



POPULATION DISTRIBUTION IN HURA C.D BLOCK OF PURULIA DISTRICT: A MOUZA LEVEL ANALYSIS

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Abstract: Sex ratio, population density, population growth rate and migration are the four most vital indicators of the population distribution irrespective of the area concerned. If the birth and death rates are more or less equally observed all over the area then migration plays a vital role to change the population and its distribution. People of the study area have been experiencing a gradual wave of migration from adjoining rural areas of the district and even from the other states nearer to NH314 (formerly NH60A) for better livelihood and amenities. The paper has focused deeply on the spatial distribution of population in study area. There are 111 habitable and 5 uninhabitable Mouzas are situated in the Hura C.D Block of Purulia District of which specially 5 Mouzas have been selected for case studies. The study is based on the census data of 1991-2011 population to analyze and to get real picture of the study-area. Various suitable statistical methods have been applied here to get a clear understanding. Maps and images have been taken from Google earth and have been modified by Arc GIS (10.3.1) platform to show the actual changes. The result speaks that migration play a vital role behind the population distribution of the particular area concerned to achieve better standard of living

Key words: population, spatial distribution, migration, living standard

I. INTRODUCTION

Population is defined as a group of individual of the same species living and interbreeding within a given area (Lebreton et al, 1992). Spatial distributions of population have been influenced by regional variation, migration, socio-economic, socio-cultural changes etc. (Patra et al.2019). Population changes are an important aspect all over the world irrespective of time and space. India is a second populous country in the world and usually population becomes the matter of paramount significance in all the sphere of knowledge particularly in geographical studies. Population so distribution occurs unevenly and there are various manifestations of it depending the various causes responsible for those distribution and variation. Population distribution upon also depends on economic base, economic development and population growth, migration and socio cultural base etc. (Thuku et al. 2013). Many agencies like World Bank, UNEP, UNDP and World Resource Institutes have been explored to analyze global population dynamics scenario and its impact. Population growth rate and density have been influenced by the availabilities of public health, food supply, fresh water supply, forest, biodiversity etc. (De & Dev,2015).Migration has an important role to change the population in different degree and different space and, therefore it has been occurred for better education, economic, communication, agriculture as well as better livelihood etc.(Dadush & Niebhur ,2016). Population changes also depend on death rate, birth rate, sex ratio as well as migration and, therefore population distribution has been influenced by the above mentioned factors (Patra et al.2019). People has been migrated for better livelihood to the roadside areas and to get delicious test of life and that is why migration, demographic change and population distribution have close relationship among them (Sarkar, 2017).Settlement Transformation has a key role to change population distribution (Mistri & Nandi, 2018).Population Growth is a very common scenario all over the world irrespective of time and Hura C.D Block is not different. The present study has been concentrated on spatial distribution of population in Hura C.D Block of purulia district among all 111 mouzas among which 5 mouzas have particularly been selected for more accurate analysis.The data has been collected from the district census hand book of 1991-2011. It has to mention that Indira Awas Yojana(IAY) have been adopted in 1985 to provide poor people a better housing as it is human being's nature to get a decent living standard. Major changes have been identified by population data analysis, Google earth images and field investigation has done on Lakhanpur, Phulberria, Ladhurka, Dhadkigora and Rakaera Mouzas. Population and its distribution have been reflected by settlement transformation, migration and sometimes by the Govt. Housing Schemes and other facilities (Survey 2020-2021).

Objectives:

The main objective of this paper is to find out the spatial distribution of population of Hura C.D. block.

II. DATABASE AND METHODOLOGY:

This study basically stands on secondary data. Data were collected from District Statistical Department of Purulia and also collected from Primary Census Handbook of Purulia district. These real results and maps have been produced by applying various statistical and cartographic techniques using Microsoft excel and Arc GIS 10.3.1 software.. Followings formulas have been used to fulfill the study:-

$$\text{Age-Sex Ratio} = \frac{\text{Number of Female Population}}{\text{Number of Male Population}} * 1000$$

Population Density:-

$D_p = N/A$

Where, D_p is the density of population, N is the total population as a number of people and A is the land area covered by that population.

