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URBANISATION IN THE ARKAVATHY CATCHMENT

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ABSTRACT

The study concentrated urbanisation in the Arkavathy Catchment, and the result of that study shows that from 1991 to 2011 the population growth in the study area. The present study made an attempt to study urbanisation of the entire catchment area for a period of



three decades using census data. The population growth rate in the catchment area was 76.13 from 1991 to 2001 and 44.45 from 2001 to 2011.

KEYWORDS :Arkavathy Catchment , population growth , entire catchment area .

INTRODUCTION

Location of the Study Area

The Arkavathy is a tributary which flows through Bangalore Urban and Bangalore Rural in the general direction from north to south. The Arkavathy Catchment lies between latitudes 12° 55' 44.505" N and 13° 22' 47.346" N and longitudes 77° 19' 26.11" E and 77° 41' 16.047" E. cover the area of 987.58 km².

Objective 4: To study the Urbanisation in the Arkavathy Catchment.

Data used

Population data have been collected from the Census of India for three time periods, namely, 1991, 2001 and 2011.

METHODOLOGY

Using Arc GIS 10.3, a population database has been created, based on the density of population in urban and rural areas: rural population less than 400 per km² and urban density is more than 400 per km². Were classified, however, separate classification has been adopted as shown in Table. The purpose of making this classification is to draw information about the nature of population growth in the villages located in diverse geographical situations.

To calculate population density, the following formula has been employed:

$$\text{Population Density} = \frac{\text{Number of People}}{\text{Total Geographical Area}}$$

Classification of Urban and Rural Population Densities

Classification	Rural Population Density	Urban Population Density
Very Low	> 80	<1000 (>400)
Low	81 – 160	1001 - 2000
Medium	161 - 240	2001 - 3000
High	241 - 320	3001 – 4000
Very High	321-400	➤ 4000

