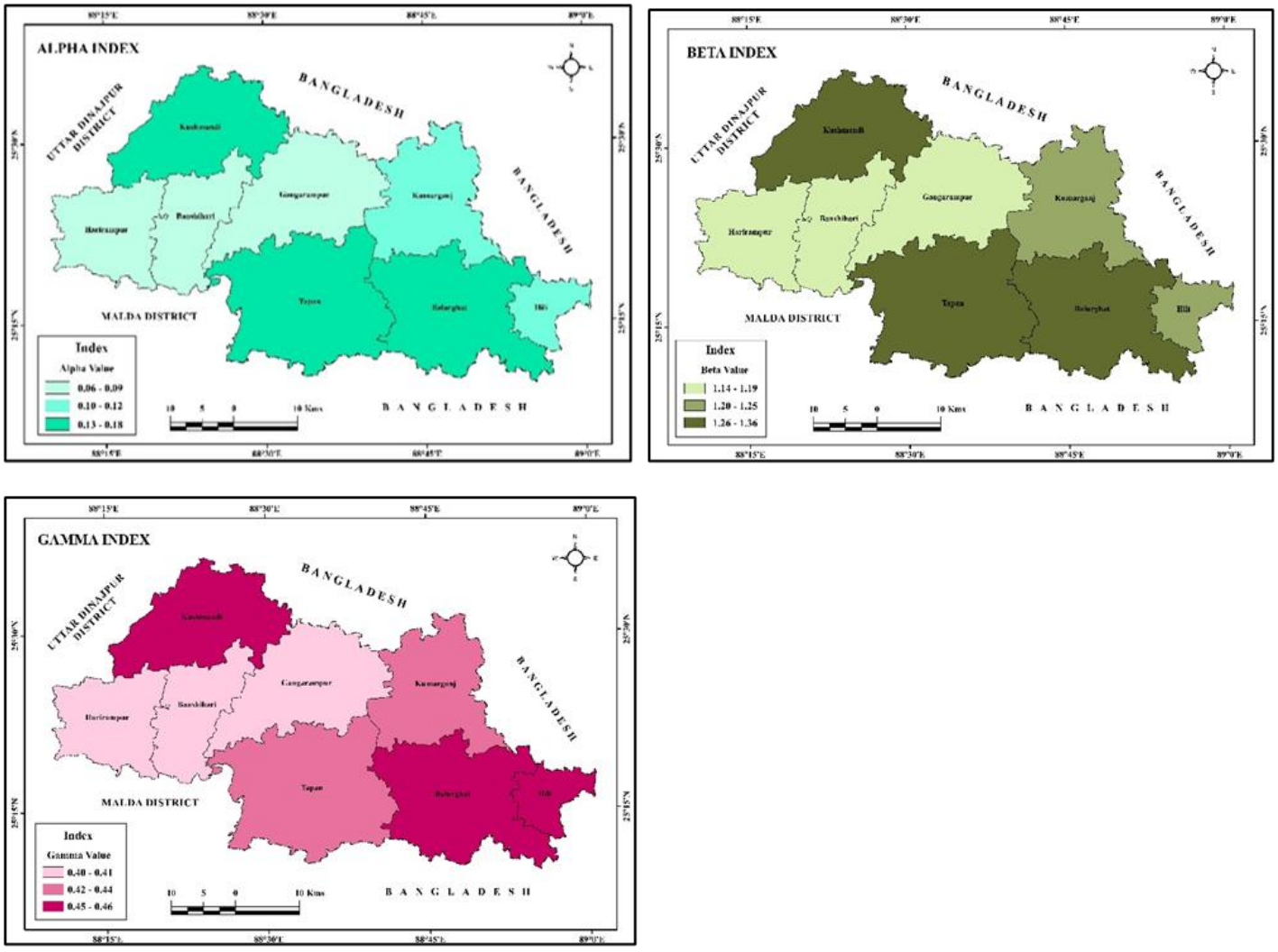
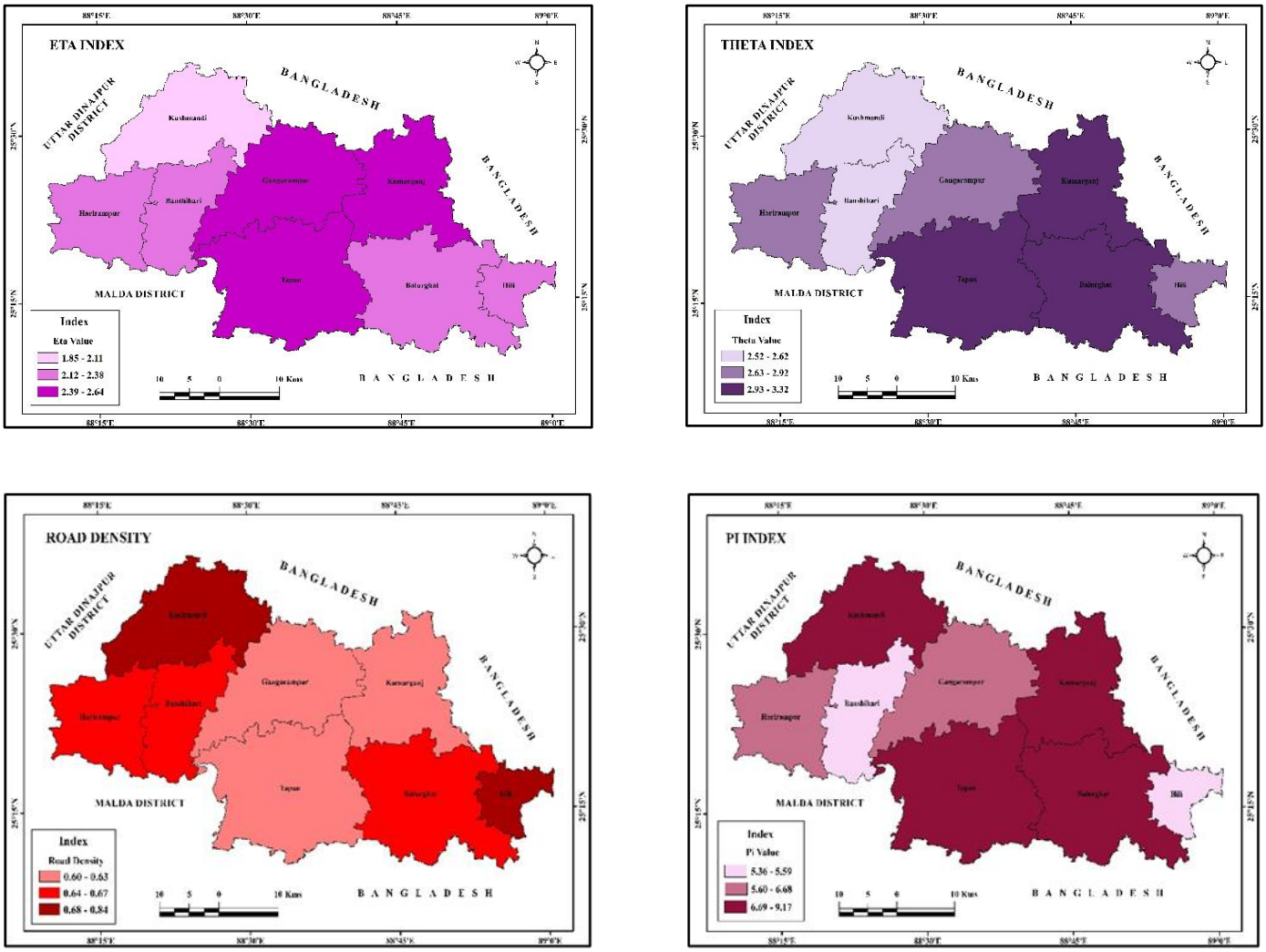


