A STUDY OF SPATIAL GROWTH AND DISTRIBUTION OF POPULATION

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Growth of population in an inscription of multiplying mouths from a few to many reflecting its pressure upon land. In other words it can be said that the growth or decline of population of a region during a certain period is the sum or natural replacement which has taken place plus net migration into a region during the period under study. No doubt, population growth is a dynamic equilibrium between forces of increment and forces of decrement. Thus we can calculate that the population growth is not a unitary phenomena but a combination of four major components i.e. fertility, mortality, emigration and immigration.

It is plays such an important role, then how can't we say that the growth of population is a significant aspect. Regarding the population growth of Gaya district, it may be said after the study of population statistics that in the first half of this century, it had been slightly mild or fluctuating tendency of population growth while in the latter half of this century, population of Gaya district is growing rapidly due to easy availability of innumerable facilities and removal of old dearth's.

The first census was accomplished in 1872 and since then it has been performed in every decade. The then enumeration disclosed a total population of 1949750 in Gaya district having, the average density 413 persons per square mile. The number of inhabitants recorded at the census of 1881 showed an increases of 9.1 percent. On these figures, the population was being returned at 21, 24, 682 but a large part of the increase in believed to be due to the greater accuracy of the enumeration. During the next ten years, the population was practically stationary and in 1891, it had risen only to 21, 38, 331 or 0.6 percent more than 1881. The reason for this slow growth appears to be that the district suffered severely from the ravages of persistent fever throughout the decade and the emigration increased greatly while immigration fell off. The result of the census was to show that Gaya lost nearly 1,50,000 by emigration. If the number of emigrants and immigrants is excluded, the net population show a real increase of 2.8 per cent of men and 3.0 percent for women.

This growth was not sustained and the census of 1901 showed a market decline, the number of inhabitants recorded being 20, 59, 933 or nearly 78,400 less than in 1891. This decrease was due to two causes – the outbreak of plague at the time of the census and the general unhealthiness which prevailed in the preceding ten years. In this decade conditions were on the whole unfavourable and the state of the poorer classes was unsatisfactory. During the earlier years fever was very prevalent and through its ravages were not so treat in subsequent years, the death rate was swelled by epidemics of cholera. In 1891 – 92, there was scarcity owing to the failure of the winter rice and spring crops and again in 1896-97, some distress was caused by the short cutter, which was aggravated by the high prices of food grains consequent on famine elsewhere. Beside this, the river Sakri overflowed its banks in 1896 carrying away several villages.

At the same time, the plague diseases broke out in Gaya town in October and the people of the village where plague appeared left their homes taking refuse in temporary sheds constructed sometimes near and sometimes far away from the village sitters and large numbers moved away into other districts. The census results were consequently affected in

three ways; firstly by a mortality far in excess of that indicated in the death returns, secondly by the departure to their own homes of temporary settlers from other districts and the thirdly by deaths and desertions among the census staffs and partly also by the difficulty of enumerating panic-stricken villagers, who were daily and even hourly moving from villages to escape the ravages of the decease.

The following table shows the percentage increases in Gaya district since 1901.

TABLE : 3.1

DECADAL GROWTH OF POPULATION IN PERCENTAGE

Decade	Total Pop.	Net variation	% variation
1901	2061857	-	-
1911	2161010	+ 99153	+ 4.81
1921	2152930	- 8080	- 0.37
1931	2388462	+ 235532	+ 10.14
1941	2775361	+ 386899	+ 16.20
1951	3070499	+ 295138	+ 10.63
1961	3647892	+ 577393	+ 18.80
1971	2547442	- 1100450	- 3017
1981	3134175	+ 586733	+ 23.03
1991	2664803	- 469372	- 14.98
2001	3473428	+808625	15.29
2011	4379383	+917990	10.75

The above table shows that the period ranging between 1901-21 has witnessed a lot of variation so far as decennial changes in the population of Gaya district is concerned. During the first thirty years (1901-31) nearly twelve percent increase in population was recorded but it was a period of great uncertainty because of natural calamity. The decade of 1921-31 recorded a sharp increase in the absolute percentile growth of population. The magnitude of the increase can be accessed from the facts while there was an increase\ of nearly 148, 914 of new months were added within a span of only ten year (1921-31). The ratio of increase between the two respective period was 5.8% & 12.3%.