Growth Rate:-

$$PR = \frac{(V_{Present} - V_{Past})}{V_{Past}} \times 100$$

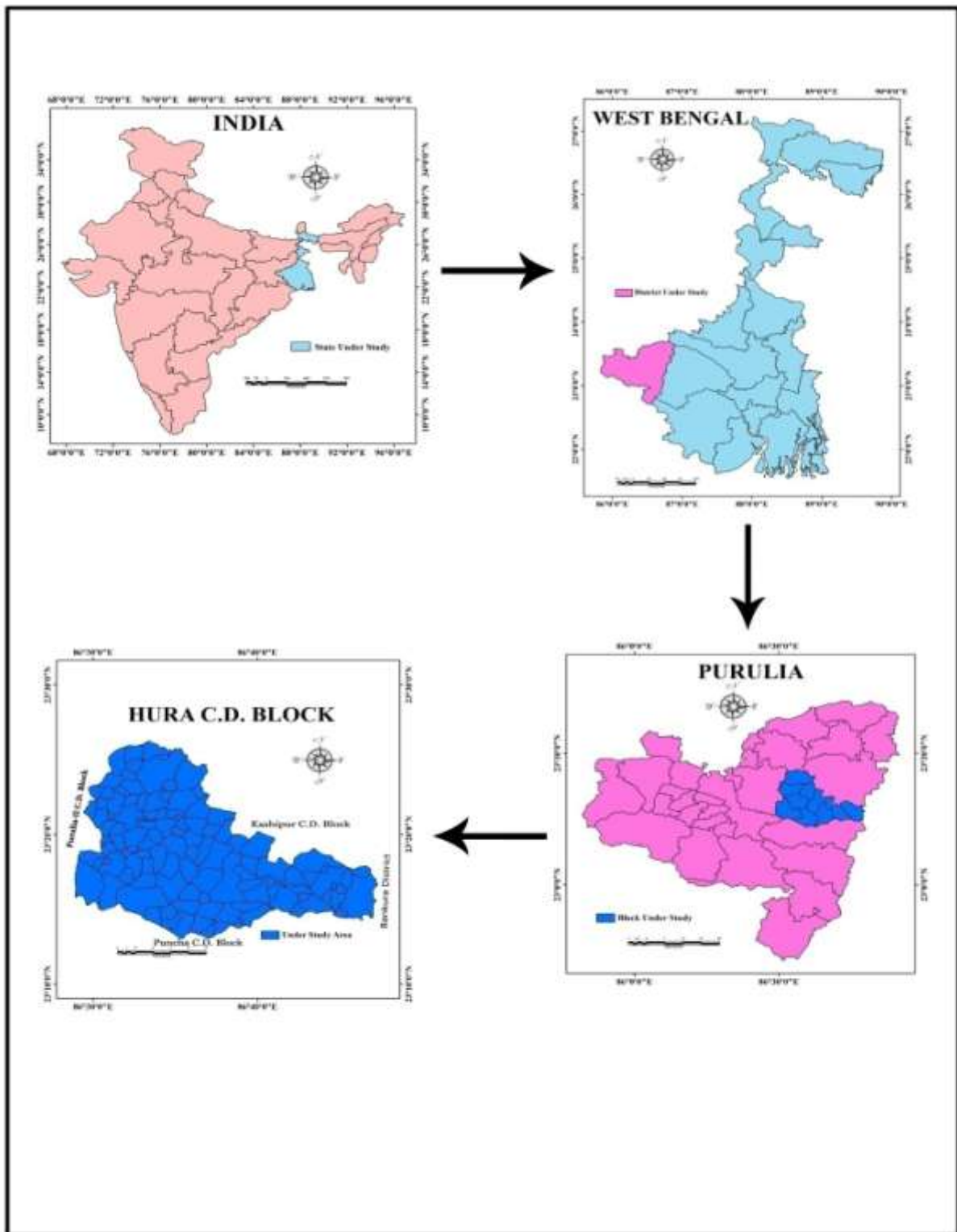
Where, PR = Percent Value.

