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Prospects of Regional Development in Lalitpur District

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Abstract
Urban Geography is the most dynamic sub-discipline of Human Geography which deals with the location and spatial dimension of urban places and urban problems. The ever-changing urban phenomenon around the globe both in the developed and less developed countries needs to be understood. Origin of city is an elongated, gradual and systematic process of few distinct functions and the factors affecting the inertia of a city results into the scale of dynamism performed by that city. Thus, the inertia plays a vital role in the pivotal performance to activate either centripetal or centrifugal forces. These two aforesaid forces affect the orientation of a town or city in hierarchical order and inter-intra relations within-with other cities. (Origin of city is an elongated, gradual and systematic process of few distinct functions. Remove this line)
Lalitpur district, Uttar Pradesh, India is taken under study because urban centres of this district are not only small in size and few in number but also far off scattered and isolated thus not endowing to propel economic development of the area under study.

Keywords: spatial dimension, dynamism performed, pivotal performance, hierarchical order, inter-intra relations

Introduction

The essence of a city whether small or big for example metropolis or megapolis is the functions it performs. A city may perform a single function or multiple functions but a city is known by its dominant function as Lalitpur city is known as mining city because there are more than five open mines and quarrying is one of the main functions. Lalitpur district is a part of Vindhyan escarpment. Hilly, rocky and rugged terrain is the geomorphological characteristics of the study area. Hydrologically, throughout the district there are network of rivers, dams and canals. Deciduous forests are major land cover where Sal trees dominate. This region also produces conventional form of hydro-energy from dams and green energy by tapping short-wave incoming thermal radiation. Both public and private sectors are investing in the economic growth of this district. Recently, defence corridor has been announced which will pass through this district. At micro-level this district is one of the few regions which have been bestowed by numerous gifts. With futuristic multi-level regional planning, sectoral planning, political will and people's participation, this district can embrace economic development.

Study Area

The spatial extent of the study area is between 24 ^{0} 11 'North to 25 ^{0} 14 'North latitude and 79 ^{0} 10 'East to 79 ^{0} East longitude on the geographical area of 5039 sq. km. (Map No. 1) It is situated in the extreme South-West corner of Uttar Pradesh. To provide an efficient administration the district is administratively divided into 03 tahsils namely Lalitpur, Mahrauni and Talbehat. For implementation and monitoring of development scheme the district is divided into 06 Development Blocks namely Talbehat, Jakhaura, Bar, Birdha, Mahrauni and Mandawara. The rural area covers 4997.7 Sq. Km. and urban recorded 41.3 Sq. Km. There are 340 Gram Panchayats and 752 Revenue villages with 691 inhabited villages and 61 uninhabited villages in the district.

Geomorphologically, the heart shaped Lalitpur District of Bundelkhand region was part of

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the peninsular shield north to the Vindhyan Ranges. Plateaus and pediments in the southern parts, ridges and valleys in the south-eastern parts and denudational plains in the northern parts are prominent geomorphological features that form this ancient block.

Geological structure of study area exhibits rocks of Areachean to Mesozoic ages. The hard exposed remote hills are mainly made up of igneous and metamorphic rocks.

Objective of the Study
• To suggest areas of prospects for futuristic integrated development of the study area

Database and Methodology
• This is primary and secondary study.
• Secondary data was acquired from Census 2011, spatial distance between the urban centres were collected from State Transport Department, Remote Sensing Application Centre, Lucknow chapter, U.P. Statistical Department, relevant books, and research papers from journals, published and unpublished reports. Picture is taken during field visit.
• Reed Munch method, Clarks' criteria, 'breaking point equation' was computed by Relly's law of retail gravitation and Nearest Neighbour Method was calculated regarding the population threshold, functional weightage to the functions, Influence area, hierarchy of urban centres, spatial distribution of the urban and proposed rural centres.
• To generate the maps Conventional method and ArcGIS 10.1 software were used.
• Map, tables and plates are presented in support of the data.