Figure 3: Eta, Theta, Pi Index and Road Density for the Measurement of Connectivity



Accessibility of Road Network

Accessibility is a key element in transport geography and in general since it is a direct expression of mobility either in terms of people, vehicles or information. The Accessibility is defined as the measure of the capacity of a location to be reached by or to reach different locations, Therefore, the capacity and the arrangement of transport infrastructure are key elements in the determination of accessibility (Rodrigue, 2005). The notion of accessibility relies om two core concepts:

1. The first is location, where the relativity of space is estimated in relation to transport infrastructure, since they offer the mean to support movements. Each location has a set of referential attributes, such as its population or level of economic activity.

2. The second is distance, which is derived from the connectivity between the locations. Distance can only exist when there is a possibility to link two locations through transportation. It expresses the friction of distance, and the location with the least friction relative to others is likely to be the most accessible. The friction of distance is commonly expressed in units such as in kilometres or in time, but variables such as cost or energy spent can also be used.

Measurement of Accessibility

The main focus of measuring accessibility does not necessarily involve measuring the total number of paths between locations but rather the shortest paths between them. Even if several paths between two locations exist, the shortest one is likely to be selected. In congested networks, the shortest path may change according to the current traffic level in each segment.

1. Shimbel Index and Shortest Path Matrix: The Shimbel index calculates the minimum number of paths necessary to connect one node with all the nodes in a defined network. The Shimbel accessibility matrix, also known as the D-Matrix, includes each possible node pair with the shortest path matrix. It only considers the shortest path and does not account for alternative routes. The lowest value of Shimbel index indicates the more accessibility.

2. Associated Number Index: The Associated Number is the number of edges needed to connect a node to the most distant node from it. The highest number among all the numbers of the row for each periodic market centre (i.e. V1, V2… V36 etc.) is considered as the Associated Number. The least value of associated number indicates the more accessible, while the highest associated number indicates the less accessible.

In this case the Shimbel index and Associated Number calculated with the help of rural periodic market centres as the nodes and metalled and unmetalled road connects between the periodic markets and the nearest towns as edges of each block of Dakshin Dinajpur district.

RESULTS AND DISCUSSION

In the Balurghat block the road density is moderate compare to other blocks, so, the road accessibility is moderate. The minimum Shimbel values (SI) are found in Chakvrigu (55), followed by Malancha (57) and Pagliganj (58). The values of Associated Number (AN) are also less in these periodic market centres, i.e. 4, 4 and 5 respectively. Which making them the more accessible periodic markets. On the other hand, Chingishpur, Baul, Thakurpura periodic markets having the maximum values for both of Shimbel index and Associated Number. These periodic markets having the less accessibility of road network.

The lowest Shimbel index (SI) values at Hili block are found in Trimohini (6), Teor (9) and Mataish (9), which make them the most accessible periodic markets. Associated Number value is also less in these aforesaid periodic markets. All the other periodic markets of this block, i.e. Hili, Panjul, Chapahat and Bangalipur having the less accessible network due to having higher values of Shimbel index and Associated Number (AN).

In Kumarganj block the high accessibility is found in Barahar, Gopalganj, Dangarhat and Kumarganj periodic market centres because the Shimbel index value is less than the other periodic markets. The values of Shimbel index (SI) of these periodic markets are 106, 108, 111 and 112 respectively. The associated Number value also low in these periodic markets. The lowest Associated Number (AN) value is 5, which found in both Barahar and Dangarhat. It is clear that traders and consumers can access these markets through the several roads. While, the highest Shimbel value is found in Elandari (208) and Chandganj (208) and Associated Number value also high in both of these periodic markets, i.e. 11.

The minimum Shimbel values (SI) of Tapan block are found at Azmatpur (102), followed by Tapan (105) and Choumani Bazaar (108). The value of Associated Number (AN) is also less in these periodic market centres, i.e. 5, 6 and 7 respectively. Which making them the more accessible periodic markets. On the other hand, Kupadaha, Hatdighi and Bharila periodic markets having the maximum values for both of Shimbel index and Associated Number. These periodic markets having the less accessibility of road network.

In Gangarampur block the high accessibility is found in Shibbari, Banihari, Pransagar periodic market centres and Gangarampur town because the Shimbel index value is less in comparison to the other periodic markets. The values of Shimbel index (SI) of these periodic markets are 42, 43, 46 and 47 respectively. The associated Number value also low in these periodic markets. The lowest Associated Number (AN) value is 3, which found in Shibbari. It is clear that traders and consumers can easily access these markets through the more different roads from all over the block. The highest Shimbel value is found in Bishrail (74) and Baram (67) and Associated Number value also high in both of these periodic markets, i.e. 6.

