

POTENTIALITIES OF URBAN CENTRES AS GROWTH POINTS: AN APPROACH OF REGIONAL DEVELOPMENT PERSPECTIVE FROM A DEVELOPING COUNTRY (INDIA)

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ABSTRACT – Growth points are centres of economic activity, which are artificially created or stimulated in disadvantaged regions with the intention that they will eventually become natural centres of economic growth. They are centres of expanding industries, which trigger a chain reaction of production and promotion of associated services with the ultimate goal of improving the quality of life. It is envisaged that by declaring promising and resource-endowed centres as growth points, the cumulative causation process would kick-start the process of economic development, whose spread effects would activate the quality of life in the periphery. In so doing it would attract investment and favourable government treatment, which would lead to both cumulative growth in economic activity and high population growth. Some growth poles have continued to prosper long after the initial stimulation factor gone through multiplier effects associated with a growing centre. In this paper, an attempt has been made to find out the potentialities of urban centres of North 24 Parganas district of West Bengal, India as growth pole and strategies for the regional development.

Keywords: growth points, services, spread effects, cumulative growth, potentialities

INTRODUCTION

Growth points are centres of economic activity, which are artificially created or stimulated in a disadvantaged region with the intention that they will eventually become natural centres of economic growth. They are centres of expanding industries, which trigger a chain reaction of production and promotion of associated services with the ultimate goal of improving the quality of life. It is envisaged that by declaring promising and resource-endowed centres as growth points, the cumulative causation process would kick-start the process of economic development, whose spread effects would activate the quality of life in the periphery. In so doing it would attract investment and favourable government treatment, which would lead to both cumulative growth in economic activity and high population growth. Some growth poles have continued to prosper long after the initial stimulation factor went through multiplier effects associated with a growing centre.

There have been a number of problems encountered in applying growth centre strategies in the developed and developing worlds. In some cases, as in the USA in the 1960, investment was ill-advised because it was spread too thinly in too many growth centres and was on a worst-first, greatest-need basis, rather than a greatest potential basis (Bradford and Kent, 1987). It resulted in having too many growth centres continually absorbing investment without achieving the aims of self-sustained growth and development through the cumulative causation process as envisaged. The broad based constraints to the growth of these centres are part of the social, economic, and physical interaction complexes. The general trend linked with decline in growth points has to do with lack of investment and political constraints.

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The theoretical basis of the growth point strategy has been extensively discussed and applied in both the developed and developing countries. The unattractiveness of the growth points in the developed countries tends to be enhanced by the investors' desire to locate in areas already enjoying economies of scale (Carr, 1997). Any business supplying goods or services, whether a shop selling grocery or a broker selling insurance, needs a minimum number of customers or threshold population in order to generate sufficient revenues to stay in business. Declining growth centres are characterized by labour migration and the resultant shrinkage of market for the existing business, as well those aspiring to establish new investment ventures. As for migration, what seems to be crucial is the economic status of the area of origin, as compared to areas to which labour migrates or moves away in search of labour deficient areas. Growth points, even in the developed world, are now confined to sheltering workers commuting to larger towns. They have been relegated to dormitory towns, or points. In Zimbabwe, most growth points have been turned into residential areas without any meaningful capital investments. It has been difficult to attract the right kind of industry, namely the propulsive growth industries, which have extensive multiplier effects (Bradford and Kent, 1987).

STUDY AREA

The district of North 24 Parganas in West Bengal extends from latitude 22°11'06" north to 23°15'02" north and from longitude 88°20' east to 89°05' east. It is bordered by Nadia in the north, Bangladesh (Khulna Division) in north and east, South 24 Parganas and Kolkata to the south and Kolkata, Howrah and Hooghly to the west (Figure 1). Barasat is the district headquarters of North 24 Parganas district. North 24 Parganas is the most populous district in West Bengal. It is also the tenth largest district in the State by area and second most populated district in the country, after Thane district of Maharashtra (Census of India, 2001).

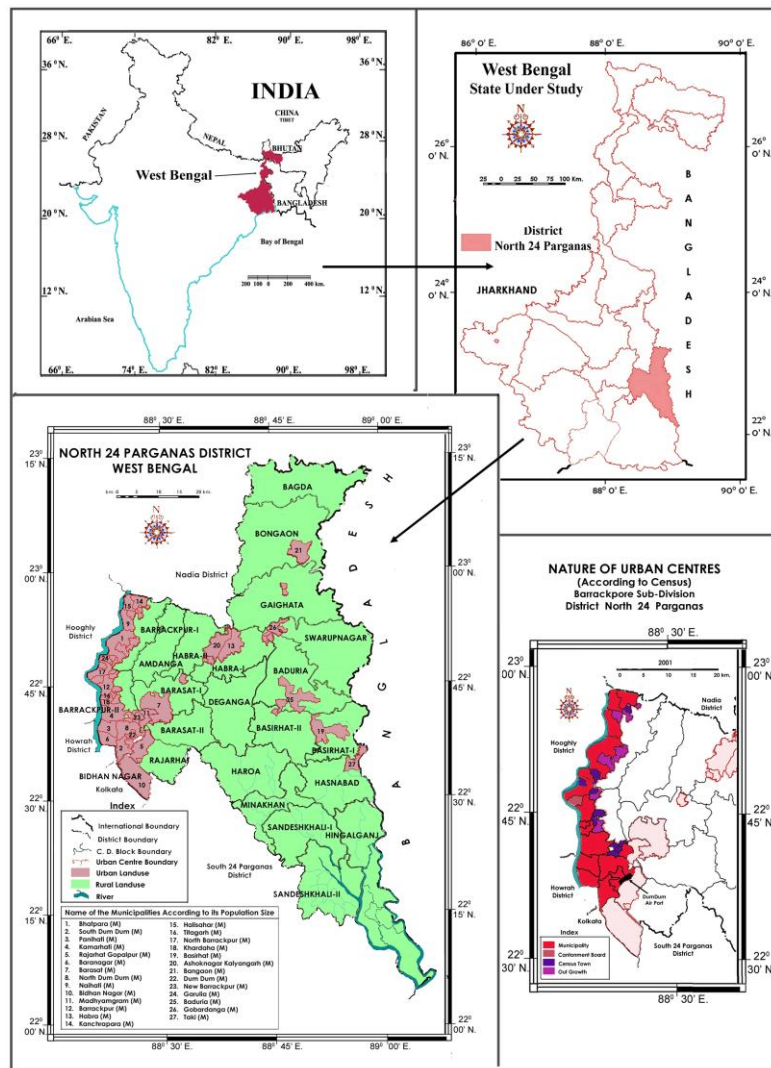


Figure 1. Location of the study area

OBJECTIVES

The present research work is focused on the following basic objectives:

- To analyze the spatial distribution of socio-economic facilities in order to find the functionality of urban centres;
- To identify the possible urban centres as growth poles;
- To make suggestive remarks for the proper growth and development of urban centres.

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RESULTS

The development of urban centres at various locations and regions depends on many factors. Within the scope of this study, it has been felt essential to judge the degree of potential development with factors and parameters for forty eight (48) urban centres of the district of North 24 Parganas accounting to (1) population density, (2) population growth, (3) congestion measuring number of households/ 100 inhabitants, (4) working force, (5) percentage of literate, (6) regional accessibility, (7) basic activity, (8) centrality and (9) functionality according to the 1991 and the 2001 census information. A scoring system (B. K. Roy, 1992) has been employed to find out the development potentiality of the urban centres of the district (table 4). The patterns as noticed are revealed here for comparison and further integration to the programme of evaluation.

1. Population density

There are 27 municipalities in the district. Three of these towns are Census Class III towns (population 20,000-less than 50,000). There are two towns in the district which belong to the category of Census Class II towns (population 50,000-less than 100,000). The others are Census Class I towns. In terms of area, Rajarhat Gopalpur, a newly formed municipality, is the biggest (34.97 sq. km.) and Titagarh is the smallest one (3.24 sq. km.). In terms of population, Bhatpara is the biggest municipality. Taki, an old Class III town is the smallest in terms of population. Titagarh is the most densely populated municipal town in the district (density 38,333 per sq. km.). South DumDum, Baranagar and Kamarhati are the other municipalities in which the density per sq. km. is also very high. Baduria, a Class III town, is the town in which the density of population per sq. km. is the lowest. The demographic balance in all the municipalities is tilted against women. Titagarh, a densely populated industrial town, is the municipality in which the number of women per thousand men is as low as 759. One should mention that New Barrackpore is the municipality in which the sex ratio is 991. This appears to be the municipality in which the female population is near to the natural proportion.

2. Population growth

As one considers the urban history of the district, it appears that the decadal growth rates of urban population in North 24 Parganas systematically remained above the corresponding growth rates of urban West Bengal over the entire twentieth century, except during 1931-1941. The decadal growth rate reached the peak (58.87) in 1951 when there was an influx of refugees from East Bengal in this district. Since 1951, there was a secular decline in the growth rate of urban population. Even then, the growth rates remained above the corresponding growth rates of urban West Bengal as a whole during this period. The other important point that should be highlighted is the fact that the level of urbanization of North 24 Parganas remained consistently higher than the state average. Even when the growth rate of urban population declined, it remained higher than the growth rate of the rural population. Consequently, the level of urbanization remained high in the district. From 1951 the decadal growth rate in urban North 24 Parganas went on declining consistently over the Census decades. However, the level of urbanization went on increasing. Increase in the level of urbanization was very low between 1981 and 1991. During the last Census decade there was again a sharp rise in the level of urbanization. Thus, in 2001, 54.3% of the population of the district was located in its urban segments. The corresponding level of urbanization in West Bengal as a whole was only 28.03, which was higher than the level of urbanization in India (27.78). Rapid increase in urbanisation can be attributed to growth of Kolkata metropolis. Barasat is now within greater Kolkata (Kolkata 124). From '91 onwards, the real estate business in this district thrived and projects were taken which are more of residential type than of business one.

3. Number of households/ 100 inhabitants

Housing is a vital feature in an urban unit. Generally, in this region, the small population size of the urban centres is accounting higher value of this indicator compared to the upper size-class urban centres due to obvious reason of population contest and availability of houses. One important feature

of the households in the urban centres of the district is that the large majority of households owned the land on which the dwelling places were situated. The only exception was Titagarh, a working class dominated urban centre, in which residents were largely tenants or were living in factory coolie lines. Only 36.34% of the households in Titagarh owned the land in which their dwelling places were situated. In old urban centres of the district by the side of river Hooghly, the percentage of households with own land was more than 50% in every urban centre. In Bidhan Nagar, where the number of houses/100 inhabitants is 23.04, accounts for the second position (Table 4). In North DumDum it was as high as 22.97. Many of the households were living in rented houses. It appears that the percentage of such households is the highest in Titagarh (20.78). In Kanchrapara and in Bhatpara also a high number of households were living in rented houses during the time of the survey. This analysis shows that the urban centres in the eastern part are examples of semi-urban situation while the urban centres in the western part of the district face a critical situation.

4. Working force

The percentage of working force against the total population of each urban centre is another important indicator for assessing the urban development potentiality. The highest percentage of working force in the region is found in Bidhan Nagar Municipality (38.29%) followed by Garshymnagar (38.23%) and Talbandha (37.95%), which are census town in nature. Within the first ten positions, there are six census towns. This is because of the changing nature of the occupational character within these urban centres. Out of 48 urban centres, 43 have the working force above 30%, which is very high.