Thus, the year 1921 was marked a turning point in the history of population growth in Gaya district. From the period, the population of the district was constantly been on marched and the various census return showed on a accelerated growth rates during subsequent decades. The period between 1921 to 1951 recorded on increases of over 46 percent with the average decennial increases being 15.3%.

In this way, the history of population growth of Gaya district can be divided into three stages which are conspicuously revealed by the various graphs displayed in the map.

STAGE – 1 (1901 TO 1921)

In 1901, the total population of Gaya district was only 2061857 that reached 2752930 in 1921. There was an increases of 4.42 per cent in twenty-one years. This growth of population was marked very much slow. In the census of 1911 an increase of 4.81 per cent was recorded in overall population. The density of population increased from 437 to 458 per square mile. It may be observed that the causes of the rise in population appear to be an increase of immigration figure, opening up of some of the mica mines, exploitation of the forest and development of some other industries helped by the spread of the railways within the district. Some of the villages were slowly urbanized. The district was rather unlucky in the decade 1911-1921. As there was a series of natural calamities like the outbreaks of plague, cholera and influenza. There was scarcity in 1917 and epidemics of cholera in 1917 and 1918. Plague claimed a big mortality in 1918 followed by a raging influenza epidemic which was more severe in nature in this district than in any other district of Bihar excepting Muzaffarpur in that very year. These are some of the important reasons which account for the decrease in the population as recorded in the census of 1921. In this censual year, the decreases of population works out at 0.38 per cent. There was a perceptible decrease in female population and this is due to the usual feature of women being more affected by the epidemics.

Thus was seeing that the period was characterized by high birth and death rates consequent upon a series of several natural calamities. A series of crop failures induces excess of emigration over immigration which was accelerated by the opening of new lines of communication railway and roadways.

STAGE – II (1921-51)

The population figure rose for 2152930 in 1921 census to 3070499 in 1951. During this period of thirty years, 917569 persons increased accounting 42.62 percent growth. In the very first decade (1921-31), the increase in the male population outweighed the increase in the female population by 2418. During the decade of 1931-41 the population showed a further increase of 16.20 per cent. In this decade, the decline in the female population was made up and the increase in female population was 193783 as against the increase in male population of 193116. There was more pressure on land and the density increased from 501 to 589 per square mile. Apparently, the rate of normal acceleration was resumed and the incidence of immigration had received an encouragement. In the decade of 1941-51 there was an increase in the population but percentage rate of increase fell by nearly 6 per cent.

Thus, in the second stage. We see that there is an intensity of steep rise in the percentage graph and is not reflected with the same degree of intensity in the corresponding normal and logarithmic graph which shows a trend of sustained increases. This trend is corroborated with the socio-economic phenomena of Gaya district. The control of disease and epidemic due to extensive health measures drastically reduced the rates from 44.59 percent to 26 per cent while the birth rates remained almost the same 42.8 per cent. This period was the period of overall agricultural prosperity mainly due to the improvement in irrigation, increases in transport mobility and decrease in the frequency of droughts and floods. Although, the process of migration continued but it was neither wide sphere nor significant enough to cause substantial drain in population.

STAGE III (1951 TO 1991)

The population figure declined from 3070499 in 1951 to 2664803 in 1991 showing a decline of 405696 persons accounting 13.21 percent decrease of population.

During this period of forty years, no sign of natural calamities may be seen. If we mark the regional population in Gaya district, it presents a clear-cut picture that in each revenue as of Gaya district, there appeared the consistent growth in the population. But only two censual years i.e. 1971 and 1981 show that there became a decrease in the population. But this decrease of population is only due to the division of the district. Before 1971. A Gaya district was disintegrated into three districts. Eastern part of Gaya district was declared as Nawadah district while the western part of Gaya district was declared as Aurangabad district. Due to the disintegration of Gaya district, the population in 1971 decreased about 30 percent. Similar case appeared before 1991 census when Jahanabad subdivision was also declared as new district and population of Gaya district decreased by about 15 per cent. Except these two censual years, population always went on increasing. About 14 percent increases was seen in 1961 census over the population in 1951. And 1998 about 23 per cent increase was recorded in the census statistics. But when Jahanabad district was carved out of the Gaya district about 15 per cent decrease in population was recorded.

