

CHAPTER II

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CHAPTER II

PROFILE OF THE STUDY AREA

2.1 INTRODUCTION:

Physiography of any region plays an important role in the development of that region. The geographical factors viz. terrain, drainage system, climatic conditions, soils patterns, water resources which are responsible for change in population aspects and its characteristics. The geographical factors affects on Population growth, Distribution, Density, Literacy, Population composition, Fertility, Mortality, Morbidity, and Fecundity. Age selective migration directly affects the sex-ratio of the region.

Population of the world or of any country is unevenly distributed. There are very wide regional variations. Many of the factors are responsible for these variations. All such factors affecting the population distribution, density and sex composition, it broadly grouped into two major categories, (i) physical factors and (ii) socio-economic factors.

Physical factors are playing a vital role in the density, distribution and sex composition of population. Physical factors include landforms, climate (Rainfall and Temperature), soil etc. All population aspects (Density, Distribution and Sex composition of population) are influenced by physical factors.

Landforms are affected on distribution pattern of population. The most important attributes of landforms which determine population density, distribution and sex composition are the altitude and slope. The most striking evidence of the influence of altitude and slope on population density, distribution and sex composition have been observed between mountains and plain regions. In hilly or mountainous region population density is low and in plain regions having high density of population. Drainage pattern and water table of any region have also been affecting on Population distribution.

Climate is another essential element of the physical factors which influence the spatial distribution of population through temperature conditions and the

amount of precipitation. In the hot and dry deserts areas and the cold and wet regions, where very low temperature and heavy precipitations prevail, because of this reason uneven distribution and low density of population is observed in these areas and even distribution and high density of population are found in plains regions, where temperature is moderate and rainfall is average.

Soil is another factor which affects the density, distribution and sex composition of population, which depends upon the quality of soil. In alluvial regions of Plains and coastal and deltaic regions having high densities of population and on the other hand in desert areas having low density of population.

2.2 THE STUDY AREA:

Kolhapur is one of the district of Maharashtra state, which is divided into twelve tehsils viz. Ajara, Bhudargad, Gadhinglaj, Chandgad, Shahuwadi, Panhala, Karveer, Hatkanangale, Shirol, Radhanagari, Kagal and Gaganbavada. Kolhapur district is also divided into four revenue sub-divisions viz. Karveer, Ichalkaranji, Gadhinjlaj, Radhanagari.

Bhudargad tehsil is included in Radhanagari Sub-Division. Bhudargad tehsil lies in the district of Kolhapur of Maharashtra. The total numbers of villages in Bhudargad Tehsil are 117. The Tehsil Bhudargad lies between 16° 4' to 16° 26' North Latitude & 73° 50' to 74° 16' East Longitude. It has an area of 644.40 sq.kms and the total populations of Bhudargad Tehsil as per the 2011 Census are 150368, Sex ratio of Bhudargad is 983 female per 1000 males. The literacy rate is 77.71 percent, 87.84 % for males and 67.57 % for females in 2011. Gargoti is newly developed town in this tehsil, it is main administrative place, and is an education center for the rural areas around.

The river Vedganga is the principal river of this region originates at Tambyachiwadi flowing from West to East direction. There is Patgaon dam on the river Vedganga. It has natural beauty and forests surrounding it. Medical plants are available in the Patgaon area which is helpful for medical science to research and make medicines. The average rainfall of the region is 1500 mm. The fort Bhudargad is tourist spot of this region. The Rangana fort is 55 km from Gargoti, on the border of

Sindhudurg district is one of the best constructed fort by Chhtrapati Shivaji maharaj. It has natural beauty and hill forest around it.

The western part of the Bhudargad tehsil is mostly hilly in nature and there is also lack of industrialization, so the young male population migrated to another region for getting higher education, trade, commerce and employment. Bhudargad tehsil is surrounded by the boundaries on the north by Radhanagari Tehsil, on the South by Ajara Tehsil, on the East by Kagal Tehsil and on the West by Sindhudurg District.

The relief of an area is one of the dominant determinants of the spatial differences in the intensity of agricultural activities. The need for irrigation and drainage is mainly determined by geological, topographical and meteorological condition (Fakuda, 1976). The altitude, slope and drainage pattern are the significant aspects of terrain.

