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EVALUATION OF TRIBAL FOOD SECURITY IN NASHIK DISTRICT-MAHARASHTRA

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ABSTRACT

The present investigation studies the evaluation of tribal food security in Nashik District, Maharashtra. It is based on primary data collected from 607 sample households across 48 sample villages in the Nashik district's 15 tehsils. This study took into account a wide range of food security indicators, including food availability which includes the percentage of households that have enough food every day and the per capita milk availability, food accessibility, which includes the percentage of households with an average monthly income of more than 10000 rupees, the percentage of the working population, the percentage of agricultural labourers to the total workers, food stability, which includes the percentage of irrigated area, the percentage of households with a household ration card, the percentage of households with at least two times the food frequency, and food utilisation, which includes the percentage of households with access to safe drinking water facilities, infant mortality rate, and juvenile sex ratio The study applies the Min-Max Normalisation Index technique to analyse the level of food security in tribal communities. The food security of tribal communities in the study region reflected the regional diversity under analysis. Niphad, Baglan, and Nashik exhibited high levels of food security. Igatpuri, Kalwan, Yeola, Chandwad, Sinnar, Nandgaon, Dindori, Deola, and Malegaon are in the moderate food security region. Triembak, Surgana, and Peint tehsils have seen low food security in tribal households. Therefore, food security-related indicators such as food availability, food accessibility, food stability, and food utilization vary among tribal households in the study area. Physical features like physiography and rainfall, as well as manmade features like agriculture, industry, literacy level, and infrastructural facilities, play an important role in food security levels in tribal households in study regions.

(Keywords- Food security, Food availability, food accessibility, food stability, food utilization, Juvenile Sex Ratio, working population)

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Introduction-

Scholars have published numerous research papers and articles regarding the level of food security. Nitin Tagade (2012) studied food insecurity in the tribal areas of Maharashtra. He studied a sample of 239 tribal households in Maharashtra and concluded that a household's socioeconomic status has a direct impact on food security and nutrition. Varun Singh et al. (2014) wrote a book on India: Food Security and Nutrition in Tribal Areas. The study demonstrated that various interventions can address the multifaceted issue of food security in tribal households in India. Akashraj D.P. and Mahesh T.M. (2017) published a research paper on the evaluation of tribal food security in Mysore District, Karnataka. Collecting primary information from 500 tribal households, they reviewed food needs, daily food availability, nutritional deficiencies, and food security. The study found a high prevalence of food insecurity among tribal households, with many relying on external food support. Suman Prasad Maurya (2018) published a research paper on the food security and nutrition security of the Kharwar Tribal people in Bihar. After reviewing the tribals' annual income from various occupations and the food items available in their diet throughout the year, the paper examined food security. Prakash D. Patil (2020) wrote a research paper on "Availability of Food: An Issue of Food Security Among Tribal Population in Satpuda Mountain Region of Jalgaon District." Factors such as limited market access, inadequate infrastructure, low education levels, and traditional agricultural practices' insufficiency were identified by the study as contributing to food availability issues in the region. Vishal Thorat et al. (2022) have analyzed the factors governing food security among rural households in tribal districts of south Gujarat. He concluded that various factors such as household size, dependency ratio, age of the household head, animal herd size, and income levels influence food security in tribal households, making it a critical issue.

Study area-

The Nashik district is located within the upper Godavari basin and the partly Tapi river basin, spanning from 19°35' to 20°52' North latitudes and 73°16' to 75°56' East longitudes. It comprises a distinct geographical unit covering an area of 15,530 square kilometers. According to the 2011 census, the population of Nashik district was 6,107,187, with tribal people accounting for 1,564,369 (25.62%). The district, situated in the Khandesh and North Maharashtra regions, comprises 1,929 villages and 18 towns. Nashik District shares its borders with Jalgaon and Aurangabad Districts to the east, Dhule District to the north, Thane District to the south-west, Ahmadnagar District to the south, and Dang District to the north-west.