As the Buniyadpur town is the heart point of Banshihari block, all rural areas as well as all rural periodic markets are connected to this town, that's why here the Shimbel value is less, i.e. 13. Followed by Saraihat and Jordighi. These two periodic markets are also well connected with the whole block, so the accessibility is also high. The lowest Associated Number value is found in Jordighi, i.e. 2.

Dittol (17), Khidirpur (16) and Badalpur (16) record the highest Shimbel index value as well as the Associated Number value. These periodic markets are not well accessible for transport.

In Harirampur block the high accessibility is found in Harirampur because the Shimbel index value is less in comparison to the other periodic markets. The values of Shimbel index (SI) of this periodic market is 21, followed by Bagichapur (22) and Mahendra (22). The associated Number value also low in these periodic markets. The lowest Associated Number (AN) value is 3, which found in Harirampur, Mahendra and Bagichapur. The highest Shimbel value is found in Maliandighi (35), Mehendipara (30), Patharpara (30) and Hatiduba (30) and Associated Number value also high in both of these periodic markets, i.e. 5, 4, 4 and 4 respectively. These periodic markets have very less accessibility of transport network.

In Kushmandi block, the lowest Shimbel value is identified in Mangalpur periodic markets, because this market located in the middle part of the block and road connectivity is very well. The resulted Shimbel value is 96. Followed by Panisala (98), Kushmandi (99) and Katasan (99) are also have less Shimbel index value. The Associated Number values are also less in these periodic markets.

On the other hand, Dehabanda (188), Satimari (176), Kantabari (170) and Durgapur (170) having the highest Shimbel index value and Associated Number also high in these periodic markets. The maximum value of Associated number is found in Dehabanda (9), which making this market the most backward and less accessible periodic market in the block.

MAJOR FINDINGS

Dakshin Dinajpur is a predominantly rural district in West Bengal, has undergone noticeable changes in its transport network over recent years. Based on analysis of road pattern, market linkages and accessibility levels, the following major findings can be noted:

1. The district primarily depends of road transport, as there is minimal railway connectivity. State highway and district roads form the backbone of the regional transport system.
2. Transport connectivity is uneven across the district. While the areas around Balurghat, Tapan, Gangarampur and Kushmandi blocks have relatively better connectivity, interior blocks such as Hili, Banshihari and Harirampur still face challenges due to poor road infrastructure.
3. Transport route linkage between the rural periodic markets and major villages of this district have moderate in nature. It plays a vital role for transport the market commodities, especially in blocks like Tapan, Harirampur, Kumarganj and Kushmandi. However, market access remains limited in more remote areas due to poor road conditions.
4. Several village roads remain kutcha (unmetalled) and become inaccessible during the monsoon season, disrupting transport and affecting rural-urban linkages and also rural periodic market linkages. Areas near the Indo-Bangladesh border, especially in Hili and Tapan blocks, suffer from poor transport connectivity, affecting trade potential and security mobility.
5. Government initiatives like the Pradhan Mantri Gram Sadak Yojana (PMGSY) have improved rural road connectivity in some areas, facilitating better access to rural periodic markets and also schools and healthcare.

RECOMMENDATIONS

To enhance the economic development and social well-being of the rural areas of the Dakshin Dinajpur district, especially the relation between road network and rural periodic market, several important recommendations can be initiated.

1. Priority should be given to converting the kutcha (unmetalled) roads into pucca (metalled) roads, especially those linking villages to periodic market centers of Kumarganj, Kushmandi and Tapan blocks.
2. Roads prone to seasonal inaccessibility due to monsoons should be upgraded to all-weather standards. Also, construction of small bridges, culverts and proper drainage systems should be integrated into rural transport planning.

3. Increase the frequency and coverage of government and private buses on the rural routes, especially on market days.
4. Strengthening of roads under the schemes like PMGSY should continue with emphasis on maintenance and long-term sustainability. Engage local panchayats and community-based organisations in the regular monitoring and minor maintenance of the rural roads.

CONCLUSION

Connectivity and accessibility of road network are the most important phenomenon for the development of any kind of markets. Without proper connectivity and accessibility, no nodal functional centres can develop with full potential. In this work, the connectivity and accessibility of the rural periodic markets in Dakshin Dinajpur district has been highlights. After discuss the whole transport network of this district, it clearly seen that, the transport connectivity and accessibility of the periodic markets are moderate in nature. Some of the periodic markets are well connected with nearest regulated markets and urban areas. But most of the rural periodic markets do not have good transport system. Hence, traders and consumers are reluctant to visit these markets. That's why in term of development these markets are lagging behind the other markets. Therefore, it is imperative to improve the transport system of the whole district.

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Appendix: The block-wise Shimbel Index and Associated Number

Block	Centres	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15	V16	V17	V18	V19	V20	V21	V22	V23	V24	V25	V26	SI	AN
Balurghat	V1	0	1	2	3	2	4	3	3	3	4	4	5	6	6	7	6	5	5	4	5	4	4	5	4	4	4	103	7
	V2	1	0	1	2	1	3	2	2	2	3	3	4	5	5	6	5	4	4	3	4	3	3	4	3	3	3	79	6
	V3	2	1	0	1	1	3	2	2	2	3	3	4	5	5	6	5	4	4	3	4	3	2	3	2	2	2	74	6
	V4	3	2	1	0	1	3	2	2	2	3	3	4	5	5	4	3	2	3	3	4	2	1	2	1	1	1	63	5
	V5	2	1	1	1	0	2	1	1	1	2	2	3	4	4	5	4	3	3	2	3	2	2	3	2	2	2	58	5
	V6	4	3	3	3	2	0	1	2	2	1	2	2	3	3	4	4	5	3	2	3	3	3	4	4	4	4	74	5

