



“Spatial Distribution Of Tribal Populations And Rural Settlements In Nashik District - A Comprehensive Study”

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Abstract: The spatial distribution of tribal populations and rural settlements is a critical area of study for understanding regional development, resource allocation, and social dynamics. Nashik District, located in the western part of Maharashtra, India, is characterized by its diverse geographical features and a significant tribal population. This study aims to provide a comprehensive analysis of how tribal communities and rural settlements are distributed across the district. By examining factors such as topography, accessibility, socio-economic conditions, and historical contexts, the study seeks to uncover patterns and trends that influence the spatial distribution of these groups. Understanding these patterns is crucial for policy-making, development planning, and the implementation of targeted interventions to improve living conditions and ensure equitable development across the district.

Key Words- Spatial Distribution, Tribal Populations, Rural Settlements, Socio-Economic Factors, Topography, Development Planning

Introduction

Tribal populations play a significant role in shaping the spatial distribution and concentration of rural settlements in any region. In the western part of Nashik District, the tehsils of Kalwan, Surgana, Peth, Trimbakeshwar, and Dindori are predominantly inhabited by tribal communities, with over 50 percent of their populations being tribal. Conversely, the remaining ten tehsils in the district have tribal populations constituting less than 50 percent. In the tribal-dominated tehsils, rural settlements tend to be dispersed and vary in size from small to medium. This spatial distribution pattern reflects the influence of tribal settlement practices, socio-economic conditions, and geographical factors. This comprehensive study aims to analyze these distribution patterns, offering insights into the interplay between tribal populations and rural settlement dynamics in Nashik District.

Study area:

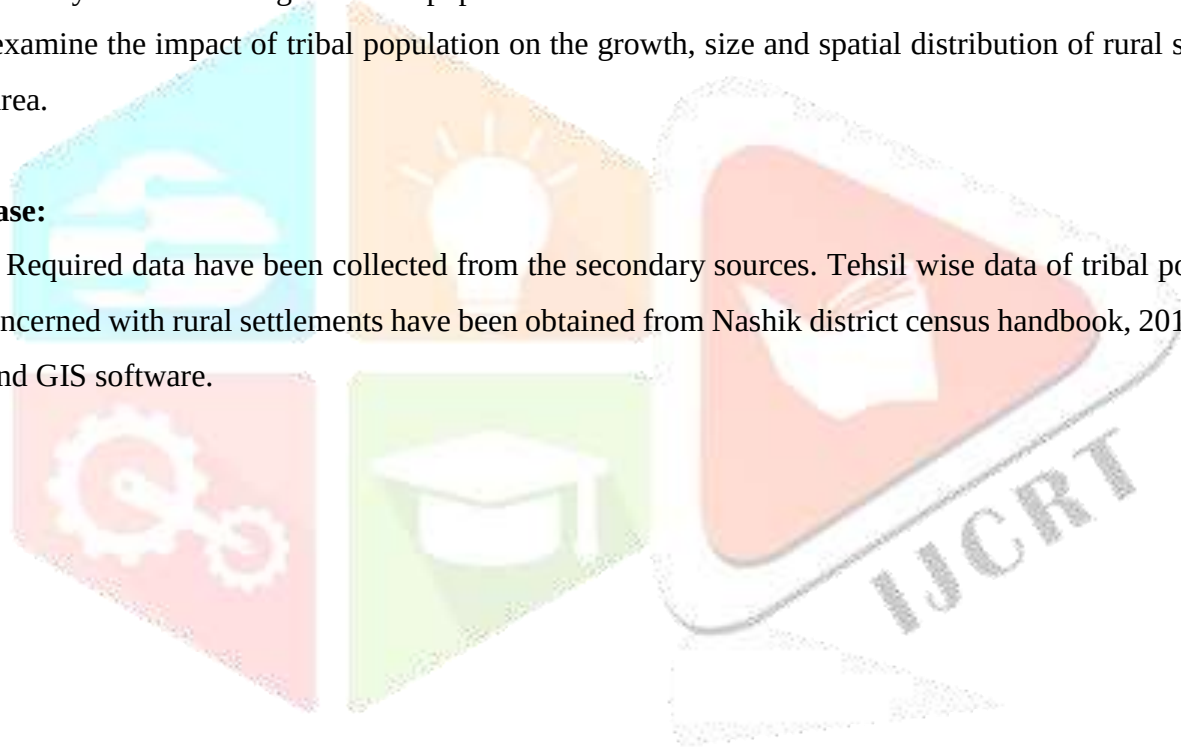
For the present study, Nashik district has been selected as study area. It bears certain distinctive characteristics. It is peculiar region with distinct physical setting and socioeconomic conditions. It is situated in the north – western part of Maharashtra State and covers some upper part of Godavari basin and Girana basin. It lies between 19°33' to 20°53' north latitude and 73°15' to 75°16' east longitude (Nashik Gazetteer 1983). It covers parts of Survey of India degree sheets 46H, 46L 47E, and 47I. It occupies the small portion of leeward side of Western Ghats region. This is a better developed and more populous part of Maharashtra state excluding its tribal belt. Nashik district has an area of 15530 Sq. km with 1922 rural settlements.

