

Level and Trend of Urbanization: A Study on Purulia District of West Bengal

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Abstract: In world scenario almost half of the population lives in urban area. But India and other developing countries was going on below the world average. The present study analyzes the level and trend of urbanization of Purulia district in West Bengal. This study was based on the secondary data and it was a block level study. Level and trend of urbanization process was studied by different indices, those are- levels of urbanization or degree of urbanization, decadal growth rate of urbanization, rate of urbanization, pace of urbanization, rank size rule etc. and lastly analyzed the correlation among different variables which was related to urbanization by Pearson's product moment correlation coefficient. The result of the study explores that the level of urbanization was very low at the study area. Urbanization level of only two to three blocks is good and some blocks are growing negatively. Where crude literacy rate was high there was more concentrate of urban population in context of this district. Rate and level of urbanization was negative relation with primary worker and sex ratio.

Key Word: Pace of Urbanization, Rate of Urbanization, Urban Density, Urbanization.

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I. INTRODUCTION

Urbanization means the forward of our society to development. In the urbanization process a progressive change of people (social, physiological and behavioral) and their activity in town or city, also changes of structural characteristic of population are occurred. Urbanization is not about the population size, but must satisfy certain conditions like modernization, physical and economic development, as well as the heterogeneity in occupation [1], [2]. Lampard suggests that a distinction should be made between the three aspects of the process of urbanization, i.e., behavioral, structural and demographic aspects of urbanization process [3]. In the process of urbanization most of the people shift his work from primary to secondary or tertiary and improve the standard of living, higher life expectancy, education etc. Urbanization is associated with greater access to employment opportunities, lower fertility levels and increased independence.

Purulia district is very low populated than the other districts of West Bengal. Percentage of urban population is very low in Purulia (12.75%) than the average rate of India (31.16%) and West Bengal (31.89%) [4]. Here growth rate of urban area in numbers was little much slower than the average rate of West Bengal. It is 142% in West Bengal and 133% in Purulia. Average decadal Growth rate to total urban population was very slower up to 1951(19.20%) after this period this rate was increased very high up to 2001(45.1%) and last decade this rate was 46.15% (census of India 2011). Growth rate of urban population to total population from 2001-2011 was 2.86%. At present 19 towns are class-V, 4 in class-IV, and 3 in class-III. Only Purulia town, Santaldih Thermal Power Project Plant town are Class-I and class-VI of the town in the district. Sixteen new census towns were added in census 2011. Percentage of urban population to the total population of the entire block was below the national level and state level average. Urban populations of some blocks are zero and some blocks are under 5%. Urban population of Raghunathpur (18.08%), Para (16.26%) and Balarampur (17.71%) blocks were above 15% (census of India 2011).

II. STUDY AREA

The selected study area is Purulia district of West Bengal and it is the western most district of west Bengal. This district is the part of the Chotanagpur plateau region and it is the draught prone area of West Bengal. North, south and western part of the district are surrounded by Jharkhand state and eastern part is surrounding by Bankura, Burdwan West and Jhargram district. Latitudinal extension of the region is 85° 43'E to 86° 55'E and latitudinal extension is 22° 38'N to 23° 37' N.

III. OBJECTIVES

Main objectives of the study are-

- I. Explore the level and trend of urbanization.
- II. To study the growth of the city.
- III. Analysis the transformation of the city in different census year.
- IV. To study the rank size rule of the city.
- V. Examine the correlation with different variables of urbanization.

IV. METHODOLOGY

This study was mainly based on the secondary data and it was a block level study. Data sources are primarily Census of India 2001 and 2011. Level, growth and rate of urbanization was calculated according to Sivaramakrishnan et al., (2005), [5] and there are-

- A. Level of urbanization= (Urban Population/Total Population) X 100
- B. Decadal growth of urban population (2001-2011) = {Urban Population (2011) – Urban Population (2001)} / Urban Population (2001) X 100
- C. Rate of Urbanization (2001-2011) = (Per cent of Urban Population in 2011– Per cent of Urban Population in 2001) C Per cent of Urban Population in 2001 X 100

Urban density was calculated by the following way-

$$\text{Urban Density} = \text{Urban Population} / \text{Area}$$

Pace of urbanization was calculated by using Eldridge index (Vaidyanathan, 1981) [6]. The formula was –

$$\text{Pace of Urbanization (2001-2011)} = [(\text{Percentage of Urban Population in 2011} - \text{Percentage Urban Population in 2001}) / (100 - \text{Urban Population in 2001})] \times 100$$

We calculate the Zipf's Rank size Rule of the town of the study area (Saha and Basu) [7]. The formula was

$$P_i = \frac{K}{r_i}$$

Where,

P_i = expected population of a town of rank, r_i = rank of the city in descending order, K = population of the largest town.