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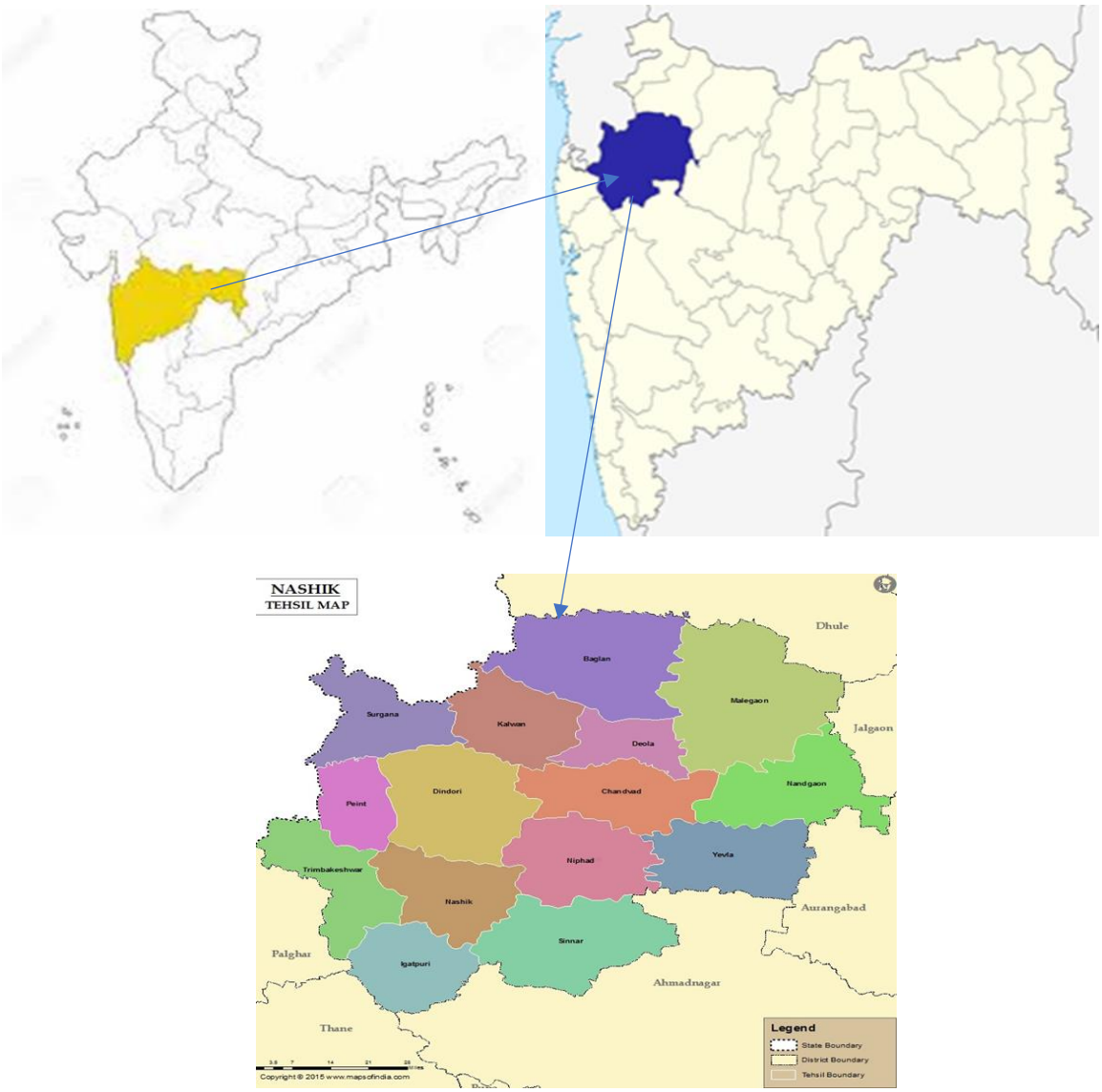
Location Map- Nashik District



OBJECTIVES

1. To study the food security level of the tribal community in Nashik district.
2. To explore regional disparities in the food security of tribal communities in Nashik district.
3. To Suggest solutions for balanced food security for the tribal community in Nashik district.