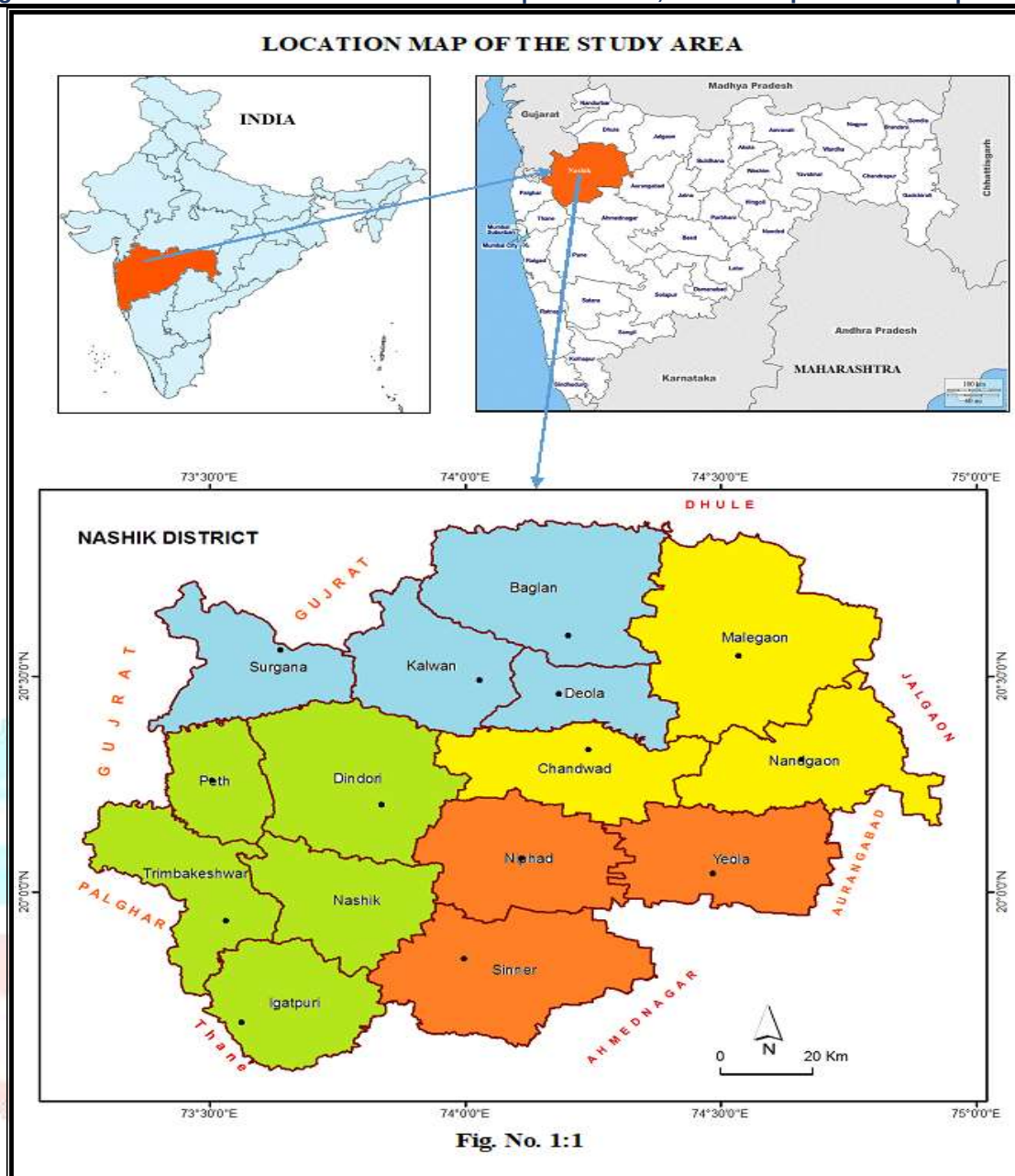
Objectives: The main objectives of the present study are:

