ISSN: 2278-4632
Vol-10 Issue-6 No. 6 June 2020

"GEOGRAPHICAL ANALYSIS OF PHYSIOLOGICAL DENSITY PATTERN: A CASE STUDY IN AHMEDNAGAR DISTRICT"

Dr. S.Y.Narke
JamkhedMahavidyalaya, Jamkhed
Affiliated to SPP University, Pune
Email- drsunilnarke@gmail.com

Abstract:

The analysis of density of population is fundamental for understanding the population geography of any area. A significantly wider regional variation in the pattern of physiological density is revealed at tahsil level. Land is the basic of all the resources endowed by the nature upon man. The relationship between man and land is also dynamic and complex as the change in one automatically influences the other. The decadal growth of population in the study region was the increase their pressure on the arable land. In order to understand the pressure of population on the arable land, Physiological density is taken into consideration. It defines the number of persons per unit area of arable land. Physiological density helps us to know about the region's food producing capacity and the human pressure on it. It enables a geographer to know about the relationship between population and land resource. Higher the physiological density, higher would be the pressure on land. As the Population of the study region is increasing and the land resource is shrinking day by day, under such a situation, it is the need of the time to have proper planning and utilization of the land resource. The given paper aims to investigate the relationship of arable land and population, production of major food grains and to identify the changing pattern of physiological density of theAhmednagar district in order to have better planning for the development of the study region.

Key Word: Nutritional or physiological density of population, trend of populationphysiologicaldensity.

Introduction:

Land resource plays a very crucial role in the development of any region or a country. In a developing country like India, Agriculture plays a determinant role as most of the country's population still engaged in this sector. Nearly 60% of Indian population is dependent agriculture and allied activity. There is a great regional disparity in India. Some regions have sufficient production to support the existing demand but on the other hand there are also some of the regions

ISSN: 2278-4632
Vol-10 Issue-6 No. 6 June 2020

which depend upon the production of other region. The population is increasing at a very fast rate which results ademand of land for their settlement and other infrastructural development causes diversion of agricultural land. This has a very negative impact onagricultural land as it leads to shrinkage of fertile land. Population growthhas put a great pressure on the arable land resource for its intensiveutilization because arable land area in the study region is limited due of itsmorphological structure. This leadsto decreaseof landman ratio. The physiological density of the study region is very high, Higher the physiological density means higher would be the pressure on land resource. The per capita availability of land in India is higher than the study area.It is one of the most crucial problems in the region as it leads to increase of pressure of population on arable landIt gives the magnitude of man related health, trade and socio-economic development. In short it indicates possibilities of development. If density of population is more than what the natural resources of the region can support, then such a situation encourage migration? This view in mind density of population studied in the Ahmednagar district.

Study area:

Ahmednagar district is generally central position in Maharashtra lying between 18º 10' and 20º 00' North latitudes and 73º 30' and 75 º 37' East longitudes. The district is irregular in shape and resembles a slanting cross with a length of 200kms and a breadth of 210kms. While the area of the district accounts for 5.5 percent of the total area of the state, the district population constitutes 4.2 percent of the total population of the state (2011). Among the 35 districts of the state, the district rank first in terms of area, sixth in terms of population. The district is a part of western plateau with protruded hills, the micro level division of Deccan plateau. The district as a whole is an elevated tableland which has denuded by the Godavari and Bhima rivers basin. It is predominantly an agricultural district with about 70 percent of its population living in rural area and depends upon agriculture and allied activities.

Objective:

i)To understand the physiological or nutritional density of population in the district.

ii) To find out the decade variation of density pattern.

Source of data and methodology:

ISSN: 2278-4632
Vol-10 Issue-6 No. 6 June 2020

Geography is a science based on empirical studies which require data collection for various sources. Thus to fulfill the objectives outlined above the data source related to the study area secondary in nature. Secondary source of obtained from census of India publication of Ahmedngar district.

The data collected from different sources has been tabulated and processed through statistical techniques. Quantitative methods and technique are used to convert the data. These methods are useful for the analysis. The final result of the statistical methods and important finding has been presented through the graphs using various cartographic techniques for the quality of work.

Discussion and result:

Densities are also calculated for cultivable areas, and are knownin France as physiological densities. They are preferable to crude densities for a country, but they must be used judiciously, as land which is not cultivable is not necessarily unproductive. More meaning densities are has been obtained by relating size of population to the amount of agricultural land. Physiological density is a ratio between total population and total cultivated land area and is expressed in terms of persons per sq. km. of cultivated land. By excluding the uncultivated land an attempted has been made to arrive at a better man-land ratio. (Chandana 2006) Physiological

Table: Nutritional Density of population in Ahmednagar district (1971 to 2011)

Sr. No	Name of Tahsil	1971	1981	1991	2001	2011
1	Akole	155	197	251	280	307
2	Sangamner	179	215	311	384	437
3	Kopargaon	264	254	266	367	488
4	Rahata	-	-	-	457	557
5	Shrirampur	322	314	355	353	629
6	Newasa	136	188	264	286	306
7	Shevgaon	138	140	199	242	278
8	Pathardi	150	157	173	205	266
9	Nagar	138	161	233	229	571
10	Rahuri	246	231	328	371	472
11	Parner	116	130	158	179	193
12	Shrigonda	126	143	198	233	279

