

International Journal of Scientific Research in Science and Technology Print ISSN: 2395-6011 | Online ISSN: 2395-602X (www.ijsrst.com)

doi: https://doi.org/10.32628/IJSRST2310146

# Decadal Variation in Rural-Urban Populations and its Socioeconomic impact on Gondia District of Maharashtra

Sitaram Uttamrao Anpat

Head, Department of Economics, C.J. Patel College, Tirora, Maharashtra, India

#### ABSTRACT

## Article Info

#### **Publication Issue**

Volume 10, Issue 1 January-February-2023

# Page Number

412-422

# **Article History**

Accepted: 01 Feb 2023 Published: 15 Feb 2023

The main objective of the study is to see the changes that have taken place from 1991, 2001 to 2011 in Gondia District Maharashtra. The characteristics changed because of the differences in physical conditions. A description of various characteristics in Geography begins from the population. For the purpose of administrative conveyance the district is divided into 8 Thasils and 8 Panchayat Samities. According to the 2001 Census, there was 556 Gram Panchayat for the Rural Development. The main crop grown in the district is paddy. Gondia district stretches over an area of 5641 Sq. Km. In the terms of area; Gondia district constitutes 1.83% of the total area of the Maharashtra State. Total population of the district according to 2011 census was 1322331 out of which 662524 were males and 659807 were females. Out of the total population, 82.93% is residing in rural area and 17.07% is residing in urban area. The density of the population according 2011 census was 213.12 persons/ Sq.Km. The spatial distribution of population is one of the most important topics of Human Geography. Human resource especially in a developing country may play a vital role in its overall economic growth. In rural areas cultivation is a major activities wherever it is possible. In the hilly regions where the cultivation is not possible lumbering, fuel wood collections as well as collection of forest and other forest materials are the main activities which are mostly carried out by tribal. Lakh and gum (gond) are the major products. The district has derived name from Gond. Collection of Tendu leaves is also very important. But it is on the decline. Gondia District was created on 1st May 1999. It lies in north east boundary region of Maharashtra. The state of Madhya Pradesh and Chhattisgarh lie beyond its boundary. The area of the district is 5641 s.q. kms, and as per 2011 census the population is 1322331. There are 903 villages and two urban centre's in Gondia and Tirora thasil.

Keywords:- Rural Urban Population, Sex Ratio, Gondia District.

# I. INTRODUCTION

The terms 'rural' and 'urban' do not any generally accepted precise meaning. The define regarding rural and urban population may very often change. The division between 'urban' and 'rural' is made at a different size point in most of the countries. The agricultural population lives in the villages, and villages having well over 2,500 inhabitants are composed mainly of people engaged in agriculture. Urbanization leads to concentration of socioeconomic power and new type of problems associated with modernization [1, 2, 3]. This also gives rise to new kinds of spatial interaction. Urbanization is regarded as an index of the level of socio-economic development of a country. It is in this context that the study of urbanisation assumes importance in population geography [4, 5, 6]. Urbanisation produces a new type of civilization and a new culture quite distinct from those of rural societies. While it solves certain problems, it leads to some new ones. It is, therefore, necessary to identify rural and urban areas and their demographic differentials.

Population is an important resource for the development of a region. It is significantly important, because man has brought tremendous changes over the earth surface. Man being a single most important powerful geographical factor transforming the earth with scientific surface and technological achievements. It provides bases/platform performing various human activities. Keeping this fact in mind it becomes imperative to study first in detail the nature of rural population framework of an area in reference to their distribution in the region and second is regarding in terms of distribution of urban population in the region [7, 8, 9, 10].

Population is considered as one of the most important resource. The man is both dynamic agent of production and the beneficiary of the entire process of resource developments and its utilization [11, 12, 13]. Mismatch between the natural wealth, development and population have given rise to ecological crisis. It

is not true only in case of nation, state but equally true for a small area/region. Thus, the study of population and related demographic characteristics like growth, distribution, sex-ration, literary, occupational structure etc., are very essential to be analysed for the present study as it helps in evaluating the potentialities for sustainable economic development of the region.