The topography of Bhudargad tehsil consists of three main divisions, viz. hilly ranges, foot-hill and narrow-erosional plain. These divisions are made through a close examination of regions toposheets, which is published by Survey of India. These variations in the land are due to the geographical complexity of the region and varied geomorphological evolutions. (Despande, 1971).

This division comprises Bhudargad range in the south and Doodhganga range in the north. These ranges are the eastward extension of Sahyadri and follow the southwest to northeast orientation. It is the part of basaltic plateau of Maharashtra and having characteristics of lava topography. This range rises from 250 meters to valley flowers. The maximum height of the range is 750m.in the west and 900m.towards east and it again decrease to the east of the region. This area covers an area of 375 sq.km. (68.70%) of the region majority part of the area is covered by deciduous forest.

The foothill zone lies between river plain and it covers 22% of the total geographical area. The altitude of foothill ranges between 560 m. to 600 m. This zone is covered with forests in west whereas; the scrub and grassland are dominant in the east.

River plain is 9% of the total area of the basin. Vedganga river has formed a narrow plain (below 600 m.), which opens towards the east, particularly at Madilage Bk. Village this tract, to some extent, is agriculturally developed.

2.3 DRAINAGE AND IRRIGATION:

Irrigation pattern is influenced by drainage pattern. In Bhudargad tehsil the main river is Vedaganga, which originate at Tambyachiwadi. There is Patgaon dam on river Vedganga. Vedganaga basin is drained by lot of small tributaries and notable big nala's are Mor-Ohol, Abundi. Vedganga River flows in Bhudargad tehsil from Tambyachiwadi to Waghapur.

Tambyachiwadi, Patgaon, Mani, Anaph kh, Palyachahuda, Mhasarang, karambali, Deulwadi, Nandoli, Tiravade, Mamdapur, Kadgaon, Sheloli, Nhavyachiwadi, Madur, Sonarwadi, Shengaon, Akurde, Gargoti, Mhasave, Darwad, Madilage Kh., Madilage Bk., Koor, Vhanguti and Waghapur these villages are situated on the north and south bank of the Vedganga river. This is small and seasonal river. The water of Vedganga River is used for domestic and agriculture purpose. Chikotra is another small river flowing in Bhudargad tehsil.

Table- 2.1

Bhudargad Tehsil: Water Resources

Sr. No.	Water Resource	Nos
1	Medium project	02
2	Small project	04
3	K.T. Weirs	25
4	Wells	1540
5	Tube wells	22
6	Canal	1
7	Rivers	2
8	Ohol	1

Source: Based on Socio-Economic Review of Kolhapur District 2011.

The main sources of water for domestic and agriculture purpose are medium irrigation projects, small irrigation projects, wells, Vedganga and Chikotra Rivers, Doodhganga sub-canal, Filtration tanks, K.T.Weirs, Mor-ohol and tube wells. In Bhudargad tehsil two medium irrigation projects at Patgaon and Chikotra, four small irrigation projects at Faye, Megholi, Kondoshi and Dindewadi-Barve, in 2001 the total wells in Bhudargad tehsil are 1540; K.T. Weirs are 25 and 4 filtration tanks. The total length of Vedganga river is 57 km., from Tambyachiwadi to Waghapur, under Doodhganga project the Koor Sub-Canal is flowing from Mudal to Minche Kh., it is 17 km.in length, total 14 villages are under canal irrigation.

2.4 CLIMATE:

Following climatic characteristics are seen in Bhudargad tehsil, five circles having slight differences in climatic conditions. The climate of the Kolhapur district is monsoon in nature. However, the western part of the Bhudargad tehsil experiences salubrious and pleasant climate with chilled weather. Relatively eastern part of the district undergoes through hot winds during April and in May. However, generally the nights are cool because of the influence of the cold breezes drafting from the Western Ghats region.

Climate of Bhudargad tehsil can be segregated into three consecutive periods of hot weather from March to May, rainy from June to October and cold weather period from November to February.

In the months of March, April and May are comparatively hotter than other months of the year. There is considerable rise in the temperature of the tehsil in the month of April; this is the hottest month of the year with a mean maximum temperature of 29°C. Rarely this temperature goes up to more than 40°C.

