

Geographical Analysis of Agricultural Density in Beed District

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Abstract

Agricultural density refers to the relationship between the agricultural population and the net cultivated area of a region. It is an important geographical measure for understanding the pressure of the agricultural population on available land resources. Agricultural density is influenced by factors such as land availability, irrigation, soil, climate, cropping patterns, and agricultural technology. The study of agricultural density helps to understand the level of population pressure on agricultural land and the utilization of available land resources. Therefore, it is an important indicator for assessing agricultural development and regional agricultural planning.

Present paper reveals the analysis of agricultural density in Beed district.

Key Words

Agricultural Density, Beed, Hector

Introduction

To calculate agricultural density, only the population engaged in agricultural activities is taken into account, without considering the entire population. Agricultural density is the ratio of people engaged in agriculture to the total area under agriculture. That is, the agricultural population is linked to the total area under cultivation.

Present paper is based on the tehsil wise discussion of agricultural density in Beed District.

Objectives

The main objective of the present research is to make a tehsil-wise comparative study of agricultural density in Beed district

Data Source and Methodology

Present discussion is based on the secondary source of data. The related data is collected from Census Handbook – 2001 and 2011. The agricultural population in the year 2021 is calculated by projection method. The agricultural related data is collected from 'crop and season report-Beed district.

Agricultural density is calculated by using following formula,

Formula :

$$\text{Agricultural Density} = \frac{AP}{CA} \times 100$$

AP = Agricultural Population

CA = Crop Area

The results are shown in table and their distribution is shown in map of the study area. The analysis is based on the year 2001, 2011 and 2021.

Study Region

Beed district is located in the central part of the Marathwada region of Maharashtra. The district extends from 18°27' to 19°27' North latitudes and 74°49' to 76°44' East longitudes. It is bounded by Aurangabad and Jalna districts to the north, Parbhani and Latur districts to the east, Osmanabad and Ahmednagar districts to the south, and Ahmednagar district to the west. The district covers an area of approximately 10,694 sq. km, accounting for about 3.47% of the total geographical area of Maharashtra.

Agricultural Density

From the Table No. 1 it can be seen that the average agricultural density of Beed district in the year 2001 was 77 per 100 hectares. During this period, the agricultural density is relatively high in Georai (130), Beed (112) and Kage (106) tehsils, while the agricultural density is low in Dharur (24), Patoda (48) and Parli (61) tehsils.

Also, in the year 2011, there is an unusual and significant increase in agricultural density. The average agricultural density of the district has increased to 203 per 100 hectares, a significant change. Especially in Shirur (Kasar) (364), Wadwani (337), Dharur (336) and Georai (264) tehsils, the highest agricultural density is observed. From this it can be seen that during this period there was a huge increase in the population dependent on the agricultural sector. Due to drought conditions, limited employment in industrial and service sectors and increasing population in rural areas, human pressure on agriculture is observed to increase.

In the year 2021, a significant decrease in agricultural density is seen again in the study area. The average agricultural density of the district is 79 per 100 hectares which is the same as in 2001. In the year 2021, the agricultural density is relatively high in Parli (103), Georai (101) and Majalgaon (99) tehsils of the region. However, there is a clear decrease in agricultural density in Ashti (70), Beed (72), Kage (63) and Ambajogai (63) tehsils. This change is seen as a sign of migration from agriculture to other sectors, mechanization of agriculture, reduction of agricultural labor and new opportunities for education and employment.