$V_{Present}$ = Present and V_{Past} = Past or Present

Study Area: Hura is a Community Development Block that forms an administrative division in Purulia district in the India state of west Bengal. Hura is the easternmost block of Purulia District, sharing the C.D Blocks boundaries with Punch C.D Block in the south, in the northern part Para C.D Block, north eastern part Kashipur, Purulia-II in the west and in the south west part is shared by Purulia-I. Eastern part also adjoins with Bankura district. The geographical location of this study area is $23^{\circ}18' N$ and $86^{\circ}39' E$. Its average elevation is 167 m. Hura C.D Block covered an area of about 382.21 km^2 (Hunday et al 1967). This rural unit contains a Police Station, a Panchayat Samity, 10 Gram Panchayats, 107 Gram Sansads (village councils), 116 Mouzas and 111 inhabited villages..

Purulia district is an undulating hilly tract and Hura C.D Block is no different. This area is formed by granite gneiss and it is also the part of Chhotonagpur plateau. The Kangsabati River flows through the boundary between Hura and Punch C.D Block in the north. Darkeswar River originated from Tilboni hill of Hura C.D Block. Many trees are seen like Sal, Palash, Date tree, Fan palm etc. NH314 has crossed through Hura C.D Block from Purulia to Bankura.

Location map of study area



SL.NO.	NAME	SL.NO.	NAME	SL.NO.	NAME
1	Bara Panjanja	41	Nadiha	81	Kusumjuria
2	Deshra	42	Hatibari	82	Garurbasa
3	Bathandi	43	Hulung	83	Phuphundi

4	Tilabani	44	Kulabahhal	84	Bhagaband
5	Madhabpur	45	Dapang	85	Palgan
6	Parasibana	46	Sijumakhna	86	Matipur
7	Batabathan	47	Arjjunjora	87	Hura
8	Kalabani	48	Kudlung	88	Paharpur
9	Pinrra	49	Kurruduba	89	Pratappur
10	Dhagra	50	Keshargarh	90	Pakhuria
11	Bahukakata	51	Chorgali	91	Pursudadi
12	Betabahhal	52	Hatikundar	92	Nawadi
13	Bagdishha	53	Amlatara	93	Kundrudi
14	Shyamaluta	54	Kajali	94	Kaliabasa
15	Shushunia	55	Bariarpur	95	Tanginayada
16	Kharipara Alias Rangadi	56	Chatumatar	96	Dangapahari alias Dhangagara
17	Kharpora	57	Raisa	97	Kumrabad
18	Matalpara Alias Nutandi	58	Pirarlloa	98	Shamukgarya
19	Dumarshol	59	Nishchintapur	99	Kunardi
20	Shyamnagar	60	Karandi	100	Dhabani
21	Jambad	61	Dandudi	101	Chhalagara
22	Saharjuri	62	Pialsol	102	Bishpuria
23	Ladhurka	63	Sarchakalta	103	Rampur
24	Chitra	64	Baragram	104	Jorberya
25	Nimdiha	65	Chak Gopalpur	105	Dimbad
26	Modandihi	66	Rangamatya	106	Sinara
27	Jojodi	67	Ledadi	107	Majhladanga
28	Dumdumi	68	Manguralalpur	108	Rakshyara
29	Panchudi	69	Daldali	109	Dhadkigora (1991) / Phulberia (2001-2011)
30	Alakdihi	70	Manpur		
31	Jabrra	71	Kapasgora	110	Chanchhipathar
32	Gundlubari	72	Chakalta	111	Parsia
33	Punchadi	73	Madhuban		
34	Gurda	74	Hura Keshabpur		
35	Shaldiha	75	Palma		
36	Kapatkata	76	Satkalja		
37	Lakshanpur	77	Amghata		
38	Layekdi	78	Khairipihira		
39	Kulgara	79	Dholkata		
40	Dumkadi	80	Deuli		

III. RESULT AND DISCUSSION



Three decades have been taken into consideration for study purpose; those are 1991, 2001 and 2011. The study area have been classified into five zones on the basis of population and these zones are 1. Very high (>1000), 2. High (951-1000), moderate (901-950), low (851-900) and very low (<850).

