

Geographical Perspective of Forest Distribution in Ahemdnagar District, Maharashtra State, India

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Abstract: This research paper is based on secondary data and depends on the forest for the year 1992- 97 as well as the period 2012 and 2016 years. This research paper is from Ahmednagar district and 14 tehsils have been considered in study area. The Geographical area is 17048 (Sq.km) and forest area of the Ahemdnagar District is 1994 square kilometers which is 11.70 percentages of the total geographical area of the Ahemdnagar District. Natural resources area the bases of prosperity of any stats under which the land, water, forest are includes. The relief availability of water, soil, and climate are importance factors for development of natural vegetation. The maximum vegetation covered in Akole tehsil out of other tehsil in Ahemdnagar District. Protected Area are Kalsubai, Harishchandra Garh Wildlife Sanctuary (WLS), Rehekuri WLS and Maldhok WLS (Part).

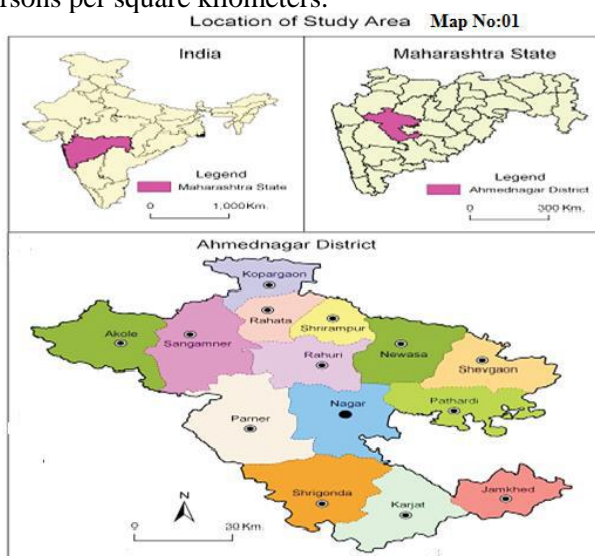
Key Words: Resources, Vegetation, Forest, Ahemdnagar, Natural and Human Resources, GIS.

1. INTRODUCTION:

Plants are very important from a natural point of view, mainly to enhance the natural beauty and affect the temperature and rainfall in nature, so plants are needed to run the natural cycle, mainly the oxygen cycle, the carbon cycle, and the increasing water level. Plants are directly and indirectly important to humans, from vital gas to wood. Reactions also depend on the plant, which helps reduce soil erosion and increases water levels. Plants are used to maintain natural beauty. Forests are also important as a haven for wildlife and many products are available to humans from the forest. (Prithwish Roy2007) According to Zimmermann's The word resources does not refer to a thing or a substance but a function which a thing or a substance may perform or to operation in which it may take part namely the function or operation of attaining a given end such as satisfying a want. Other words the word resources is an abstraction reflecting human appraisal and relating to a function or operation. (Prithwish Roy2007) Forest are close association of plants. According to Allen and Sharp 'It is a community of trees and associated organisms covering a considerable area, utilizing air, water and minerals to attain maturity and to produce itself and capable of furnishing man and land with indispensable products and services. (Shejul Meena Eknath 2020; Shejul Meena Eknath et.al, 2020) Resources is two types first is natural resources and second human resources. Resources measuring is not easy task. Resources is two types natural and human resources. (Gadekar Deepak J 2015; Gadekar Deepak J 2016; Gadekar Deepak Janardhan 2018) Uma Gple et.al, (2018) forest are close formation of tree growing together at one place and one of the largest renewable natural resources. (Gadekar Deepak Janardhan 2016; S.D Gulave 2020) forest is natural resources, the vegetation delineation using a Landsat-7 & 8 (OLI) ETM+ Data for resourceful vegetation mapping. A forest is a complex ecosystems which is mostly composed of tress trees and is frequently a closed covering. (Bisen D.K et al., 2013; Gadekar Deepak J 2018; Anil A Landge et.,al. 2020)Water is importance key of other natural resources. (Gadekar Deepak J 2019) the resources are unequal distribution because of affecting factors effected on resources e.g topography, climate, soil, water bodies. The forest distributions depend on the physical, geographical, climatic and ecological factors there are different types of forest e.g. evergreen forest and deciduous forest. (Sonawane Vijay R. et.,al. 2020; Sonawane Vijay R. et, al.2020) soil as a resources and natural resources area the bases of prosperity of any stats under which the land, water, forest are includes. According to environmental experts, 30% of the total land area in India needs to be under forest but today only 12% of the land in India is under forest. There is a need to increase the forest cover not only by protecting the existing forests but also by increasing the forest cover. People who live in or near forests understand the importance of forests because their lives depend on forests. Pure forests are very useful but we rarely realize that the water we use comes only from the existence of forests. Most of the medicines you use come from forest herbaceous plants. The paper furniture you use is also made available to you by wood, and most importantly, it absorbs the oxygen and carbon dioxide from the atmosphere. Therefore, this research paper needs to be done. It is an attempt to conduct a geographical study on the distribution of plants in Ahmednagar district.