5. Literacy rate

Amongst the various elements of urban population characteristics, the level of literacy against the total population perhaps presents the best exposition as one of the factors in the level of urban development potentiality. According to the 2001 Census, the literacy rate in urban North 24 Parganas is 85.31%. Among the 48 urban centres of the district the highest literacy rate is in New Barrackpore, where 86.97% of the population is reported to be literate. In North Barrackpore, Khardaha and South DumDum the literacy rates are 82.56%, 82.13% and 81.84%, respectively. However, there are a considerable number of urban centres in which the literacy rates are less than 80%. Thus, in Titagarh, the literacy rate is only 73.37%. In Bhatpara also, the literacy rate is below 80% (78.91 %). According to the 2001 Census, the literacy rate in Bidhan Nagar municipality is below the average rate of literacy in urban North 24 Parganas. In fact, among 48 urban centres of the district Bidhan Nagar ranks the 15th in terms of literacy rate. The literacy rate is low in Baduria (76.14%) and Taki (75.44%). However, in Gobordanga and Habra the literacy rates are 87.28% and 86.34%, respectively. Higher percentage of literate population of the urban centres indicates that the population is enjoying more educational facilities. Brighter positions of New Barrackpur, North Barrackpur, Khardaha, South DumDum, Panihati, and DumDum in terms of literacy are noticed hereby.

6. Regional accessibility

The magnitude of accessibility of the entire district is calculated in terms of total number of roads, rails, airport linkages within a 10 km radius of each urban centre from Kolkata Airport, Kolkata (State Capital), and Barasat (District Capital). This study is very useful because it helps not only for measuring accessibility but it is also a significant indicator for assessing the degree of urban influence over the region. The values of accessibility against each urban centre are awarded on the basis of arbitrary weighted values of each sub-function.

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Table 1. *Regional accessibility: the weighted values*

Types of linkages	Weighted value
Proximity to important place	
1. Airport	
a) within 10 km	5.0
b) 10 km – 20 km	4.0
c) 20 km – 30 km	3.0
d) 30 km – 40 km	2.0
e) Above 40 km	1.0
2. State Capital (Kolkata Metropolis)	
a) within 10 km	12.0
b) 10 km – 20 km	10.0
c) 20 km – 30 km	8.0
d) 30 km – 40 km	6.0
e) 40 km – 50 km	4.0
f) Above 50 km	2.0
3. District Capital (Barasat Municipality)	
a) within 10 km	5.0
b) 10 km – 20 km	4.0
c) 20 km – 30 km	3.0
d) 30 km – 40 km	2.0
e) Above 40 km	1.0
Railways linkages	
1. Broad Gauge lines	
a) Double multiple lines	5.0
b) Single line	4.0
2. Metre Gauge lines	
a) Double multiple lines	3.0
b) Single line	2.0
3. Railway station	
	5.0
4. Railway junction	
	10.0
Roadways (Metalled)	
a) National highway	10.0
b) State highway	7.5
a) Major district roads	5.0
b) Other roads	2.5

Source: the author

The absolute weighted value of DumDum urban centre (Table 1) accounts for 70.0 in terms of regional accessibility, rating the first, which is sharing its municipal boundary with Kolkata. The existence of DumDum Junction (for Eastern railway, Circular railway, and Metro railway), the proximity to Airport and district headquarters and the important road connectivity offer DumDum the maximum weighted value of regional accessibility, followed by South DumDum (66.00), Bidhan Nagar (57.00) and Panihati (50.00). Other urban centres show differences in values. Considering the significance of accessibility as one of the factors of growth that induce strength in development potentiality, it is strikingly noted that excluding urban centres located in the western part of the district (except Bongaon), all the other urban centres are poorly endowed with accessibility values. The precariousness of accessibility, however, is the key note of North 24 Parganas district due to the sparseness of infrastructure arteries and its convergence against other urban centres namely, Baranagar, Madhyamgram, North DumDum, Rajarhat-Gopalpur, Kamarhati, etc.

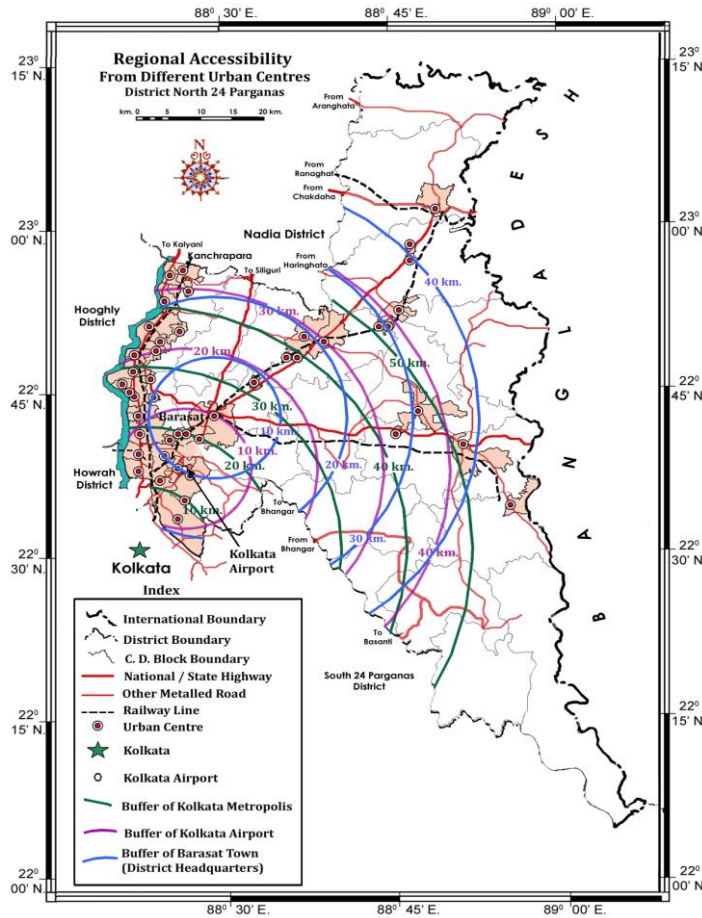


Figure 2. Regional accessibility

7. Basic activity

The values of basic activities have been calculated by considering non-primary working population of each urban centre. According to the 2001 Census, this non-primary working group has two components, namely (a) household industry, manufacturing, processing, servicing, and repairing workers and (b) other workers. Basic activities of the 48 urban centres have been computed by a formula (Roy, 1992) which is given below:

$$\text{Basic activity} = \{OW - (P \times ROW / RP)\}$$

where, OW = Other workers of the urban centre, P = Population of the urban centre, ROW = Regional other workers and RP = Regional urban population.