Age Sex Ratio: Five zones also have been selected to analyze age- sex ratio of Hura C.D Block. The maps are represented that in 1991 age sex ratio was very highly dominated over Hura C.D Block in the northern portion and also in the southern portion. In 2001 age sex ratio is highly spread in the North West and south west portion of this C.D Block. In 2011 the North West and south portion have been increased of sex ratio. On the other hand in the south-east portion and south middle portion the value of age- sex ratio show a decreasing tendency. For Very high Zone the value has been taken >1000, in 1991 the number of mouzas were 39, in 2001 (42), in 2011 (42). The value of high Zone has been taken 951-1000 in this category in 1991 the number considered of mouzas were 37, in 2001 (34), in 2011(36). The value of moderate zone has been calculated 901-950, in 1991 the number of mouzas were (23), in 2001(20), in 2011(24). The value of low zone has been calculated 851-900, in 1991 the numbers of mouzas were (8), in 2001(11), in 2011(8). On the other hand in the value of low zone has been taken <850, in 1991 the number of mouzas were (4), in 2001(4), in 2011(4). The particular discussion speaks about the study of age- sex ratio of Hura C.D Block that the number of very high zone has increased and on the other hand the number of very low zone remains more or less stable. The major causes this changes of sex ratio and migration plays a key role to change the population dynamics & s distribution.



Population Density: Five zones have been selected to analyze the population density of Hura C.D. Block. In 1991 population this density zone was dominated in the eastern and north-eastern portion. In the north-east portion population density has been showing and moderately spread. In the south and south-west portion low to very low density is observed. Field investigation it is very clear to understand that communication and availabilities of people needs have a significant role behind this variation in different degree and space. In 2001 north-east and east portion are gradually very highly dominated by population density. The middle portion of this C.D Block also gradually increased in population density. In 2011, in the east portion and north-east portion and also in the north-west portion and south portion population density has been increased. The value of very high zone has been calculated >800 , in 1991 the number of Mouzas were (3), in considered 2001 (4), In 2011(8). High zone has been calculated 601-800, in 1991 the number of Mouzas were (7), in 2001(7), In 2011(6).The Moderate zone 401-600. In 1991the number of Mouzas were (15), in 2001(19), in 2011(27). Low zone has been calculated 201-400, in 1991 the number of Mouzas were (60), in 2001(64), in 2011(57). Very low zone has been calculated <201 in 1991 the number of Mouzas were (26), in 2001(17), in 2011(13). It is identified from population density in Hura C.D Block that some Mouzas gradually increased in population and some mouzas rapidly increased in three decade and this change been occurred for migration population growth rate. Population densities have been influenced by above mentioned factors and sometimes these changes occurred according to the inhabitants' personal choice and tastes of life.



Population Growth Rate: Five zones have been selected to study of population growth rate in Hura C.D Block during 1991-2011. The maps have represented population growth rate of Hura C.D Block. a mouza level analysis. In the east and north -western portion most of the Mouzas exhibited in the zones are very high in population growth rate. In the southern portion and western portion most of the Mouzas dominated over low and very low zones. On the other hand in 2001-2011, the maps of population growth rate have been represented that in the north-west portion and in the middle portion of this C.D Block highly dominated by very high and high to growth rate zone. In the eastern portion of this C.D Block growth rates have been slightly decreased. Very high Zone has been calculated >20 in 1991-2001 the number of Mouzas were (22), in 2001-2011(29).High zone has been calculated 10-20 in 1991-2001, the number of Mouzas were (45), in 2001-2011 (44), Moderate zone has been calculated 1-10 ,in 1991-2001 the number of Mouzas were (33), in 2001-2011 (27). Low zone has been calculated 10-(-0) in 1991-2001, the number of Mouzas were (7), in 2001-2011 (7). Very Low zone has been calculated (<-10) in 1991-2001 the number of Mouzas were (5), in 2001-2011 (4). Population growth rate has been influenced by sex ratio, population density, migration and on the other hand communication, availabilities of daily