Results and Discussion
The scale of human settlement in India is dynamic. It ranges from village to town to city and to metropolis. These settlement hierarchies can be grouped according to the size and functions. Size hierarchies are ranked from the highest to the smallest settlements only in terms of population while functional hierarchies are essentially based on the extent to which settlements have economic impact on their surrounding areas. Bigger the influence area higher will be the hierarchy. Functional hierarchies rank the settlement according to the number of shops, the number of specialized services available or the most dominant

financial organizations. Such hierarchies may or may not have similar sized market areas. Despite their having the same population, one town might surpass another in functional importance.

Hierarchy of the urban centres of this district has been attempted on the measure of centrality of the urban centres. Inorder to identify the hierarchy of urban centre, six categories were selected: educational facilities, health facilities, administrative facilities, transport and communication facilities, trade and finance facilities and extension services. Every category has one or more functions as well as services which were analysed. Thus, the centrality of four urban centres based on population size and central functions were used to delineate the corresponding regions. Further, Godlunds (1951) equation C=(Nx100)/P, was used to calculate Relative Centrality Index (RCI) where centrality index (C), number of centres (N)and commercial population (P) have been used. Reed-Muench Method is used to calculate population threshold of seven broad functions and thirty-six sub-functions present in the four urban centre of the study area. Seven broad activity groups are Agriculture, Household, Manufacturing, Construction, Trade and Commerce, Transport and Communication and other services were calculated present in the four urban centres of the study area. Functional classifications of the urban centres are based on basic functions and percentage of total working population engaged in certain activity in a centre was calculated.

The arithmetic average percentage for each activity group for the total population of the region as a whole was computed as working reference tool to access the significance of the percentage of individual activity in the urban centre. Then weightage points have been assigned to four service centres and again these service centres have been grouped into three hierarchical orders on the basis of Clark's criterion. The value of centrality index ranges from 44.28 to 9.00. I order central place as Growth Centre (C.I.>20.0) Lalitpur Urban Centre come under it. II order central place as Growth point (C.I. 10.0-20.0) Mahroni urban centre (19.45) and Talhabet urban centre (11.16) and III order central place Foci Points (C.I, < 10) Pali Urban Centre.

Functional Centrality Index (F.C.I.) is calculated (Table No. 1) by the Prof H.N.Mishra's formula F.C.I.=NPWx100/UNP where NPW is Non Primary Workers and Urban Non-Primary Population

Table. 1:

Sl No.	Urban Centre	Population	Non-Primary Population	Functional Centrality Index	Hierarchy
1	Lalitpur Urban Centre	133305	90932	81.23	I
2	Talbehat Urban Centre	14176	9684	8.65	II
3	Mahroni Urban Centre	9415	5907	5.28	III
4	Pali Urban Centre	9267	5411	4.83	IV
			111934		

Source: Census 2011

From above criteria of determining hierarchy, there are four urban centres in the study area. Lalitpur urban centre has come up as the largest centre which is developing as the growth centre of the district. On the basis of centrality and population size Talbehat, Mahroni and Pali urban centres are in second, third and fourth place respectively. According to functional weightage, Lalitpur Urban centre

(81.23), Mahroni Urban Centre (5.28), Talhbet Urban Centre (8.65) and Pali Urban Centre (4.83) are in first, second, third and fourth order respectively.

Endeavour has been attempted through quantitative analysis to define the morphology of the urban centres. The shape analysis of the urban centres helped to demarcate the socio-economic depressed centre. Among the present four

urban centres, Pali urban centre is ranked fourth. Spatial distribution of urban centres on the basis of functional weightage and the three hierarchical orders of urban centres was conducted. According to functional weightage, Lalitpur urban centre (6984.80) as growth centre, Mahroni urban centres (1673.65) and Talhbet urban centre (1345.42) as growth point and Pali urban centre (649.51) are in first, second, third and fourth order respectively.