Again the process of decrease in the mortality rates continued further with on marked fall in birth rates. Rather high growth rates in the preceding stage brought the fairly high proportion of potential producer in the filed of human production. This factor alone was largely responsible for demographic revolution during the third stage of population in Gaya district. Thus growth map of population in Gaya district represents that growth rate in earlier period of the century was very low or sometimes decreased but after 1921 no decrease except divisional point of the district may be marked.

TABLE : 3.2

DECADAL GROWTH OF POPULATION IN SOME BLOCK

Decade	Gaya to won R.T.	Gaya Mufassil	Sherghati	Tikari	Branchatti	Atri
1901	30712	237637	160828	130867	111360	80307
1911	32646	244600	170115	135053	115748	88684
1921	36132	240813	155574	143030	120419	96353
1931	40599	270666	175130	161399	135333	108266
1941	47238	330667	204440	188952	157460	116968
1951	52813	369738	228845	210279	176066	140352
1961	60212	441407	343387	242982	202125	165212
1971	70414	533761	367151	295566	265219	193472
1981	97713	659659	464483	368484	315792	229294

Note : The population growth has been shown since 1901 of only those revenue thanas that belong to the present Gaya district.

TABLE : 3.3

DECADAL GROWTH OF POPULATION IN DIFFERENT BLOCKS

Decade	Gaya to won R.T.	Gaya Mufassil	Sherghati	Tikari	Branchatti	Atri
1901	-	-	-	-	-	-
1911	6.30	2.93	5.77	3.2	3.94	10.43
1921	10.68	- 1.55	- 8.55	5.51	4.04	8.65
1931	12.36	12.40	12.57	12.84	12.39	12.36
1941	16.35	22.17	16.74	17.07	16.35	8.04
1951	11.80	11.82	11.94	11.29	11.82	19.99
1961	14.01	19.38	50.05	15.55	14.80	17.71
1971	16.94	20.92	6.92	21.64	31.22	17.11
1981	38.77	23.59	26.51	24.67	19.07	18.52

The above mentioned table shows the spatial growth of population in different revenue thanas of Gaya district since 1901 to 1981. As the early date are available revenue thana were easily, therefore, the first attempt in describing the spatial growth of population in Gaya district has been performed. But the recent spatial growth of population is being described on block-wise spatial growth of population in Gaya district.

In the present Gaya district only six revenue thanas are still existing while other revenue thanas sprang up into separate new districts consequently in spatial growth of population those revenue thanas have been excluded. In the above table only two revenue thanas show a decline the population in 1921 while other four revenue thanas shows a slight growth of population in 1921. In Gaya Muffasil and Sherghati revenue thanas population decreased by 1.55 percent and 8.55 percent respectively in 1921 over latter decade while there became an increase of total population in Gaya town revenue thana in 1921 by 10.68 per cent, in Tikari revenue thana by 5.51 per cent, in Barachatti by 4.04 percent and in Atri revenue thana, the total population increased by 8.65 per cent in 1921. In1911 there was an increase of population in each revenue thana representing the highest in Atri revenue than i.e. 10.40 per cent while6.30 percent,5.77 per cent, 3.94 percent, 3.2 per cent and 2.93 per cent increase in population was recorded in Gaya town, Sherghati Barachatti, Tikari and Gaya Muffasil revenue thanas respectively. After 1921, no sign of decrease in total population is marked in any revenue thana while the total population of the district decreased due to creation of new districts like Nawada and Aurangabad in 1981 census record and due to creation of Jahanabad district in 1991 census record.