- 1) To study the spatial distribution of rural settlements in Nashik district.
- 2) To identify the areas of highest tribal population.
- 3) To examine the impact of tribal population on the growth, size and spatial distribution of rural settlements in study area.

Database:

Required data have been collected from the secondary sources. Tehsil wise data of tribal population and data concerned with rural settlements have been obtained from Nashik district census handbook, 2011 and google earth and GIS software.





Methodology:

The data collected for the present investigation are tabulated and analysed. Tribal population and rural settlements according to population size have been calculated. Some statistical techniques have been applied to examine the spatial distribution of tribal population and rural settlements in the study region. For this, Pearson's product-moment coefficient of correlation, regression equation and Student's 't' test for the significance of coefficient of correlation are applied. These data have been represented with the help of choropleth method of map, scatter diagram and bar graph.

Result and Discussion:

Table I:1 illustrates the proportion of the tribal population relative to the total population across the tehsils of Nashik District. Notably, the tehsils of Surgana and Peth have tribal populations of 98.15% and 96.44%, respectively. There is a positive correlation between the proportion of scheduled tribes and the number of rural settlements in the study area. This relationship is supported by a correlation coefficient of $r=0.515267$, indicating

a moderate correlation. The coefficient of determination, approximately 0.2655, reveals that about 26.55% of the variation in rural settlements can be attributed to the proportion of scheduled tribes within each tehsil.

Table No. I: 1

Tehsil wise Scheduled Tribes Population

Sr. No.	Tehsil	ST Population %	Rural Settlements
1	Surgana	98.15	190
2	Kalwan	68.95	152
3	Deola	20.84	50
4	Satana	43.16	170
5	Malegaon	23.17	143
6	Nandgaon	21.06	100
7	Chandwad	20.83	111
8	Dindori	55.57	158
9	Peth	96.44	145
10	Tryambkeshwar	83.63	125
11	Nashik	39.25	73
12	Igatpuri	48.97	117
13	Sinnar	14.85	130
14	Niphad	21.18	134
15	Yevla	12.43	124
		Total	1922

Source: District Census 2011

The calculated 't' value is 2.16, which matches the critical value for 13 degrees of freedom at the 5% significance level but is lower than the critical value at the 1% significance level. Despite this, the positive correlation remains significant. The regression analysis also confirms a positive trend, suggesting that the number of rural settlements increases with the proportion of scheduled tribes in each tehsil (refer to Graph I:1). This correlation highlights a significant factor influencing the spatial distribution of rural settlements, particularly in tribal areas of the study region.