Lastly we calculate the Pearson's product moment correlation co-efficient of different variables.

V. LITERATURE REVIEW

Here we attempt to study some literature which relevant to the present study. Many of the researchers discuss the present condition of urbanization of India and West Bengal. Ramachandan [8], Chand & Puri [9], and Roy Chaudhuri [10] et.al. presented an in depth discussion about India's urbanization. A. Sarkar focused on West Bengal's (W.B.) urbanization and it's city size distribution, where he noticed that in W.B.'s urban scene larger cities grew very fast whereas small and medium towns have consistently declined in size in the period 1901 to 2001 [11]. In West Bengal rates of upgradation to big town was very low. S. Chatterjee stated that the period of 2001 and 2011 only three new cities (Class I towns) have grown that signifies very low graduation of lower order towns into higher order [12]. Aktar and Sultana examined that the degree of urbanization is very low in Purulia district. Growth rate and pace of urbanization is negative in some block [13]. Difference of population of largest city and next city is very high.

VI. RESULT AND DISCUSSION

1. Trend of Urbanization and Transformation of city's Class-

In Fig no.-1 it was clearly seen that the growth of urban population of the district was very slower in all the census years. The share of percentage of urban population to total population of West Bengal was greater than Indian average and Purulia has too low than the national and state average. From the period of 1961 to 2001 share of urban population to the total population was very low in the district. In 2011 census it was found little much higher than the previous census but it was almost half of the State and National average.

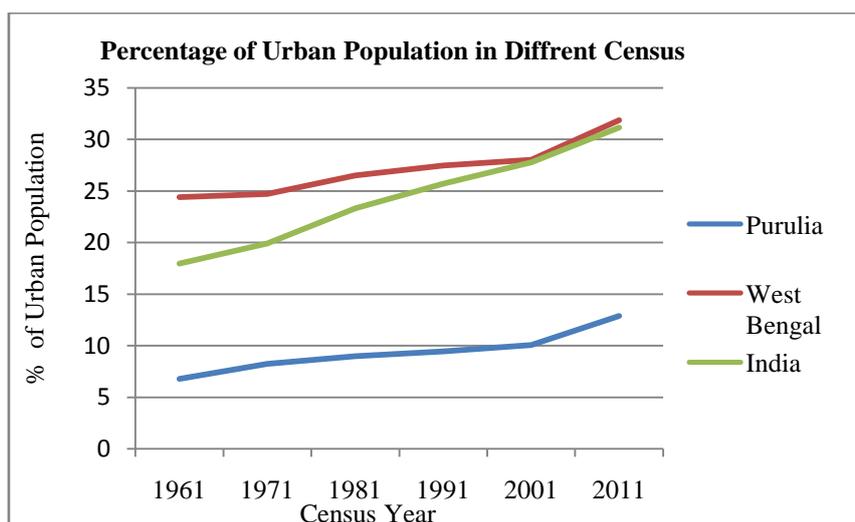


Fig-1 Source: District Census Handbook, Purulia, 2011[4], Computed and calculated by author

In the census year 1971 total seven urban areas were located in the district. That time Purulia have class –II town and it was continue up to 1991 census. In the census 1981 only Santaldihi Thermal Power Project town added as a class-V town. Adra town upgraded from class-IV to class-III town and it was continue up to 2011 census. Nabagram and Hijuli were added as a census town in 1991 census and all other town maintain their same class except Santaldihi Thermal Power Project town. This town was fall down to class-VI town and it was maintain up to census 2011. Par Beliya, Barabazar was added as new census town in 2001. In this year Purulia upgraded to class-I and Balarampur class-III. It was maintained up to 2011 census. In the last census the highest number of town added and the number was 16 and total 28 urban bodies found. In the census one class-I, three class-III, four class- IV, nineteen class- V and one class-VI town are found.

Table-1 Change of class of towns (1971-2011)

Class of Town	1971		1981		1991		2001		2011	
	NO.	Name	NO	Name	NO	Name	NO	Name	NO	Name
I							1	Purulia	1	Purulia
II	1	Purulia	1	Purulia	1	Purulia				
III			1	Adra	1	Adra	3	Adra, Balarampur, Raghunathpur	3	Adra, Balarampur, Raghunathpur
IV	5	Arra, Adra, Balarampur, Jhalda, Raghunathpur	4	Arra, Balarampur, Jhalda, Raghunathpur	4	Arra, Balarampur, Jhalda, Raghunathpur	2	Arra, Jhalda	4	Jaipur, Shankara, Arra, Jhalda
V	1	Chapri,	2	Chapri, Santaldihi Thermal Power Project town	3	Chapri, Nabagram, Hijuli	5	Chapri, Nabagram, Hijuli, Par Beliya, Barabazar	19	Raghabpur, Hutmura, Kanki, Dubra, Chapri, Nabagram, Saltor, Hijuli, Par Beliya, Murulia, Kantaranguri, Lapara, Lagda, Jhalda(p), Cherkya, Begun Kodar, Barabazar,