No doubt, tendency of growth has always been fluctuating in each of the revenue thana. In 1931 population of each revenue thana increased by nearly 12 percent. But in 1941 census population of each revenue thana except Atri increased by more than 12 percent. In Gaya Muffasil, population increased 22.17 per cent while 17 percent in Tikari and 16 per cent in Sherghati, Gaya town and Barachatti revenue thana. But on the other hand, population increased only 8.04 percent in Atri revenue thana against 12.36 percent in 1931. In

1951 population in each revenue thana increased only 11 percent except 20 percent in Atri. The growth curve of population of each revenue thana bent downward except in Atri. In 1961, population of each revenue thana increased by not less than 14 percent while record increased of population was experienced in Sherghati. In 1971, the population of each revenue thana increased by not less than 17 percent increase in total population was recorded over the population of previous year. And in 1981 trend of population growth again went upward except in Barachatti where population increased 19.07 percent again 31.22 percent in 1971 district for 1971 have been recast. The percentage increase in the population of the district and its development blocks have been presented in the table mentioned above.

The table represents that there became an increase by 24.62 per cent in the total population of the present Gaya district. The highest percentage growth of total population may be marked in Gaya town C.D. block. There became an increase 37.81 percent in 1981 over the total population of Gaya Town Community Development Block in 1971. Next to Gaya town, there became the second highest growth in total population of block. Here in this block, 30.47 percent increase was marked over the total population in 1981 over the population in 1971. In this regard, Gurua block stands third where there became an increase of 28.94 percent in 1981 over the population in 1971. Similarly, there are other eleven blocks where there became an increase by more than twenty percent over the population in 1971 where there are only four states like Konch, Atri, Wazirganj and Paraiya where population growth stood below twenty percent. The lowest population growth among them had been experience in Paraiya block where there became in increase by only 14.17 percent in 1981 over the population in 1971. Next to Paraiya block, Atri block stands second where only 16.32 percent growth was experienced in 1981 over the population in 1971. Similarly Konch and Wazirganj stand third and fourth in this regard where population growth remained 17.71 percent and 19.39 percent respectively over the population in 1971.

In 1991 census the population growth became more in respect of the previous decade in most of the blocks while the total population of Gaya district increased by only 23.92 percent over the total population was recorded in Mohanpur block where there

TABLE : 3.4

BLOCKWISE GROWTH OF POPULATION 1981-91

Name of Blocks	% growth 1981	% growth 1991
Konch	+17.71	+26.37
Tikari	+21.92	+19.21
Belaganj	+21.96	+20.79
Khijirsarai	+21.97	+20.82
Atri	+16.32	+20.17
Wazirganj	+19.39	+21.82
Manpur	+25.07	+24.83
Gaya town	+37.81	+19.82
Paraiya	+14.17	+22.88
Bodh Gaya	+26.91	+29.69

Fatehpur	+23.08	29.91
Mohanpur	+23.38	+29.91
Barachatti	+25.25	+27.95
Sherghati	+26.35	+26.73
Gurua	+28.94	+23.37
Amas	+30.47	+29.71
Imamganj	+22.36	+27.40
Dumaria	+24.85	+28.07
District	+24.62	+23.92

Source : District Census Handbook. 1991, and Primary Census Abstract 2011.

The above mentioned table represents the block-wise growth of population in Gaya district since 1981 census. But with the exclusion of certain parts to from the new districts of Nawada and Aurangabad after 1981 and for the sake of comparability of date with 1981 census data the figures of Gaya became an 29.91 percent increase over the total population of the block in 1981 and nextly followed by Amas where there became an 29.71 percent growth of population in 1991 over the previous censal year. Bodh Gaya stands third in this regard where there became an 29.69 percent growth in 1991. The lowest growth of populationwas recorded in Tikari block in 1991 where there became 19.21 percent increased followed by Gaya town block where there became 19.82 percent increase of population in 1991 over the population in 1981. In Gaya district, there are only two block where population growth was recorded below twenty percent in 1991. Those two blocks are Tikari and Gaya town. In other sixteen blocks, the population growth was higher than twenty percent.

DISTRIBUTION AND BENSITY OF POPULATION

As the population is the only self mobile resource, therefore the population study of a region is quite essential for the proper study of landuse. The distribution and density of population affect the landuse and its pattern of a region upto a great extent. This is why the landuse by educated, scientifically developed and cultured population differs from that a illiterate, uneducated, backward and uncultured population.