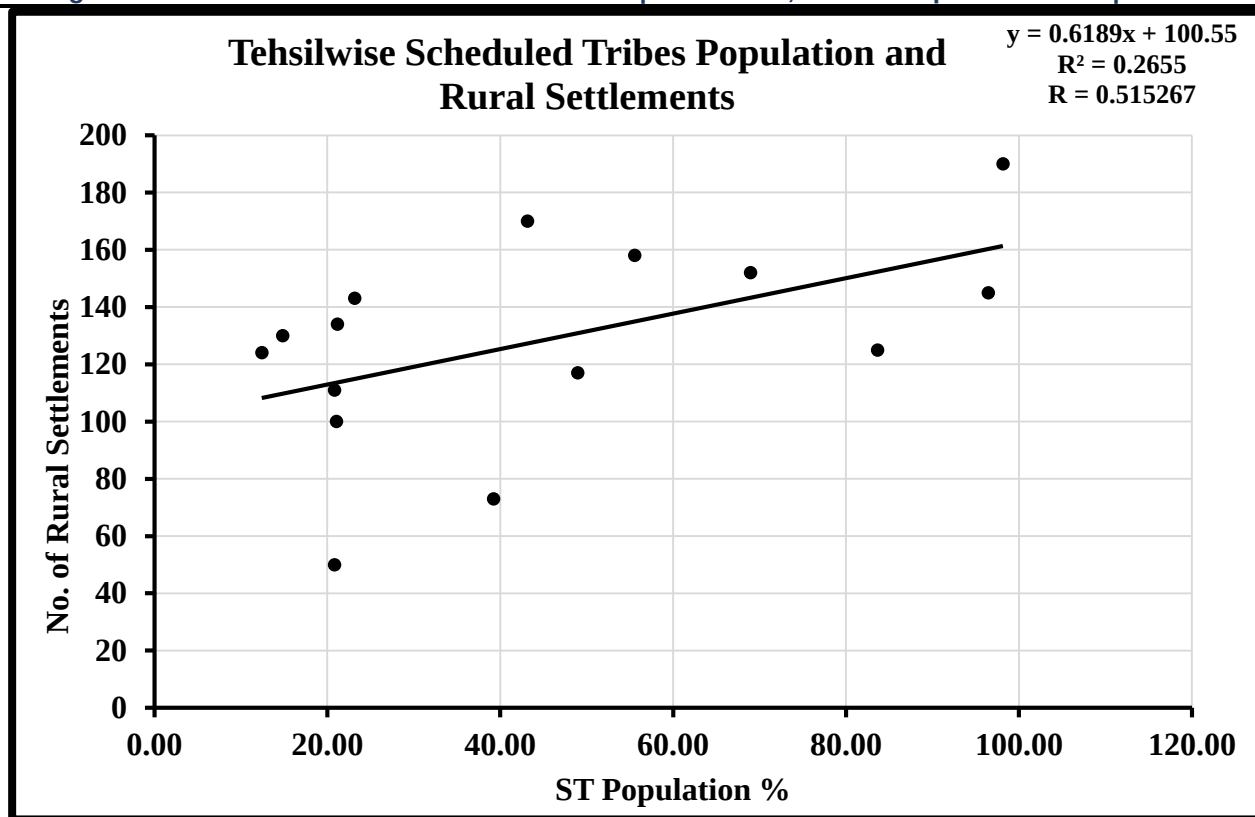
**Graph no. I:1**

Table I:2 shows the proportion of rural settlements according to tribal population groups in the study region. It reveals that tehsils which belong to drought-prone areas have less proportion of tribal population i. e. below 25 percent. This area occupies a large number of (i. e.792) rural settlements, accounts for 41.21 percent of the total. In the second category of tribal population (25 to 50 percent) includes about 360 (18.73%) rural settlements, distributed in the Satana, Nashik and Igatpuri tehsils of the study region. Areas occupied by these two groups are mainly non-tribal except some pockets.

Table No. I: 2

The proportion of Tribal Population and Rural Settlements in Nashik District

Sr. No.	Tribal Population (%)	No. of Rural Settlements	Rural Settlements (%)
01	Below 25	792	41.21
02	25 to 50	360	18.73
03	50 to 75	310	16.13
04	Above 75	460	23.93
	Total	1922	100.00

Source: Compiled by Researcher

On the other hand, tehsils namely, Surgana, Peth, Tryambkeshwar, Kalwan, and Dindori have concentrated more than 50 percent of tribal population. Areas occupied by these tehsils are known as the ‘tribal

belt' of the study region. In this tribal belt, about 770 rural settlements which are predominantly tiny and small size dispersed settlements, account for about 40 percent of the total rural settlements in the study region.