										Manbazar, Bandoan
VI					1	Santald ihi Therma l Power Project town	1	Santaldi hi Thermal Power Project town	1	Santaldih i Thermal Power Project town

Source: District Census Handbook, Purulia, 2001[14], 2011[4], computed and calculated by author

2. Level of Urbanization

In fig no.-2 we try to give a concept about level of urbanization by using choropleth method and compare the percentage of urban population of 2001 and 2011 by bar diagram. Levels of urbanization of five blocks are zero and they are Ashra, Bagmundi, Hura, Puncha, and Manbazar-II, where not an urban center has been grown. Only two blocks are almost equal to the national and state average they are Purulia-II and Raghunathpur-I. Bar diagram (fig. no.-2) clearly show that the Purulia-II and Raghunathpur-I has highest concentrate of urban population. Many of the blocks newly set up their urban areas which are Jaipur, Jhalda-II, Purulia-I, Manbazar-I, Bandoan, and Santuri in the last census 2011. One of the most important things is found, there the urban populations of some blocks are decreasing and they are Raghunathpur-I & II and Balarampur.

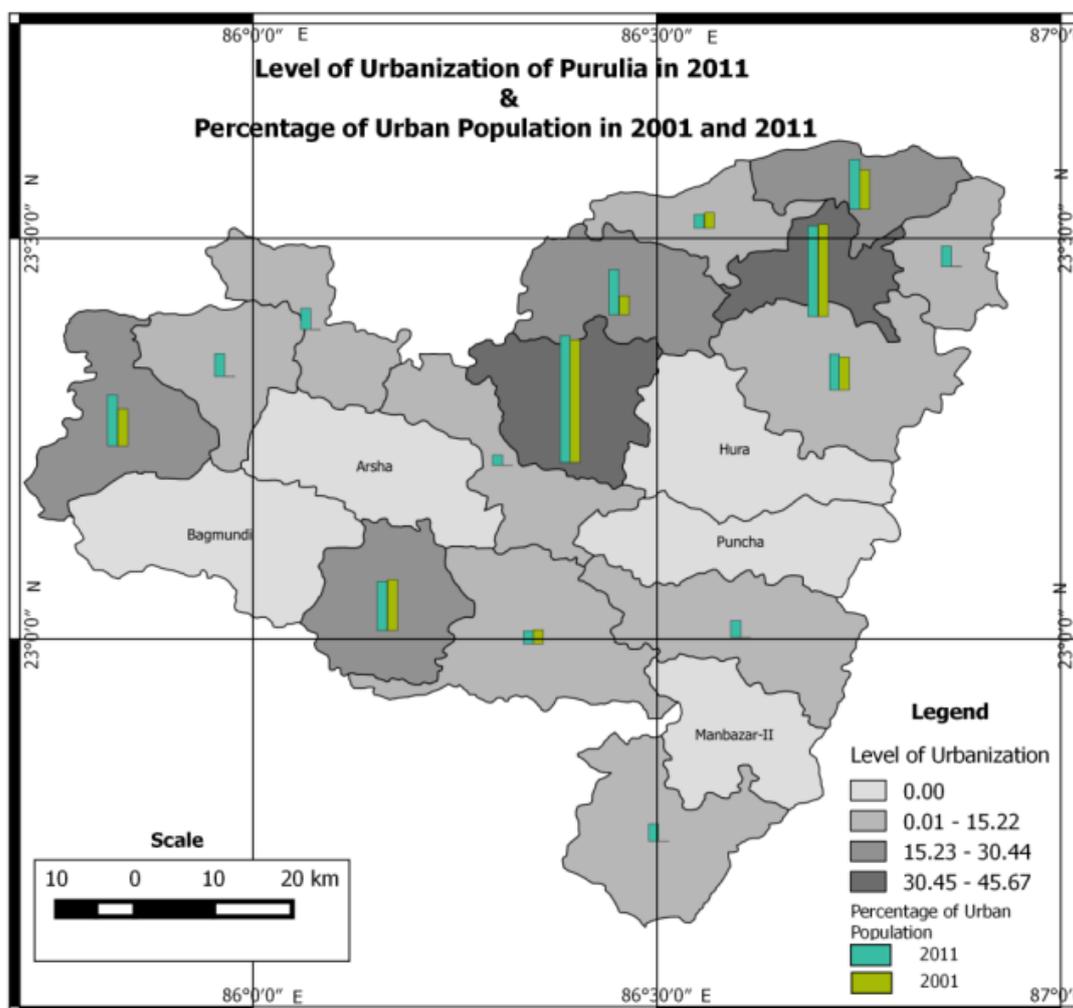


Fig-2 Source: District Census Handbook, Purulia, 2001[14], 2011[4], Computed and calculated by author

