

Hierarchical Distribution of Rural Settlement in Kolhapur District: A Geospatial

Analysis

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Abstract:

The Indian settlement system is typically a village system. The village community has been essentially an agro-craft community the economic organization based on the local soil, animal and plant world and their simple utilization at direct subsistence level. Here an attempt has been made to understand the settlement system and its evolution to the present context. The most conspicuous physiographic feature of Kolhapur district, which have not only influenced the availability of various natural resources within the region the region but also influenced the economic and demographic patterns as seen today. Here an attempt has been made to study the spatial distribution of settlement on the basis of population. According to the 2011 census there are 1195 inhabited villages' in the Kolhapur District, having a population of 2645992. The rural settlements of the region have been categorized according population size in seven groups from less than 200 persons to more than 10,000 persons. Present study is mainly based on secondary data which is collected from the District Census Handbook of Kolhapur District 2001 to 2011. Statistical methods and GIS technique have been applied to measure settlement pattern in study area.

Key Words: Settlement system, Population size class, inhabited villages.

Introduction:

Rural landscape in India is dominated by the Villages and the Primary activities carried out by the inhabitants of those villages. Over 5.9 lakh villages are spread all over the country (Khullar, 2007, P.p 415). According to Blache, "India is per excellence, a country of villages". Agriculture is the most important of all the primary activities carried out by villagers. Thus villages are par excellence characteristic of agricultural landscape of the rural India. Settlement of the countryside is the mainstay of the human society. Rural settlement is the only element in human geography where we may really search and try to locate the genesis of settlement geography. In this way rural settlements are the topographic expression of the grouping and arrangement of two fundamental elements of human geography, houses and highways.

There are two sets of variables which effect settlement types in rural areas. We may call them agglomerating and deagglomerating factor. These parameters are both physical and cultural and lead

to compact and dispersed settlements according to the relative influence of centripetal and centrifugal forces. History of settlement is as old as history of man himself. Since the appearance of man on the surface of the earth, he started looking for a place to settle for his safety and where he had to do minimum efforts to gain his food. In that stage man was dominated by nature, with the course of time he started interacting with nature and as a result the modern man has come up with highly complex settlement system.

Objectives:

1. To study hierarchical classification of rural settlement based on Population Size class in Kolhapur district.
2. To study impact of physiographic structure on hierarchical distribution of rural settlement in Kolhapur District.

Data Base And Methodology:

Spatial distribution of rural settlement is basically based on population size class. According to the 2011 census there is inhabited villages (Grampanchayat) 1195 in Kolhapur District, having a population of 2645992. The rural settlements of the region have been categorized according population size in seven groups from less than 200 persons to more than 10,000 persons. Present study is mainly based on secondary data which is collected from 2011 District Census Handbook of Kolhapur District. To study impact of physiographic structure on hierarchical distribution of rural settlement on the basis of Cartosat 30 met resolution data. Statistical methods and GIS technique have been applied to measure settlement pattern and distribution in study area.

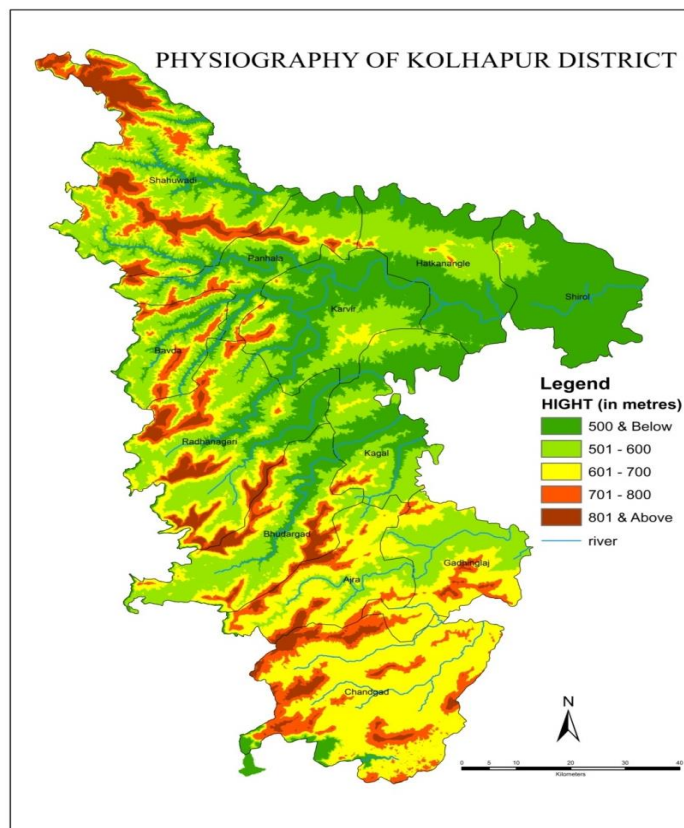
Study Area:

Kolhapur district is situated in the extreme southern part of Maharashtra State. It lies between 15° 43' and 17° 17' north latitudes and 73° 40' and 74° 42' east longitudes. It is surrounded by Sangli district to the north, Karnataka State to the east and south and Ratnagiri and Sindhudurg districts to the west. The Sahyadri ranges to the west and Varna River to the north form the natural boundaries. The district has an area of 7,685.00 sq.kms. and a population of 3876001 (3.45) persons as per Census 2011. While the area of the district accounts for 2.5 percent of the total area of the State, the districts population constitutes 3.45 percent of the total population of the State. The headquarters of the district is at Kolhapur. Kolhapur was the capital of the former Kolhapur State, a premier State of the Deccan and was also the seat of the Residency for Deccan States. It derives its importance from its past political associations and its present position as a great commercial, religious, cultural and educational centre. It is well connected both by road as well as by rail.

Physiography:

The Physiography of the Kolhapur district can be best appreciated in the background of its geology and relief. The district, on the whole, is a part of the Deccan table-land with an average

height of 548 meters above mean sea level, with the Sahyadrian scarp forming the most prominent feature along its western administrative boundary.

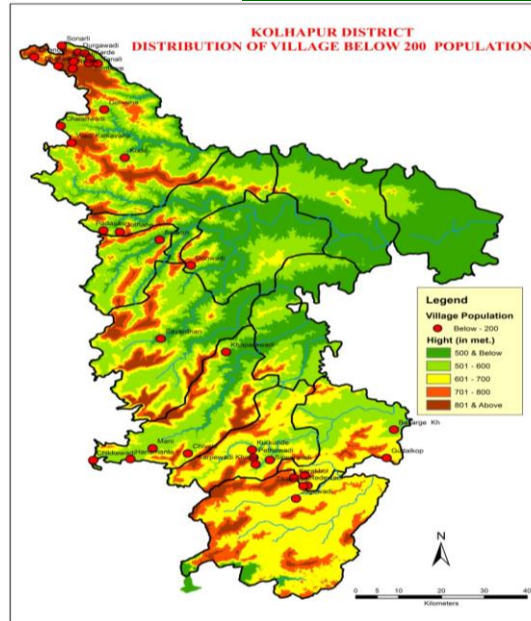


The gently uneven and mature looking crest-line of the Sahyadries, the Kolhapur portion of the plateau is marked by several hill ranges which emerge from the main range and develop an eastward or north-eastward trend. Some of them extend up to 40 to 45 kms while others terminate after a short stretch. But all these ranges have that characteristic 'Lava' topography consisting of flat tops and steep escarpments on flanks which carry several terraces or 'steps'. The ranges rise to about 300 meter to 450 meters above the valley floors.