ISSN: 2278-4632
Vol-10 Issue-6 No. 6 June 2020

13	Karjat	118	135	153	191	218
14	Jamkhed	117	121	154	174	210
15	Total District	162	176	234	280	340

Source: *Computed by researcher.*

density substitutes arable land for total area in the man-land ratio. It omits the unproductive land from consideration. Physiological density takes into account from consideration (Ghosh 1985).Table No. 3. 10 show the pattern of physiological density of population in the study region, registered increasing trend, it was 162 in 1971 and 340 in 2011 of the district. It has been continuously increased during every decade. The study region has been grouped into four categories according to physiological density, they were very high physiological population density, high physiological population density moderate physiological population density and low physiological population density.

A) LOW PHYSIOLOGICAL DENSITY OF POPULATION (<200 persons per sq. Km.):

Table shows the low physiological density of population. According to 1971, 10 tahsils included into low physiological density of population, these were Akole (155), Sangamner (179), Newasa (136), Shevgaon (138), Pathardi (150), Nagar (138), Parner (118) Shrigonda (126), Karjat (118) and Jamkhedtahsils (117) persons per sq. km. During 1981, Akole (197), Newasa (1188), Shevgaon (140), Pathardi (157), Nagar (161), Parner (130) Shrigonda (143), Karjat (135) and Jamkhedtahsils (121) persons per sq include, these were include into low density category during 1981. But, Sanganmertahsil moved up into moderate density category. During 1991, six tahsils fall into this category; these were Shevgaon (199), Pathardi (173), Parner (158) Shrigonda (198), Karjat (153) and Jamkhedtahsils (154) persons per sq. Tahsils of Parner (179), Karjat (191) and Jamkhed (144) persons per sq include, these three tahsils include into low density category during 2001. After 2001, except Parner (177), all tahsils of district moved up into moderate, high and very high category.

According to the total population of the study region Shevgaon, Pathardi, Karjat and Jamkhedtahsil belongs to the low physiological density category into nearly four decades. These tahsils having unproductive soil, dry farming and lack of industry as well resources, resulted low density of population.

b) MODERATE PHYSIOLOGICAL DENSITY OF POPULATION (201 TO 250 persons per sq. km.):

ISSN: 2278-4632
Vol-10 Issue-6 No. 6 June 2020

Table shows the moderate physiological density of population. According to 1971, only Rahuri (246) persons per sq. km., was included into moderate density category. Tahsil included into low physiological density of population, these were Sangamner (215) and Rahuri (231) persons per sq. km. during 1981. After 1981, these were tahsil moved up into high density category. During 2001, tahsil of Shevgaon (242), Pathardi (205), Nagar (229) and Shrigonda (233) persons per sq. km.was included into moderate density category. During 2011, only two tahsils like Karjat (218) and Jamkhed (210) tahsils persons per sq. km. included into moderate density category. Less availability of employment resulted in moderate physiological density.

c) HIGH PHYSIOLOGICAL DENSITY OF POPULATION (251 TO 300 persons per sq.km):

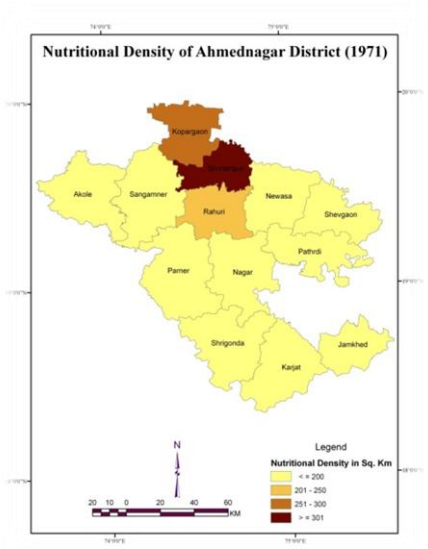
Table shows the high physiological density of population.According to 1971 and 1981 census, only Kopergaontahsil was 264 and 254 persons per sq. km. respectively included in this group. In 1991 census, number of tahsils has increased in this group; these were Akole (251), Kopergaon (266) and Newasa (264) persons per sq. km. In 2001, Akole (280) and Newasa (286) these two tahsils has included in this group. But in 2011 census, in this group another three tahsils have included like Shevegaon (278), Pathardi (266), and Shrigonda (279) persons per sq. km.