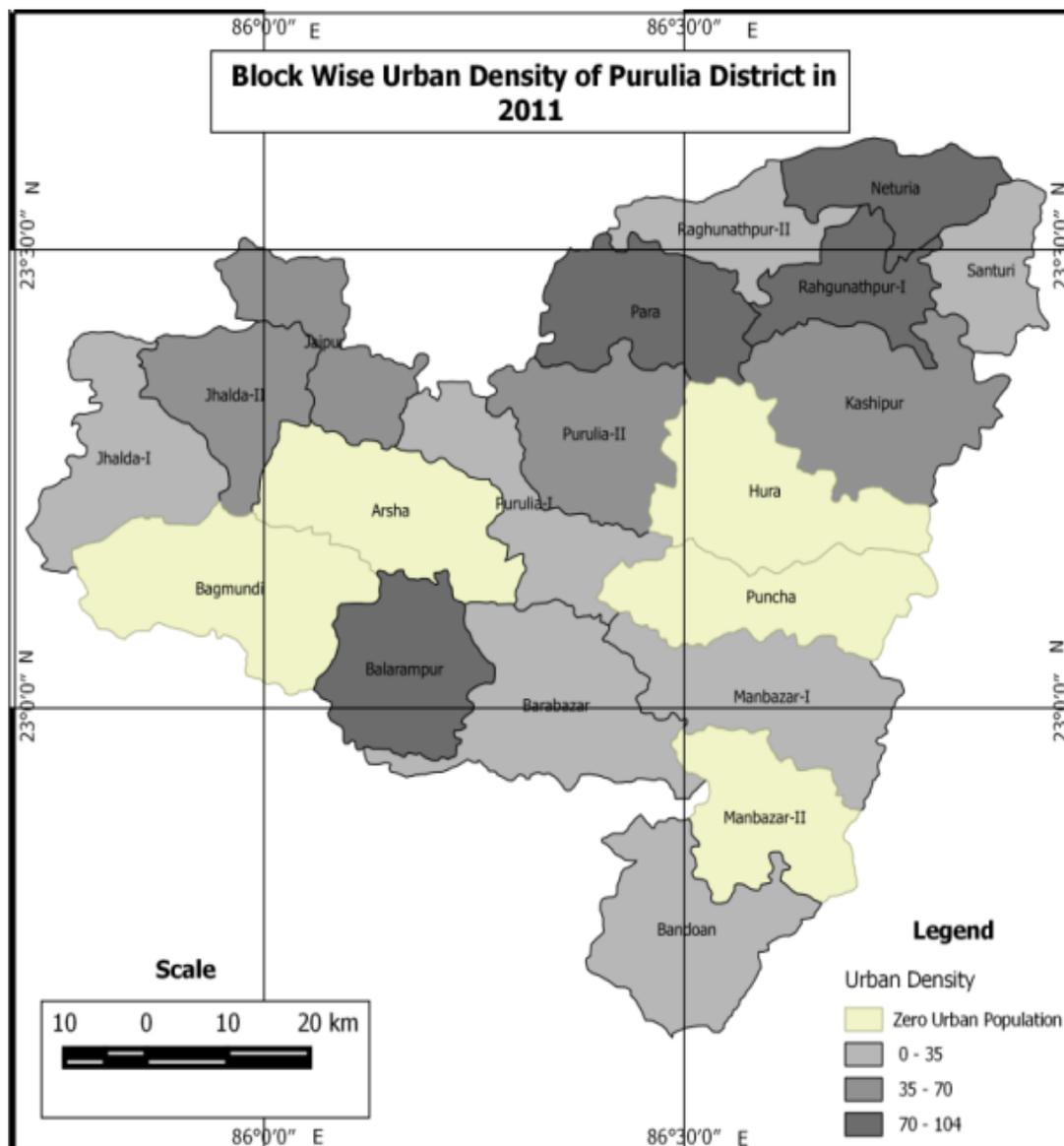


Fig-3 Source: District Census Handbook, Purulia 2001[14], 2011 [4],
Computed and calculated by author

Fig no.-3 indicates the urban density which is an effective measure of level of urbanization in the low urbanized area. Urban density of all the blocks is very low than the national and state average (328 per sq.km). Four blocks Balarampur, Raghunathpur-I, Para and Neturia have highest urban density. Urban densities of five blocks are zero, means no one of the urban center has built up and eleven blocks have below district average (60 per sq.km).