	V7	3	2	2	2	1	1	0	1	1	1	1	2	3	3	4	4	3	2	1	2	2	2	3	3	3	3	55	4
	V8	3	2	2	2	1	2	1	0	1	2	2	3	4	4	5	4	3	3	2	3	2	2	3	3	3	3	65	5
	V9	3	2	2	2	1	2	1	1	0	2	2	3	4	4	4	3	2	2	2	3	1	1	2	3	3	3	58	4
	V`10	4	3	3	3	2	1	1	2	2	0	2	1	2	2	3	3	3	2	2	3	3	3	4	4	4	4	66	4
	V11	4	3	3	3	2	2	1	2	2	2	0	1	2	2	3	3	2	1	2	1	2	3	3	4	4	4	61	4
	V12	5	4	4	4	3	2	2	3	3	1	1	0	1	1	2	2	2	1	3	2	2	3	3	4	5	5	68	5
	V13	6	5	5	5	4	3	3	4	4	2	2	1	0	1	1	2	3	2	4	3	3	4	4	4	5	6	86	6
	V14	6	5	5	5	4	3	3	4	4	2	2	1	1	0	2	1	2	2	4	3	3	4	3	3	4	5	81	6
	V15	7	6	6	4	5	4	4	5	4	3	3	2	1	2	0	1	2	2	4	3	3	4	3	3	4	5	90	7
	V16	6	5	5	3	4	4	4	4	3	3	3	2	2	1	1	0	1	1	3	2	2	3	2	2	3	4	73	6
	V17	5	4	4	2	3	5	3	3	2	3	2	2	3	2	2	1	0	1	3	2	1	2	1	1	2	3	62	5
	V18	5	4	4	3	3	3	2	3	2	2	1	1	2	2	2	1	1	0	2	1	1	2	2	3	4	5	61	5
	V19	4	3	3	3	2	2	1	2	2	2	2	3	4	4	4	3	3	2	0	1	3	3	4	4	4	4	72	4
	V20	5	4	4	4	3	3	2	3	3	3	1	2	3	3	3	2	2	1	1	0	2	3	3	4	5	5	74	5
	V21	4	3	3	2	2	3	2	2	1	3	2	2	3	3	3	2	1	1	3	2	0	1	1	2	3	3	57	4
	V22	4	3	2	1	2	3	2	2	1	3	3	3	4	4	4	3	2	2	3	3	1	0	1	2	2	2	62	4
	V23	5	4	3	2	3	4	3	3	2	4	3	3	4	3	3	2	1	2	4	3	1	1	0	1	2	3	69	5
	V24	4	3	2	1	2	4	3	3	3	4	4	4	4	3	3	2	1	3	4	4	2	2	1	0	1	2	69	4
	V25	4	3	2	1	2	4	3	3	3	4	4	5	5	4	4	3	2	4	4	5	3	2	2	1	0	1	78	5
	V26	4	3	2	1	2	4	3	3	3	4	4	5	6	5	5	4	3	5	4	5	3	2	3	2	1	0	86	6

Block	Centres	V1	V2	V3	V4	V5	V6	V7	SI	AN
Hili	V1	0	1	1	2	2	2	2	10	2
	V2	1	0	1	2	2	2	2	10	2
	V3	1	1	0	1	1	1	1	6	1
	V4	2	2	1	0	1	2	2	10	2
	V5	2	2	1	1	0	1	2	9	2
	V6	2	2	1	2	1	0	1	9	2
	V7	2	2	1	2	2	1	0	10	2

Block	Centres	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15	V16	V17	V18	V19	V20	V21	V22	V23	V24	V25	V26	V27	V28	V29	V30	V31	V32	V33	V34	V35	V36	SI	AN
Kumarganj	V1	0	1	1	2	2	4	4	5	6	7	6	5	6	7	8	9	9	3	3	4	5	6	4	3	7	5	5	6	7	8	9	6	7	3	2	3	178	9
	V2	1	0	2	1	3	5	5	6	7	8	7	6	7	8	9	10	10	3	4	5	6	7	3	2	8	5	4	5	6	6	7	5	8	4	3	2	188	10
	V3	1	2	0	1	1	3	3	4	5	6	5	4	5	6	7	8	8	2	2	3	4	5	3	2	6	4	4	5	5	5	6	5	6	2	1	2	141	8
	V4	2	1	1	0	2	4	4	5	6	7	6	5	6	7	8	9	9	2	3	4	5	6	3	1	7	5	4	5	6	6	7	5	7	3	2	1	164	9
	V5	2	3	1	2	0	2	2	3	4	5	4	3	4	5	6	7	7	2	1	2	3	4	3	3	4	3	4	5	4	4	5	5	5	1	1	3	122	7
	V6	4	5	3	4	2	0	1	1	2	3	2	2	3	5	6	7	7	4	3	4	4	3	5	6	4	5	6	7	6	6	7	7	4	1	3	5	147	7
	V7	4	5	3	4	2	1	0	1	2	3	2	1	2	4	5	6	6	4	3	4	3	2	5	5	3	4	5	6	5	5	6	7	3	1	3	5	130	7
	V8	5	6	4	5	3	1	1	0	1	2	1	1	2	4	5	6	6	5	4	4	3	2	5	6	3	4	5	6	5	5	6	6	3	2	4	6	137	6
	V9	6	7	5	6	4	2	2	1	0	2	1	2	3	5	6	7	7	6	5	5	4	3	6	7	4	5	6	7	6	6	7	7	3	3	5	7	168	7
	V10	7	8	6	7	5	3	3	2	2	0	1	2	2	2	3	4	4	7	5	4	3	2	5	6	3	4	5	6	5	5	6	6	1	4	6	8	152	8
	V11	6	7	5	6	4	2	2	1	1	1	0	1	2	3	4	5	5	6	5	4	3	2	5	6	3	4	5	6	5	5	6	6	2	3	5	7	143	7