# II. OBJECTIVES

The main objectives of this paper are as follows:

- 1) To see the changes that has taken place from 1991, 2001 to 2011.
- 2) To analyses the regions of differences and reasons behind it.
- To find out the causes behind the changes if there any.

## III. STUDY AREA

Gondia district came into existence on 1st May 1999, separating from Bhandara district .

Administratively it is divided into eight Tahsils Gondia district lies in the northeast corner of Maharashtra state. Beyond northern boundary, there is Balaghat district of Madhya Pradesh, beyond Western boundary there is Bhandara district (M.S.) Rajnandgaon district of Chattisgardh to east and Gardhiroli (M.S.) to the south. It lies between 20°39' to 21°38' north latitude and 79°27' to 80°42' East longitude. The total areas of the district is 5641 sq. kms. And it is about 1.83% of the area of Maharashtra state. According to 2011 census the total population of the district 1322331. (Fig.1) The district has a physical variety. There are hilly areas as well as alluviral place. The hilly areas are common in many parts of the district. In the north west part of the district there are "Gaimukh" hills and in the south west there are Pratapgarh ranges. Navegaon hills are the central parts. There are Chichgarh hills in Deori Tahsils while Darekasa hills are in the north east. These hills are

really part of the district, the extensions of Satpura mountain ranges. Among these hilly areas there are several river Basin Wainganga is the main river and it forms the district boundary in the north east and central parts of the district. Both are the major tributaries of river Wainganga [14, 15, 16,17]. It forms boundary in the north. There is another river Pangoli which flows towards north and it joins the Bagh river [18, 19, 20,21]. In the central part Chulbandh and Gadvi in the other parts are important rivers. Thus the hills and rivers have resulted into topographic differences. Most of the hilly areas are covered with forest while rice is cultivated in river basin [22, 23, 24, 25]. The average annual rainfall in the district is 1300 to 1500 mm. The lowest rainfall among is over north western part. It increases toward east and south where the hilly areas lies. In the district, the length of the broad gauge railways is 206 kms., similarly there are 465 km roads in the district. Mumbai, Kolkatta N.H. No. 6 passes through the district. These transport facilities have positive as well as negative effects on forest activities. Products like lumber are transported by railways but road development and other human activities are distinctive [26, 27, 28, 29, 30]. Gondia District shows a great variation in natural factors. The distribution of population is generally affected by physical and social factors. Therefore it is necessary to review this background. In the northern part of the district there are Gaimukh hills. Similarly in the north east there are Darekassa hills [31, 32, 33, 34]. In the south east there are Chichgarh hills while Navegaon hill lie in the south central parts of the district. The maximum height in this area is 611 meters from the sea level. Wainganga, Pangoli and Bagh are the important rivers in the north. Chulbandh valley in the west central part. Valley of the Bagh in the east and valley of Gadhavi river in the southern part are important. Apart from this there are several several tanks of various sides [35, 36, 37].

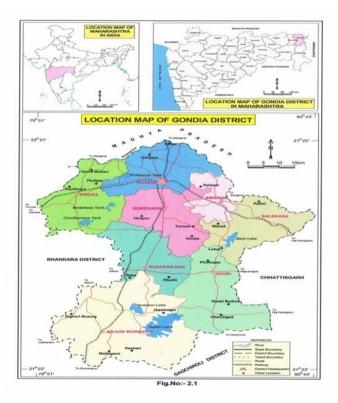


Figure 1. Location map of Gondia district

#### IV. DATA BASE METHODOLOGY

The study is based on the secondary sources of data. For certain characteristics some aspects taken from relating articles, document and published and unpublished data while analyzing several tables, diagrams and maps have been used. For the analysis of the rural urban population socio- economic bulletin, census hand book 2001, 2011 of the district have been used to study the present distribution of population as well as its nature in last decade. The statistical information was collected from the census hand book and the offices of the statistical department.