Bhudargad tehsil situated in Sahyadri ranges in Kolhapur district of Maharashtra. So it has high proportion of rainfall. The tehsil receives rain from the South-West as well as North-East monsoons. There is unequal distribution of rainfall is found .The area of Kadgaon Circle, Karadwadi Circle and Pimpalgaon Circle is mostly hilly and mountainous so, these circles receives copious rainfall due to the location of Koor and Gargoti circles to the east both circles receives moderate rainfall.

Table- 2.2

Bhudargad Tehsil: Annual Rainfall (2004-2012)

Sr. No.	Years	Rainfall (mm.)
1	2004	1725
2	2005	2678
3	2006	2299
4	2007	1846
5	2008	1668
6	2009	1690
7	2010	1776
8	2011	1725
9	2012	1378

Source: Based on Tahsildar Office, Gargoti.

Above table shows the rainfall distribution of Bhudargad tehsil in the year 2004 to 2012. High proportion of rainfall was recorded in the year 2005 (2678 mm.) and low proportion of rainfall was found in 2012 (1378 mm.) the average rainfall from the year 2004 to 2012 was 1865 mm. This statistical information depicts high proportion of rainfall in Bhudargad tehsil.

2.5 SOILS:

The soils of Bhudargad tehsil are categorized in to five major groups. Viz. **(i)** Coarse shallow laterite, **(ii)** Medium and deep laterite, **(iii)** Coarse shallow, **(iv)** Medium deep black and **(v)** Alluvial.

The Coarse shallow laterite type of soil is found in western part of the region particularly it is found in hilly regions, looking slight brown in color and covers large portion of western region. Because of high content of alumina and Iron, this soil is not fertile.

This type of soil located at the river course of western part. It covers the areas of Patgaon, Mathgaon, Karivade, Antivade, Shengaon, Nishnap, Paradedwadi, Kondoshi, Bhalekarwadi, Vasnoli etc. Medium and deep laterite located on moderate steep slope and dark brown-red in colour. This is also not fertile soil; it is rich in alumina and iron too.

The Coarse shallow soil located in the eastern part of the northern and southern hill ranges; particularly it is found on slopes and foot hills. This is light brown in color and loamy and sandy, poor in nutrient status so this is moderately productive. Groundnut, Jawar, Barli, but now a days farmers taking a crop of sugarcane in some areas, if the water is available. This soil is found in Yerandape, Khedage, Hedavade, Tikkewadi, Palshivane etc.

Medium deep black soil is loamy found in Adamapur, Mudal, Waghappur, Vhangutti, Koor, Nadhavade, Konavade, Nilpan, Gangapur etc. This is suitable for taking crops like Sugarcane. Wheat, Jowar and chilies etc.

Alluvial soil is rich soils, medium brown, and gently sloping and suitable for rich crops like sugarcane. it is found in villages along the Vedganga river courses.

2.6 POPULATION ASPECTS OF STUDY AREA:

2.6.1 POPULATION DENSITY AND DISTRIBUTION:

Kolhapur district is divided into twelve tehsils, Bhudargad is one of them. Uneven distribution and Density of Population is found in Kolhapur District. High density of population in Karveer and Hatkanangle tehsils, medium in Shirol tehsil, Low in Panhala, Kagal, Ajara and very low density found in Gananbavada, Shahuwadi, Radhanagari, Bhudargad, Gadhinglajand, Chandgad tehsils.