In the basic activity, South DumDum urban centre stands in the first position (68.8 thousand points) followed by Baranagar (41.2 thousand points), and Bhatpara (40.8 thousand points) in the second and third position, respectively. Except Baduria (957 points), most of the urban centres have values above 10,000 points. Basically, the urban centres located in the eastern part of the district show less number points achieved in basic activity which is an indicator of semi-urban nature.

8. Centrality

A value of centrality is a relative measure to find out the magnitude of service rendered by the urban centre. Generally, trade and commerce activities indicate the central function of an urban centre. However, in the absence of data on commercial workers, persons designated as "other workers" (2001 Census) have been considered for this calculation. It is worked out with the help of a formula (Roy, 1992) given below:

$$\text{Centrality} = PCF / 1000$$

where, PCF denotes Person engaged in central functions i.e. "Other workers".

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According to the above assertion, the absolute centrality value of the urban centres shows the Bidhan Nagar (35.99) in the first position followed by South DumDum (34.48) and Baranagar (33.39) in the second and third position, respectively. Baduria has the lowest centrality value having 18.95 with the 48th position among the urban centres.

9. Functionality

The study of functionality of the urban centres is to find out the degree of interaction and interdependency functions between rural and urban centres, which, in North 24 Parganas district, are based on various socio-economic amenities. These amenities of the urban centres were carefully listed upon and grouped from the “Town Directory” of the 2001 Census Volume. For the identification of functionality of each urban centre, different socio-cultural and economic amenities are considered. These are (1) Educational, (2) Medical, (3) Financial, (4) Communication and Transport Linkages, (5) Administrative, (6) Recreational, etc.

On the basis of the above socio-cultural and economic functions, functionality of each urban centre has been calculated (Bhat 1976). Bhatpara (905.32), South DumDum (748.37), and Panihati (723.4) take the first, the second and the position in the functionality index. All municipalities have high functionality values whereas census towns are well below in the scenario of functionality.

DISCUSSION

Development potentiality of urban centres

The study of development potentiality is a yardstick in assessing an urban centre’s achievement/ prospects in the social and economic spheres. Scrutinisation of potentiality also enables the comparison of the performance of an urban centre under study with other urban centres located in a larger region. Because urban centres have different status (i.e. municipality and census town), forty eight (48) urban centres of North 24 Parganas district were taken into consideration for the analysis of urban potentiality. Potentiality is a cumulative expression determined by the combined performances of the selected parameters (Biswas, 1980).

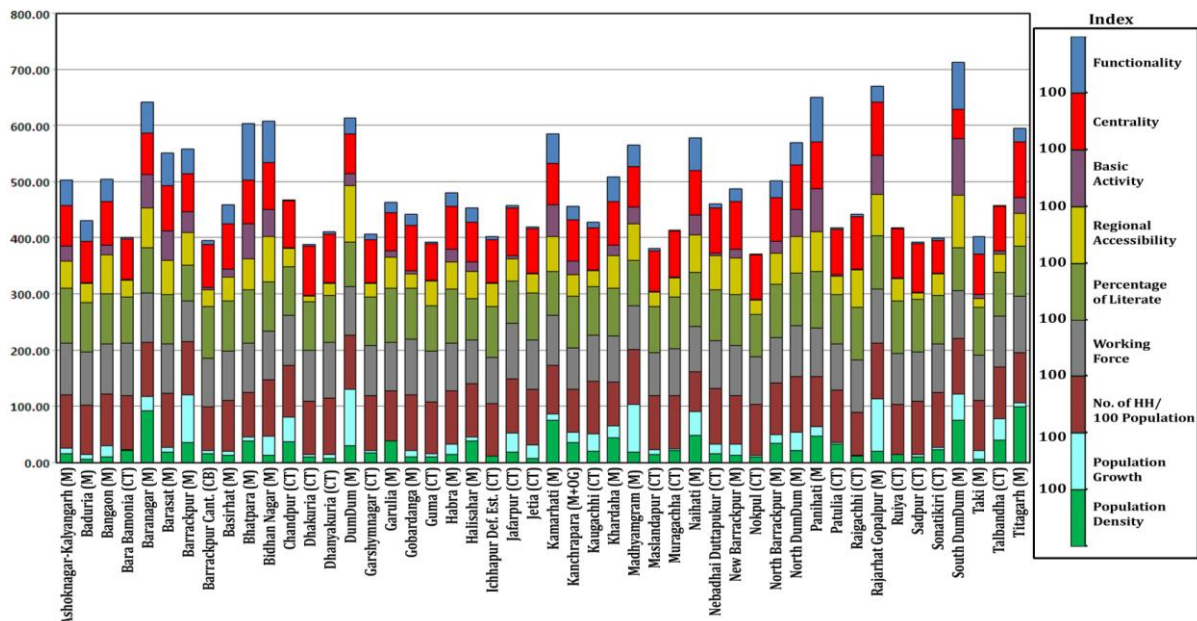


Figure 3. Urban potentialities in the regional set up of North 24 Parganas District, India

Based on the cumulative score stated in table 2, all the urban centres of the district are classified in six levels of hierarchical orders.