# V. RESULT ANALYSIS

## **5.1 Cultural Features**

The population of the district in March 2011, stood at 13,22,331 persons. The district ranks 30<sup>th</sup> in population of state. The district average density is 213 per Sq. k.m. and in 2001 to 2011 decade the growth of population is 10.17-1013%. In 1991 the density of

population in the district was 183 per s.q. kms. It increased to 194 in 2001 and 213.17 in 2011. In tahsils of Gondia and Amgaon the density increased while

other tahsils it has gone down. In Salekasa tahsil the density was 141 in 1991 and it is gone down to 119 in 2001 [38, 39, 40].

Table 2: Gondia District: Variation in Change of Population and Arithmetic Density 2001-2011

Sr.	Tahsil	Arithmetic	Total	Total	Change/Difference	Area
No.		Density Per	Population	Population	(%)	(Sq.km.)
		Sq.K.	(2001)	(2011)		
1	Tirora	286	165516	176156	6.43	617
2	Goregaon	168	116685	124832	6.98	743
3	Gondia	645	371746	421942	13.50	654
4	Amgaon	410	122504	130262	6.33	318
5	Salekasa	139	77690	90682	16.72	652
6	SadakArjuni	205	107493	115662	7.60	563
7	Arjuni/Morgaon	110	136980	148270	8.24	1344
8	Deori	87	102093	114525	12.18	1314
Total		213	1200707	1322231	10.13	6205

Source: Census Report Gondia District 2001-2011.

# 5.2 Growth of Population

Table 3: Gondia District: Population Growth (1901-2001)

Census Year	Total Population	Popu.Increase and decrease (%)		
1901	590258	&&		
1911	688463	16-64		
1921	620328	9-89		
1931	827558	33-41		
1941	966677	16-81		
1951	1057678	9-41		
1961	1272638	20-32		
1971	1585580	24-59		
1981	1837577	15-89		
1991	2107629	14-70		
2001	1200707	10-87		

Source: Census Report Gondia District 2001-2011.

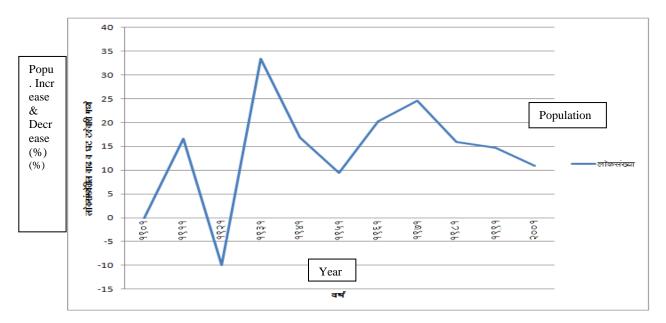


Figure 2: Population Growth (1901-2001)

The growth and nature of other factors show the spatial differences because they are affected by socio economic factors. In 1999 Gondia was separate. From 1991 to 2001 the population increased by 10.87 percent. The maximum growth of 31.92 recent was recorded in Amgaon tahsil while Gondia tahsil registered a growth of 20.27 percent. In all other tahsils the population decreased during this ten year the population of Deori tahsil decreased by 34.55 percent. (Table No.3) The large number of people residing in the northern part and the belt of the high population extends in the space direction. In the south west parts and in the south east parts of the southern region which show sparse population. In 2001 the percentage of urbanization was 11.45 percent. It shows very little change from 1991 to 2001. 1991 the percentage of population below 6 years of age was 14.69 percent. In this group of 0-6 the proportion male and female was almost equal in 2001 the total percentage of this group gone down by 0.5 percent [41, 42, 43].

# 5.3 Sex Composition

The sex ratio indicates the social characteristics. In 1991 the sex ratio was 1003 in the district. In 2001 it increased by two and recorded to 1005. In Northern tahsil of Tirara, Goregaon and Amgaon it was a favour of females. In Goregaon it recorded to 1028. In many tahsils the sex ratio has been increased more in schedule caste and tribes. And comparative others groups it was favour of female. The main reason behind it was the equal share of female in level.(Table N0.4)

	Table 4: Number of Females/1000 Males (1901-2001)										
Sr.	Tahsil	1991				2001					
N		Total	Male	Female	Per '000'	Total	Male	Female	Per	'000'	
0		Populatio			Male	Populatio			Male	Sex	
		n			Sex	n			Ratio		
					Ratio						
1	Tirora	171607	85606	86001	1005	165516	82276	83240	1012		
2	Gorega	133506	66163	67343	1018	116685	57551	59134	1028		