Size Class Distribution Of Villages

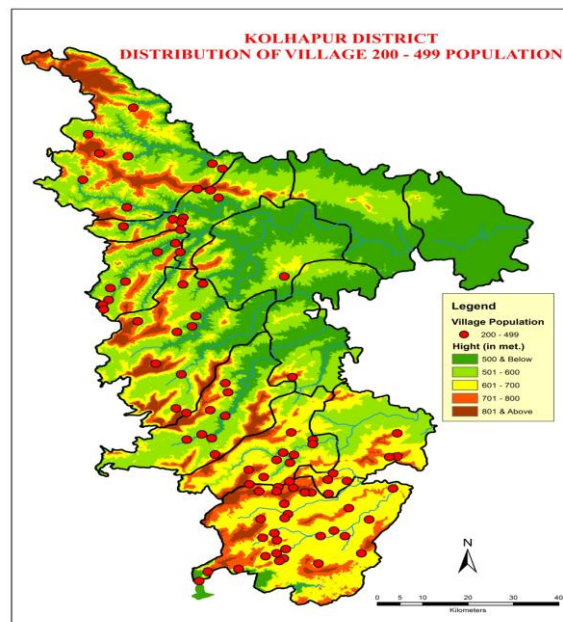
Size Class Less than 200:

Among the 1195 in 2011 census inhabited 16 villages (1.3) are small sized with a population below 200. There are 16 villages with less than 200 inhabitants each constituting 1.3 percent of the total inhabited villages with 0.1 percent (1812 persons) of the rural population of the district. The 12 tehsil of the district the percentage of villages with less than 200 population size is the highest in Ajra (4.12 percent) in 2011. Lowest in Karvir tehsil (0.8 percent) in 2011. Within 4 tehsil of this district such as Hatkanangale, Shirol, Kagal and Chandgad do not have any villages with population range less than 200 in 2011 census.



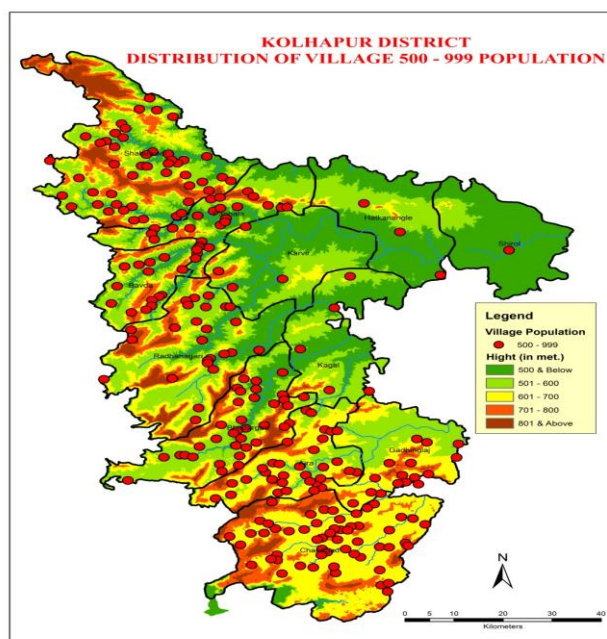
Size Class 200 – 499:

In this size class there are 124 villages (10.3 percent) in 2011 census. In this 124 villages with population size 200-499 accounting for 10.3 percent of the total inhabited villages with 1.8 percent (46835 persons) of the rural population of the district. The percentage of villages with population size 200-499 is highest in Bavda tahasil (28.9 percent) and lowest in Kagal tahasil (1.1 percent) in 2011. Within 2 tehsil of this district such as Hatkanangale and Shirol do not have any villages with population range 200 to 499 in 2011.



Size Class 500 – 999: According to census 2011 there are 294 villages (24.60 percent) are in the size class 500-999. In size class of 500 – 999 population there are 294 villages accounting 24.60

percent of the total inhabited villages with 8.3 percent (219049 persons) of the rural population of the district. The percentage of villages with population size 500-999 is highest in Bhudargad (39.5 percent) and lowest in Shirol (1.9 percent)



Size Class 1000 – 1999:

In size class of 1000 to 1999 there are 363 villages (30.4 percent) 2011. These size class villages with population size 1,000-1,999 accounting 30.4 percent of the total inhabited villages with 19.8 percent (523532 persons) of the rural population of the district. The percentage of villages with population size 1,000-1,999 is highest in Shahuwadi tehsil (43.6 percent) and lowest in Shirol tahsil (5.6 percent).