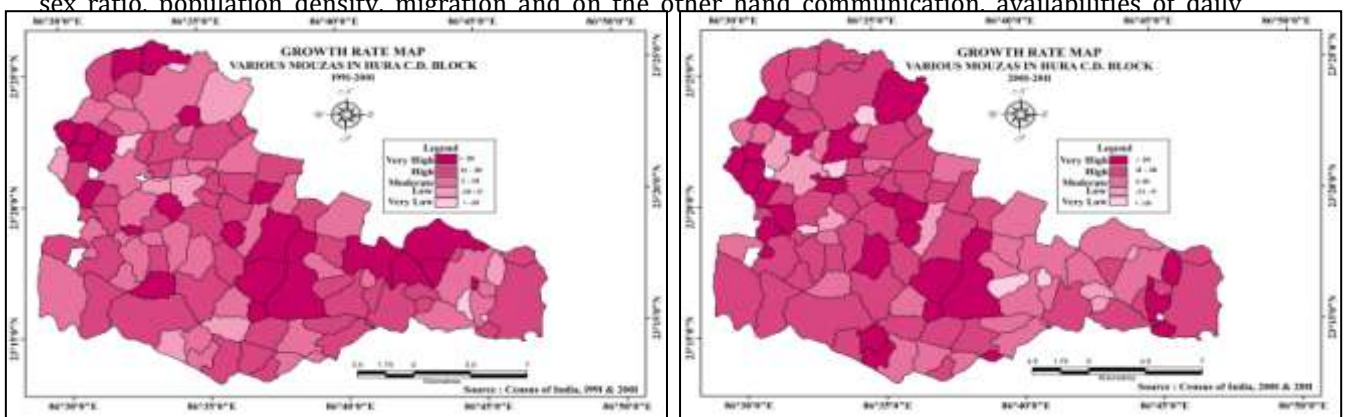


Figure-4: Decade-wise Comparison Study of Growth Rate Map of Hura C.D, Block

Through the field survey retrieved some interesting information from the study area. Population density in Dhadkigara mouza was 704 persons per sq. km. in 1991 where in 2001 the Dhadkigora mouza become zero population density. Age -sex ratio in Dhadkigora mouza was 1019 females per 1000 males in 1991 where in 2001 have not found any population. On the other hand, population density in Rakhera were 737 persons per sq. km. in 1991, 768 persons per sq. km. in 2001, 951 persons per sq. km. in 2011 and where age sex ratio were 987 females per 1000 males in 1991, 1039 females per 1000 males in 2001, 968 in 2011, where Growth rate were 4.27% during 1991-2001, **23.74% during 2001-2011**. After 1991 the total population of Dhadkigora mouza has been migrated to Rakhera mouza permanently for living. The main reasons of this permanent migration from Dhadkigora mouza to Rakhera mouza has been identified through field investigation that they have been shifted for better livelihood, communication, education and social security. On the other hand population density in Ladhurka mouza were 574persons per sq. km. in 1991, 618persons per sq. km. in 2001, 583persons per sq. km. in 2011 .Because some people had been migrate from Ladhurka mouza to phulberia mouza for living,agricultural opportunities, communication and to get a natural test of life. where age -sex ratio were 974 females per 1000 males in 1991, 943 females per 1000 males in 2001, 925 females per 1000 males in 2011 and growth rate were 7.58% during 1991-2001, **-5.71% during 2001-2011**.Here it is very interesting to note that population growth rate of Ladhurka mouza has been decreased because some people has migrated Ladhurka mouza to Dhadkigora mouza , and therefore some people has migrated outside of district for job. But the present scenario (2021) should be positive because peoples are coming nearer mouza to Ladhurka mouza for habitation, better livelihood, availabilities of infrastructure, communication (NH314). On the other hand in 2001 have been formed completely a new mouza Phulberia near Ladhurka mouza. Population density in Phulberia mouza was 39 persons per sq. km. in 2001, 22 persons per sq. km. in 2011 where age sex ratio were 1000 females per 1000 males in 2001, and **429 females per 1000 males in 2011 where growth** rate was 80.00% during 2001-2011. Most of the male child was born than female in Phulberia mouza during 2001-2011 and, therefore females have been migrated through marriage so in 2011 number of females as per males is shown very low. The present scenario of Dhadkigora mouza is seen that new house has been constructed day by day, because somepeople have migrated from Ladhurka mouza to Phulberia mouza for better living and livelihood.