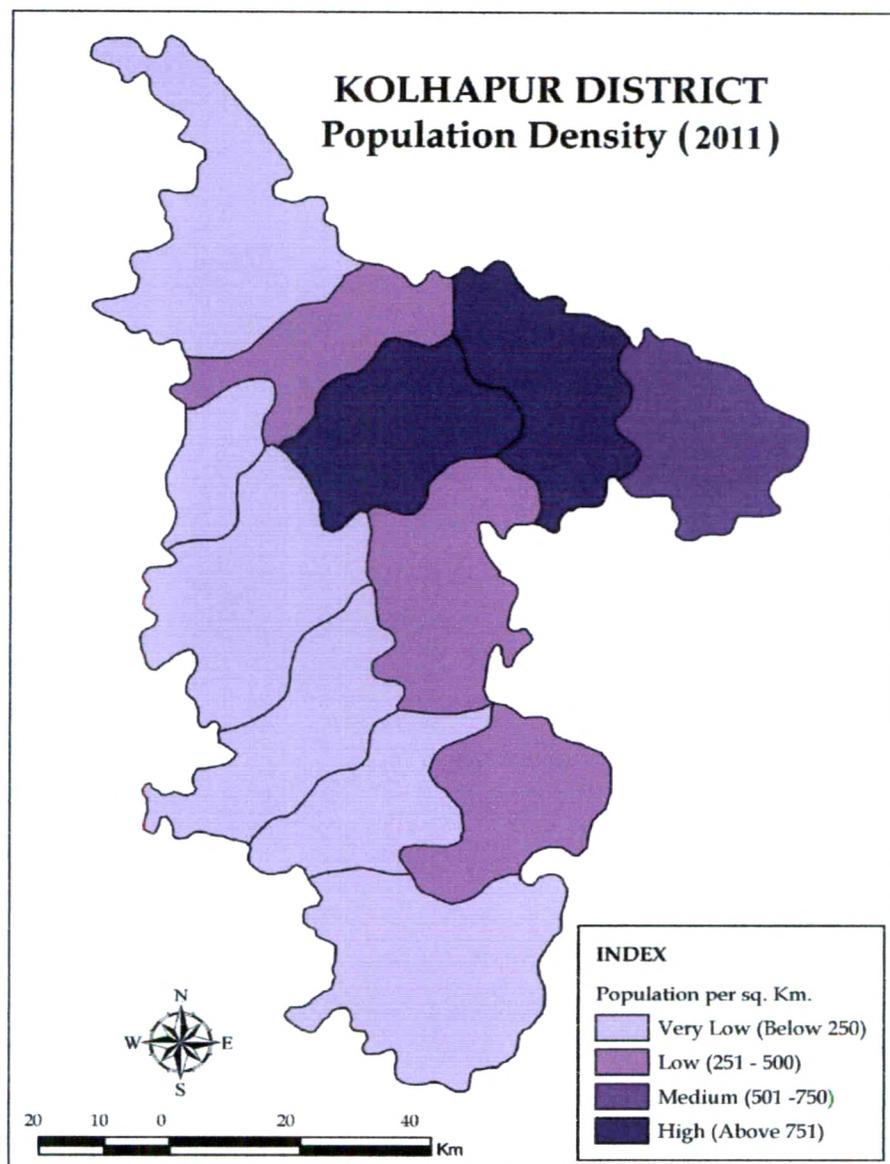


Figure 2.1

The population scenario of the Bhudargad tehsil is uneven in nature. The tehsil is hilly and undulating in nature due to this there are regional variations in population distribution. Bhudargad is totally rural tehsil in Kolhapur district, so the total population is rural; there is absence of urban population. It is divided in to five revenue circles viz. Koor, Gargoti, Kadgaon, Karadwadi and Pimpalgaon.

Table-2.3

Bhudargad Tehsil: Population Distribution (2011)

Population	Total	Male	Female
Bhudargad Tehsil	150368	75824	74544
Child population	14834	8067	6767
S.C Population	14677	7237	7440
S.T. Population	293	156	137
Total Workers	77936	43294	36642

Source: Based on District Census Handbook of Kolhapur, 2011.

As per the 2011, Census the total populations of Bhudargad tehsil were 150368, male populations were 75824 and female populations were 74544 and the total Child populations were 14834, male populations were 8067 and female populations were 6767, it was 9.86 % in total population. Total S.C. populations were 14677 (9.76%), males were 7237 and females were 7440, females were more than male S.C. populations in 2011. S.T. populations were very rarely found in Bhudargad tehsil, it was only 0.19 %. Total populations of S.T. were 293, males were 156 and females were 137.

Total literate populations were 105319, males were 59519 and females were 45800. Total illiterate populations were 45049 males were 16305 and female were 28744. Total workers in Bhudargad tehsil were 77936, males were 43294 and females were 36642.

2.6.2 SEX-RATIO:

According to 2011 Census, density of population in Bhudargad tehsil is 233 per sq.km, the sex-ratio is 983 females per 1000 males and Child sex-ratio is 838 females per 1000 male child population. In all of circles of Bhudargad tehsil Viz. Koor, Gargoti, Karadwadi, Kadgaon and Pimpalgaon have observed uneven distributions of sex-ratio. Physical setting, economic and social condition of this region is responsible for uneven distribution of general and child sex-ratio.