MATERIAL AND METHODS

This study is based on primary data. The tribal tehsils were selected using a stratified random sampling method. A list of tribal villages was prepared based on villages with more than 50% tribal population selected for each tehsil of the district from the secondary data of the 2011 population census of Nashik district. For research, 5% of the tribal villages in each tehsil were

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selected. A list of tribal households for each sample village was obtained from the 2011 population census data. Out of the total tribal households in each respective sample village, an average of 10% of the sample households were selected for the interview. This research collected primary data from 607 sample households spread across 48 villages in the Nashik district's 15 tehsils. The collected data was processed and edited for analysis using various statistical methods presented in tables. To calculate the level of food security in the tribal community in the study region, use the Min-Max Normalization Index method. The formula is used:

$$\text{Variable Index for positive indicator} = \frac{Xi - Min\ X}{Max\ X - Min\ X}$$

$$\text{Variable Index for negative indicator} = \frac{Max\ X - Xi}{Max\ X - Min\ X}$$

Where

Xi= value of the variable Min

X= Minimum value of X in the scaling Max

X= Maximum value of X in the scaling

Different indicators included in the Food Security Index components have been scaled and normalized to take a value on a scale ranging from 0 to 1. The scaled least achievement corresponds to zero whereas the best achievement corresponds to 1.

The level of food security was grouped under four heads:

Category	Composite food security score
High food security region	More then 0.60
Moderate food security region	0.41 to 0.59
Low food security region	Below 0.40

Table 1- Indicators of food security

Group	Indicators	
Food availability	X1	Per capita land availability (in hectares)
	X2	Per capita per day domestic Food grain Availability (gram)
	X3	Percentage of households with enough food every day
	X4	Per capita per day Milk Availability

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Food accessibility	X5	Percentage of households with an average monthly income of more than 10000 rupees
	X6	Percentage of the working population
	X7	Percentage of Agricultural Laborers to Total Worker
Food stability	X8	Percentage Irrigated area total agriculture area
	X9	Percentage Of household ration card availability
	X10	Percentage of Households with at least two times of food frequency
Food utilization	X11	Percentage Of household safe drinking water facilities available
	X12	Infant mortality rate
	X13	Juvenile Sex Ratio

(Source: Compiled by the Researcher)

Result and discussion –

Levels of food security –

Based on the Min-Max score method for each tahsil of the tribal community in Nashik district, levels of food security were ascertained and grouped into three levels: high, moderate, and low. Lower-level values of the composite index indicated a lower rate of food security, and higher values of the ranking composite index indicated a higher rate of food security.

Table: 2 Nashik districts: Level of Food Security Indicators

Tehsil	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13
Surgana	0.13	644.48	80.20	49.31	47.52	65.19	82.44	46.32	91.09	85.15	17.82	15.53	929
Peint	0.10	303.81	81.93	59.75	53.01	63.70	85.27	41.82	93.98	79.52	14.46	17.59	1038
Triembek	0.12	250.89	91.89	110.25	55.41	63.25	87.72	40.63	91.89	83.78	35.14	27.16	971
Kalwan	0.12	833.72	91.04	195.53	55.22	61.38	87.74	55.65	89.50	95.52	28.36	6.3	867
Dindori	0.09	216.63	88.57	201.67	65.71	63.59	85.06	43.8	97.14	85.71	24.29	8.09	893
Igtpuri	0.08	225.62	94.74	290.87	60.53	58.58	84.29	50.91	95.00	95.00	52.63	8.41	950
Baglan	0.11	962.26	91.89	232.82	64.86	58.25	82.08	70.88	97.30	94.59	24.32	5.58	889
Deola	0.09	192.36	92.86	117.71	50.00	59.46	86.36	50.23	100.00	85.71	28.57	4.83	857
Chandwad	0.15	532.44	87.50	180.80	68.75	58.44	88.89	43.46	93.33	86.67	25.00	3.38	833
Niphad	0.17	598.58	100.00	266.92	62.50	55.84	92.68	57.06	100.00	93.33	43.75	5.48	714
Nandgaon	0.09	703.97	75.00	120.51	75.00	48.04	81.63	58.67	93.75	93.75	37.50	5.05	917
Sinnar	0.27	500.54	90.91	114.10	61.65	50.73	86.49	60.93	90.91	90.91	18.18	3.11	667
Yeola	0.16	1117.8	86.67	78.98	73.33	50.00	84.38	67.18	80.00	86.67	46.67	2.48	875
Malegaon	0.11	634.29	80.00	135.39	66.67	60.47	84.62	55.31	86.67	80.00	40.00	9.81	833
Nashik	0.09	587.29	88.24	175.85	81.82	61.91	85.58	72.25	88.24	94.12	23.53	8.78	889