Discussion

According to census 2011, urban centres of the study area project a vivid picture of its population. Total population of the district in 2001 was 9,77,734 which increased to 12,21,592 in 2011. The decadal percentage variation was 24.94. In the study area, 85.6 percent population lives in rural areas while 14.4 percent population lives in urban areas. The percentage of urban population declined from 14.52 percent in 2001 to 14.36 percent in 2011. Urban population is highest in Lalitpur Tehsil about 28.33 percent followed by 5.4 percent in Talbehat tehsil and least 3.9 percent in the Mahroni tehsil. In 2011 Talbehat Tehsil and Mahroni Tehsil witnessed growth in urban population as compared to 2001 but Lalitpur tehsil which also has the Lalitpur City as district headquarter witnessed a decline in the urban population.

In urban area there are 04 statutory Towns and 02 Census Towns. Class 1Town is Lalitpur Nagar Palika Parishad (NPP, 133305), Talbehat Nagar Panchayats (NP, 14176) is Class IV Town, Pali Nagar Panchayats (NP,9267),Mahroni Nagar Panchayats (NP, 9415) and Mahroni Rural Census Town are Class V and Class VI Town is Banguwan Kalan Census Town.

An effort has been made to divide the study area into population resource regions. Two distinctive groups can be studied. First, dynamic population resource region which includes Jakhora, Birdha and Bar blocks of Lalitpur Tehsil where small units, quarrying and cottage industries are prevalent due to non-availability of agricultural land. Road and rail transport have developed as compared to other regions. Main attractions of this region are copper, marble and brass idols which are exported. Second prospective population resource region of Lalitpur district where economic growth is less as compared to population are region that includes Mehroni and Madawara blocks in Mehroni Tehsil and Talbehat Block in Talbehat Tehsil. Mehroni Region is prospective population resource region due to the mineral resources and forest produce. Physiographically, this region is part of Indian peninsula. Due to the rugged and hilly terrain neither agriculture is possible nor road and network connectivity. The central south part of Mehroni Tehsil is basalt region which can be used for cotton cultivation. Talbehat region is prospective population resource region due to the water and electricity provided to the micro industrial units. Road and rail network is developed.

Map No. 1:

Sphere of influence or service areas of urban centres have been delineated based on gravity model of spatial interaction i.e. boundary estimation. For this, 'breaking point equation' which is based on Relly's law of retail gravitation has been used: $B=Dij/(1+\{Pi/Pj\})$ where B denotes breaking point, Dij represents distance between point I and j service centres and Pi, Pj indicates commercial population of I and j service centres. According to this, the breaking point between Lalitpur urban centre and Talbehat urban centre is 9.7 kilometres, Lalitpur urban centre and Mahroni urban centre is 7.7 kilometres, Lalitpur urban centre and Pali urban centre is 5.12 kilometres, between Talhabet urban centre and Mahroni urban centre 26.7 kilometres and between Mahroni and Pali urban centre 16.3 kilometres. The influence area of Lalitpur urban centre is 5.79 kilometers, influence area of Talbehat urban centre, Mahroni urban centre and Pali urban centre are 4.82, 4.98 and 3.42respectively. The area of functional gaps has been delineated on the basis of population thresholds and it is proposed that any settlement which has population above the threshold and doesn't have that particular function should have that.

Map No. 2.
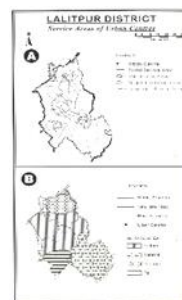
Challenges for the economic development of the study area are:

- Urban centres of this district are not only few in number but also small and far off thus not endowing to propel economic development of the area under study.
- This district produces hydro power and solar power but most of it is exported to other states thus making this district power deprived for industrial growth.
- Skilled human resources and advance technology is most essential for propelling economic growth.
- The morphology of the present urban centres needs to be developed.
- New urban centres are required in the study area so that the remote areas are well connected to urban centres of upper hierarchy.
- Study reveals that there is vast difference in conceptual and practical aspect in the hierarchy of the urban centres.