A delicate difference is marked between the terms distribution and density of population. The term "distribution of population" in geography refers to the placing of people in different regions while the density of population is the number of persons in per unit of area.

The total population of Gaya district is 2664803 as according to 1991. While the total area of the district is 4976 square kilometers.

The distribution of population is always governed by the site of settlement. The population is not uniformly distributed all over the region. There are nuclei of human agglomeration. The population tends to be concentrated in patches all long the marginal upland in a region. Satellite patches of population are also found in case of big villages which are mostly inhabited by the low caste people. They work as labourers on farms but in case of a few villages which do not reach upto a marginal upland, the settlement is found on the higher parts.

It has been the general case that physical factors control the distribution and density of population. The fertile region generally attracts higher concentration of population while a hilly or unfertile region repeals the concentration of population. Rainfall. Forest, soil and other economic social and cultural factors jointly determine the distribution and density of population of a region.

The following table show the block wise distribution of population in Gaya district.

TABLE : 3.5

BLOCKWISE DISTRIBUTION OF POPULATION 1991-2011

Name of Blocks	Total area in sq. km.	Percentage of area distribution	Total population	Percentage distribution of population	% of blockwise urban population
Konch	298.87	6.05	144473	5.42	-
Tikari	234.96	4.76	168751	6.33	+114202 (8.42%)
Belaganj	197.95	4.00	136018	5.10	-
Khijirsarai	184.56	3.74	111430	4.18	-
Atri	396.13	8.02	164750	6.18	-
Wazirganj	359.45	7.28	179202	6.72	-
Manpur	124.23	2.51	84667	3.18	-
Gaya town	188.50	3.82	413325	15.51	294427 (71.23%)
Paraiya	263.60	5.34	129366	4.85	-
Bodh Gaya	249.84	5.06	138610	5.20	21692 (15.65%)
Fatehpur	392.28	7.94	164058	6.16	-
Mohanpur	343.09	6.94	122319	4.59	-
Barachatti	369.93	7.49	117628	4.41	-
Sherghati	247.28	5.00	145043	5.44	25574 (17.63%)
Gurua	189.41	3.81	109547	4.12	-
Amas	263.16	5.33	125201	4.70	-
Imamganj	316.63	6.41	132705	4.98	-
Dumaria	320.98	6.50	77710	2.93	-
District	4976	100%	2664803	100%	355895

Source : Primary Census Abstract, Gaya Dist.

The above mentioned table shows the present block-wise distribution of population in Gaya district. The distribution is based upon the published statistics in Primary Census Abstract, 1991. It reveals that there is somewhat even distribution of population in different blocks of Gaya district. Slight difference may be seen in the above mentioned statistics. The highest concentration is found in Gaya town block. The population of Gaya town block. The population of Gaya town block is 413325 accounting 15.51 percent to the total population of Gaya district but the area of Gaya town block is only 3.82 per cent to the total geographical area of Gaya district. On the other hand, the lowest concentration of population is found in Dumaria block. The total population of Dumaria block is 77710 that stands only 2.93 percent of the total population of Gaya district while the total area of Dumaria block is 320.98 square kilometers that stands 6.5 percent to the total geographical area of Gaya district. The second highest concentration of population is found in Wazirganj block. In this block the total population is 179202 that stands 6.72 percent to the total population of the Gaya district, while the total area of Wzirganj block accounts 7.28 percent to the total geographical area of Gaya district. The percentage of total population of other blocks in Gaya district ranges from 6.72 percent to 3.18 percent to the total population of Gaya district as expressed in the aforesaid table. The distribution of area is also somewhat similar. The biggest area is 396.13 square kilometers in Atri block that stands 8.02 percent to the total geographical area of Gay district. The smallest area is 124.23 square kilometers in Manpur block that stands only 2.51 per cent to the total geographical area of Gaya district. Between the mentioned highest and lowest area of other blocks of Gaya district ranges from 7.94 per cent to 3.74 as mentioned in the aforesaid table.