	V12	5	6	4	5	3	2	1	1	2	2	1	0	1	3	4	5	5	5	4	3	2	1	4	5	2	3	4	5	4	5	5	5	2	2	4	6	121	6
	V13	6	7	5	6	4	3	2	2	3	2	2	1	0	2	3	4	4	5	4	3	2	1	4	5	2	3	4	5	4	4	5	5	1	3	5	7	128	7
	V14	7	8	6	7	5	5	4	4	5	2	3	3	2	0	1	2	2	5	4	3	2	1	4	5	2	3	4	5	4	4	5	5	1	6	8	10	147	10
	V15	8	9	7	8	6	6	5	5	6	3	4	4	3	1	0	1	1	6	5	4	3	2	5	6	3	4	5	6	5	5	6	6	2	6	8	10	174	10
	V16	9	10	8	9	7	7	6	6	7	4	5	5	4	2	1	0	2	7	6	5	4	3	6	7	4	5	6	7	6	6	7	7	3	7	9	11	208	11
	V17	9	10	8	9	7	7	6	6	7	4	5	5	4	2	1	2	0	7	6	5	4	3	6	7	4	5	6	7	6	6	7	7	3	7	9	11	208	11
	V18	3	3	2	2	2	4	4	5	6	7	6	5	5	5	6	7	7	0	1	2	3	4	1	2	4	3	2	3	4	4	5	3	5	3	1	1	130	7
	V19	3	4	2	3	1	3	3	4	5	5	5	4	4	4	5	6	6	1	0	1	2	3	2	3	3	2	3	4	3	3	4	4	4	2	2	2	115	6
	V20	4	5	3	4	2	4	4	4	5	4	4	3	3	3	4	5	5	2	1	0	1	2	1	2	3	1	2	3	2	2	3	3	3	3	3	3	106	5
	V21	5	6	4	5	3	4	3	3	4	3	3	2	2	2	3	4	4	3	2	1	0	1	2	3	2	2	3	4	3	3	4	4	3	4	4	4	112	6
	V22	6	7	5	6	4	3	2	2	3	2	2	1	1	1	2	3	3	4	3	2	1	0	3	4	1	2	3	4	3	3	4	4	1	3	5	5	108	7
	V23	4	3	3	3	3	5	5	5	6	5	5	4	4	4	5	6	6	1	2	1	2	3	0	1	3	2	1	2	3	4	5	2	4	4	2	2	120	6
	V24	3	2	2	1	3	6	5	6	7	6	6	5	5	5	6	7	7	2	3	2	3	4	1	0	4	3	2	3	4	4	5	3	5	4	3	2	139	7
	V25	7	8	6	7	4	4	3	3	4	3	3	2	2	2	3	4	4	4	3	3	2	1	3	4	0	1	2	3	2	2	3	4	2	4	6	6	124	8
	V26	5	5	4	5	3	5	4	4	5	4	4	3	3	3	4	5	5	3	2	1	2	2	2	3	1	0	1	2	1	1	2	2	3	4	4	4	111	5
	V27	5	4	4	4	4	6	5	5	6	5	5	4	4	4	5	6	6	2	3	2	3	3	1	2	2	1	0	1	2	2	3	1	4	5	3	3	125	6
	V28	6	5	5	5	5	7	6	6	7	6	6	5	5	5	6	7	7	3	4	3	4	4	2	3	3	2	1	0	1	2	3	1	5	6	4	4	154	7
	V29	7	6	5	6	4	6	5	5	6	5	5	4	4	4	5	6	6	4	3	2	3	3	3	4	2	1	2	1	0	1	2	1	4	5	5	5	140	7
	V30	8	6	5	6	4	6	5	5	6	5	5	5	4	4	5	6	6	4	3	2	3	3	4	4	2	1	2	2	1	0	1	2	4	5	5	5	144	8
	V31	9	7	6	7	5	7	6	6	7	6	6	5	5	5	6	7	7	5	4	3	4	4	5	5	3	2	3	3	2	1	0	3	5	6	6	6	177	9
	V32	6	5	5	5	5	7	7	6	7	6	6	5	5	5	6	7	7	3	4	3	4	4	2	3	4	2	1	1	1	2	3	0	5	6	4	4	156	7
	V33	7	8	6	7	5	4	3	3	3	1	2	2	1	1	2	3	3	5	4	3	3	1	4	5	2	3	4	5	4	4	5	5	0	4	6	6	134	8
	V34	3	4	2	3	1	1	1	2	3	4	3	2	3	6	6	7	7	3	2	3	4	3	4	4	4	4	5	6	5	5	6	6	4	0	2	4	132	7
	V35	2	3	1	2	1	3	3	4	5	6	5	4	5	8	8	9	9	1	2	3	4	5	2	3	6	4	3	4	5	5	6	4	6	2	0	2	145	9
	V36	3	2	2	1	3	5	5	6	7	8	7	6	7	10	10	11	11	1	2	3	4	5	2	2	6	4	3	4	5	5	6	4	6	4	2	0	172	11

Block	Centres	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15	V16	V17	V18	V19	V20	V21	V22	V23	V24	V25	V26	V27	V28	V29	V30	V31	V32	V33	V34	V35	V36	SI	AN
Tapan	V1	0	1	1	2	3	4	4	5	5	6	6	7	8	9	10	9	8	8	7	6	5	6	4	7	6	6	5	4	5	5	5	4	5	3	2	3	184	10
	V2	1	0	1	2	3	4	4	5	5	6	6	7	8	9	8	7	6	6	5	6	4	5	3	6	5	5	4	3	4	4	4	3	4	2	1	2	158	9
	V3	1	1	0	1	2	3	3	4	4	5	5	6	7	8	9	8	7	7	6	5	5	6	4	7	6	6	5	4	5	5	5	4	5	3	2	3	167	9