1.1. STUDY AREA:

The present study Ahmednagar district has been selected as a study area. It extends between 18° 20' and 19° 59' north latitudes and 73° 40' to 75° 43' east longitudes (Map.1) located in part in the upper Godavari basin. The district is very dense in shape and length of 200 km. a width of 210 km. This study region is divided into there are three physical divisions namely, first Sahyadri moutons ranges i.e. Kalsubai, Adula, Baleshwar and Harishchandragad, second Plateau third plains area. The Godavari, Bhima River is the main rivers in this district with the major tributaries are Paravara, Mula, Sina, Dhora, Kukdi ect. And the recharge (water available) of rivers is mainly depending on rainfall in western ghat. Ahmednagar district occupies 17,048 square km geographical area. The administratively there are divided into 14 tahsils. The average annual rainfalls is 578.8 mm. (22.79") and mean daily maximum temperatures is 39°C and mean daily minimum temperature is 11.7° C. In study region 71.10 percent area under cultivation area out of them 32.40 percent is irrigated and 67.60 percent rain fed or rain shadow area. According to 2011 census population is 45, 43,083 in which male and female are 2,348,802 and 2,194,281 correspondingly. The density of population was 266 persons per square kilometers.



1.2. OBJECTIVE:

The objective of this study is to demarcate the forest area and to analyses the classification of forest on the base of different types of vegetation. The main objective of this research is to study the geographical distribution between 1992- 97 to 2011- 12 and 2016 years.

2. DATABASE AND METHODOLOGY:

The analysis based on secondary data collected from Ahmednagar district statistical website. The obtained data for forest has been converted in percentage values for better understanding and categorized into three zones are high, moderate and low. The used cartographic methods e.g bar graph etc. The data analyzed and presented in the form of table and maps with analysis is done with the help of SPSS software and for mapping purposes used Arc GIS10.3 version GIS software. The data is represented with the help of suitable classification groped of the forest area in first high forest area under grouped in more than 22 percentage covering forest area used this criteria second grouped less than 22-10 percentage is moderated forest area and low forest area having less than 10 percentage forest area in total geographical area. The forest area prepared in 2016 years this data collected Directorate of Economics and Statistics Ahmednagar district Planning Department, Government of Maharashtra, India.

3. RESULT AND DISCUSSION:

After the Industrial Revolution and the development of technology, we see that the consumption of vegetation area is declining as the growing demand for plants is the most important concern as a large amount of economic transactions are dependent on these plants as well as a variety of products are grown on these plants. Temperature and rainfall are the two major factors affecting the forest ecosystem. The special presence of temperature and rainfall is not related to the earth's surface. The depletion of vegetation is a serious matter. In countries like India, this description needs special attention as human beings have evolved due to various technologies but they have not been able to pay attention to this environment, so we are facing various environmental problems. The main reason for deforestation in India is that forests are used extensively as fuel in rural areas, which is why you can see deforestation in India. At the same time, the growing population in India has led to deforestation due to the availability of large tracts of land, the