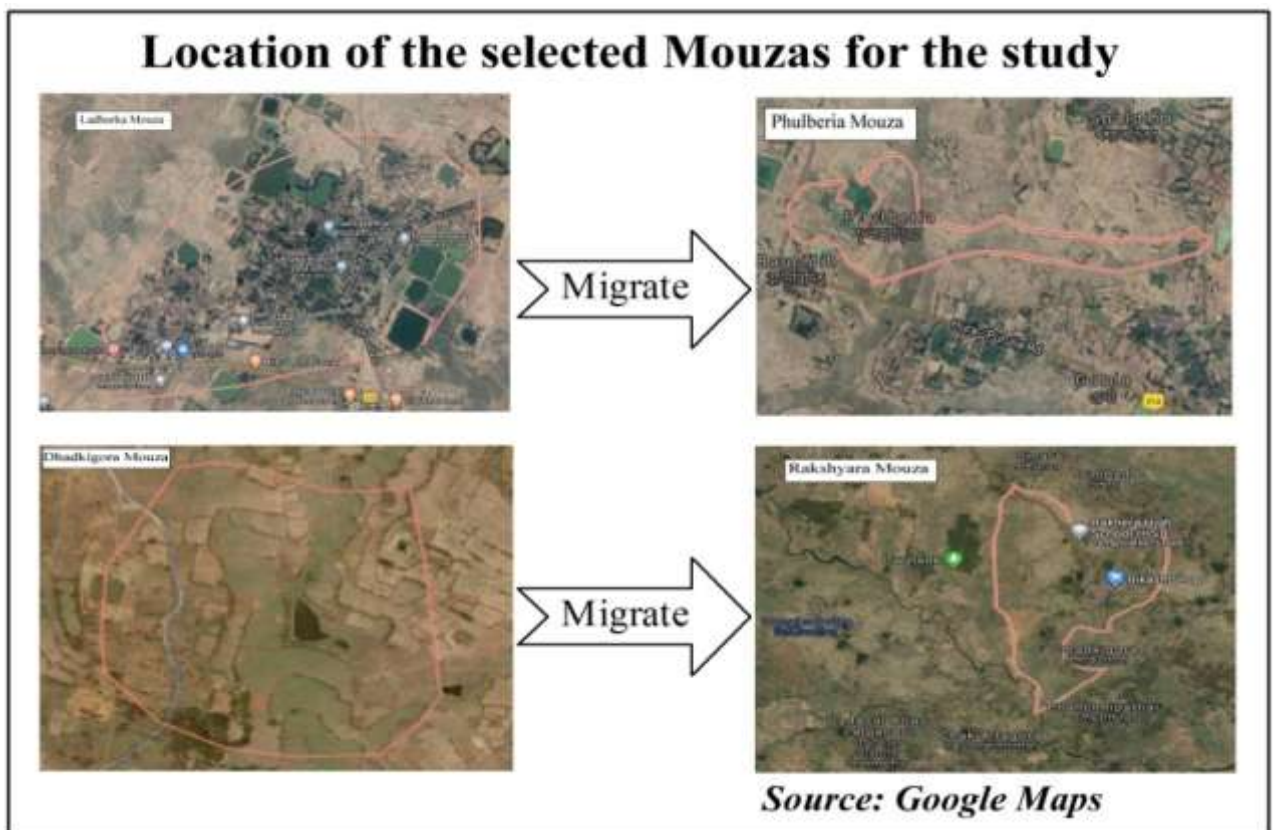


figure 5: Location of the Major changes mouzas for the study

Table-1: Population Density, Age Sex Ratio and Growth Rate of the Selected Mouzas

Name the Mouza	Population Density (Persons / sq. km.)			Age sex Ratio (females per 1000 males)			Growth Rate (%)	
	1991	2001	2011	1991	2001	2011	1991-2001	2001-2011
Dhadkigora	704	-	-	1019	-	-	-	-
Rakhera	737	768	951	987	1039	968	4.27	23.74
Lahurka	574	618	583	974	943	925	7.58	-5.71
Phulberia	-	39	22	-	1000	429	-	80.00
Lakhanpur	747	710	841	972	967	1031	-4.96	18.45

Source: Census of India, 1991, 2001 & 2011

The study on spatial distribution of population in Hura C.D Block of Purulia district speaks about the changes of population is highly reflected in most of the Mouzas where better amenities are available. This Study based on spatial distribution of population. Where population density is highly dominated there communication system has an important role. Result has been found through field visit in 2020-2021. Most of the Mouzas have not developed due to the lack of civic and economic amenities of the population. This study Speaks about population density Growth rate, sex ratio and migration have a close relationship among them. Interestingly, it is found out that in Dhadkigora mouza in 1991 total population were 105, sex ratio 1019 females per 1000 males, population density 704 persons per sq. km. But in the next decade i.e. 2001 this mouza has not found any population. After 1991 the populations have been migrated from Dhadkigora Mouza to Rakhera mouza for better livelihood, communication, education and social security. Now in the present time Dhadkigora Mouza there is no settlement. On the other hand in 2001 a new mouza found namely Phulberia where in 2001 in this mouza had total population only 18, sex ratio 429 females per 1000 males, and population density 22 persons per sq. km. The people have been shifted from Ludhurka mouza to Phulberia mouza and build up