

# The Need for Designing and Building Smart Rural Markets and Villeges In Rohtas District of Bihar: A Geographycal Study

Dr. Jai Shankar Prasad Singh<sup>1</sup>, Kanhaiya Prasad Singh<sup>2</sup>

<sup>1</sup>Department of Geography, SherShah College, Sasaram, Uchitpur, Bihar, India

<sup>2</sup>J.R.F/UGC, Dept. of Geography, Veer Kunwar Singh University, Arrah, Bihar, India

## ABSTRACT

Smart city is a new concept in India originated by our PM Narendra Modi. He has anticipated that cities of our country need to the smarts in which people residing in smart cities must avail

- ✓ Adequate water supply,
- ✓ Assured electricity supply,
- ✓ Sanitation, including solid waste management,
- ✓ Efficient urban mobility and public transport,
- ✓ Affordable housing, especially for the poor,
- ✓ Robust IT connectivity and digitalization,
- ✓ Good governance, especially e-Governance and citizen participation,
- ✓ Sustainable environment,
- ✓ Safety and security of citizens, particularly women, children and the elderly, and
- ✓ Health and education.

For this he has declare to provide 500crores to each smart cities for 5 years. It is a very positive & progressive approach for the development of our country but authors of this research paper are of opinion that cities are already concentrated for a lot of people. The development of smart cities will tend to accumulate more and more people which would create much larger cities. Such development of cities would provide more urban problems. Hence there is a need for designing and building smart rural market and villeges in our country. Therefore the main purpose of the paper is to suggest the benefits of the building smart rural markets and villeges. For this Rohtas district has been taken as a case study where 2082 villeges and 121 rural markets are available.

**Keywords:** Smart Cities, E-Governance, Rural Markets, Soil Characteristic, Economic Situation, Cultural Factors

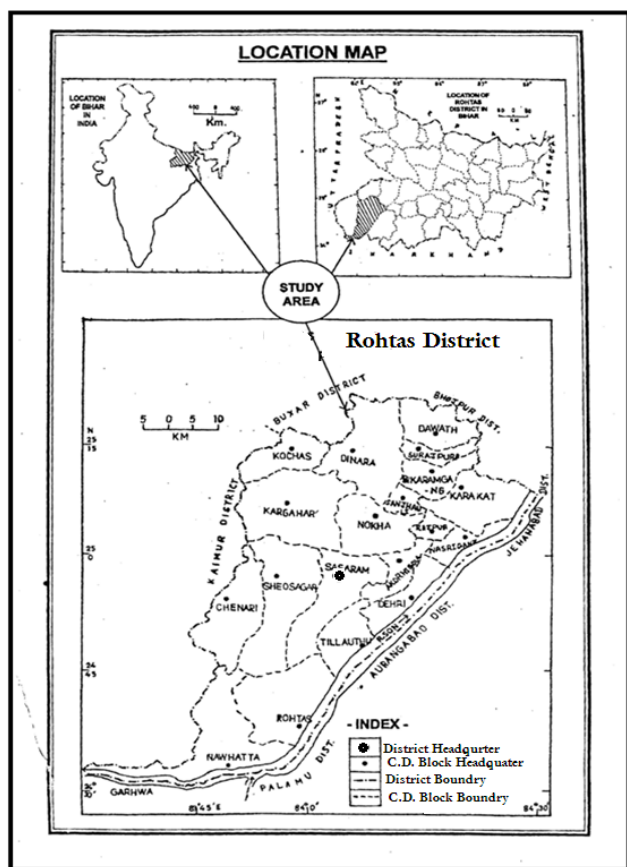
## I. INTRODUCTION

Rural markets and villeges are important aspect of rural-urban development. These are a direct link between towns and villeges. Generally, rural market develops in the spatial dimension only on a point of interactions between rural and urban areas. Sometimes they behave in a positive way in the fringe area and thus establish a linkage between the two. This study proposes to measure the development of these rural market centres and after that what role they play in the development of regions where they are developing. The main purpose of

the study is to analyse the functional role of these rural market centres.

National Food Security Bill, Major Programs & Partnership to Improve Nutrition Security mid Day Meal. The Government is taking responsibility for uplifting the rural and the economically poorer regions. There is lot of public spending to improve the infrastructure, water and sanitation in these areas. However, these efforts are disparate, fragmented and piecemeal and not much improvement has been achieved in most of the villeges. There is a need for designing and building Smart Villeges which are

independent in providing welfare services and employment and yet well connected to the rest of the world.



The study of Rural Market centres Presumes that the central villages have played an important role in the development of a region. There exists a fundamental unity among the social, political economic and aspects of the development of human civilization and central villages do represent one such stage of development. Rural Market centres are viewed not only as places where economic functions.