3. Decadal growth Rate of Urban Population-

Fig no.-4 clearly indicates that the eleven block of the district have no urban population in the last decade 2001-2011. Five blocks have no urban population out of the eleven blocks and according to the last census some small urban area found in rest of the six blocks. Highest decadal growth rate was found at Para block which was 173.6%. Decadal growth rate of Para and Jhalda is above the district average (46.15%). The other seven blocks are below the district average and those are Balarampur, Barabazar, Purulia-II, Raghunathpur-I& II, Neturia and Kashipur.

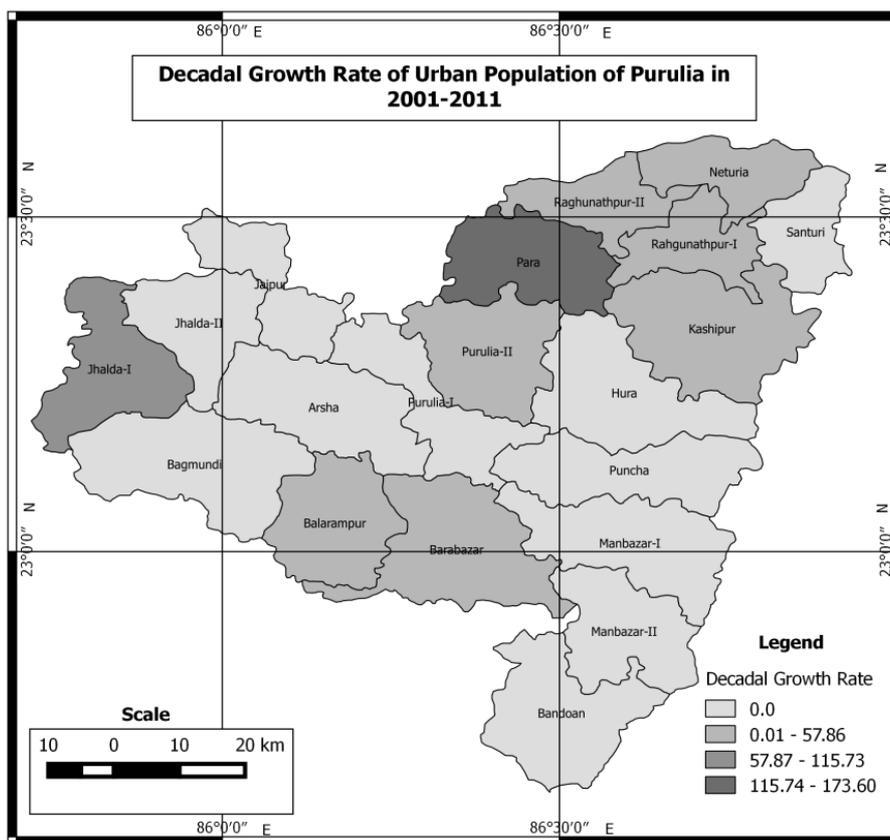


Fig-4 Source: District Census Handbook, Purulia 2001[14], 2011 [4], Computed and calculated by author

4. Rate of Urbanization-

From the Fig. no- 5 it is clear that the rate of urbanization of Purulia district was very low than the nation and state average in 1961 census. In 1971 rate of urbanization of the district was very high than the national (10.80%) and state average (1.23%) because in this census year two census town (one class-IV and another class-V) were added. Jhalda and Purulia town upgraded to class-III and class-II town respectively. After this period this rate was continuously fall up to 2001 census. In the last census 2011 the highest rate was noticed and it was 27.88% which were almost double to the state and national average. Although some towns are growing negatively but after the addition of sixteen new census towns the overall growth rate of the district increases.

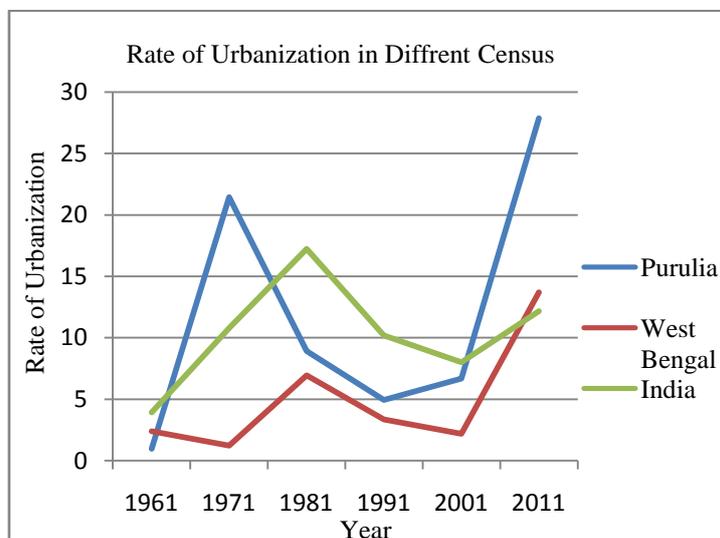


Fig-5 Source: District Census Handbook, Purulia, 2011[4], Computed and calculated by author