availability of space for factories to build houses for construction of transport routes and large scale deforestation in India for various reasons such as agriculture. (Kudnar, N.S., 2016; Kudnar 2017) topography result in rainfall, and impact of rainfall on distribution of vegetation. Bisen, D.K. and Kudnar N.S. (2019) Climate is importance factors for influencing on resources. So the topography and rain fall in ahmednagar district are observed to have affected the distribution of vegetation. In which the maximum forest covering in found in the Akole Tehsil (27.2 percent) and second Rahuri (15.4 percent) with third number Parner (10.1 percent). The maximum vegetation covered in Akole tehsil out of other tehsil in Ahemdngar District. Protected Area are Kalsubai, Harishchandra Garh Wildlife Sanctuary (WLS). Then Parner (10.1percentage), Shrigonda (9.5 perctage), Karjat (8.8 perctage) in these tehsil moderate and low forest but importance Rehekuri WLS and Maldhok WLS (Part) it is found this area. Show table no 01 Tehsil Kopargaon, Parner and Sanganner tehsils has negative changes in the forest area in the years 1992 -97 to 2011 -12. Also Akola tehsil has shown the most positive changes followed by Jamkhed, Karjat, Nagar, Nevasa, Pathardi. Rahuri and Shevgaon tehasils.

Table no 01: Forest area in Hectares and percentage (1992-97 to 2011-12)

Name of Tehsils	Forest area in Sq.km (1992-97)	Forest area in Sq.km (2012)	Forest area in percentages (1992-97)	Forest area in percentages (2011-12)	Volume of Change 1992-97 to 2011-12
Akole	417	416	24.31	29.44	5.13
Jamkhed	38	37	2.22	2.62	0.40
Karjat	131	130	7.64	9.20	1.56
Kopargaon	15	0	0.87	0.00	-0.87
Nagar	139	131	8.10	9.27	1.17
Nevasa	15	14	0.87	0.99	0.12
Parner	267	187	15.57	13.23	-2.33
Pathardi	61	64	3.56	4.53	0.97
Rahata	0	0	0.00	0.00	0.00
Rahuri	158	157	9.21	11.11	1.90
Sanganmer	304	114	17.73	8.07	-9.66
Shevgaon	12	11	0.70	0.78	0.08
Shrigonda	158	152	9.21	10.76	1.54
Shrirampur	0	0	0.00	0.00	0.00
Total	1715	1413	100	100.00	

Sources: Directorate of Economics and Statistics Ahmednagar district

According to table 02 the change of forest area in the year 2011 to 2016, the negative forest in Akole, Karjat, Nagar, Parner, Sanganmer and Shrigonda tehsils and in the remaining tehsils see positive change forest area . The most important reason for this is the growing population in these areas as well as the increasing amount of land, deforestation for houses, and deforestation for various reasons, so the forest area is becoming negative. But in some tehsil we see increase in forest area, first Rahuri tehsil comes first, then Jamkhed , Nevasa , Pathardi, Shevgaon tehsils, we see increase in forest area. Graph no 01 considering the years 1992 -97 and 2011 -12 to 2016, you can see that there is an increase in forest in Akole tehsil Karjat Nagar, Pathardi Rahuri and Shrigonda tehsils. Out of tehsils tehsil, Akole tehsil has the highest and increasing forest area. Also in Sanganmer tehsil it is seen that there is a big decrease then there is negative area in Parner tehsil and also in Jamkhed, Kopargaon, Nevasa, Shevgaon, Shrirampur tehsil it is seen that there is negative area.