Rural Market centres, generally, provide Rural Markets like a high School, telegraph office, dispensary, retail market, block development office and a bus stop or a railway station. Such centres are located on the main transport routes between bigger urban centres and are, therefore, interspersed between towns and tiny rural settlements. Further development of these facilities and the addition of a telephone exchange, bank cinema, wholesale market, etc. led on the final growth of Rural Market centres. Rural settlements which have grown into Rural Market centres are potential towns. Rise in their population coupled with population segregation in

land utilization and increase in employment of tertiary Rural Markets would make them eligible for classification as towns. Evolution Rural Market centres locations for a particular period of time and space largely depends on economic property and transport facilities. In the system of Rural Market centres two sets of variables have deterministic influence on the proper functioning of the centre. The first set of variables includes having predominance in rural areas and operates through larger villages to larger villager or Rural Market centre attracts a large number of visitors. The higher density of population provides the market for local produce, while a lack of population in sphere of influence always restricts the development of any Rural Market centre. The second aspect in rural areas is that of topographic condition of the region. Highlands with stony wastes prevent the development of Rural Market centres, reverence productive plains become conducive to their development. The third group is that of soil characteristic, economic situation and social and cultural factors each of which have impact upon the development of the Rural Market centre.

## II. METHODS AND MATERIAL

To design and determine the smartness of the rural market centres it is assessed the hierarchy of the rural market centres in the study area. The more diversified the rural market centres will be proved smarter than the tri-functional, bi-functional and mono-functional rural market centres. Therefore the secondary data have been applied for calculating the hierarchy of the rural market centres in the study area. In order to assess the hierarchical arrangement on the basis of central functions of these settlements, ten attributes covering social, economic, and administrative services have been considered.

For this purpose Rohtas district has been selected as the study area. These functions are chosen from the District Census Handbook: Rohtas (2011) for certain selected settlements lying in the Rohtas district. These functions are as follows:

- |                  |                                |
|------------------|--------------------------------|
| 1. Education     | 6. Market                      |
| 2. Medical       | 7. Administrative              |
| 3. Postal        | 8. Recreational                |
| 4. Communication | 9. Bank/Financial institutions |
| 5. Electricity   |                                |

## 10. Police station.

Out of the total 2,080 villages, 121 have been selected for hierarchical test by adopting a simple technique of 'Basic Central Function Analysis' which may include education, electricity, communication and postal services. The functions are further subdivided into subfunctions for giving proper weightage which are calculated by a simple formula<sup>3</sup> :

$$W_i = ns/n_{pi},$$

Where  $W_i$  = weightage of 'i' th functions

$ns$  = Number of settlements under study

$n_{pi}$  = Number of settlements possessing the 'i' th function.

**Table 1.** Weightage Pattern of Function and Subfunctions of Service in Rohtas District

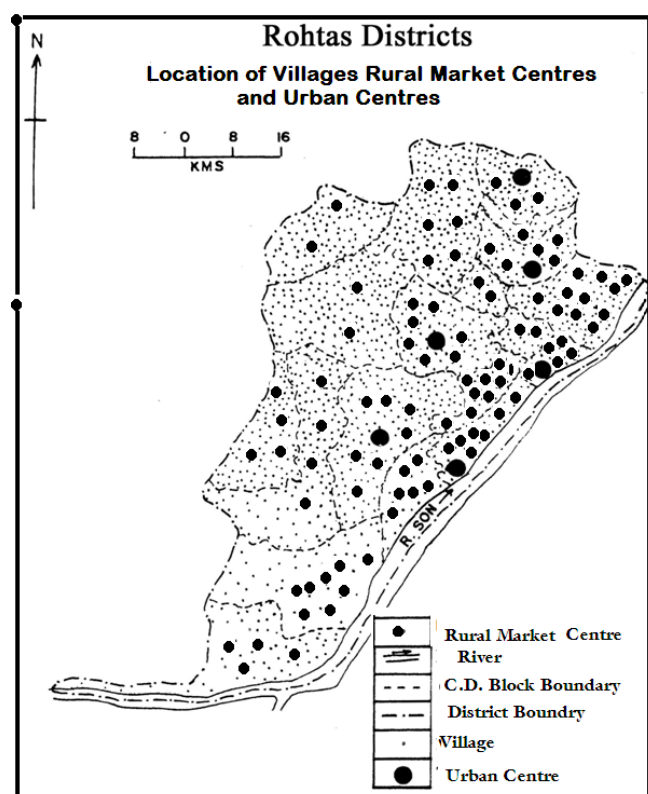
Sl No.	Function and Sub-Functions	Weightage
1	EDUCATIONAL	
	Primary School	1.18
	Middle School	1.77
	High School	3.17
	College	31.77
	Other Institution	15.88
	Poly Technic	286
2	MEDICAL	
	Hospital	5.2
	Family Planning	23.83
	Health centre	5.5
	Other Medical centre	9.53
	Dispensary	143
	T. B. Hospital	143
	Nursing Home	286