**Table 4:** Number of Females/1000 Males (1901-2001)

	on								
3	Gondia	309095	156005	153090	981	371746	185931	185815	999
4	Amgao	92860	46201	46659	1010	122504	60503	62001	1025
	n								
5	Salekas	91652	45933	45719	995	77690	38466	39224	1020
	a								
6	SadakA	* *	* *	* *	* *	107493	54000	53493	991
	r.								
7	Arjuni	178361	89941	88420	983	136980	69285	67695	977
	M.								
8		155980	78290	77690	992	102093	50822	51271	1009
Total		1133061	568139	564922	1003	1200707	598834	601873	1005

Source: Census Report Gondia District 2001-2011.

# 5.4 Literacy

Literacy is an essential phenomenon to understand the interrelationship between man and environment. The rural and urban population of the district shows a difference in literacy. In 2001 urban literacy rates was 89.85 percent while the rural literacy rate was 78.92 percent. Similarly male and female groups show the different in the literacy. In 1991 the literacy rate was 78.89 percent the male group. It increased to 89.61 percent in the year 2001. Thus in ten years that is from 1991 to 2001 the male literacy increased by 10.72 percent while female literacy increased by 18.10 percent. The administrative affords and changing social conditions is responsible for this. (Table No.5)

 Table 5 : Gondia District : Thasil Wise Rural Urban Literacy (2001)

Sr.	Tahsil	Total Urban	Urban	(%)	Total Rural	RuralLitarate	(%)
No.		Population	Litarate		Population	Population	
			Population				
1	Tirora	22529	16917	85-48	120408	97173	80-70
2	Goregaon		96001		99731	77246	77-45
3	Gondia	120902		89-85	199088	164872	82-81
4	Amgaon				104697	83112	79-38
5	Salekasa				65651	49207	74-95
6	SadakAr.	* *	* *	* *	92644	71830	77-53
7	Arjuni				118122	92238	78-09
	Mor.						
8	Deori				85754	63630	74-20
Total		143431	112918	89-17	886095	699308	78-92

Source: Census Report Gondia District 2001-2011.

# VI. METHODS AND MATERIAL

# 5.5 Scheduled Castes and Scheduled Tribes

In the total population of the district percentage of SC and ST is important. 1991 in the district population 12.79 percent belong to SC group. In 2001 it's slightly increased to 13.97 percent. In 2001 Arjuni Morgaon tahsil shows the heights percentage of SC population. In 1991 17.70 percent population was of scheduled tribes. In Deori tahsil it was 37.16 percent. In 2001 it has slightly gone down but the spatial pattern remains the same. The hilly and forest region is the home of tribes.

# 5.6 Occupational Structure

In the district population half of the people are of working population and the remaining half depends on there. From 1991 to 2001 the working population has slightly gone down. Out of the total workers 75.39 percent worker in primary occupation and agriculture was important. The primary worker show greater spatial variation. In 2001 the percentage of primary workers has gone down by 8.57 percent. A percentage of secondary workers are around of 10 percent. It is where the urbanization is more. More than 20 percent of the working population in the district is tertiary. In some tahsil this percentage of increased from 1991 to 2001.

#### 6. CONCLUSION

The main objective of this study is to analyse the change in characteristics of population and to see physic-cultural setting in the district. In Gondia district several geographers have carried out such Gondia lies in north eastern part of studies. Maharashtra and it is under influence of Waingaga river. The rainfall and soil of the district is favorable for rice cultivation. The study is mostly on secondary sources. But some information collected throw survey was also used. From 1991 to 2001 the population of the district increased by 10.87 percent. Similarly the density increased from 183 to 194 per s.q. k.m. In total population 2/3 belong to young and The sex ratio in the total middle age groups.