Table no 02: Forest area in Hectares and percentage (2016 year)

Name of Tehsils	Total Geographical area in Hectares	Forest area in Hectares	Forest area in percentages	Change Value 2011-12 to 2016
Akole	150400	41698	27.7	-1.74
Jamkhed	87524	3772	4.3	1.68
Karjat	149152	13068	8.8	-0.40
Kopargaon	70613	0	0.0	0.00

Nagar	150272	13165	8.8	-0.47
Nevasa	129204	1459	1.1	0.11
Parner	186792	18792	10.1	-3.13
Pathardi	117784	6426	5.5	0.97
Rahata	68786	0	0.0	0.00
Rahuri	101685	15706	15.4	4.29
Sangamner	135780	1140	0.8	-7.27
Shevgaon	108713	1157	1.1	0.32
Shrigonda	160481	15210	9.5	-1.26
Shrirampur	50602	0	0.0	0.00
Total	1667788	131593	7.9	

Sources: Directorate of Economics and Statistics Ahmednagar district

Graph No 01: Change Forest Area

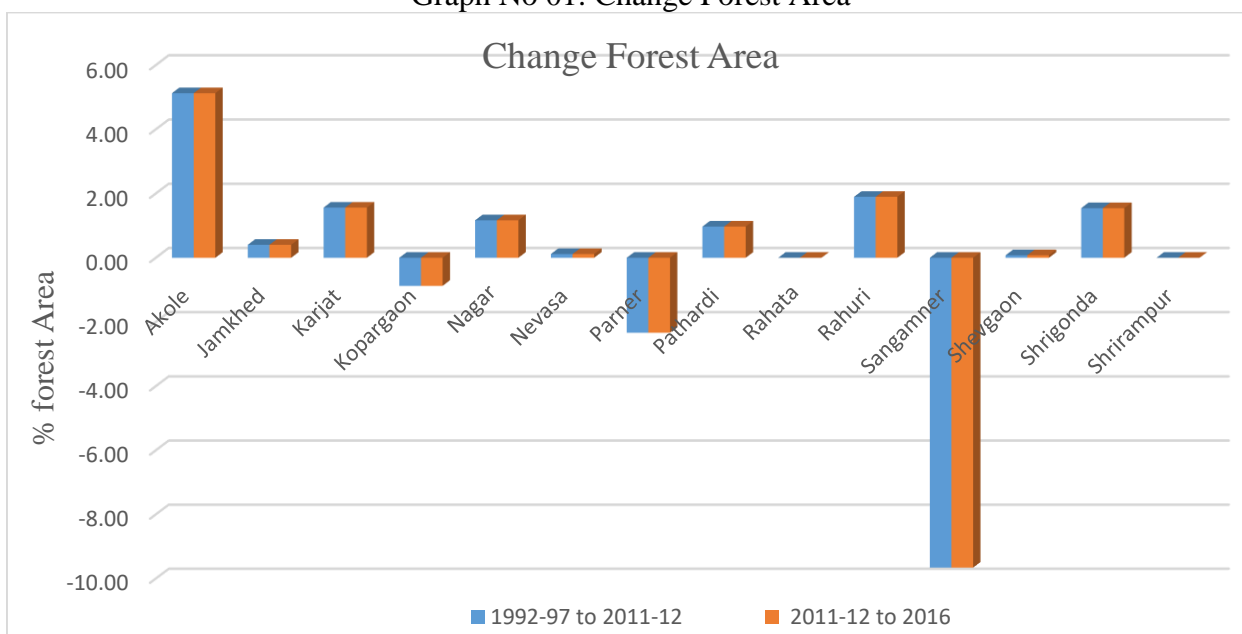


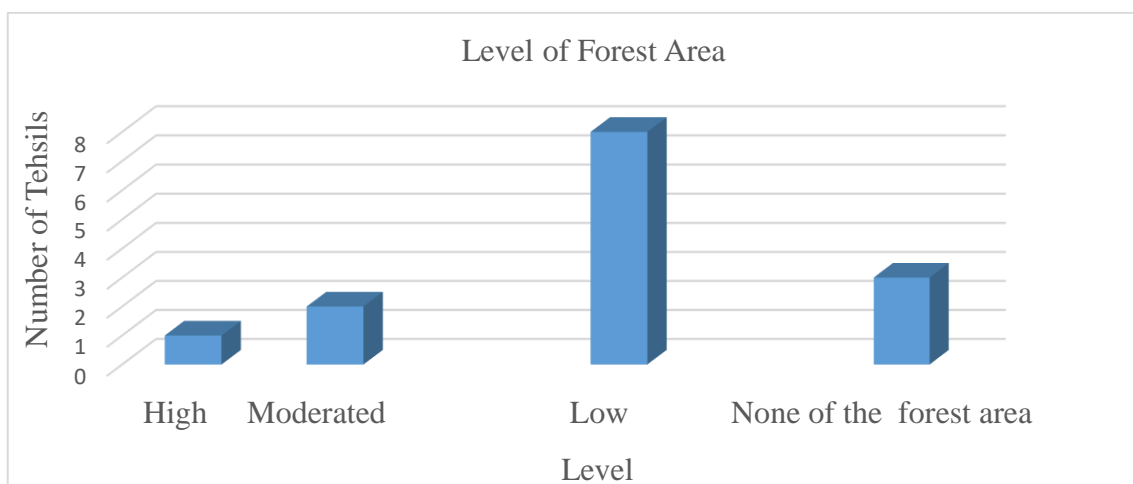
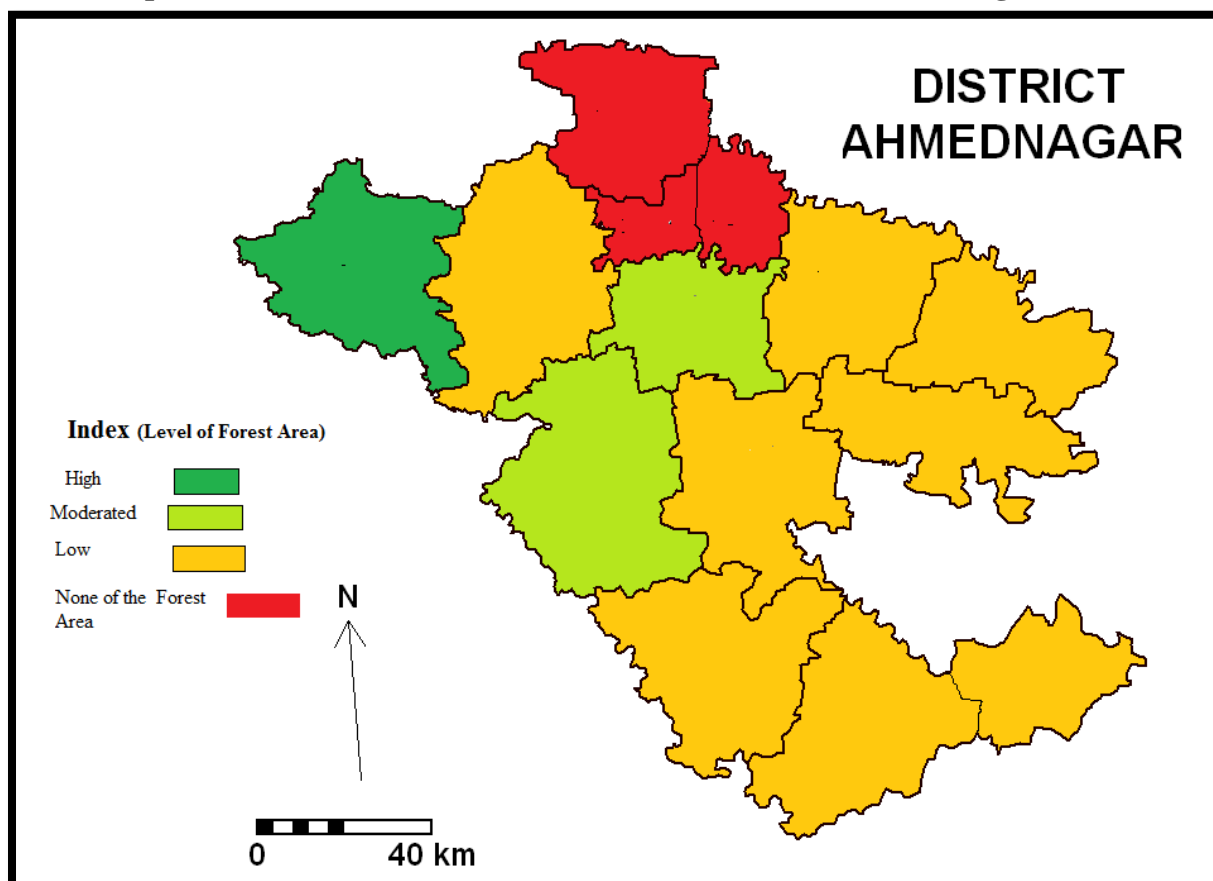
Table no 03: Level of Forest Area