There is a considerable gap in the distribution of rural-urban population in different blocks of Gaya district. Out of the eighteen blocks, urban population is found only in four blocks i.e. in Gaya town, Bodh Gaya, Tikari and Sherghati. 71.23 per cent population of Gaya town block lives in urban area of Gaya town while only 28.77 percent population resides in rural areas of Gaya town block. 17.63 percent population in Sherghati block live in urban area of Sherghati and 82.37 percent population reside in rural areas. 15.65 percent population of the block live in Bodh Gaya town and 84.35 percent population live in rural areas of Bodh Gaya block. 8.42 percent population of the block live in Tikari town and 91.58 percent population of Tikari block reside in its rural areas. Rest blocks like Konch, Belaganj, Khijirsarai, Atri, Wazirganj, Manpur, Paraiya, Fatehpur, Mohanpur, Barachatti, Gurua, Amas, Imamganj and Dumaria have no urban population. Total of these aforesaid fourteen blocks reside in rural areas only.

FACTORS AFFECTING DISTRIBUTION OF POPULATION :

Heavy population concentration come about from a combination of favourable physical factors. The physical factors which affect the distribution of population in Gaya district are relief, climate, soil, rainfall etc.

1. LAND FORM :

Population distribution of Gaya district is mainly guided by landforms. Figure pertaining the land forms of the district expresses the fact that the concentration of population is higher, where there is low land plain area, but on the higher relief and rugged topography, there is less concentration of population. Thus, there is a closed relation between relief and distribution of population. The southern hilly area of the district, this is why, attracts the low concentration of population because of the it is diversified topography. Such land formed a poor capability makes the study of settlement and inhabitants picturesquely interesting. If we compare the population and relief, it becomes obvious that roughly 85% of population of the

Gaya district is confined in plain area and only 15% population is found in hilly area in Sherghati, Dumaria, Imamganj, Amas, Barachatti, Mohanpur, Fatehpur, Atari, Gurua etc. block. The population in this way is concentrated in low region of the district. The greater percentage lines in northern plain region and the rest lies in southern hilly areas. In general the greater relief is the supporting capability of the village cultivation and the greater necessity of the subsidiary occupation. Thus the population on higher land miserably earns its subsidiary income. They also work as wood cutters grass cutters and Charcot burners.

2. FOREST :

The distribution of population is spare as the forests are generally inaccessible owning to the absence of roads. Extensive forest areas are reserved and protected and not open for settlement. The surface is hard and is difficult to plough. Wild animals make lives unsecured. Flow ever against this negative conditions some positiveness may occur. As for example there are some pockets within forested areas which have rich soils with humus and other organic matters. Though this can support only a scattered population. The collection of lac making of shellac, making of ropes and baskets from grasses etc. are their side occupations. It provides an additional income in many forest villages. In this way we come to this conclusion that forest influences greatly the distribution of population. The concentration of population is more in the deforested area Sherghati, Imamganj, Barachatti etc. On the other hand it is sparsely distributed in Gurpa, Paharpur southern part of Dumaria and Imamganj blocks, etc.

3. SOILS :

Soil also plays an important role in population distribution in the district. Thickness and fertility of soils guide the crop pattern and ultimately the distribution of population. In the area of fertile lands there becomes concentration of population as we find in areas beside river of Morhar and Phalgu etc. Due to levee soil, the fertile for agriculture attract the human concentration whereas on the other hand white and rehra soil, mountain scrap soil are the area of sphere concentration population. Thus we find that soil has also influenced greatly the settlement of population.

4. AVAILABILITY OF WATER :

Water supply is also a major consideration in the distribution of population. They generally dwell near the streams but its closeness is avoided due to the inundation. It is evident from the fact that there is higher concentration of population along the area where underground water is available in a depth that provide, facilities of water, the most essential for people. Thus, people establish their life on only those places where water by an means is easily available.

ECONOMIC FACTORS :

Economic factors are usually responsible for the distribution of population in the district. It is obvious that the distribution of population is greatly influenced by the intensity of cultivation. The lower percentage of total sown area is only 18.67%. Hence the population is sparse. Agriculture governs the distribution of population, where the agriculture prosperity is high, the population density is also high. This is because density of population is higher in Gaya, Tikari etc. revenue thanas.

The population is also concentrated in some pAtricular areas where industries either on large scale or in small scale have developed. It is a notable feature that in town where industrial activities have been developed the concentration of population is very high.