Table-2.4

Bhudargad Tehsil: Sex-Ratio (2011)

Sr. No	Circle	Sex-Ratio	
		General Sex-Ratio	Child Sex-Ratio
1	Koor	942	795
2	Gargoti	952	791
3	Karadwadi	992	859
4	Kadgaon	1016	882
5	Pimpalgaon	1048	905
Total Sex -Ratio		983	838

Source: District Census Handbook of Kolhapur 1961-2011.

In 2011 the sex ratio of the five revenue circles was Koor (942), Gargoti (952), Karadwadi (992), Kadgaon (1016) and Pimpalgaon (1048) and Child sex-ratio was Koor (795), Gargoti (791), Karadwadi (859), Kadgaon (882) and Pimpalgaon (905) respectively. High general and Child sex-ratio found in Pimpalgaon circle, it was 1048 and 905 respectively.

Very low general sex-ratio observed in Koor circle it was 942 females per 1000 males. Child sex-ratio was very lowest in Gargoti circle it was only 791 female children per 1000 male children.

2.6.3 FERTILITY AND MORTALITY:

Fertility and mortality rate plays important role in population change. Sex-ratio is also depending upon fertility and mortality rate. Fertility is one of the dominant aspects of population study.

The crude birth rate is the most common index of fertility, and is merely the ratio of the number of live birth in a period of time, usually one year, to the total population, often at the mid-point of the year. The fraction is invariably multiplied by 1000 or 100. (Clarke J.I, 1977)

The crude death rate is merely the number of deaths per thousand inhabitants and may be calculated for the population at the mid-point of the year or at the beginning of the year. (Clarke J.I, 1977)

The fertility and mortality rate in Bhudargad tehsil in 2008-2011 are as follows:

Table- 2.5

Bhudargad Tehsil: Fertility and Mortality (2008-2011)

Year	Fertility			Mortality		
	Male	Female	Total	Male	Female	Total
2008	1094	908	2002	490	432	922
	54.65%	45.35%	100%	53.15%	46.85%	100%
2009	1012	817	1829	497	425	922
	54.26%	45.74%	100	53.90%	46.10%	100%
2010	962	811	1773	625	458	1083
	54.26%	45.74%	100%	57.71%	42.29%	100%
2011	947	735	1682	822	420	1242
	56.30%	43.70%	100%	66.18%	33.81%	100%
AVERAGE	54.87%	45.13%	100%	57.74%	42.26%	100%

Source: Based on Socio-Economic Review of Kolhapur District 2009-2012.

In 2008 and 2009 the male fertility rate was 54.65%, and 54.26% respectively. As compare to male fertility rate female fertility rate was low, it was 45.35% in 2008 and 43.74 % in 2009. Male mortality rate was high as compare to female mortality. Male mortality rate was 53.15% and female mortality was 46.85% in 2008, and in 2009 male mortality was 53.90%, female mortality rate was 46.10%.

In 2010 and 2011 the male fertility rate was 54.26% and 56.30% respectively. As compare to male fertility rate female fertility rate was low, it was 45.74% in 2010 and 43.70% in 2011. Male mortality rate was high as compare to female mortality. Male mortality rate was 57.71% and female mortality was 42.29% in 2010 and in 2011 male mortality was 66.18%, female mortality rate was 33.81%.

The male mortality rate was high as compare to male fertility rate and female mortality rate was low as compare to female fertility rate.

Table- 2.6

Bhudargad Tehsil: 0-1 Year Mortality (2008-2011)

Years	0-1 Year Mortality		
	Male	Female	Total
2008	0	1	1
2009	0	0	0
2010	3	1	4
2011	1	3	4

Source: Socio-Economic Review of Kolhapur District 2009-2012.

Above table reveals that, 0-1 year male and female mortality rate was observed very rare and low from the year 2008 to 2011.

2.6.4 MIGRATION:

Migration, like fertility and mortality, holds a place of prominence in a geographical analysis of population change in any area (Trewartha, 1969, p.137).

Migration Cannot be considered a mere shift of people from one place of residence to another as it is most fundamental to the understanding of continuously changing space-content and space-relationships of an area (Gosal,1961,p.106).