	V4	2	2	1	0	1	2	2	3	3	4	4	5	6	7	8	7	6	6	5	4	4	5	3	6	5	5	4	3	4	4	4	3	4	2	1	2	137	8
	V5	3	3	2	1	0	1	1	2	2	3	3	4	5	6	7	6	5	5	4	3	3	5	2	6	5	5	4	3	4	4	4	3	4	2	1	2	123	7
	V6	4	4	3	2	1	0	1	2	2	3	3	4	5	6	7	6	5	5	4	3	3	5	2	6	7	5	5	4	5	5	4	3	4	3	2	3	136	7
	V7	4	4	3	2	1	1	0	1	1	2	2	3	4	5	6	5	4	4	3	2	2	4	1	5	6	4	5	5	5	4	3	2	3	1	2	3	112	6
	V8	5	5	4	3	2	2	1	0	1	2	2	3	4	5	6	5	4	3	2	1	1	4	2	5	6	4	5	5	5	4	3	2	3	2	3	4	118	6
	V9	5	5	4	3	2	2	1	1	0	1	1	2	3	4	5	4	3	4	3	2	2	4	2	5	6	5	6	6	6	5	4	3	4	2	3	4	122	6
	V10	6	6	5	4	3	3	2	2	1	0	2	1	2	3	4	3	2	3	4	3	3	3	3	4	5	4	6	6	5	6	5	4	4	3	4	5	129	6
	V11	6	6	5	4	3	3	2	2	1	2	0	3	4	5	6	5	4	3	2	1	3	4	3	5	6	4	5	6	5	6	5	4	3	3	4	5	138	6
	V12	7	7	6	5	4	4	3	3	2	1	3	0	1	2	3	2	1	2	3	4	4	2	4	3	4	3	4	5	4	5	6	5	3	4	5	6	130	7
	V13	8	8	7	6	5	5	4	4	3	2	4	1	0	1	2	3	2	3	4	5	5	3	5	4	5	4	5	6	5	6	7	6	4	5	6	7	160	8
	V14	9	9	8	7	6	6	5	5	4	3	5	2	1	0	1	2	3	4	5	6	6	4	7	5	6	5	6	7	6	7	7	6	5	7	8	9	192	9
	V15	10	8	9	8	7	7	6	6	5	4	6	3	2	1	0	1	2	3	4	5	5	3	6	4	5	4	5	6	5	6	6	5	4	6	7	8	182	10
	V16	9	7	8	7	6	6	5	5	4	3	5	2	3	2	1	0	1	2	3	4	4	2	5	3	4	3	4	5	4	5	5	4	3	5	6	7	152	9
	V17	8	6	7	6	5	5	4	4	3	2	4	1	2	3	2	1	0	1	2	3	3	1	4	2	3	2	3	4	3	4	4	3	2	4	5	6	122	8
	V18	8	6	7	6	5	5	4	3	4	3	3	2	3	4	3	2	1	0	1	2	2	2	3	3	4	3	4	5	4	5	4	3	2	4	5	6	131	8
	V19	7	5	6	5	4	4	3	2	3	4	2	3	4	5	4	3	2	1	0	1	1	2	2	3	4	2	3	4	3	4	3	2	1	3	4	5	114	7
	V20	6	6	5	4	3	3	2	1	2	3	1	4	5	6	5	4	3	2	1	0	2	3	3	4	5	3	4	5	4	5	4	3	2	4	5	6	128	6
	V21	5	4	5	4	3	3	2	1	2	3	3	4	5	6	5	4	3	2	1	2	0	3	1	4	5	3	4	4	4	3	2	1	2	2	3	4	112	6
	V22	6	5	6	5	5	5	4	4	4	3	4	2	3	4	3	2	1	2	2	3	3	0	3	1	2	1	2	3	2	3	3	2	1	3	4	5	111	6
	V23	4	3	4	3	2	2	1	2	2	3	3	4	5	7	6	5	4	3	2	3	1	3	0	4	5	3	4	4	4	3	2	1	2	1	2	3	110	7
	V24	7	6	7	6	6	6	5	5	5	4	5	3	4	5	4	3	2	3	3	4	4	1	4	0	1	2	2	2	3	4	4	3	2	4	5	4	138	7
	V25	6	5	6	5	5	7	6	6	6	5	6	4	5	6	5	4	3	4	4	5	5	2	5	1	0	2	1	2	2	3	4	5	3	5	4	3	150	7
	V26	6	5	6	5	5	5	4	4	5	4	4	3	4	5	4	3	2	3	2	3	3	1	3	2	2	0	1	2	1	2	3	2	1	3	4	3	115	6
	V27	5	4	5	4	4	5	5	5	6	6	5	4	5	6	5	4	3	4	3	4	4	2	4	2	1	1	0	1	1	2	3	3	2	4	3	2	127	6
	V28	4	3	4	3	3	4	5	5	6	6	6	5	6	7	6	5	4	5	4	5	4	3	4	2	2	2	1	0	1	1	2	3	3	3	2	1	130	7
	V29	5	4	5	4	4	5	5	5	6	5	5	4	5	6	5	4	3	4	3	4	4	2	4	3	2	1	1	1	0	1	2	3	2	4	3	2	126	6
	V30	5	4	5	4	4	5	4	4	5	6	6	5	6	7	6	5	4	5	4	5	3	3	3	4	3	2	2	1	1	0	1	2	3	3	3	2	135	7
	V31	5	4	5	4	4	4	3	3	4	5	5	6	7	7	6	5	4	4	3	4	2	3	2	4	4	3	3	2	2	1	0	1	2	2	3	3	129	7
	V32	4	3	4	3	3	3	2	2	3	4	4	5	6	6	5	4	3	3	2	3	1	2	1	3	5	2	3	3	3	2	1	0	1	1	2	3	105	6

	V33	5	4	5	4	4	4	3	3	4	4	3	3	4	5	4	3	2	2	1	2	2	1	2	2	3	1	2	3	2	3	2	1	0	2	3	4	102	5
	V34	3	2	3	2	2	3	1	2	2	3	3	4	5	7	6	5	4	4	3	4	2	3	1	4	5	3	4	3	4	3	2	1	2	0	1	2	108	7
	V35	2	1	2	1	1	2	2	3	3	4	4	5	6	8	7	6	5	5	4	5	3	4	2	5	4	4	3	2	3	3	3	2	3	1	0	1	119	8
	V36	3	2	3	2	2	3	3	4	4	5	5	6	7	9	8	7	6	6	5	6	4	5	3	4	3	3	2	1	2	2	3	3	4	2	1	0	138	9