Table 2. Hierarchical order and development potentiality of urban centres in North 24 Parganas District

Hierarchical order	Score value of development potentiality	No. of urban centres	Name of the urban centres	Percent of urban population concentration
Growth Pole (First Order)	Above 650.00	3 (6.25 %)	South DumDum, Panihati, Rajarhat-Gopalpur	20.98
Growth Centre (Second Order)	601.0 – 650.0	4 (8.33 %)	Baranagar, DumDum, Bhatpara, Bidhan Nagar	24.65
Growth Point (Third Order)	551.0 – 600.0	6 (10.4 %)	Titagarh, North DumDum, Kamarhati, Madhyamgram, Naihati, Barasat	21.32
Service Centre (Fourth Order)	501.0 – 550.0	4 (8.33 %)	Khardaha, Bongaon, North Barrackpur, Ashoknagar-Kalyangarh	9.40
Service Point (Fifth Order)	450.0 – 500.0	11 (22.9 %)	New Barrackpur, Habra, Barrackpur, Garulia, Nebadhai-Duttapukur, Basirhat, Talbandha, Raigachhi, Jafarpur, Kanchrapara, Halisahar	17.71
Rural Centre (Sixth Order)	Below 450.0	20 (41.67%)	Gobardanga, Chandpur, Ruiya, Baduria, Kaugachhi, Patulia, Muragachha, Jetia, Dhanyakuria, Bara Bamonnia, Sonatikiri, Sadpur Garshymnagar, Taki, Guma, Ichhapur Def. Est., Barrackpur Cant., Dhakuria, Maslandapur, Nokpul	5.94

Source: Table 4

There are only three growth poles of the first order of the hierarchy having a development potentiality value above 650.0, namely South DumDum (711.96), Panihati (660.81), and Rajarhat-Gopalpur (655.03). The development potentiality values of Baranagar, Barasat, DumDum, Bhatpara, and Bidhan Nagar occupy the second order of hierarchical group which are categorised as growth points. Only five urban centres in the third order, namely Titagarh, North DumDum, Kamarhati, Madhyamgram, and Naihati are basically treated as growth points. The urban centres of Khardaha (507.94), Bongaon (504.17), North Barrackpur (501.57), and Ashoknagar-Kalyangarh (503.00) are on the fourth order of the hierarchy. It is interesting that, due to the availability of service facilities, regional accessibility, basic activity, centrality, the four census towns (Nebadhai-Duttapukur, Talbandha, Raigachhi, Jafarpur,) are placed in the fifth order group along with seven municipal towns (such as New Barrackpur, Habra, Barrackpur, Garulia, Basirhat, Kanchrapara, and Halisahar). The other twenty urban centres are treated as rural centres (sixth order in the hierarchical group). Interestingly, Gobardanga, Baduria, and Taki municipal urban centres are included in the sixth order group along with seventeen census towns.

Based on the parameters of development potentiality, these show a wide gap in the infrastructure of the urban centres in North 24 Parganas district. The scores present an inter se positioning of the 48 urban centres of various sizes as regards population, responsible for articulating and acquiring definite potentiality in each. It is so sensitive that the hierarchical level according to the parameters selected to focus potentiality can be vitiated if some factors are integrated. It is true that landscape around the urban centres is not so varied in nature though the district headquarters shows its position in the second order (Table 2), as growth centre, while others lie quite below of this mark. The analysis of the development potentiality of urban centres may also indicate reality in urban spaces which is significant when regional ranks are cumulated and ratings are established among them. Statistically, it is significant outlying the departure of them. In addition, the dynamism of factors

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considering the scores reveals comparison in all respects, except the dynamism of urban population growth.

Statistical measurement of the development potentiality and parameters

Coefficient of rank correlation (Table 3) was computed for all the nine parameters: population density, population growth rate, number of households/100 inhabitants, working force, percentage of literates, regional accessibility, basic activity, centrality, and functionality, with development potentiality separately for each urban centre under study. The obtained results support findings.

Table 3. Rank correlation coefficient between development potentiality and its factors

Rank Correlation Between	Population Density	Population Growth Rate	No. of HH / 100 Population	Working Force	Percentage of Literate	Regional Accessibility	Basic Activity	Centrality	Functionality
Development Potentiality of Urban Centres	0.5863	0.5406	0.0393	- 0.0017	0.1689	0.8842	0.8714	0.0284	0.7581