National and international are two major types of migration. Rural-Urban, Rural-Rural, Urban-Rural and Urban-Urban are another types of migration. In the study region absence of urban population, low industrial and poor agricultural development affects the livelihood of young male population in the study area. The young male population is migrated to other areas for seeking employment.

2.6.5 LITERACY:

Literacy is considered as fairly reliable index of socio-cultural and economic advancement. Literacy is essential for eradicating poverty and mental isolation, for cultivating peaceful and friendly international relations and for permitting the free play of demographic processes (Chandna & Sidhu, 1980, P.98).

The literacy rate of the study region was 72.92 percent, 86.14 for males and 59.89 for females in 2001; total literacy rate as per 2011 Census was 77.71 percent, 87.84 % for males and 67.57 % for females.

Table- 2.7

Bhudargad Tehsil: Literacy and Illiteracy (2011)

Population	Total	In %	Male	In %	Female	In %
Literate	105319	77.71	59519	87.84	45800	67.57
Illiterate	45049	22.29	16305	12.16	28744	32.43

Source: District Census Handbook of Kolhapur 2011.

2.6.6 AGRICULTURE:

The total geographical area of Bhudargad tehsil is 64446 hectares. 23790 hector area under forest, 35322 (25.75%) hector area under cultivation, non-agricultural land is 3429 hectares. Majority of the people are engaged in primary sector

viz. agriculture, Animal husbandry, gathering of medicine plants. etc. Total farmers are 40494 and farm labors are 9053 in Bhudargad tehsil.

Rice is the dominant crop in the Bhudargad, most of area under rice it is 12586 hectars. Barli (3500 hect.), Sugarcane (3362 hect.), and Groundnut (3051 hect.) are another major crops. Wheat (390 hect.), Jowar (53hect.), Millet (01hect.), Maize (210 hect.), vari (22 hect), Sava (121 hect), Gram (1000 hect.) are the other crops cultivated in Bhudargad tehsil.

With the agriculture most of the farmers are engaged in dairy-farming. Buffalos and cows are used for milk production, besides this farmer maintains sheep, Goat and poultry-farming. Total numbers of buffalos are 19133, cows are 4085, sheeps are 1888, Goats are 12645, bulls are 8302 and poultry 37542. Bulls are used for transportation of agricultural production and cultivation of agriculture.

2.6.7 INDUSTRIALIZATION:

Industrialization plays the important role in the development of the any region. Mostly industrialization provide job opportunity to young male population, because of this, it affects on population aspects of the region. As compare to other regions high density of population occurs in developed industrial regions. From the less developed industrial areas male population migrates to developed industrial regions, so it is responsible for changing sex composition of the region.

Bhudargad tehsil is hilly and totally rural in nature. Majority of the people have engaged in primary sectors like agriculture, animal husbandry and hunting. There is lack of industrialization one women's sugar factory established at Tambale and Hutatma Swami Warake Cotton Mill at Mudal. Total 442 workers working in women's sugar factory at Tambale. Some small industries are also available in Bhudargad viz. Leather workers, Bricks industries, Transportation, Trade and Commerce etc.

REFERENCES:

- Athreya, V., Chunkath, S.R. (2000): "Tackling Female Infanticide, Social Mobilisation in Dharmapuri, 1997-1999", *Economic and Political Weekly*, Vol. 35, No. 49, pp. 43-48.
- Barah Bamal (2002): 'Sex Composition in Assam: A Geographical Analysis', *The Deccan Geographer*, Vol. 40, No. 1, and Pp. 43-52.
- Bhasin M.G. (1980): "Adult population In India-Challenges and Opportunities", Unpublished Paper.
- Bhende A., Kanitkar T. (2010): 'Principles of Population Studies', 38-44.
- Bhosale K., Kate K. B. (2006): 'Loksankhyashatrya', Phadake Publishing house, Kolhapur.
- Banerjee Maya (1977): "The Pattern of Sex Ratios in Singbhum District, Bihar", *Geographical Review of India*, Vol. 39, No.1 to 4, pp.30-38.
- Bhattacharya A. (1978): 'Population Geography of India', Shri Publishing House, New Delhi.
- Chakrawarthy K. (2006): 'Geography of Population', Mohit Publications, New Delhi, Pp. 116-117.
- Chandana, R.C., Sindhu, M.S. (1980): 'Introduction to population Geography' Kalyani Publisher, New Delhi.
- Chandana R. C. (1986): 'A Geography of Population', Kalyani Publishers New Delhi. Pp. 217.
- Chandana R. C. (2006): 'Geography of Population, Concepts, Determinants and Patterns', Kalayani Publishers, New Delhi. Pp. 344-345.
- Chandana R. C. (1969): Changes in Demographic character the Rohtak and Gurgaon Districts, Published Thesis, submitted to Punjab University, Chandigarh.