Block	Centres	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15	V16	V17	V18	V19	V20	SI	AN
Gangarampur	V1	0	1	1	2	3	3	4	4	5	6	5	6	6	6	5	4	4	4	3	2	74	6
	V2	1	0	1	2	2	2	3	3	4	5	4	5	5	5	4	3	3	3	2	1	58	5
	V3	1	1	0	1	2	2	3	3	4	5	4	5	5	5	4	3	3	3	2	1	57	5
	V4	2	2	1	0	2	1	3	2	3	4	4	5	5	5	4	3	3	3	2	1	55	5
	V5	3	2	2	2	0	2	1	2	3	3	2	3	3	3	2	1	2	3	2	1	42	3
	V6	3	2	2	1	2	0	2	1	2	3	2	3	4	5	4	3	3	3	2	1	48	5
	V7	4	3	3	3	1	2	0	1	2	2	1	2	3	4	3	2	3	4	3	2	48	4
	V8	4	3	3	2	2	1	1	0	1	2	1	2	3	4	4	3	3	4	4	3	50	4
	V9	5	4	4	3	3	2	2	1	0	1	2	3	4	5	4	3	4	5	5	4	64	5
	V10	6	5	5	4	3	3	2	2	1	0	1	2	3	4	3	2	3	4	4	4	61	6
	V11	5	4	4	4	2	2	1	1	2	1	0	1	2	3	2	1	2	3	3	3	46	5
	V12	6	5	5	5	3	3	2	2	3	2	1	0	1	2	2	2	3	3	4	5	59	6
	V13	6	5	5	5	3	4	3	3	4	3	2	1	0	1	1	2	3	2	3	4	60	6
	V14	6	5	5	5	3	5	4	4	5	4	3	2	1	0	1	2	3	2	3	4	67	6
	V15	5	4	4	4	2	4	3	4	4	3	2	2	1	1	0	1	2	1	2	3	52	5
	V16	4	3	3	3	1	3	2	3	3	2	1	2	2	2	1	0	1	2	2	3	43	4
	V17	4	3	3	3	2	3	3	3	4	3	2	3	3	3	2	1	0	1	1	2	49	4
	V18	4	3	3	3	3	3	4	4	5	4	3	3	2	2	1	2	1	0	1	2	53	5
	V19	3	2	2	2	2	2	3	4	5	4	3	4	3	3	2	2	1	1	0	1	49	5
	V20	2	1	1	1	1	1	2	3	4	4	3	5	4	4	3	3	2	2	1	0	47	5

Block	Centres	V1	V2	V3	V4	V5	V6	V7	V8	V9	SI	AN
Banshihari	V1	0	1	1	2	3	1	2	3	2	15	3
	V2	1	0	1	2	2	3	2	3	1	15	3
	V3	1	1	0	1	2	2	2	3	1	13	3
	V4	2	2	1	0	3	1	2	3	2	16	3
	V5	3	2	2	3	0	3	2	1	1	17	3
	V6	1	3	2	1	3	0	1	2	3	16	3
	V7	2	2	2	2	2	1	0	1	1	13	2
	V8	3	3	3	3	1	2	1	0	2	18	3
	V9	2	1	1	2	1	3	1	2	0	13	3

Block	Centres	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	SI	AN
Harirampur	V1	0	1	2	2	2	1	2	3	3	4	3	4	3	30	4
	V2	1	0	1	1	1	2	3	4	4	3	2	3	2	27	4
	V3	2	1	0	1	2	3	4	5	4	3	2	2	1	30	5
	V4	2	1	1	0	1	2	3	4	4	3	2	3	2	28	4
	V5	2	1	2	1	0	1	2	3	3	2	1	2	1	21	3
	V6	1	2	3	2	1	0	1	2	2	2	1	3	2	22	3
	V7	2	3	4	3	2	1	0	1	1	2	2	3	3	27	4

	V8	**3**	**4**	**5**	**4**	**3**	**2**	**1**	**0**	**1**	**2**	**3**	**3**	**4**	**35**	**5**
	V9	**3**	**4**	**4**	**4**	**3**	**2**	**1**	**1**	**0**	**1**	**2**	**2**	**3**	**30**	**4**
	V10	**4**	**3**	**3**	**3**	**2**	**2**	**2**	**2**	**1**	**0**	**1**	**1**	**2**	**26**	**4**
	V11	**3**	**2**	**2**	**2**	**1**	**1**	**2**	**3**	**2**	**1**	**0**	**2**	**1**	**22**	**3**
	V12	**4**	**3**	**2**	**3**	**2**	**3**	**3**	**3**	**2**	**1**	**2**	**0**	**1**	**29**	**4**
	V13	**3**	**2**	**1**	**2**	**1**	**2**	**3**	**4**	**3**	**2**	**1**	**1**	**0**	**25**	**4**