population is 1005 in 2001. And most of the tahsil it is a favour of female group. In total population literacy rate is 1991 was 64.18 percent which has gone up to 78.89 percent in 2001. The literacy rate is low in rural section as well as in female group. In the total population the percentage of SC and ST population was nearly 30 percent in 2001. The ST population is more in hilly and forest areas. In 1991 the literacy was 64.18 percent the district population. In the northern part of the district it was comparatively more. In the population rate was 78.89 percent particularly the rate increased more in the southern part and the spatial difference was reduced. Out of the total workers more than 75 percent are in primary occupation. In Gondia district large spatial variation in population characteristics. There are common in the past and they still persist today. These spatial differences are the result of the natural differences as well as social disparity. The main difference is between is between the northern and southern part of the district. Though there are physical barriers in the north the progress has been achieve due to the development of transport routs. The two urban centres Gondia and Tirora lie in the northern part. In the district the population increased by 10.87 percent in decade 1991 to 2001. But it also shows the resonal differences. Surprisingly the sex ratio in the district in favour of females. It is particularly good is some tahsils because the female labour contribute equally in cultivation and forest occupation. In the past this district in Madhya Pradesh and it has no relations with other parts of Maharashtra. Several migrants from Madhya Pradesh and Chhattisgarh have settled This has affected the social and in the district. economic life of the district. When it was included in Maharashtra and development works started. southern parts and some undeveloped tahsils show the progress. It is resulting into reducing the differences between the north and south. As trade and commerce is main occupation more important is not being created unless the secondary activity developed no progress if possible. The district shows the trend

of reducing the spatial differences of population characteristics. In recent year the development in education and health care is more in the southern part and this southern parts is trying come in level with northern part of the district.

#### VII.RESULTS AND DISCUSSION

5.5 Scheduled Castes and Scheduled Tribes

In the total population of the district percentage of SC and ST is important. 1991 in the district population 12.79 percent belong to SC group. In 2001 it's slightly increased to 13.97 percent. In 2001 Arjuni Morgaon tahsil shows the heights percentage of SC population. In 1991 17.70 percent population was of scheduled tribes. In Deori tahsil it was 37.16 percent. In 2001 it

has slightly gone down but the spatial pattern remains the same. The hilly and forest region is the home of tribes.

# 5.6 Occupational Structure

In the district population half of the people are of working population and the remaining half depends on there. From 1991 to 2001 the working population has slightly gone down. Out of the total workers 75.39 percent worker in primary occupation and agriculture was important. The primary worker show greater spatial variation. In 2001 the percentage of primary workers has gone down by 8.57 percent. A percentage of secondary workers are around of 10 percent. It is where the urbanization is more. More than 20 percent of the working population in the district is tertiary. In some tahsil this percentage of increased from 1991 to 2001.

## VIII. CONCLUSION

The main objective of this study is to analyse the change in characteristics of population and to see physic-cultural setting in the district. In Gondia district several geographers have carried out such studies. Gondia lies in north eastern part of Maharashtra and it is under influence of Waingaga

river. The rainfall and soil of the district is favorable for rice cultivation. The study is mostly on secondary But some information collected throw survey was also used. From 1991 to 2001 the population of the district increased by 10.87 percent. Similarly the density increased from 183 to 194 per s.q. k.m. In total population 2/3 belong to young and middle age groups. The sex ratio in the total population is 1005 in 2001. And most of the tahsil it is a favour of female group. In total population literacy rate is 1991 was 64.18 percent which has gone up to 78.89 percent in 2001. The literacy rate is low in rural section as well as in female group. In the total population the percentage of SC and ST population was nearly 30 percent in 2001. The ST population is more in hilly and forest areas. In 1991 the literacy was 64.18 percent the district population. In the northern part of the district it was comparatively more. In the population rate was 78.89 percent particularly the rate increased more in the southern part and the spatial difference was reduced. Out of the total workers more than 75 percent are in primary occupation. In Gondia district large spatial variation in population characteristics. There are common in the past and they still persist today. These spatial differences are the result of the natural differences as The main difference is well as social disparity. between is between the northern and southern part of the district. Though there are physical barriers in the north the progress has been achieve due to the development of transport routs. The two urban centres Gondia and Tirora lie in the northern part. In the district the population increased by 10.87 percent in decade 1991 to 2001. But it also shows the resonal differences. Surprisingly the sex ratio in the district in favour of females. It is particularly good is some tahsils because the female labour contribute equally in cultivation and forest occupation. In the past this district in Madhya Pradesh and it has no relations with other parts of Maharashtra. Several migrants from Madhya Pradesh and Chhattisgarh have settled in the district. This has affected the social and