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- Clark J.F. (1965): 'Population Geography', The common wealth and international Library, Pergamon, Oxford Geography, Oxford.
- Clark J.F. (1972): 'Population Geography 2nd Edition', Pergamon Press, Oxford
- Clerke J. I. (1977): 'Population Geography', Robert Maxwell M.C. Publishing, London.
- Despande, C.D. (1971): 'Geography of Maharashtra' National Book Trust, New Delhi.
- Dube R.S. (1990): "population pressure and Agrarian change", Rawat Publication, Jaipur.
- Garner Beajuea (1966): "Geography of Population "Free Press of Glence.
- Ghadage, K.D. (1994): 'Impact of Economic Development on Population Characteristics in Pune Division', Unpublished M.Phil. Dissertation Submitted to Shivaji University, Kolhapur.
- Gharage R. R. (2007): 'Spatio-Temporal Changes In Population Structure and Pattern: A Study of Upper Krishna Basin', Unpublished Ph. D. Thesis, Shivaji University Kolhapur Unpublished Ph. D. Thesis, Shivaji University Kolhapur.
- Ghosh B. N. (1985): 'Fundamentals of Population Geography', Sterling Publishers PVT, Ltd, New Delhi, Pp.25.
- Goel N.P. (1994): "Readings in Population Geography" Mohit Publications, New Delhi.
- Gosal, G.S. (1974): 'Population Growth in India 1961-71': A Spatial perspective, Asian profile. Vol – 2.
- Gosal, G.S. (1982): 'Recent Population Growth in India'. Population Geography Vol. – 4.
- Government of India: "Women and Men in India 2012: Central Statistical organization of statistical and Programme implementation."

- Hansraj (1986): 'Population Studies, Surjeet Publication, Delhi
- Majid,Husain., (1997): Agricultural Geography, Rawat Publication, New Delhi.
- Mayer, P. (1999): "India's Falling Sex Ratios", Population and Development Review, Vol. 25, No. 2, New York: pp. 323-343.
- Miller, B. (1997): "The Endangered Sex: Neglect of Female Children in Rural North India." Oxford: Oxford University Press, 223 p.
- Mitra, Ashok (1989): 'Implications of sex ratio in population Geography'. Heritage publishers, New Delhi.
- Natarajan D. (1951): "Changes in sex-Ratio", Census Centenary monograph No.6 New Delhi.
- Pednekar, H.M.andSita, K. (1980): 'Spatial Patterns of sex Ratio in South Konkan (Maharashtra) 1951 and 1971, population Geography Vol- 2.
- Qazi, S.A (ShazSharqi) Qazi. (2006): "Population Geography"APH Publishing Corporation New Delhi.
- Sawant and Athawale (1994): "Population Geography", Mehta Publishing House, Sadashiv Peth, Pune.
- Shrivasti, R.K. and Koshal, R. (1998): 'Changing sex ratio of senoi district', p.36.
- Singh A.K. (1980): 'National Geographer', p.15, p.83-96.
- Socio-Economic review of Kolhapur District 2009, 2010, 2011 and 2012.
- Sunanda, K.S. (1995): 'Girl Child Born to Die in Killing Fields, Chennai: Alternative for India Development', 108 p.
- Sundaram, K.V. and NangiaSudesh (1985): 'Population Geography Contribution to Indian Geography, VI' Heritage Publishers, New Delhi.
- Trewartha, G.T. (1953): 'A case study for population Geography Analysis of Association of American Geography' Vol.43.

Victor Petrov (1985): "India-Spotlight on Population", Progress Publishers;
Moscow.

Zelinsky Wilbur (1966): 'A Prologue to population Geography', prentice Hall
Inc.N.J.1966.