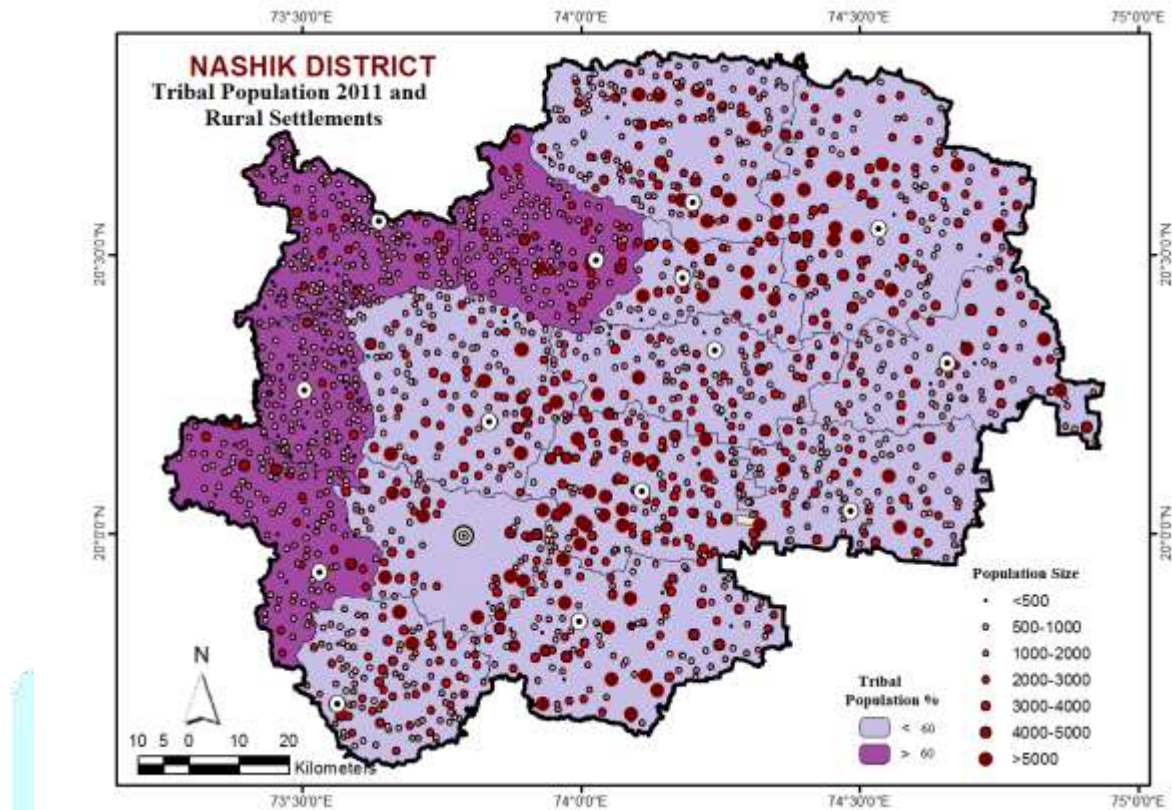


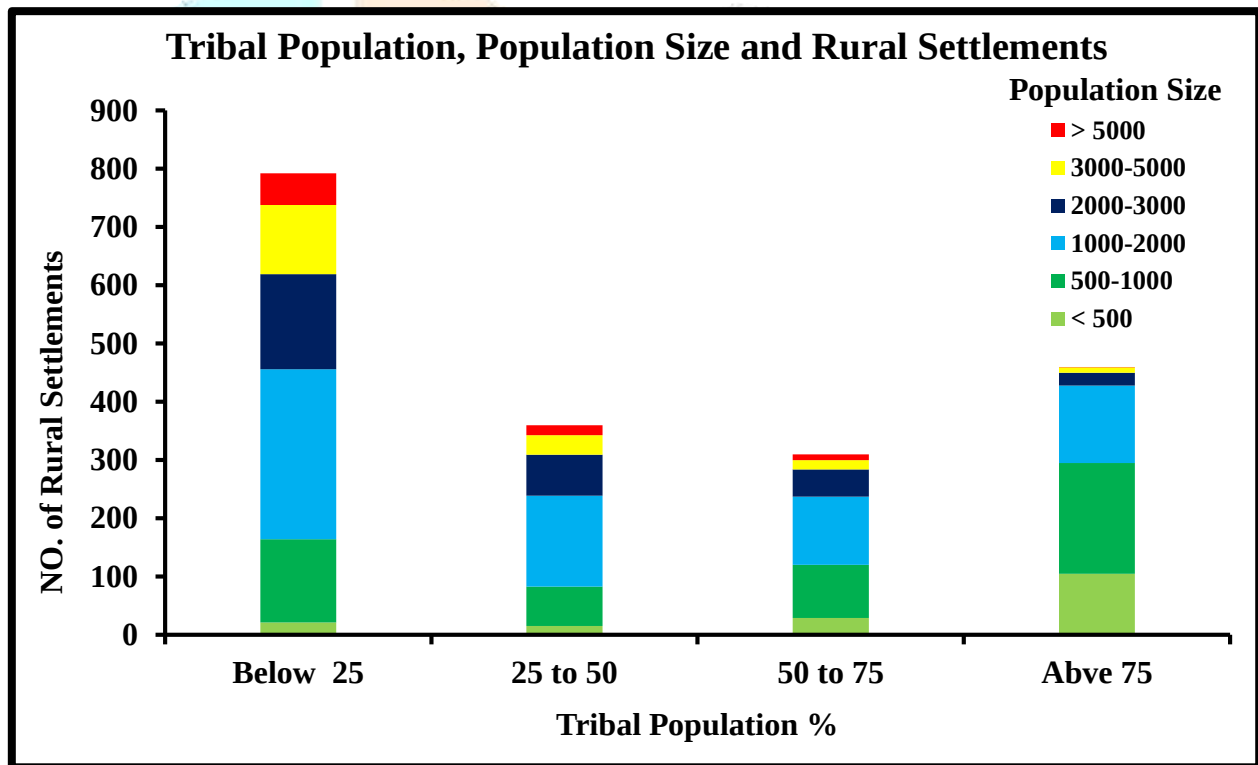
Fig. No. 6: 13



Table No. I: 3
Proportion of Tribal Population and No. of Rural Settlements
According to their Population Size Groups

Sr. No.	Rural Population Density	< 500	500 - 1000	1000 - 2000	2000 - 3000	3000 - 5000	> 5000	Total
01	Below 25	21	143	292	163	119	54	792
02	25 to 50	15	68	156	70	34	17	360
03	50 to 75	29	91	117	47	16	10	310
04	Above 75	105	190	133	22	09	01	460
	Total	170	492	698	302	178	82	1922

Source: Compiled by Researcher



Graph No.: I:2

Table I:3 presents the frequency distribution of rural settlements categorized by tribal population and population size groups, as illustrated in Graph I:2. The data reveals that the majority of rural settlements have a tribal population of less than 25%, totalling 792 settlements, which represents approximately two-fifths of the overall settlements. These settlements are predominantly of medium, large, and very large sizes. In contrast, approximately 360 rural settlements have a tribal population ranging from 25% to 50%. These settlements are generally medium to large in size, accounting for 18.73% of the total settlements. The remaining rural settlements, with more than 50% tribal population, are primarily located in the western hilly

and mountainous areas of the study region. This hilly and upper plateau region of Nashik District houses about two-fifths of the total rural settlements.

Overall, the proportion of the tribal population significantly influences both the number and size of rural settlements in the study area.

Conclusion

The concentration of tribal populations significantly influences the size and distribution of rural settlements in the study region. Tribal communities are predominantly located in the western hilly areas, particularly within the tehsils of Surgana, Peth, Trimbakeshwar, Kalwan, and Dindori. This geographic concentration is a key social factor affecting rural settlement patterns. The analysis reveals a moderate positive correlation ($r = 0.5152$) between the proportion of the Scheduled Tribe (ST) population and the number of rural settlements. This correlation is further substantiated by the regression trend and the results of the 't' test, indicating that as the proportion of the ST population increases, so does the number of rural settlements. In practice, this relationship is evident in the settlement patterns observed. In tribal areas, approximately 40% of settlements are small and dispersed, while in non-tribal zones, around 60% of settlements are medium to large and more compact. This disparity highlights how the presence and concentration of tribal populations shape the rural landscape, influencing both the number and characteristics of settlements across the region.

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