Sr.no	Index value in %	Level of Forest Area	Name of the Tehsils	Number of Tehsils
01	More than 22	High	Akole	01
02	22.1 to 10	Moderated	Parner, Rahuri	02
03	Less than 10	Low	Jamkhed, Karjat, Nagar, Nevasa, Pathardi, Sangamner, Shevgaon, Shrigonda	08
04	0	None of the Forest Area	Kopergaon, Rahata, Shirampur	03

Sources: computed by Authors

The geographically, there are two types of tropical forest found in the district. In tropical monsoon region where rainfall is seasonal and a definite dry season exists this deciduous and semi evergreen forest are prevalent. It's also known as monsoon forest and same part covering grassland. These forest are used to protect the trees wood, land and soil conservation to maintain climatic condition. The zone of high level of forest distribution comprises of one tehsil having more than 22 percent forest cove area those area is Akole tehsil. This area maximum forest area because of average rainfall is 1058 mm and Kalsubai is a mountain in the Western Ghats, located in the Indian state of Maharashtra. Its summit situated at an elevation of 1646 meters is the highest point in Maharashtra. The mountain range lies within the Kalsubai Harishchandragad Wildlife Sanctuary.

Map no 02: Distribution Pattern of Forest Resources in Ahemdngar District



The zone of moderate level of forest distribution comprises of two tehsil namely Parner (10.1 percent), Rahuri (15.4 percent) and third zone is low (less than 10 percentage) of forest distribution tehsil is Jamkhed (4.3), Karjat (8.8), Nagar (8.8), Nevasa (1.1), Pathardi (5.5), Sangamner (0.8), Shevgaon (1.1), Shrigonda (9.5). The low forest area covering in these tehsil Jamkhed, Karjat, Pathardi, Shevgaon, Shrigonda because of drought prone area and effect of rainfall in this tehsil. Sangamner and Nagar tehsil low forest area because of two area going urban area and Nagar is district place. The zone of none of the forest area tehsil are Kopergaon, Rahata, and Srirampur. It is a matter of concern that in some tehsils of Ahmednagar district, when there is a shortage of vegetation, it is a matter of concern that plants need to be respected in order to maintain a balanced and healthy environment. The fact that some of the tehsils in Ahmednagar district have very small vegetation area means that the temperature and rainfall may have adversely affected the vegetation here as the most important factor for plant growth is the rainfall and temperature. Also in some tehsils the vegetation area is good but over time you see it decreasing which means you see a lot of deforestation here. There should be deforestation for various reasons like construction of houses for construction of roads in these areas for availability of agriculture.

4. CONCLUSION:

The above study shows that in Akole tehsil you can see the forest area increasing but in the rest of the tehsils you can see the forest area decreasing. Ahemdnagar District has 14 tehsil in total out of which is Kopargaon, Rahata, Shirampur tehsil have zero forest coverage. The highest forest cover in Akole tehsil (27.7 percentages) thus Protected Area are Kalsubai, Harishchandra Garh Wildlife Sanctuary (WLS) and very good environment condition and minted air quality level. The low forest area covering in these tehsil are Jamkhed, Karjat, Pathardi, Shevgaon, Shrigonda because of drought prone area. It is topography and Climate (Rainfall) factors large affected on distribution of vegetation of any area. Rehekuri Wildlife Sanctuary and Maldhok WLS (Part) founded same part in Jamkhed, Karjat, Shevgaon, Shrigonda etc. The large part of forest area has been depleted and degraded which is a serious concern regarding which very person should plant minimum five tree for forest conservation.

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