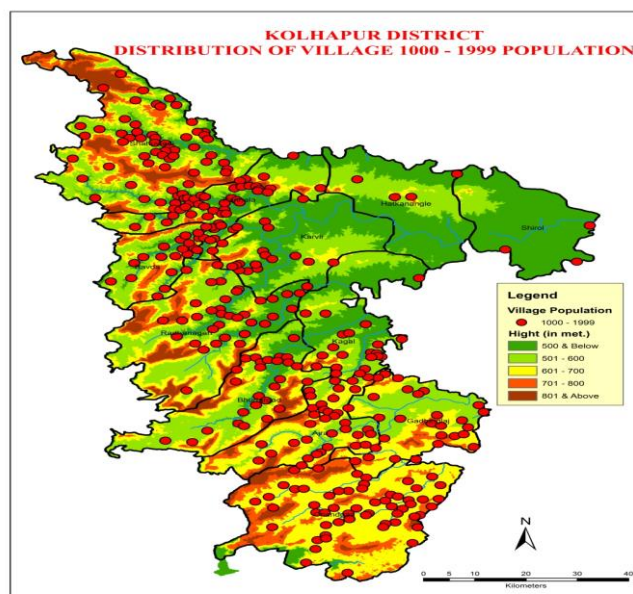


Table No: 1 Distribution of Rural Settlement According to population Size Class

Sr.No	District		Class (Rural Settlement in Per Cent)							Total
			I	II	III	IV	V	VI	VIII	
1	Shahuwadi	No. of Settlement	2	9	45	58	18	1	0	133
		% of Settlement	1.50	6.77	33.83	43.61	13.53	0.75	0.00	100
2	Panhala	No. of Settlement	2	13	29	50	27	7	1	129
		% of Settlement	1.55	10.08	22.48	38.76	20.93	5.43	0.78	100
3	Hatkanangale	No. of Settlement	0	0	3	6	18	18	13	58
		% of Settlement	0.00	0.00	5.17	10.34	31.03	31.03	22.41	100
4	Shirol	No. of Settlement	0	0	1	3	26	18	6	54
		% of Settlement	0.00	0.00	1.85	5.56	48.15	33.33	11.11	100
5	Karveer	No. of Settlement	1	4	13	25	57	18	3	121
		% of Settlement	0.83	3.31	10.74	20.66	47.11	14.88	2.48	100
6	Gaganbawada	No. of Settlement	1	13	16	14	1	0	0	45
		% of Settlement	2.22	28.89	35.56	31.11	2.22	0.00	0.00	100
7	Radhanagari	No. of Settlement	1	12	30	36	30	5	0	114
		% of Settlement	0.88	10.53	26.32	31.58	26.32	4.39	0.00	100
8	Kagal	No. of Settlement	0	1	5	26	44	7	1	84
		% of Settlement	0.00	1.19	5.95	30.95	52.38	8.33	1.19	100
9	Bhudargad	No. of Settlement	4	14	45	34	15	1	1	114
		% of Settlement	3.51	12.28	39.47	29.82	13.16	0.88	0.88	100
10	Ajra	No. of Settlement	4	22	31	32	7	1	0	97
		% of Settlement	4.12	22.68	31.96	32.99	7.22	1.03	0.00	100
11	Gadhinglaj	No. of Settlement	1	5	21	28	27	7	1	90
		% of Settlement	1.11	5.56	23.33	31.11	30.00	7.78	1.11	100
12	Chandgad	No. of Settlement	0	31	55	51	18	0	1	156
		% of Settlement	0.00	19.87	35.26	32.69	11.54	0.00	0.64	100
Kolhapur District		No. of Settlement	16	124	294	363	288	83	27	1195
		% of Settlement	1.34	10.38	24.60	30.38	24.10	6.9	2.26	100