their habitation for better livelihood as well as agricultural opportunities. This new mouza has also been influenced the better transport system i.e. NH314. The decadal by growth rate during (2001-2011) has been found the same mouza 80.00%. Through the result has been found some interesting aspect, growth rate of Layekdi mouza has been found 11.3% during (1991-2001), where 48.81% growth rate has been found during 2001-2011. This mouza has been developed very rapidly because people have been migrated nearer mouzas to Layekdi mouza in the same census for living and to get better standard of life. Growth rate of Lakhanpur mouza has been found (-4.96) during 1991-2001, where growth rate has been found 18.45% in the same mouza during (2001-2011). The main reason of this major change of population growth has been found through field visit that the people have been migrated for living nearer mouza to Lakhanpur mouza for business, education, economic activity and to get higher social facilities and status. On the other hand Growth rate of Shusunia mouza has been found (-60.83) %. The main reason has been found through field investigation that most of people had died due to disease and, therefore some people migrated outside of district for job and better livelihood during 1991-2001. In the same mouza, where population growth rate has been found 229.29% during 2001-2011. The main reason has been found that birth rate highly increased in the mouza and for the modern medical science has been controlled death rate during 2001-2011. From this study it is very clear that spatial distribution of population and its variation that shows a close relationship between migration, birth rate, and settlement transformation in the form of addition and alteration due to change tastes of people and availability, facilities from the government side and sometimes better spatial of location and social position and variations.

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