Suggestions for regional development of Lalitpur District, U.P., India
- **Eco-Tourism**
Study area is part of northern side Vindhyan Ranges. Therefore, this region has two distinct natural and scenic scenes. Firstly, hills and forest that can be used mountain-climbing, trekking etc. sports, Deograh and Jain Temple of fifteen century can be developed for resorts purposes and Karnall fort though in ruins for heritage exploration. Secondly, there are many rivers that drain this district.

Main River Betwa which is the right bank tributary of river Yamuna and its tributaries River Jamini, River Dhasan etc. not only provide water for the heterogenetic purposes of the district, dams on these rivers provides electricity. The reservoir can be used for fishing purposes. Meandering Betwa River (Plate No. 1) can be used for water sports.

Plate No. 1

Drainage Pattern can support water sports

Natural Island on River Betwa near Jain Temples, Deograh
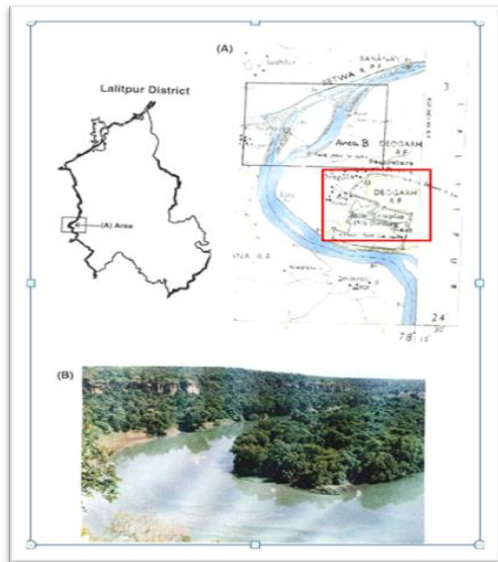
Proposal for the Urban Centres

- Balanced distribution of urban centres gives rise to a strong reaction in the development of physical, cultural, economic and human resource of any region which affects the entire region. In urban hierarchy there are only four urban centres (Lalitpur Urban Centre, Talbehat Urban Centre, Mehroni Urban centre and Pali Urban Centre) in Lalitpur district. These urban centres are not only small in size and few in numbers but are far off in scattered form. Their morphology is not fully developed. Therefore, it is essential to include those rural and trading centres which according to census 2011 has the population size of 5000 or more than 5000 as future foci points. Presently the rural centres identified are Bar, Madawara, Jakholon, Bansi, Puraklan, Barnpur, Jakhaura and Narahat which will be of third-tier centres and will help to connect the chain of growth to the remote and interior regions of this district.
- According to nearest neighbour method the spatial distribution of these urban and proposed rural centres are almost evenly distributed. It is noteworthy that using the nearest neighbour method (Rn=2D√N/A), it is clear that the spatial distribution of urban centres is moving towards equidistant. The calculated ratio of the nearest neighbour method is 1:53 which can play vital role in stimulating growth.

Conclusion

The ideal spatial distribution of urban centres in any region can trigger as well as escalate chain of growth pattern of physical, cultural, and economic which can affect region as a whole. At present these urban centre are unable to diffuse and stimulate growth in vicinity area and district as a whole. Eight new centres are proposed which will act as

class III towns. Therefore, development of above urban centres should be on the basis of Lalitpur Urban Centre. Importance is that other than white collar officers, participation of local people should be definite because local people have more specific, realistic and holistic approach of the concerned area. Through this, every single undeveloped and under developed regions such as Sonrai-Pisnari, Girar, Jharar and Kailgava will be affected and will result in the integrated development of this region.

Beside multi-level development of this region, emphasis should also be given to localize and sectoral planning. Under this, at the village level, Block level, Tehsil level and District level, depressed points/areas should be identified on priority and importance bases and planning should be launch as major concern. Above strategies will help to stimulate the urbanization and industrialization thus gifting this district it's long waited prosperity.

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