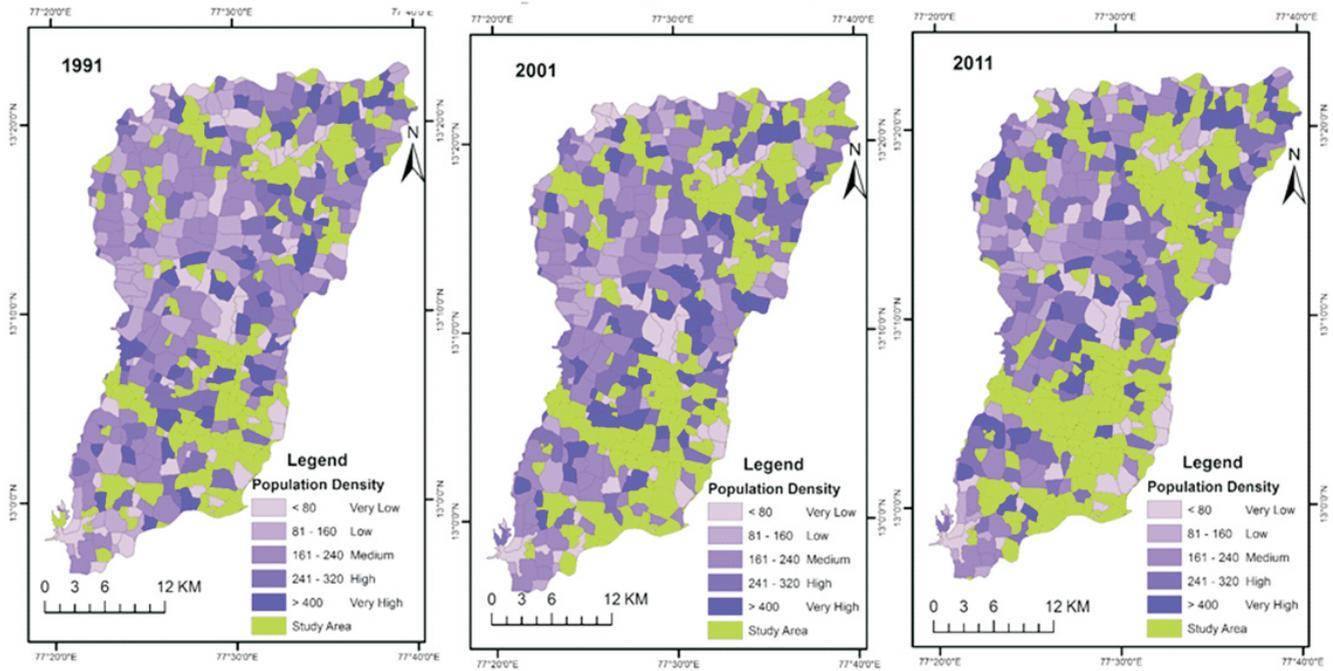
Source: Scholars Classification

The population density during different decades was examined for each village. Urbanisation along a 1-km buffer zone of the State and National Highways have been examined for three Census years. Urbanisation along the 1-km buffer zone for major tanks and river has also been examined because the State Government of Karnataka has restricted and regulated constructions along the 1-km buffer zone along the river from the year 2003. To monitor/assess urbanisation around the three major cities in the study area, a 5-km buffer zone has been created and urbanisation for three decades were investigated.

Rural Population Density in 1991, 2001 and 2011

Population density has been calculated and thematic maps have been prepared according to Table and figures. There were 373 villages identified out of the 507 villages in 1991. It has however decreased to 339 out of the 505 (two villages added to town/city wards) in 2001 and it has further been reduced to 307 villages out of the 505 in 2011. Villages with very low population density, which was less than 80 per km², in 1991, were 84; they reduced to 67 in 2001 and raised to 68 in 2011. Low density villages have also been reducing in number from 1991 to 2011 as 62, 45 and 39, respectively for 1991, 2001 and 2011. Medium density villages have also kept on reducing in number from 106 in 1991 to 90 in 2001 and to 80 in 2011. But high and very high classes had high population density with 70 per km²; it has increased to 79 per km² in 2001 and decreased further to 63 per km² in 2011. Very high density villages have kept on increasing in the study area where it was 51, 58 and 57 villages existed during 1991 to 2011, it has increased to 58 villages in 2001 and in 2011 it has come down to 57 villages.

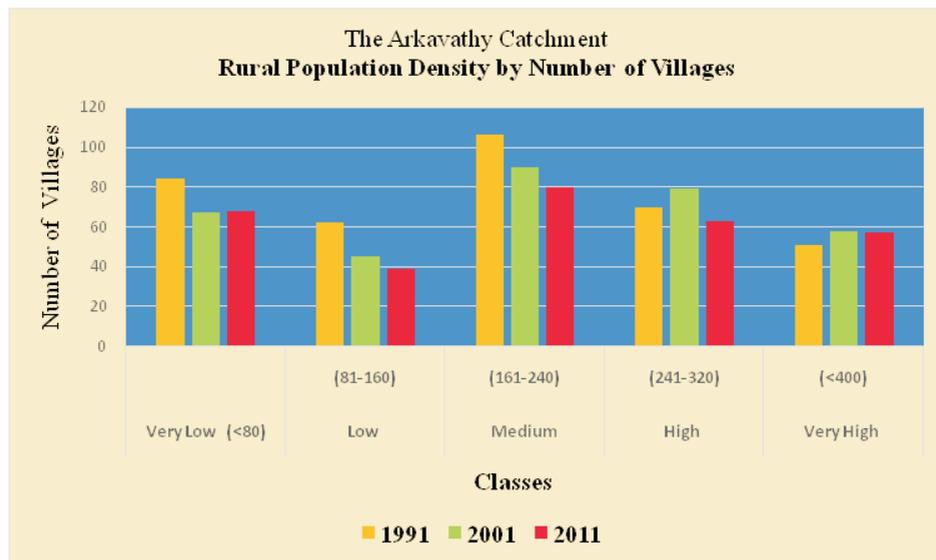
The Arkavathy Catchment
Distribution of Rural Population 1991, 2001 and 2011