Sl No.	Function and Sub-Functions	Weightage
3	POWER	
	Electricity	1.3
4	POSTAL	
	Post office	1.56
	Post & Telegraph office	9.23
	Telephone service	6.81
	Telephone Exchange	95.33
5	COMMUNICATION	
	Kutch road	1.5
	Pucca Road	2.06
	Canal service	
	River service	
6	MARKET	7
	Hat or daily Market	5.2
7	ADMINISTRATIVE	
	Sub Division Head Quarter	142.99
	District Head Quarter	286
8	POLICE STATION	15.89
9	BANK /FINANCIAL INSTITUTION	
	Bank	71.5
	Non Agricultural Credit Society	47.66
	Agricultural Credit Society	40.85
10	RECREATION	
	Public library	47.66
	Cinema	71.5
	Auditorium	286

## Spatial pattern and hierarchy of settlement

**Table 2.** Rohtas District Area, Population, Rural Settlements and Rural markets

Name of Sub - Division	Name of Development	Area in Sqr. KM	Population	Number of Rural Settlement	No. of Rural Market Centers
Rohtas	Dawath	100.51	89565	67	3
	Kochas	150	170025	191	2
	Dinara	300	225648	229	7
	Suryapura	57.03	57529	58	2
	Bikramganj	135.73	115100	101	7
	Karakat	211.24	209284	150	13
	Nasirganj	128.4	115117	54	12
	Rajpur	52.28	75213	39	3
	Sanjhauili	67.63	62621	45	2
	Nokha	173.11	146025	88	6
	Kargahar	319.86	225082	257	3
	Chenari	243.38	131528	155	6
	Nauhatta	394.56	94065	68	5
	Sheosagar	331.24	176086	199	6
	Sasaram	321.24	210875	172	8
	Akorhi Gola	192.68	120145	56	11
	Dehri	153.58	137783	59	7
	Tilouthu	155.32	109249	66	8
	Rohtas	320.7	86049	38	10
	<b>Tital -----</b>	<b>3,808.49</b>	<b>2,556,989</b>	<b>2,092</b>	<b>121</b>



With the help of the above formula the following weightage values have been calculated (table 3). The score value of each settlement has been worked out with

the help of scoring technique. Based on the total score values, seven orders of settlements can be arranged as follows (Table):

**Table 3.** Hierarchy of rural market centres in Rohtas district

Category of R.M.C	Index	No of rural market centres
I Order-	More than 20	23
II Order-	15 to 19	06
III Order-	10 to 14	25
IV Order-	Less than 10	70
Total		124

The table shows that with an increase in hierarchical order, the number of settlements decline sharply. There are 2,784 or 90.68 per cent of the total settlements lying in the seventh order. These settlements do not have any significant functions of any kind and are dependent on the higher order settlements. Dehri (1857.15) the only first order settlement of Rohtas district holds the primate status because of its industrial development. The second order of hierarchy includes only two settlements, i.e. Sasaram (1,436.48) and Bhabua (831.47). Of these two settlements, Sasaram has secured a high score value because it is the headquarters of the district. The third order of settlements consists of four towns, viz. Nasirganj (481.27), Bikramganj (364.74), Mohania (363.16), and Koath (231.31). The fourth order of hierarchy is formed by eighteen settlements having score values between 50 and 200. There is a marked absence of recreational and banking facilities in these settlements. There are 65 fifth order and 196 sixth order settlements having a score value of 20-50 and 5-20, respectively. These settlements play a very insignificant role as a rural service centre. Most of the settlements of the fifth and sixth orders are found at the lower level in the respective range of their achieved score values. There are only 18 settlements of fifth order and 48 settlements of sixth order lying in the higher range of score value 40-50 and 15-20, respectively.

### Distribution of rural market centres.

Topography may be regarded as the most determinant factor which exerts influence on the location and distribution of rural market centres. The distribution of rural market centres of Rohtas district is uneven. Most of

the rural market centres are concentrated in the Sasaram plain. Only 22 rural market centres are located in the river Son valley, while there are only 3 rural market centres, one each in fourth, and sixth orders, respectively. This area is comparatively undeveloped because of rugged terrain and dense forest.