Block	**Centres**	**V1**	**V2**	**V3**	**V4**	**V5**	**V6**	**V7**	**V8**	**V9**	**V10**	**V11**	**V12**	**V13**	**V14**	**V15**	**V16**	**V17**	**V18**	**V19**	**V20**	**V21**	**V22**	**V23**	**V24**	**V25**	**V26**	**V27**	**V28**	**V29**	**V30**	**V31**	**V32**	**V33**	**V34**	**V35**	**V36**	**V37**	**SI**	**AN**
Kushmandi	**V1**	0	1	1	2	3	2	4	5	4	3	3	3	4	4	3	2	3	4	3	3	2	3	2	2	3	4	3	3	3	4	3	3	2	1	2	1	2	100	5
	V2	1	0	1	2	3	2	3	4	4	3	3	2	3	3	2	1	2	3	2	3	3	4	3	3	4	5	4	4	4	5	4	4	3	2	3	2	1	105	5
	V3	1	1	0	1	2	1	3	4	3	2	2	2	3	3	2	1	2	3	2	3	3	4	3	3	4	5	4	4	4	5	4	4	3	2	3	2	1	99	5
	V4	2	2	1	0	1	2	2	3	3	3	3	3	4	4	3	2	3	4	3	4	4	5	4	4	5	6	5	4	5	6	5	5	4	3	4	3	3	127	6
	V5	3	3	2	1	0	1	1	2	2	2	2	2	3	4	3	3	4	5	4	5	5	6	5	5	6	7	6	6	6	7	6	6	5	4	5	4	4	145	7
	V6	2	2	1	2	1	0	2	3	2	1	1	1	2	3	3	2	3	4	3	4	4	5	5	5	6	7	6	6	6	6	5	6	5	6	5	3	3	131	7
	V7	4	3	3	2	1	2	0	1	1	2	3	3	2	2	3	4	5	6	5	6	6	7	6	6	7	8	7	7	7	7	6	7	6	5	6	5	5	166	8
	V8	5	4	4	3	2	3	1	0	1	2	3	3	2	2	3	4	5	6	5	6	6	7	7	7	8	9	8	8	8	9	8	8	7	6	7	6	5	188	9
	V9	4	4	3	3	2	2	1	1	0	1	2	2	1	1	2	3	4	5	4	5	5	6	6	6	7	8	7	7	7	8	7	7	6	5	6	5	4	157	8
	V10	3	3	2	3	2	1	2	2	1	0	1	2	1	2	3	3	4	5	4	5	5	6	5	5	6	7	6	6	6	7	6	6	5	4	5	4	4	142	7
	V11	3	3	2	3	2	1	3	3	2	1	0	1	2	3	2	2	3	4	3	4	4	5	5	5	6	7	6	6	6	7	6	6	5	4	5	4	4	138	7
	V12	3	2	2	3	2	1	3	3	2	2	1	0	1	2	1	1	2	3	2	3	3	4	4	4	5	6	5	5	5	6	5	6	5	4	4	3	2	115	6
	V13	4	3	3	4	3	2	2	2	1	1	2	1	0	1	2	2	3	4	3	4	4	5	5	5	6	7	6	6	6	7	6	7	6	5	5	4	3	140	7
	V14	4	3	3	4	4	3	2	2	1	2	3	2	1	0	1	2	3	4	3	4	4	5	5	5	6	7	6	6	6	7	6	7	6	6	5	4	3	145	7
	V15	3	2	2	3	3	3	3	3	2	3	2	1	2	1	0	1	2	3	2	3	3	4	4	4	5	6	5	5	5	6	5	6	5	5	4	3	2	121	6
	V16	2	1	1	2	3	2	4	4	3	3	2	1	2	2	1	0	1	2	1	2	2	3	3	3	4	5	4	4	4	5	4	5	4	4	3	2	1	99	5
	V17	3	2	2	3	4	3	5	5	4	4	3	2	3	3	2	1	0	1	1	2	2	3	4	4	5	6	5	5	5	6	5	6	5	5	4	3	2	128	6
	V18	4	3	3	4	5	4	6	6	5	5	4	3	4	4	3	2	1	0	1	2	2	3	4	5	6	7	6	6	6	7	6	7	6	6	5	4	3	158	7
	V19	3	2	2	3	4	3	5	5	4	4	3	2	3	3	2	1	1	1	0	1	1	2	3	2	3	4	3	3	3	4	3	4	3	3	2	1	2	98	5
	V20	3	3	3	4	5	4	6	6	5	5	4	3	4	4	3	2	2	2	1	0	1	2	3	3	4	5	4	4	4	5	4	5	4	4	3	2	3	129	6
	V21	2	3	3	4	5	4	6	6	5	5	4	3	4	4	3	2	2	2	1	1	0	1	2	2	3	4	3	3	3	4	3	4	3	3	2	1	2	112	6
	V22	3	4	4	5	6	5	7	7	6	6	5	4	5	5	4	3	3	3	2	2	1	0	1	2	3	4	3	3	4	5	4	5	4	4	3	2	3	140	7
	V23	2	3	3	4	5	5	6	7	6	5	5	4	5	5	4	3	4	4	3	3	2	1	0	1	2	3	2	2	3	4	3	4	3	3	2	1	2	124	7
	V24	2	3	3	4	5	5	6	7	6	5	5	4	5	5	4	3	4	5	2	3	2	2	1	0	1	2	1	1	2	3	3	4	3	3	2	1	2	119	7
	V25	3	4	4	5	6	6	7	8	7	6	6	5	6	6	5	4	5	6	3	4	3	3	2	1	0	1	2	2	3	4	4	5	4	4	3	2	3	152	8

	V26	4	5	5	6	7	7	8	9	8	7	7	6	7	7	6	5	6	7	4	5	4	4	3	2	1	0	1	3	2	3	4	5	4	4	3	3	4	176	9
	V27	3	4	4	5	6	6	7	8	7	6	6	5	6	6	5	4	5	6	3	4	3	3	2	1	2	1	0	2	1	2	3	4	3	3	2	3	4	145	8
	V28	3	4	4	4	6	6	7	8	7	6	6	5	6	6	5	4	5	6	3	4	3	3	2	1	2	3	2	0	1	2	3	4	3	3	2	2	3	144	8
	V29	3	4	4	5	6	6	7	8	7	6	6	5	6	6	5	4	5	6	3	4	3	4	3	2	3	2	1	1	0	1	2	3	2	2	1	2	3	141	8
	V30	4	5	5	6	7	6	7	9	8	7	7	6	7	7	6	5	6	7	4	5	4	5	4	3	4	3	2	2	1	0	1	3	2	3	2	3	4	170	9
	V31	3	4	4	5	6	5	6	8	7	6	6	5	6	6	5	4	5	6	3	4	3	4	3	3	4	4	3	3	2	1	0	2	1	2	1	2	3	145	8
	V32	3	4	4	5	6	6	7	8	7	6	6	6	7	7	6	5	6	7	4	5	4	5	4	4	5	5	4	4	3	3	2	0	1	2	2	3	4	170	8
	V33	2	3	3	4	5	5	6	7	6	5	5	5	6	6	5	4	5	6	3	4	3	4	3	3	4	4	3	3	2	2	1	1	0	1	1	2	3	135	7
	V34	1	2	2	3	4	6	5	6	5	4	4	4	5	6	5	4	5	6	3	4	3	4	3	3	4	4	3	3	2	3	2	2	1	0	1	2	3	127	6
	V35	2	3	3	4	5	5	6	7	6	5	5	4	5	5	4	3	4	5	2	3	2	3	2	2	3	3	2	2	1	2	1	2	1	1	0	1	2	116	7
	V36	1	2	2	3	4	3	5	6	5	4	4	3	4	4	3	2	3	4	1	2	1	2	1	1	2	3	3	2	2	3	2	3	2	2	1	0	1	96	6
	V37	2	1	1	3	4	3	5	5	4	4	4	2	3	3	2	1	2	3	2	3	2	3	2	2	3	4	4	3	3	4	3	4	3	3	2	1	0	103	5