Rural Population Density: Village Trends as per Classification

Census Year	Very Low (<80)	Low (81-160)	Medium (161-240)	High (241-320)	Very High (>400)	Total Number of villages
1991	84	62	106	70	51	373/507
2001	67	45	90	79	58	339/505
2011	68	39	80	63	57	307/505

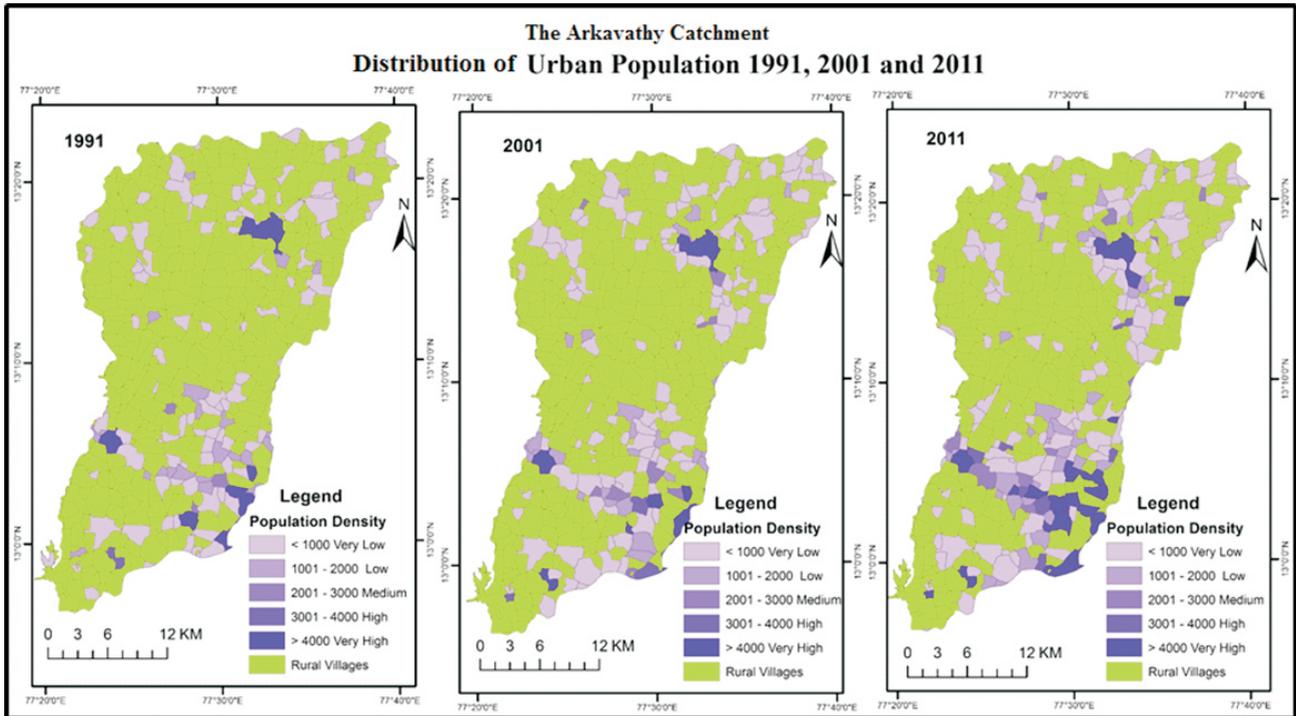
Source: Scholar's counting.



Urban Population Density in 1991, 2001 and 2011

Places with more than 400 persons per km² is shown in table. The number of urban areas has kept increasing from 1991 to 2011 from 132/507, to 166/505 and to 198/505 urban areas. The number of very low density urban areas were 95 in 1991, it increased to 118 in 2001 and to 120 in 2011. The low density urban areas have also kept increasing with 21, 23 and 33 urban areas, during all the decades. Medium urban density, which is between 2,001 and 3,000 per km², have increased from 4 to 8 and to 10. During 1991, only one high density areas was identified; the number increased to 5 urban areas in 2001 and further increased to 7 in 2011.