The chief industrial centres are Gaya, Atri, etc. which have a good share of population because different industrial have attracted a large number of people to get employment.

TRANSPORTATION FACILITIES :

Transportation facilities also play an important role in attracting the population. It has been said that "Higher the transportation facilities higher the population concentration and lower the population facilities lower the human concentration".

If we see over the district of Gaya or any other region of the world, we shall find that this quotation applies everywhere. This is why, Gaya, the central place of the district where railways and roadways coming from several directions coverage, is highly populated centre of the district. Gaya is linked with Calcutta, Delhi, Ranchi, Dhanbad, Mughalsarai by railways and roadways spread towards all directions just like rays from the sun. This is why, Gaya is the centre of the highest population concentration in the district, Sherghati town, Tikari etc. are the centres of higher concentration of population.

Marketing facilities are also an important factor in determining the pattern of population distribution. The higher agglomeration of people in Dobhi, Wazirganj, Tikari, Bodh Gaya, etc. is specially due to better marketing facilities. This is because people can sell their agricultural products and craft goods at a good profit. They can also purchase their essentials at a reasonable price. As against this a fewer market centres in Manpur, Tehta, Bela,Nadaul etc. are responsible for poor concentration of people.

CULTURAL FACTORS :

Generally, all of the tourist centres attract population concentration on cultural base. It is true in respect of Gaya district that cultural factors sometimes become more important than physical and economic factors. Tourist centre like Bodh Gaya is a burning example of being a centre of higher population concentration. Specially due to Buddhist moastries, people from Japan, Thailand, Burma, Hong-Kong etc. Countries come on certain occasions. Some of the foreigners have settled their life in Bodh Gaya. The place where Magadh University is situated at present had been a barren land before the establishment of the institution. But today, two thousand students study and about five hundred teaching and nonteaching staff work together every day.

The tendency of rich people is the they are unable to tolerate the living conditions in villages. So, they, of course migrate to nearby town in the district.

DENSITY OF POPULATION :

The term 'Density of Population' refers to a ratio between population and land area. Thus, it is a measure of the degree of population concentration and is generally expressed in terms of number of persons per unit of area. The numerator in such a calculation is population while the denominator is area. In the true sense of the terms density of the population is the most significant index of habitability of an area. It is a way of approaching the question for where population is located. The most familiar ratio is the main land ratio that is population per unit area. Such a statement expresses a relationship known as density of population. Variation in density of population is also the result of various physical factors. Generally the area of low population density occurs in the area of higher relief, broken terrain, poor water supply and large forest belts.

The real pressure of population in the district cannot be measured from general distribution of population because of the presence of the negative area. The total or arithmetic density is also not some value geographically and in reality provides only superficial

representation of the real pressure of population resource base. The concept of population density is generally expressed in terms of areal expansion and the ratio of resources available in a region for human living. This ratio shows the density of population. It can be estimated in a number of ways like (a) General Density (b) Rural density (c) Agricultural density and (d) Physiological density.

GENERAL OR CRUDE DENSITY :

General density or crude density or arithmetic density is one that represents the average number of people per sq. Km. or square mile after calculating the total population divided by total area of a region. It is also known as man land ratio. A formula that is applied to extract the crude density is as follows :

Total population

Total area

OR – General density of Gaya district = 2664803

4976

= 535.53

The density of population is a dynamic phenomenon which varies from time to time. The density of population as it was recorded in various census express the increase and decrease in the density of population. The density of early dated i.e. before 1872 cannot be traced out because of the inadequacy of the records but here. It is being described the density of population of Gaya district only with the census record in 1901. The density of population since 1901, is as follow :

TABLE : 3.6

DECADEWISE GENERAL DENSITY

Year	General density/sq. km.	Year	General density/sq. Km.
1901	174	1951	270
1911	185	1961	319
1921	185	1971	391
1931	207	1981	482
1941	241	1991	536

General density of the population or the district is always on increase except 1921. In 1921 the general density of population was recorded on decrease. It was due to starvation caused by famine and epidemic in the proceeding decades. Natural growth combined with emigration is responsible for this trend.

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