Source: Computed by author based on Table 4

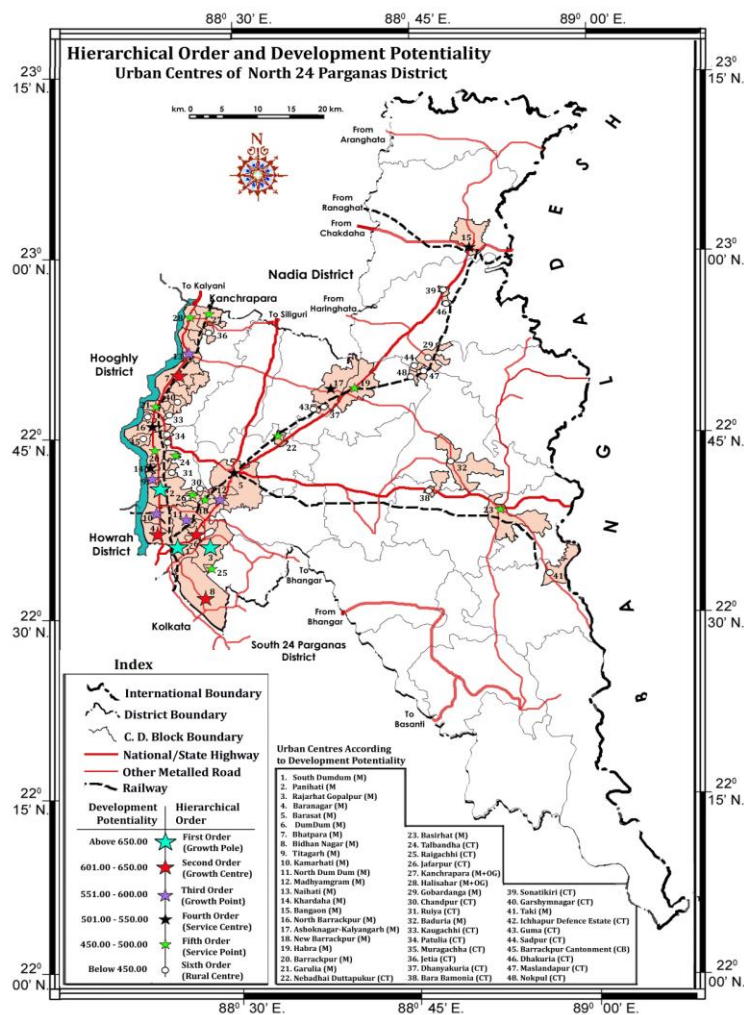


Figure 4. Hierarchical order and development potentiality of the urban centres

It is evident that for the entire set of factors regional accessibility, basic activity, and functionality appeared as the highest consistent aspects with coefficient of rank correlation of 0.88, 0.87 and 0.76, respectively. On the other hand, population density and population growth rate came into sight as the moderate consistent aspect with coefficient values of 0.59 and 0.54, respectively. So, from this study, it is evident that the development potentialities of the urban centres depend on regional accessibility, functionality, and basic activity in a large extent. These factors generate population concentration as well as the population growth pattern of the centres.

When correlation between population concentration and development potentiality was taken into consideration (Figure 5 a-d), the value was 0.89 which shows the highest degree of positive dependency in the study. South DumDum, Rajarhat-Gopalpur, Panihati, Kamarhati, and Bhatpara have an important population concentration of more than 40% of the urban population of the district. This shows that the proximity to Kolkata and some colonial legacy maintain the urban concentration of the region till date.

If population growth rate is considered for the correlation, it gives a moderate positive value of 0.56. Only Rajarhat-Gopalpur (86.91%) and DumDum (48.67%) municipalities have a higher degree of population growth rate. Rajarhat-Gopalpur came into urban scenario only in the last decade, but it has an enormous potentiality as it has the largest urban area of the district (7.12%). It also has an airport and other transport connectivity with high degree of basic activity which are the positive aspects of future economic growth and sustainability.

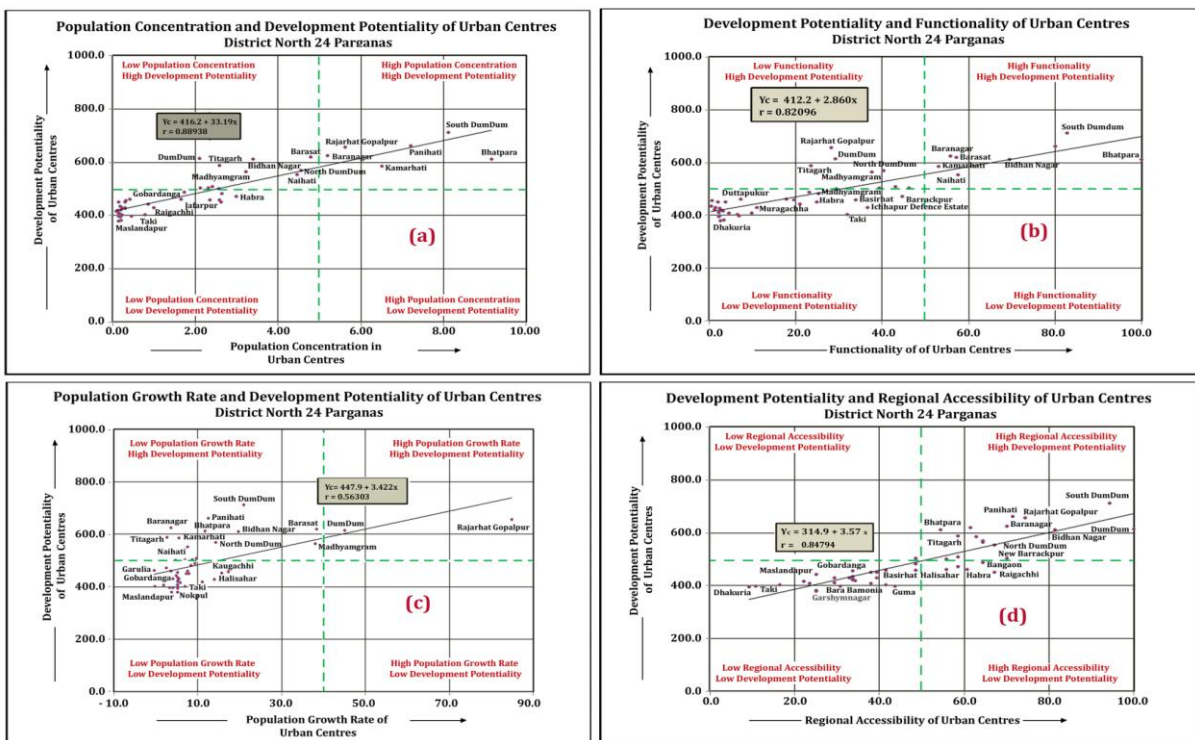


Figure 5. Co-relational analysis between different aspects of development potentiality

When Pearson's/ Spearman's correlation is taken into account (Table 3), it shows the same pattern of relation between development potentiality with functionality and regional accessibility. Basically, regional accessibility is the major criteria found in this study which has the highest degree of positivity (0.85) with development potentiality. DumDum, South DumDum, Rajarhat-Gopalpur, Bidhan Nagar, Panihati, and Baranagar have higher degree of regional accessibility. These urban centres also pose higher degree of development potentialities. Due to the existence of the National Highway, the State Highway, the proximity to the administrative (state and district) headquarters,

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functionality set these urban centres into the highest degree of development potentiality. All these urban centres have enormous future growth potentiality.