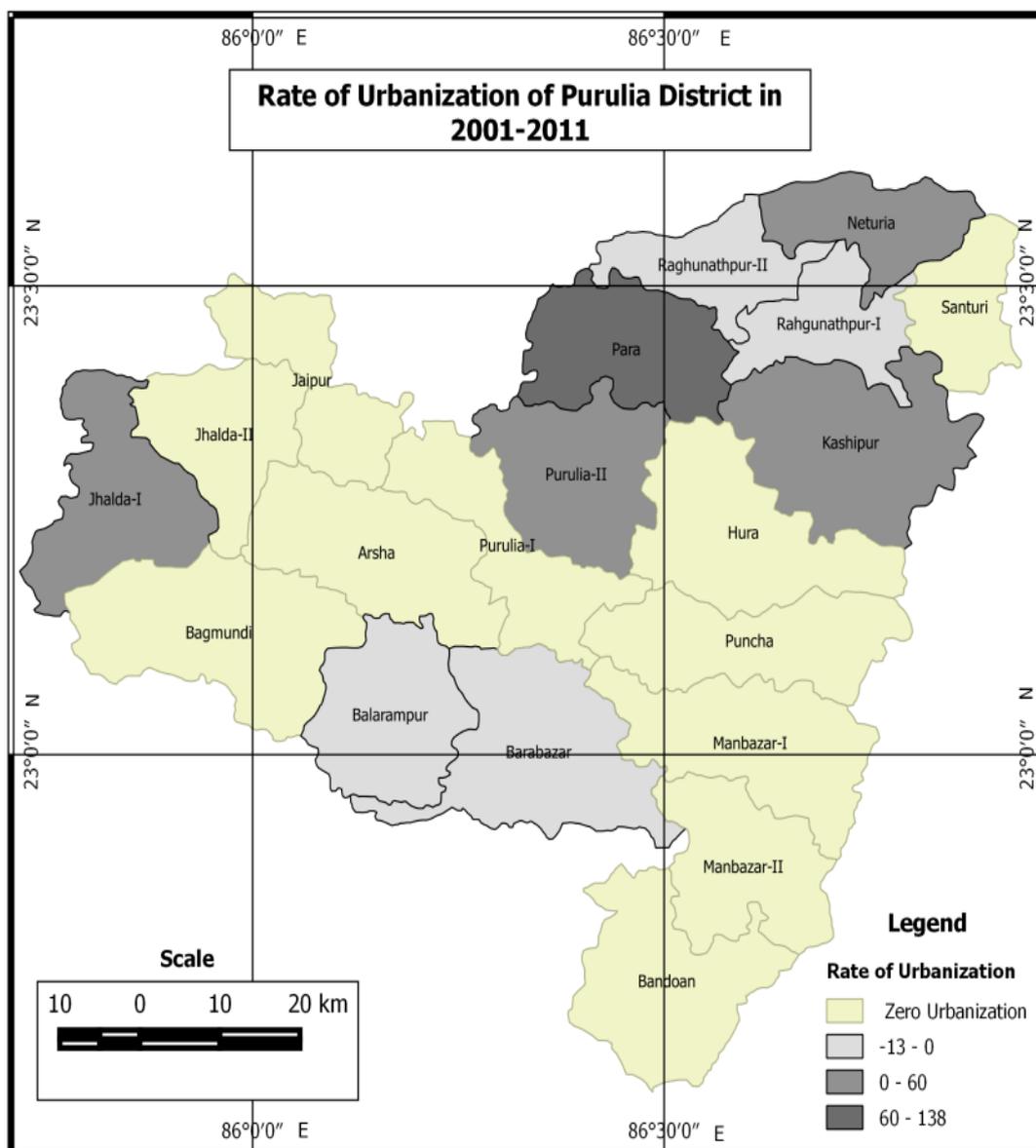


Fig-6 Source: District Census Handbook, Purulia 2001[14], 2011[4], Computed and calculated by author

From the above fig no.-6 it was easily analyzed that the rate of urbanization of different blocks in the last decade 2001 to 2011 was very poor but overall rate of urbanization was almost double than the national (11.95) and state average (13.77). Five blocks has no urban population and rate of urbanization of six blocks is zero because urban area of this block was added in the last census 2011. Some blocks show the negative rate of urbanization, there are- Balarampur, Barabazar, Raghunathpur –I & II. Highest negative growth rate was found in Raghunathpur-II (-12.61). The highest rate of urbanization found in Para block (138.14) and only two blocks are above the national and state average.