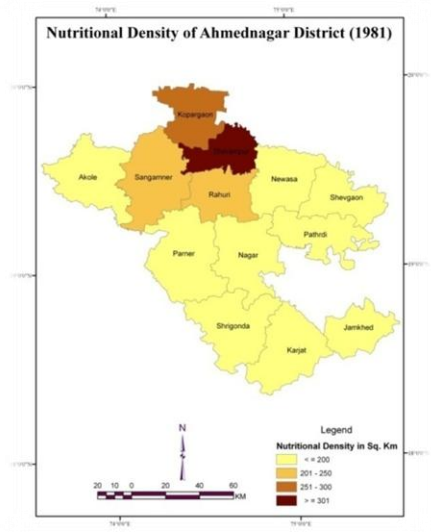
d) VERY HIGH PHYSIOLOGICAL DENSITY OF POPULATION (> 301 persons per sq. km.):

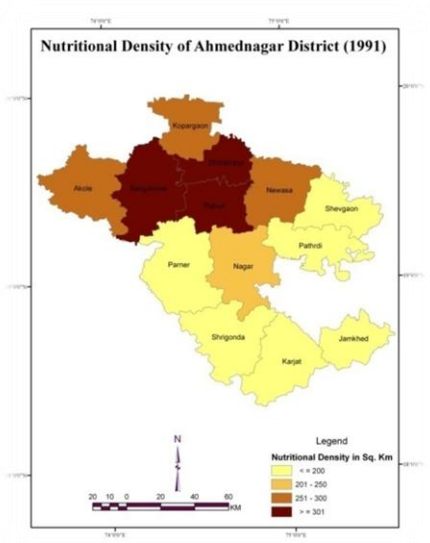
Table shows the very high physiological density of population. According to 1971 and 1981 census, only shrirampurtahsil 322 and 314 persons per sq. km. respectively included in this group. In 1991 census, number of tahsils has increased in this group, these were Sangamner (311), Shrirampur (359) and Nagar (328) and in 2001 another two tahsils have moved in this group, these were Kopergaon (362) and Rahata (457). But in 2011 census, in this group there were eight tahsils have included like Akole (307), Sangamner (437), Kopergaon (481), Rahata (556), Shrirampur (629), Newasa (306) and Nagar (571) persons per sq. km.

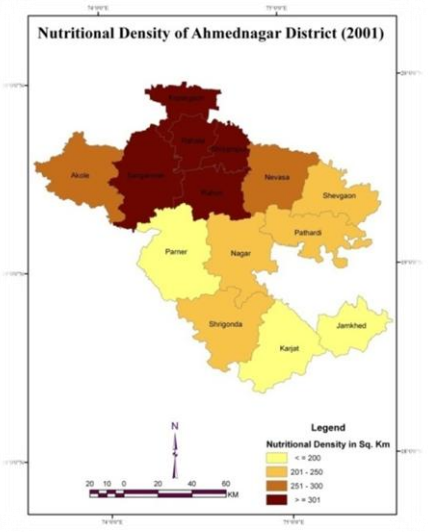
ISSN: 2278-4632
Vol-10 Issue-6 No. 6 June 2020

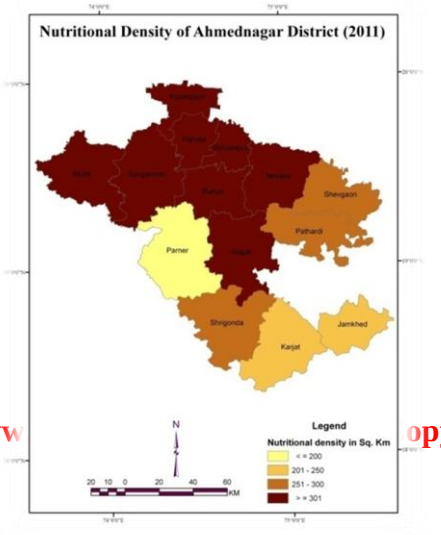
Map :Tahsil wise Nutritional/ Physiological Density of Population in Ahmednagar District (1971 to 2011):











ISSN: 2278-4632
Vol-10 Issue-6 No. 6 June 2020

Conclusion:

Therefore from the above perusal discussion it is clear that the rapid increase of population and consumption habits causes additional demand which will in turn put a great pressure on arable land. Conversion of arable land to urban development declining the amount of land available for the agricultural purposes. Urbanization leads towards the conversion of arable land for non-agricultural purposes. It leads towards the conflict between agricultural and nonagricultural land. The limited resource of arable in the study region is also one of the main factors of affecting the agricultural development in the state. The increasing population leads towards the amount of declining per capita arable land. Farmland now diverting for other construction purposes which also cause decline of per capita amount of arable land. There must bea broad vision for such a crucial issue for mitigating the effect of reduction of arable land. Paper represents that the pattern of physiological density of population in the study region, registered increasing trend, it was 162 in 1971 and 340 in 2011 of the district. . During 1971, it was highest for the Shrirampur (322) tahsil and lowest for the Parner (116) tahsil persons per sq. km. and again same as 1971, during 2011, it was highest in Shrirampur (629) tahsil and lowest for the Parner (193) tahsil persons per sq. km

References:

Chadana R.C*. (1980)"Introduction to Population Geography" Kalyani publications New Dehli.*

KrishanGopal *(1971) "Distribution and density of population in Orissa", The National Geographical Journal of India, 46, pp-251-256.*

Ugade V.R*. (2005), " An Analysis of Population trends in Marathwada" Thesis in SRTMU Nanded.*

Yusuf Khan *(1990), "Western Maharashtra: A case Study in Population Geography" , Pune University press.*