CONCLUSION

Analysis of functionality and development potentiality shows that most urban centres of the first, the second and the third orders are located in the western part of the district. The first order urban centres i.e. South DumDum, Panihati, Rajarhat-Gopalpur share their boundary either with Kolkata or within a 10 km buffer. Therefore, the geographical locations of these urban centres make location merits to command all other centres. Four urban centres of municipality status (i.e. Bongaon, Ashoknagar-Kalyangarh, Habra, and Basirhat) are in the fourth and the fifth order (Service Centre and Service Point, respectively). On the other hand, Gobardanga, Baduria, and Taki urban centres (having municipality status) are in the sixth order treated as rural centres located in the eastern part of the district. Distance from Kolkata, low regional accessibility, low functionality, low centrality and low basic activity are the basic hindrances that include these urban centres that have municipality status in a lower hierarchical group. For a rational development of socio-cultural and economic services of urban centres located in each corner of the North 24 Parganas district, the authority/planner should think on the line of “Urban-Rural Integration Programmes” within the district, so that urban centres of lower hierarchical groups may be developed even in remoter parts of the district.

Keeping in view the goal of urban as well as regional socio-economic development in order to achieve a higher level of human well-being, planning recommendations have been made as follows (Ali and Varshey, 2012):

- Urban growth should be concrete in nature and should be accompanied by economic development of an area. The number of residents in an urban centre and facilities available for them must maintain equilibrium.
- The distribution of facilities should be in such a manner that their location may ensure easy accessibility in and around the areas of urbanization.
- To maintain the standard level of living, different types of higher as well as lower order facilities should be allocated in lower functionality urban centres with least sphere of influence. In order to reap the regional socio-economic development, allocation of facilities is rather much imperative to enlarge its radius of influence.
- To encompass the eastern part with western part of the district under the zone of urban functional influence, more facilities especially of higher order should be allocated in Taki, Basirhat, Bongaon, and Baduria urban centres. Consequently, the functional importance of these towns will sufficiently be increased and patrons from surrounding parts can easily avail developmental facilities. Such an approach may enable towns to achieve balanced regional development as a consequence of urban growth.
- Another significant planning approach should be made to connect all the urban centres by efficient transportation facility and finally, they should be connected with Kolkata city- the biggest order urban centre in the State. Besides, a comprehensive planning policy should be taken to promote urban growth to such an extent that the functional importance of each centres of all hierarchical order may radiate into all corner of rural. Therefore, a significant influence can change their living standard and quality of life in the district.

Going through the above quantitative analysis, it is evident that urban centres grow in hierarchical manner, while the distribution of both population and facilities are complementary to each other and are highly concentrated in bigger size urban centres. Centres having large number of facilities as well as higher functional importance induce pulling effects and become centres with greater chance of further growth by attracting and accommodating more people from the surrounding area (Figure 6). Since an urban centre grows, it is evident that its sphere of influence also increases progressively which leads to regional socio-economic development. Therefore, in order to accomplish the dual objectives of making an urban centre more beautiful as well as convenient for living, and not to leave any rural part out of the urban functional influence as well as to achieve balanced regional

socio-economic development in the study area, the aforementioned planning recommendations should be adopted and implemented.

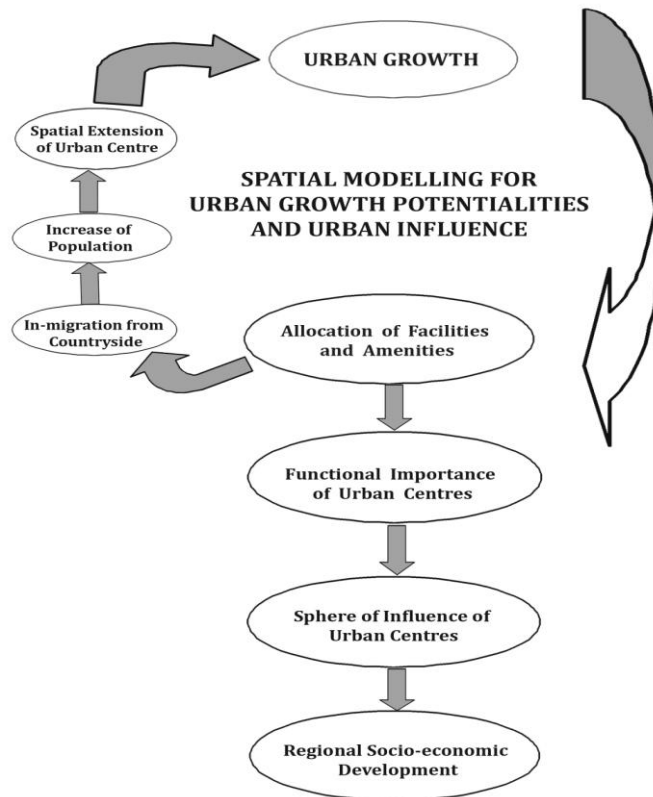


Figure 6. Spatial modelling of urban growth and influence

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Table 4. Score values of development potentiality of the urban centres in the North 24 Parganas District regional set up