5. Pace of Urbanization-

It is clear in fig No.-7 that the pace of urbanization was very slow in the district. One interesting thing is found that the Pace of urbanization of Balarampur, Barabazar, Raghunathpur –I & II block was negative. Four blocks are below the national average. Only seven blocks were found above the national (4.67%) and state average (5.67%) and highest Pace of urbanization was found in the Para block.

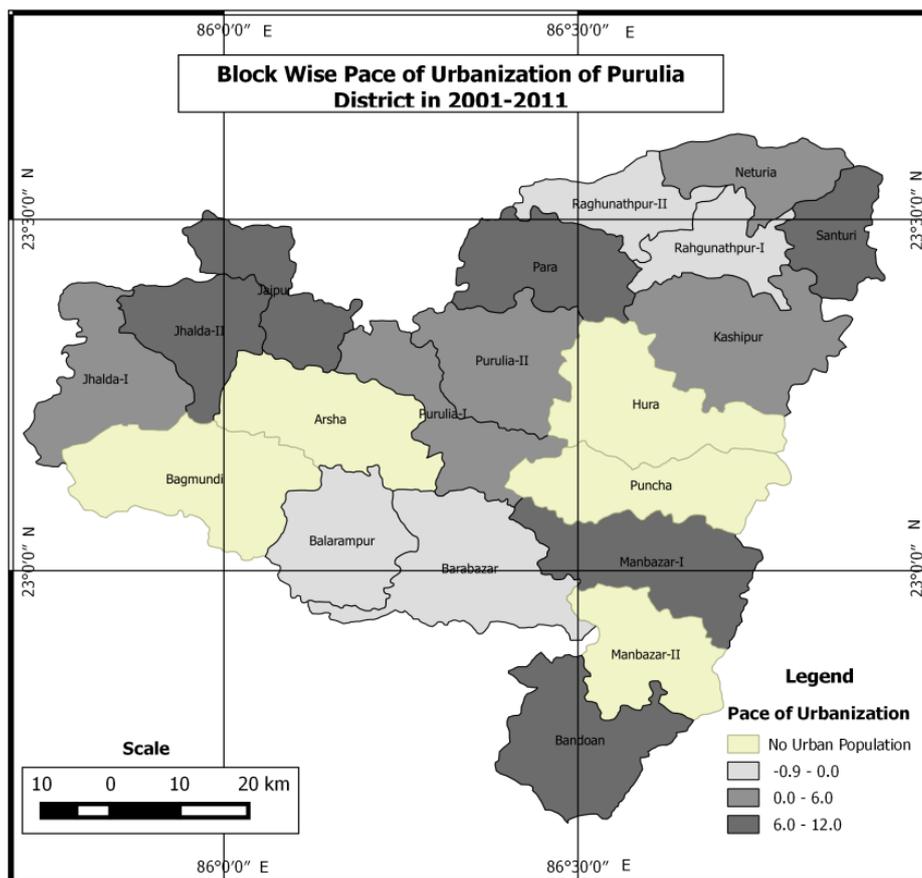


Fig-7 Source: District Census Handbook, Purulia2001 [14], 2011 [4],
Computed and calculated by author

6. Rank Size Rule of the City-

Table-2 Calculation table for Rank Size Rule

City	Actual Population	Rank(R)	1/R	Pe (Estimated Population)
Purulia	121067	1	1	95059
Raghunathpur	25561	2	0.5	47530
Balarampur	24431	3	0.333333	31686
Arra	21272	4	0.25	23765
Jhalda	19544	5	0.2	19012
Adra	14956	6	0.166667	15843
Shankara	11171	7	0.142857	13580
Jaipur	10259	8	0.125	11882
Manbazar	9521	9	0.111111	10562
Jhalda(P)	9384	10	0.1	9506
Barabazar	8056	11	0.090909	8642
Hijuli	7917	12	0.083333	7922
Kanki	6884	13	0.076923	7312
Chapari	6556	14	0.071429	6790
Begun Kodar	6347	15	0.066667	6337
Chekya	5995	16	0.0625	5941
Bandoan	5993	17	0.058824	5592
Nabagram	5963	18	0.055556	5281
Murulia	5929	19	0.052632	5003
Hutmura	5878	20	0.05	4753
Rahgabpur (P)	5748	21	0.047619	4527
Lagda	5694	22	0.045455	4321

Dubra	5506	23	0.043478	4133
Kantaraguri	5435	24	0.041667	3961
Lapara	5367	25	0.04	3802
Par Belya	5279	26	0.038462	3656
Saltor	5094	27	0.037037	3521
Santaldih Thermal Power Project Town	2507	28	0.035714	3395
	\sum 373314		\sum 3.927171	

Source: District Census Handbook, Purulia, 2011[4], computed and calculated by author