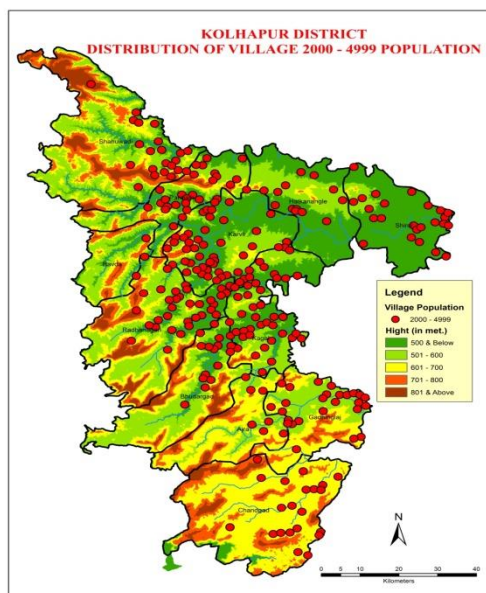
Source: Kolhapur District Census Handbook 2011.

Table No: 2 Distribution of Rural Settlement According to population Size Class

Sr.No	District		Class (Population in Per Cent)							Total
			I	II	III	IV	V	VI	VIII	
1	Shahuwadi	Population	280	3168	32168	87836	49701	7169	0	180322
		Population in %	0.16	1.76	17.84	48.71	27.56	3.98	0.00	100
2	Panhala	Population	337	4897	22123	71959	80829	42457	29001	251603
		Population in %	0.13	1.95	8.79	28.60	32.13	16.87	11.53	100
3	Hatkanangale	Population	0	0	2840	9042	59631	130241	205474	407228
		Population in %	0.00	0.00	0.70	2.22	14.64	31.98	50.46	100
4	Shirol	Population	0	0	694	4176	91003	126129	98131	320133
		Population in %	0.00	0.00	0.22	1.30	28.43	39.40	30.65	100
5	Karveer	Population	166	1720	8360	35949	181091	115184	39534	382004
		Population in %	0.04	0.45	2.19	9.41	47.41	30.15	10.35	100
6	Gaganbawada	Population	197	4830	11124	17573	2048	0	0	35772
		Population in %	0.55	13.50	31.10	49.13	5.73	0.00	0.00	100
7	Radhanagari	Population	195	4568	22477	51569	86692	34212	0	199713
		Population in %	0.10	2.29	11.25	25.82	43.41	17.13	0.00	100
8	Kagal	Population	0	465	3930	41723	131337	41435	11182	230072
		Population in %	0.00	0.20	1.71	18.13	57.09	18.01	4.86	100
9	Bhudargad	Population	261	5315	33303	47905	44108	5175	14301	150368
		Population in %	0.17	3.53	22.15	31.86	29.33	3.44	9.51	100
10	Ajra	Population	220	8741	24041	44430	17748	0	7828	103008
		Population in %	0.21	8.49	23.34	43.13	17.23	0.00	7.60	100
11	Gadhinglaj	Population	156	2025	15798	40156	82281	46947	11186	198549
		Population in %	0.08	1.02	7.96	20.22	41.44	23.65	5.63	100
12	Chandgad	Population	0	11106	42191	71214	52504	0	10205	187220
		Population in %	0.00	5.93	22.54	38.04	28.04	0.00	5.45	100
Kolhapur District		Population	1812	46835	219049	523532	878973	548949	426842	2645995
		Population in %	0.1	1.77	8.28	19.8	33.22	20.75	16.13	100

Source: Kolhapur District Census Handbook 2011.

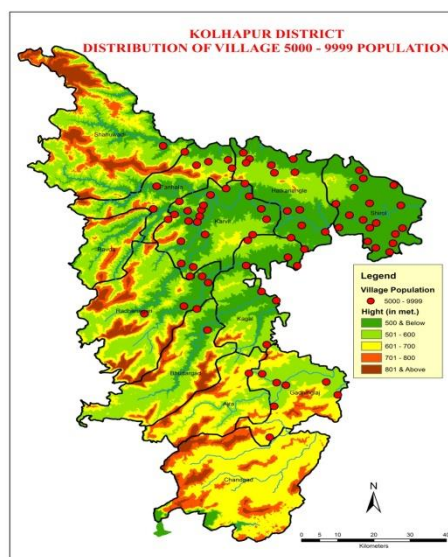
Size Class 2000 – 4999:



In this size class 288 villages (24.1 percent) are found in 2011 census. In the size class of 2,000 - 4999 288 villages with population size 2,000-4,999 accounting 24.1 percent of the total inhabited villages with 32.2 percent (878973 persons) of the rural population of the district. The percentage of villages with population size 2,000-4,999 is highest in Kagal (52.4 percent) in and lowest in Bavda tehsil (2.2 percent) in 2011.