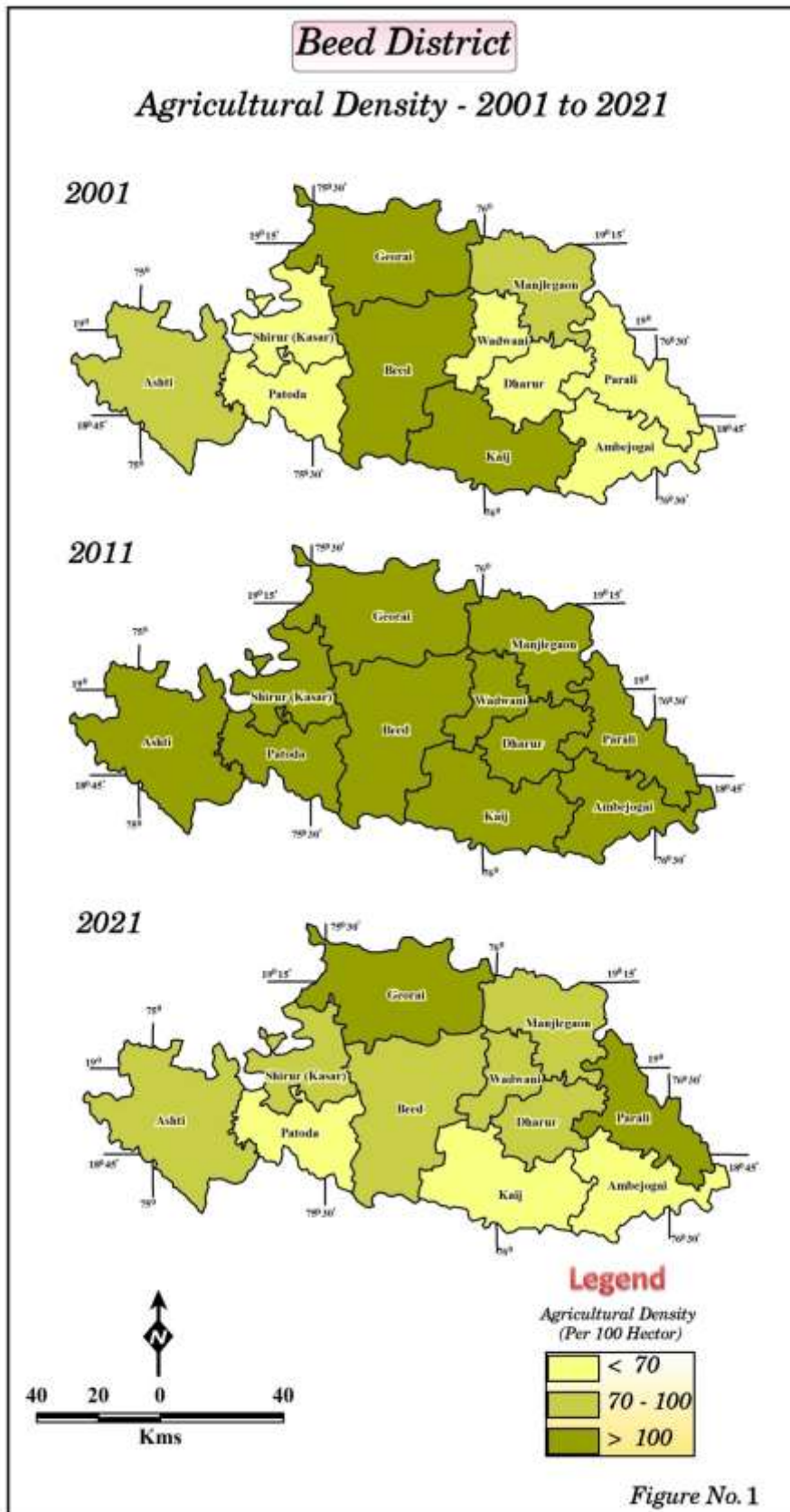
Table No. 1

Beed District - Agricultural Density (2001-2021)

Tehsil	Per 100 Hector		
	2001	2011	2021 (Projected)
Ashti	99	147	70
Patoda	48	132	61
Shirur (Kasar)	64	364	82
Georai	130	264	101
Manjlegaon	83	165	99
Wadwani	68	337	89
Beed	112	198	72
Kaij	106	225	63
Dharur	24	336	88
Parli	61	199	103
Ambejogai	62	193	63
Total District	77	203	79

Source –Calculated by Researcher

From the above study, it can be seen that during the study period from the year 2001 to 2021, the agriculture density in Beed district first increases and then decreases. In the year 2011, the population pressure on agriculture has increased tremendously, but in the year 2021, it seems to have reduced comparatively. This change is found to be the result of structural transformation in the agricultural economy, growth of non-farm employment, migration process and developmental policies.



Conclusions

The analysis of agricultural density in Beed district during 2001–2021 reveals a distinctive pattern of increase followed by decline. Agricultural density increased substantially from 77 persons per 100 hectares in 2001 to 203 persons per 100 hectares in 2011, indicating a sharp rise in population pressure on cultivated land. This increase was particularly pronounced in Shirur (Kasar), Wadwani, Dharur and Georai tehsils, suggesting greater dependence on agriculture and limited alternative employment opportunities during this period. The situation may also be associated

with rural population growth, recurring drought conditions and inadequate development of non-agricultural employment.

By 2021, agricultural density declined considerably to 79 persons per 100 hectares, almost reaching the 2001 level. The decline indicates a gradual reduction in dependence on agricultural land and a shift in the rural occupational structure. Increasing migration, agricultural mechanization, expansion of education, development of non-farm employment and changing livelihood patterns appear to have contributed to this transformation. However, the relatively high agricultural density in Parli, Georai and Majalgaon indicates that dependence on agriculture continues to remain significant in certain parts of the district.

Overall, the changing pattern of agricultural density demonstrates that Beed district is experiencing a gradual structural transformation from agriculture-dependent livelihoods towards diversified economic activities. Nevertheless, regional disparities among tehsils remain evident. Therefore, agricultural development should be accompanied by irrigation expansion, rural industrialization, skill development and employment diversification to reduce excessive pressure on agricultural land and promote balanced regional development.

To reduce excessive pressure on agricultural land, irrigation facilities, water conservation, modern agricultural technology, and crop diversification should be promoted. Rural non-farm employment and agro-based industries should be developed to provide alternative livelihood opportunities. Skill development and employment opportunities should be strengthened, particularly in areas with high agricultural density. Mechanization should be promoted while ensuring alternative employment for displaced agricultural labourers. These measures can help achieve balanced agricultural and socio-economic development in Beed district.

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