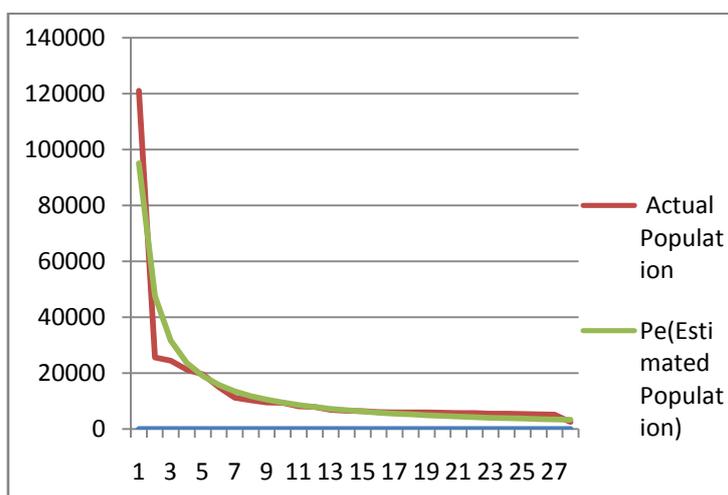


Fig-8 Source: District Census Handbook, Purulia, 2011[4], Computed and calculated by author

From the table no- 2 and fig no- 8 it was examined that the population of the largest city was greater than the estimated population. But the second and third ranked city’s population was very low than the estimated population. Six, seven, eight and nine ranked city’s population was below than the estimated population. Ten to twelve ranked town population almost same to the estimated population then up to 27th rank town population is higher. Population of the 28th rank town was lower than the estimated.

7. Relationship with different variable of urbanization-

Table-3 Pearson correlation co-efficient table

Variables#	LU	DGRUP	RU	PU	CLR	PW	SR	UD
LU	1	.301	.201	.072	.559**	-.662**	-.482*	.619**
DGRUP	.301	1	.985**	.461*	.239	-.228	-.309	.576**
RU	.201	.985**	1	.532**	.160	-.166	-.243	.507*
PU	.072	.461*	.532**	1	-.165	-.304	-.132	.283
CLR	.559**	.239	.160	-.165	1	-.194	-.197	.241
PW	-.662**	-.228	-.166	-.304	-.194	1	.649**	-.658**
SR	-.482*	-.309	-.243	-.132	-.197	.649**	1	-.643**
UD	.619**	.576**	.507*	.283	.241	-.658**	-.643**	1

** . Correlation is significant at the 0.01 level (1-tailed).

* . Correlation is significant at the 0.05 level (1-tailed).

Source: District Census Handbook, Purulia, 2001 [14], 2011[4], computed and calculated by author

Used variables in the study –

LU- Level of Urbanization, DGRUP- Decadal Growth Rate of Urban Population, RU –Rate of Urbanization, PU- Pace of Urbanization, CLR- Crud Literacy Rate, PW- Primary Worker, SR- Sex Ratio, UD- Urban Density.

The table no.3 show the relationship with the different variables which is closely related with urbanization. From the following evident we can easily understand that the level of urbanization was positive relation with five variables, those are - decadal growth rate of urban population (DGRUP), rate of urbanization (RU), pace of urbanization (PU), crud literacy rate (CLR), urban density (UD) and very strong with UD and CLR. But two variables, primary worker (PW) and sex ratio (SR) are found strong negative relation. Relation among the DGRUP, RU, PU, CLR and UD were positive. DGRUP was very strong positive relation with RU and UD. Pace of urbanization with DGRUP and UD was positively related. Some variables PU, PW and SR are negatively related with CLR in the district. Except SR all the variables are negatively related with percentage of primary worker. A very strong positive relation was found in between LU and UD. All the variables are negative relation with SR except PW. UD was strong positive relation amongst LU, DGRUP and RU.

VII. CONCLUSION

After discussing all part of the paper it is clear that the level of urbanization of the district is very low. Same thing examine by the Aktar and Sultana (2016) when they studied the degree of urbanization of West Bengal [13]. After the analysis of urbanization trend and level in different census it was told that the shared of urban population was very low but the rate of urbanizations was low up to 2001, after this census this rate became very high than the average of national and state. Same was found by the Ghosh and Chakma (2014) [15]. In the spatial analysis of urbanization it was found that the Para block was most forward block. Urbanization process was mainly limited in the five or six blocks. One interesting thing explored in the study that the rate of urbanization of some blocks (Raghunathpur-I & II, Balarampur, Barabazar) towns (Adra, Par Baliya, Chapari, Santaldihi Thermal Power Project Town)are negatively grown where the rate of urbanization was very high in the last census. The main causes of low rate of urbanization was most of the people depends on agriculture and very low rate of industrialization. It was examined that only Purulia town has concentrate 32.43% of the total urban population. It was clearly seen that the people try to go toward the main city of the district. From the study it is suggest that the government should take some steps for the development of small urban area or town.

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