Rank	Urban centres	Score values of development potentiality									Development potentiality	Nature of urban centre
		Population density	Population growth rate	No. of HH/ 100 inhabitants	Working force	Literacy rate	Regional accessibility	Basic activity	Centrality	Functionality		
		1	2	3	4	5	6	7	8	9		
1	South Dumdum (M)	75.60	46.55	98.42	85.61	76.17	94.29	100.00	52.65	82.66	711.95	Growth Pole
2	Rajarhat Gopalpur (M)	20.27	92.95	98.84	96.72	94.44	74.29	68.78	95.81	28.23	670.33	
3	Panihati (M)	46.85	17.82	89.17	85.79	100.00	71.43	76.01	83.83	79.91	650.81	
4	Baranagar (M)	91.87	26.04	95.63	87.65	81.61	70.00	59.93	73.63	55.67	642.03	Growth Centre
5	Dumdum (M)	29.99	100.00	96.67	85.86	80.37	100.00	21.19	70.66	29.06	613.80	
6	Bidhan Nagar (M)	12.79	34.60	100.02	86.31	87.65	81.43	47.44	83.67	73.47	607.38	
7	Bhatpara (M+OG)	37.93	7.87	78.49	88.97	94.87	54.29	62.03	78.56	100.00	603.01	
8	Titagarh (M)	100.00	6.03	90.19	100.00	88.63	58.57	27.81	100.00	23.49	594.72	Growth Point
9	Kamarhati (M)	74.85	12.11	86.52	89.39	77.28	62.86	55.75	73.78	52.94	585.48	
10	Naihati (M)	48.62	42.26	70.41	81.34	95.80	67.14	34.52	80.34	57.50	577.93	
11	North DumDum (M)	21.70	31.72	99.71	90.57	94.10	64.29	48.10	79.46	40.35	570.00	
12	Madhyamgram (M)	19.02	84.50	97.59	77.46	81.84	64.29	30.14	72.58	37.58	565.00	Growth Point
13	Barrackpur (M)	35.50	85.21	95.33	72.35	62.51	58.57	36.49	68.05	44.60	558.61	
14	Barasat (M)	19.23	7.83	96.75	87.22	87.84	61.43	51.31	80.77	59.12	551.50	
15	Khardaha (M+OG)	44.22	21.60	77.39	82.11	84.32	58.57	19.01	77.74	42.99	507.95	Service Centre
16	Bongaon (M)	10.79	19.27	91.54	89.69	88.52	70.00	16.31	78.73	39.31	504.16	
17	Ashoknagar-Kalyangarh (M)	15.79	10.43	95.01	92.00	96.77	48.57	26.63	71.68	46.13	503.01	
18	North Barrackpur (M)	34.10	15.56	91.68	80.53	94.93	55.71	21.51	78.28	29.27	501.57	Service Point
19	New Barrackpur (M)	12.64	20.64	86.57	88.73	90.97	64.29	15.99	84.81	23.02	487.66	
20	Habra (M)	14.68	18.55	93.79	85.17	96.42	48.57	22.31	76.03	25.27	480.79	
21	Chandpur (CT)	37.18	43.54	92.08	89.18	86.41	33.57	1.23	84.16	0.47	467.82	
22	Garulia (M)	38.75	-0.84	88.52	86.25	96.96	55.71	10.85	67.91	17.78	461.89	

23	Nebadhai Duttapukur (CT)	15.76	16.90	99.82	85.03	90.63	60.71	3.50	80.68	7.20	460.23	Service Point
24	Basirhat (M)	13.41	7.19	90.59	87.59	89.43	41.43	14.61	80.51	33.84	458.60	
25	Talbandha (CT)	39.72	38.39	92.04	90.84	77.34	33.57	5.07	80.34	0.51	457.82	
26	Jafarpur (CT)	18.50	34.72	95.87	99.11	74.66	39.29	6.13	85.62	2.98	456.88	
27	Kanchrapara (M+OG)	36.29	17.62	76.49	74.44	92.01	37.86	23.37	73.40	24.76	456.24	
28	Halisahar (M+OG)	39.22	6.24	95.05	77.98	72.89	48.57	17.53	70.93	25.62	454.03	Rural Centre
29	Gobardanga (M)	10.48	10.74	98.74	99.84	90.59	25.00	6.52	79.94	20.85	442.70	
30	Raigachhi (CT)	11.18	1.25	77.59	93.25	93.63	67.14	0.74	92.78	3.80	441.36	
31	Baduria (M)	5.51	9.19	88.18	93.82	88.61	32.86	1.39	74.01	36.49	430.06	
32	Kaugachhi (CT)	19.82	31.00	94.15	82.11	85.74	29.29	1.35	73.99	11.03	428.48	
33	Jetia (CT)	7.30	24.79	97.82	88.56	83.79	34.29	0.60	79.51	2.78	419.44	
34	Ruiya (CT)	14.11	-0.11	88.88	90.59	93.98	39.29	1.34	88.88	1.33	418.29	
35	Patulia (CT)	32.81	3.52	92.77	82.44	87.02	33.57	2.05	80.97	2.36	417.51	
36	Muragachha (CT)	21.11	3.69	94.42	83.41	92.60	33.57	1.66	82.18	1.10	413.74	
37	Dhanyakuria (CT)	7.45	6.60	100.75	98.60	84.76	22.14	0.26	86.70	3.06	410.32	
38	Garshymnagar (CT)	17.77	4.10	96.92	88.96	87.00	23.57	1.26	77.60	9.86	407.04	
39	Taki (M)	6.26	15.36	88.56	81.94	84.09	16.43	6.49	71.76	31.83	402.72	
40	Ichhapur Def. Est. (CT)	11.73	-0.35	93.44	81.95	90.15	41.43	1.91	75.39	6.51	402.16	
41	Bara Bamonnia (CT)	21.19	2.40	95.89	92.47	83.36	29.29	0.84	73.22	2.20	400.86	
42	Sonatikiri (CT)	22.45	4.16	97.91	86.87	85.92	37.86	1.37	58.77	4.42	399.73	
43	Barrackpur Cant. (CB)	15.62	5.67	77.47	87.39	90.97	30.71	3.87	77.01	6.78	395.49	
44	Guma (CT)	10.55	5.67	92.20	89.63	81.76	43.57	1.29	65.64	2.38	392.69	
45	Sadpur (CT)	10.79	3.52	94.35	88.06	94.02	10.71	1.12	87.08	2.30	391.95	
46	Dhakuria (CT)	9.77	5.13	94.97	90.32	86.64	9.29	1.09	88.43	2.07	387.71	
47	Maslandapur (CT)	14.59	8.26	95.99	76.61	82.69	25.00	1.34	73.01	3.38	380.87	
48	Nokpul (CT)	10.14	3.52	89.38	85.24	75.85	25.00	0.86	79.11	2.59	371.69	

Source: Computed by author based on District Census Handbook, North 24 Parganas District, West Bengal Series, 2001.

Note. M stands for Municipality, OG stands for Outgrowth, CT stands for Census Town, CB stands for Cantonment Board.