economic life of the district. When it was included in Maharashtra and development works started. The southern parts and some undeveloped tahsils show the progress. It is resulting into reducing the differences between the north and south. As trade and commerce is main occupation more important is not being created unless the secondary activity developed no progress if possible. The district shows the trend of reducing the spatial differences of population characteristics. In recent year the development in education and health care is more in the southern part and this southern part is trying come in level with northern part of the district.

#### IX. REFERENCES

- [1]. Bahekar, N.K. and Maskare, Yeshwant S. (2012): Population Growth Types in Gondia District Of Maharashtra State: 2001-2011, The Goa Geographer, Vo. IX No. 1, Dec.2012, Pp. 67-70.
- [2]. Maskare YS (2015) A Geogrphical Study of Changing Pattern of Population Characteristics In Gondia District (1991-2001) (Unpublished Ph. D Thesis).
- [3]. Lalita S Roychoudhary, NK Bahekar, YS Maskare (2014) Environment And Health In India, Internation Journal of Research in Bioscience, Agriculture & Technology, Issue-2, Valuem-II, ISSN 2347-517.
- [4]. Bahekar, N.K. and Maskare, Yeshwant S. (2013): Current Status of Forest Resources In Gondia District (Maharashtra) The Goa Geographer, Vol 97-102.
- [5]. Kudnar NS (2022) Geospatial Modeling in the Assessment of Environmental Resources for Sustainable Water Resource Management in a Gondia District, India. In: Rai P.K., Mishra V.N., Singh P. (eds) Geospatial Technology for Landscape and Environmental Management. Advances in Geographical and Environmental Sciences. Springer, Singapore. https://doi.org/10.1007/978-981-16-7373-3\_4

- [6]. Rajasekhar M, Sudarsana Raju G, et al (2021) Multi-criteria Land Suitability Analysis for Agriculture in Semi-Arid Region of Kadapa District, Southern India: Geospatial Approaches, Remote Sensing of Land, 5(2), 59-72. https://doi.org/10.21523/gcj1.2021050201
- [7]. Rajasekhar M, Gadhiraju SR, Kadam A et al. (2020) Identification of groundwater rechargebased potential rainwater harvesting sites for sustainable development of a semiarid region of southern India using geospatial, AHP, and SCS-CN approach. Arab J Geosci, pp 13-24. https://doi.org/10.1007/s12517-019-4996-6
- [8]. Rajasekhar M, SudarsanaRaju G, SiddiRaju R (2019) Assessment of groundwater potential zones in parts of the semi-arid region of Anantapur District, Andhra Pradesh, India using GIS and AHP approach. Model. Earth Syst. Environ. 5, 1303–1317. https://doi.org/10.1007/s40808-019-00657-0
- [9]. Kudnar NS (2020a) GIS-based assessment of morphological and hydrological parameters of Wainganga river basin, Central India. Model. Earth Syst. Environ. 6, 1933–1950, https://doi.org/10.1007/s40808-020-00804-y
- [10]. Kudnar NS (2020b) GIS-Based Investigation of Topography, Watershed, and Hydrological Parameters of Wainganga River Basin, Central India, Sustainable Development Practices Using Geoinformatics, Scrivener Publishing LLC, pp 301-
  - 318.https://doi.org/10.1002/9781119687160.ch19.
- [11]. Census Hand book (2001&2011 Soft Copy).
- [12]. Lillesand, T. Kiefer, R. Chipman, J.W. (2004). Remote Sensing and Image Interpretation New York: Wiley.
- [13]. Kudnar NS, Rajasekhar M (2020) A study of the morphometric analysis and cycle of erosion in Waingangā Basin, India. Model. Earth Syst. Environ. 6, 311–327. https://doi.org/10.1007/s40808-019-00680-1.
- [14]. Bhagat, Ravindra and Bisen Devendra (2016) Land use and Land cover of Wainganga River in Maharashtra using GIS and Remote sensing