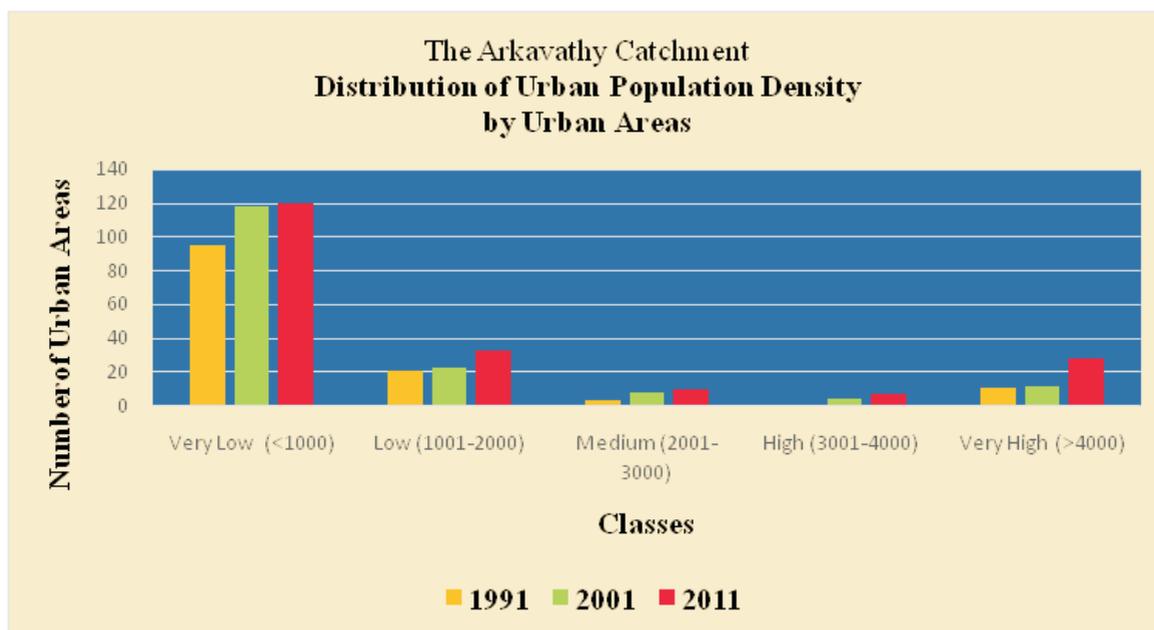
Figure 7.3



Urban Population Densities by Classification 1991, 2001 and 2011

Census Year	Very Low (<1000)	Low (1001-2000)	Medium (2001-3000)	High (3001-4000)	Very High (>4000)	Total Number of villages
1991	95	21	4	1	11	132/507
2001	118	23	8	5	12	166/505
2011	120	33	10	7	28	198/505

Source: Scholar’s counting.



The population density of more than 4,000 persons per km² was identified in 11 places in 1991, it has increased to 12 places in 2001 and to 28 places in 2011. The places so identified are Bashettihalli, Dargajogihalli and Doddaballapur in Doddaballapur taluk; Devarahalli in Devanahalli taluk, Nelamangala town in Nelamangala taluk and Maranahalli, Adikemaranahalli, Kereguddadahalli, Hanumanthanagar, Chikkabanavara, Madanayakanahalli, Chikkabidarekallu, Doddabidarekallu, Srikantapura, Laggere, Peenya, Dasarahalli, Abbigere, RamachandrapuraJalahalli, Vartur, Bagulkunte, Kammegondanahalli, Hegganahalli, Shettihalli and Lingarajapura in Bangalore North taluk. Urbanisation has been taking place near Bangalore Urban, Nelamangala, and Doddaballapur and also its industrial area along the NH 4.

CONCLUSION

The study concludes that the urbanisation is increasing every census year to year. The study proves that the Arkavathy catchment area severely affected from urbanisation, especially near Doddaballapur, Nelameangala and Peenya and their industrial area. Along the NH and SH urbanisation is studied and the result shows along the NH 4 urbanisation is identified more compare to other roads in the study area, it is because of it connects between Bangalore and Nelamangala, along this road lots of industries and new layouts also developed.

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