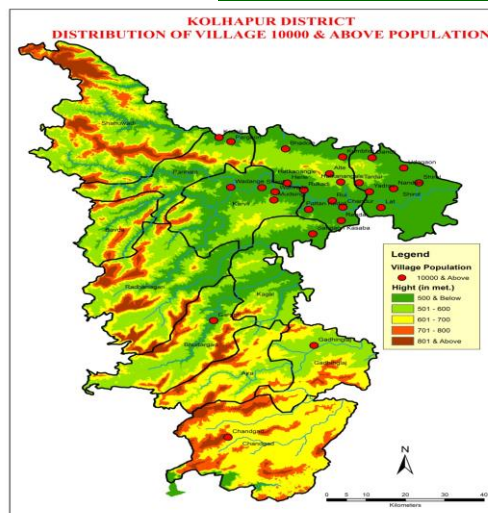
Size Class 5000 - 9999:

In 2011 census there are 83 villages (6.9 percent) in size class 5,000-9,999. These 83 villages with population size 5000 - 9999 accounting 6.9 percent of the total inhabited villages with 20.7 percent (548949 persons) of the rural population of the district. The percentage of villages with population size 5,000- 9,999 is highest in Shirol tehsil (33.3 percent) and lowest in Shahuwadi tehsil (0.7 percent) in 2011. Within 2 tehsil of this district such as Gaganbavada and Ajra do not have any villages with population range 5000 to 9999.



Size Class 10,000 & Above:

The size classes of 10000 and above there are 27 villages (2.3 percent) in 2011. There are 27 villages with population size 10,000 and above constituting 2.3 percent of the total inhabited villages with 16.3 percent (426842 persons) of the rural population of the district. The percentage of villages with population size 10,000 and above is highest in Hatkanangle tehsil (22.4 percent) and lowest in Chandgad tehsil (0.6 percent) in 2011. Shahuwadi, Bavda, Radhanagari, Kagal and Ajra tehsil have no villages in this range 10,000 and above in 2011.



Conclusion:

Western part of Kolhapur district is remote and hilly area. The Sahyadri Hills are spread in a north-south direction along the western boundary of the district. These hills are densely forested. In 2011 census total $\frac{1}{4}$ (25 per cent) of Settlements (less than 500 population) found in Gaganbavada 31.11, Ajra 26.80 per cent. These small settlements are called as Wady and Dhangarwady. In Kolhapur district there are 1195 rural settlement and these settlement are occupies 26, 45, 992 population.

The small size settlements (less than 1000 populations) are mainly located in foot hill (Above 700 met.) area of Shahuwadi, Bavda, Bhudargad, Ajra and Chandgad tehsil in the western part of Kolhapur district. There are 36.32 percent (434) settlement occupies 10.12 percent (2,67,696) of population.

The medium size (1000 - 5000) settlement are found Panhala, Radhanagari, Gadhingalaj, Kagal and western part of Karvir tehsil in clustered format. These 53 percent (651) of settlement occupies 54.48 percent (14,02,505) of population and located near river bank.

The eastern part of Kolhapur district is covered by plain area (Below 500 met.) of Panchaganga, Krushna and his sub tributaries. The large size 9.20 (110) percent settlement occupies 36.88 (9,75,791) percent population. Sites (Absolute location of Settlement) and Situations (Relative location of Settlement) are mostly affected on rural settlement. In study area Hatkanangale 48.3 and 53.4 and Shirol 44.4 per cent (Above 5000 Population) of Settlement in 2011 are located on Panchaganga and his sub tributaries of river bank. Agricultural situation is a most dominant factor of that settlement.

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