- technique, Golden Research Thoughts, International Recognition Multidisciplinary Research Journal ISSN: 2231-5063, Volume 5 | Issue 9, Page No. 1-7.
- [15]. Kudnar NS (2017) Morphometric analysis of the Wainganga river basin using traditional & GIS techniques. Ph.D. thesis, Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur, pp 40–90.
- [16]. Bahekar, N.K. and Maskare, Yeshwant S. (2018): Spatio - Temporal Analysis of Sex Ratio In Gondia District of Maharshtra, INTERNATIONAL JOURNAL OF RESEARCHES AND Analytical Reviews IJRAR, 5-4, pp 321-327.
- [17]. Kudnar NS (2018) Water pollution a major issue in urban areas: a case study of the Wainganga river basin. Vidyawarta Int Multidiscip Res J 2:78– 84.
- [18]. Kudnar NS (2019) Impacts of GPS-based mobile application for tourism: A case study of Gondia district, Vidyawarta Int Multidiscip Res J 1:19-22.
- [19]. Ade V.V (2019): Farmers' Suicide In Vidarbha Region Of Maharashtra State: A Geo-Political View, Think India Journal, pp-12723-12732.
- [20]. Ade V.V (2020): Farmers' Suicide In Marathawada Region Of Maharashtra State: A Geo-Political View, Our Heritage, Vol-68-Issue,pp- 10251-10263.
- [21]. Bhagat, Ravindra and Bisen Devendra (2015) Flood Study of Wainganga River in Maharashtra Using GIS & Remote Sensing Techniques, International Journal of Science and Research, 782-785.
- [22]. Gadekar D.J, Sonkar S. (2020) Statistical Analysis of Seasonal Rainfall Variability and Characteristics in Ahmednagar District of Maharashtra, India. International Journal of Scientific Research in Science and Technology, 2395-6011, doi: https://doi.org/10.32628/IJSRST207525
- [23]. Gadekar D.J, Sonkar S. (2021). The Study of Physico-Chemical Characteristics of Drinking Water: A Case Study of Nimgaon Jali Village, International Advanced Research Journal in Science, Engineering and Technology, 8, 61-65.

- [24]. Bhagat R.S., Kudnar N.S. and Shinde H.D. (2021) GIS-Based Multi-criteria Approach towards Sustainability of Rainfall distribution and Flood hazard Areas in Wainganga River in Maharashtra, India, Maharashtra Bhugolshastra Sanshodhan Patrika, Vol. 38, No.2, pp 39-46
- [25]. Bisen, D.K., and Kudnar, N.S. (2013) A Sustainable Use and Management of Water Resource of The Wainganga River Basin: - A Traditional Management Systems. figshare. Journal contribution. https://doi.org/10.6084/m9.figshare.663573.v1
- [26]. Bisen, D.K., Kudnar, N.S. (2013) Watershed development: a case study of drought prone village darewadi source, review of research [2249-894x] d, pp-1-6.
- [27]. Bisen D.K and Kudnar N.S. (2019) Climatology, Sai Jyoti Publication, Nagpur.pp-11-211.
- [28]. Borude S. and Gaikwad S.D. (2014) Application of Spatial Variation Urban Density Model: A Study of Ahmednagar City, Maharashtra, India, Research Journal For Interdisciplinary Studies, Pp-2081-2090.
- [29]. Dongare VT, Reddy GPO, Maji AK et al(2013) Characterization of Landforms and Soils in Complex Geological Formations-A Remote Sensing and GIS Approach. J Indian Soc Remote Sens 41, 91–104.https://doi.org/10.1007/s12524-011-0195-y
- [30]. Kudnar NS(2015a) Linear aspects of the Wainganga river basin morphometry using geographical information system. Mon Multidiscip Online Res J Rev Res 5(2):1–9.
- [31]. Kudnar NS (2015b) Morphometric analysis and planning for water resource development of the Wainganga river basin using traditional & GIS techniques. University Grants Commission (Delhi), pp 11–110.
- [32]. Bahekar, N.K. and Maskare, Yeshwant S. (2015): Educational Infrastructure In Gondia District (M.S.): Spatial Analysis, International journal of Researchers in Social Sciences and Information Studies 44-59.