**Table 4.** Heirarehy of Rural Market Centres

<b>Catege ry of RMC</b>	<b>FUNCTION' S AND NO</b>	<b>RURAL MARKET CENTRES</b>
1.	Multi – Functional 23	Akbarpur, kochas, Sanjhauli, Shivsagar, Parsathua, Rajpur, Konar, Dinara , Chenari, Natwarkala, Surajpura, Kargaha r, Bikramganj, Kowath, Akorigola, Dehri, Jamu har, Nasriganj, Nokha, Barawn, Tilauthu, Sasara m, Karwandia.
2.	Tri – Functional 06	Tumba, Rohtas, Chor, Dawath, Gorari, Moradabad.
3.	Bio – Functional 25	Telkap, Banjari, Uchaila, Sonhar , Alampur, Khurmabad, Tiura, Nauhtta, Bab hani, Siyawank, Burhwal, Dharhara, Bank, Chand i, Pahleza, Itimi, Mangrawa, Dhanaw English, Amiawar, Kadawa, Sikaria, Uchitpur, Ama ra, Amari, Darigawn.

4.	Mono – Functional 70	Nawadih, Kasiawan, Samahuta, Baknaura, Kirhindi, Bhardua, Pewndi, Uga nhani, Malhipur, Paracha, Tilokhar, Shahpur, Bara hri, Narwar, Bhanpur, Jamrorh, Aramg, Karac hosi, Tanauj, Jamori, Mani, Mohini, Shivpur, J ohani, Ghosia, Shakala, Udaipur, Barawan, Bar un, Babhnaul, Semari, Karakat, Jaisri, Bengsag er, Amartha, Bhrahdi, Dev, Danwar, Amaun a, Samahuta, Sikariya, Baligawah, Chapra, Mu niari, Akori, Barahari, Madhurampur, Gobar dhanpur, Barawan, Gangauli, Bhaluachi, Nawadih, Mauna, Pawani, Khariwana, Kait hi, kachaw, Atimi, Pokhaha Jamalpur, Parsiya, Nunsari, Sisirit, Hathini, Ghusia, Ramdihr a, Malpura, Pathra, Bhadokhara, Saraiya, Ker pa.
		Motha, Baradih, Dev, Danwar, Amona, Samahuta, Sikariya Gorari, Bali gawan, Chap, Muniari Akori, Dharahara, Barahari, Madhuramopur, Bank, Chandi, Gobardhanpur, Barwan, Darihat, Gangauli, Nawadih, Mauna, Pawani, Kariwana, Kaithi, Itimha, Kochaw, Atimi, Pocharhajamalpur, Mangrawa, Dhanaw, Amiawar, Sisrit, Nunsari, Hathimni Barawn, Kadawa, Ghusia, Ramdihara, Malpura, Pathra, Bhadokhara, Sarna, Kerpa, Sikariya, Muradabad, Uchitpur, Amara, Amari, Dhaudar, Darigawn, Karwandia, Chor, Natwar, Burhwal, Prasia, Akasi and Hurka.

### III. CONCLUSION

On the basis of above illustrations it is obvious that the market centres with multi-functions are 23 in numbers. These rural market centres have enough potentialities to be developed as the smart rural market centres in the study area. Again, the tri-functional rural market centres have lesser possibilities than multifunctional rural market centres. Therefore rural market centres for Rohtas district may be designed as the smart rural market centres and if it is done the people residing in these smart rural market centres may avail better facilities and it will be a positive approach for the wellbeing of the people inhabiting in these markets.

### IV. REFERENCES

- [1]. Shrivastava, V.K. (1976) : Market Periodicity and Centrality A Methodological Approach, *Mainzer Geographisches Studien*, 10, pp. 33-38.
- [2]. Shrivastava, V.K. & Udhaw Ram (1982) : Nature and Demarcation of Market Area Regions of the Lower Ganga-Ghagra Doab, *Uttar Bharat Bhoogol Patrika*, 18, pp. 97-107.
- [3]. Director of Census Operations (2011), District Census Handbook, Rohtas, Bihar, Govt. Of India, Series 3, Part IV.
- [4]. Director of Census Operations (2011), General Population Tables, Bihar, Govt. Of India, Series 4, Part IIA.
- [5]. Misra R.P. (1971), Growth Poles and Growth Centres in Urban and Regional Planning in India and Training Programme for Regional Development in Developing Countries: An Experiment in India in *Development Studies*, Institute of Development Studies, University of Mysore, No 2, p 20.
- [6]. Singh Kashi Nath, (ed), Singh Kailash Nath and Dutt G.K. (1971), Vindhya-Chal-Baghelkhand Region in Singh R.L. *India- A Regional Geography*, National Geographical Society of India, Varanasi, p. 646.
- [7]. Sen Gupta S.K. (1985), Transformation of rural habitat in Lesser Himalayan region of West Bengal : Sukhiapokri – North Bengal University Review (Humanities and Social Science). Vol . 1, pp. 2-73.