- [33]. Kudnar N. S. (2016) "Topographic Characteristics of the Wainganga River Basins Using GIS & Remote Sensing Techniques" Multidisciplinary Research Journal, Indian Streams Research Journal, 5- pp 1-9.
- [34]. Kudnar NS., Padole MS, et al (2021) "Traditional crop diversity and its conservation on-farm for sustainable agricultural production in Bhandara District, India", International Journal of Scientific Research in Science, Engineering and Technology, -1,35-43, doi pp. https://doi.org/10.32628/IJSRSET207650.
- [35]. Kumar BP, Babu KR, Rajasekhar M et al (2020) Identification of land degradation hotspots in semiarid region of Anantapur district, Southern India, using geospatial modeling approaches. Model. Earth Syst. Environ. (2020).https://doi.org/10.1007/s40808-020-00794-x
- [36]. Salunke V. S., Kudnar N. S. et al., (2020) Application of Geographic Information System (GIS) for Demographic Approach of Sex Ratio in Maharashtra State, India, International Journal for Research in Applied Science & Engineering Technology (IJRASET), Volume 8 Issue XI, pp-259-275.
- [37]. Salunke V. S., Bhagat R. S. et al., (2020) Geography of Maharashtra, Prashant Publication, Jalgaon, pp- 1-229.
- [38]. Kudnar NS, Diwate P et al (2022) Spatio-temporal variability and trend analysis of rainfall in Wainganga river basin, Central India, and forecasting using state-space models Theoret Appl Climatol, 150,1-2, 469-488. pp https://doi.org/10.1007/s00704-022-04168-4
- [39]. Salunke V.S, Lagad S.J et al. (2021) "A Geospatial Approach to Enhance Point of the Interest and Tourism Potential Centers in Parner Tehsil in Maharashtra, India", International Journal of Scientific Research in Science, Engineering and Technology (IJSRSET), Volume 8 Issue 1, pp. 186-196, https://doi.org/10.32628/IJSRSET218136
- [40]. Salunke V. S. (2019) Study of urbanization Trends Western Maharashtra, Maharashtra in

- Bhugolshastra Sanshodhan patrika, 36-2, pp 67-
- [41]. Salunke V. S., Lagad S.J. et al., (2020) Geography of India, Prashant Publication, Jalgaon, pp- 1-300.
- [42]. Bisen D, Kudnar N. Borude S et al. (2022) Geothe Spatial Modeling in Assessment Environmental Resources for Sustainable Water Resource Management in a Semi-Arid Region: A Study of Bhandara District, India International Journal of Scientific Research in Science, Engineering and Technology 9-4, pp. 286-299 https://doi.org/10.32628/IJSRSET229445.
- [43]. Bahekar, N.K. and Maskare, Yeshwant S. (2017): Distribution And Density of Population in Gondia District of Maharashtra, International Journal Of Researches In Social Sciences And Information Studies, 5-2, pp 1-6.
- [44]. Maskare, Yeshwant S. Raychoudhari L. (2018): Female Work Participation In Gondia District (M. S.): A Geogrphical Analysis, International Journal Of Researches And Analytical Reviews Ijrar, 5-4 pp 87-91.
- [45]. Kudnar NS (2022) Geospatial modeling in the assessment of environmental resources for sustainable water resource management in a semiarid region: A GIS approach, Current Directions in Water Scarcity Research, 7, 135-151. https://doi.org/10.1016/B978-0-323-91910-4.00009-1

# Cite this article as:

Sitaram Uttamrao Anpat, "Decadal Variation in Rural-Urban Populations and its Socio-economic impact on Gondia District of Maharashtra", International Journal of Scientific Research in Science and Technology (IJSRST), Online ISSN: 2395-602X, Print ISSN: 2395-6011, Volume 10 Issue 1, pp. 412-422, January-2023. February Available at doi https://doi.org/10.32628/IJSRST2310146

Journal URL: https://ijsrst.com/IJSRST2310146