(Source: Compiled by the Researcher)

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Table: 3 Nashik districts: Min-Max score of food security

Tehsil	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	Total	CS
Surgana	0.26	0.49	0.21	0.00	0.00	1.00	0.07	0.18	0.55	0.35	0.09	0.47	0.71	4.38	0.34
Peint	0.11	0.12	0.28	0.04	0.16	0.91	0.33	0.04	0.70	0.00	0.00	0.39	1.00	4.07	0.31
Triembek	0.21	0.06	0.68	0.25	0.23	0.89	0.55	0.00	0.59	0.27	0.54	0.00	0.82	5.09	0.39
Kalwan	0.21	0.69	0.64	0.61	0.22	0.78	0.55	0.48	0.48	1.00	0.36	0.85	0.54	7.40	0.57
Dindori	0.05	0.03	0.54	0.63	0.53	0.91	0.31	0.10	0.86	0.39	0.26	0.77	0.61	5.98	0.46
Igtpuri	0.00	0.04	0.79	1.00	0.38	0.61	0.24	0.33	0.75	0.97	1.00	0.76	0.76	7.62	0.59
Baglan	0.16	0.83	0.68	0.76	0.51	0.60	0.04	0.96	0.86	0.94	0.26	0.87	0.60	8.06	0.62
Deola	0.05	0.00	0.71	0.28	0.07	0.67	0.43	0.30	1.00	0.39	0.37	0.90	0.51	5.69	0.44
Chandwad	0.37	0.37	0.50	0.54	0.62	0.61	0.66	0.09	0.67	0.45	0.28	0.96	0.45	6.55	0.50
Niphad	0.47	0.44	1.00	0.90	0.44	0.45	1.00	0.52	1.00	0.86	0.77	0.88	0.13	8.86	0.68
Nandgaon	0.05	0.55	0.00	0.29	0.80	0.00	0.00	0.57	0.69	0.89	0.60	0.90	0.67	6.02	0.46
Sinnar	1.00	0.33	0.64	0.27	0.59	0.16	0.44	0.64	0.55	0.71	0.10	0.97	0.00	6.40	0.49
Yeola	0.42	1.00	0.47	0.12	0.75	0.11	0.25	0.84	0.00	0.45	0.84	1.00	0.56	6.82	0.52
Malegaon	0.16	0.48	0.20	0.36	0.56	0.72	0.27	0.46	0.33	0.03	0.67	0.70	0.45	5.39	0.41
Nashik	0.05	0.43	0.53	0.52	1.00	0.98	0.36	1.00	0.41	0.91	0.24	0.74	0.60	7.77	0.60

(Source: Compiled by the Researcher)

I) HIGH FOOD SECURITY REGION-

The level of food security is high, with a min-max range above 0.60. The sampled tribal households in the Nashik district categorize three tahsils as having high food security: Niphad (0.68), Baglan (0.62), and Nashik (0.60). A detailed assessment of thirteen food security indicators in Niphad Tehsil classifies seven as high. A similar pattern exists in Baglan Tehsil, where nine is the high category; in Nashik Tehsil, six out of the food security indicators fall into the high category. Indicators such as the percentage of households with enough food every day, the per capita milk availability per day, the working population, the percentage of irrigated area, the total area of agriculture, the proportion of households with access to ration cards, the percentage of households with at least twice the food frequency, the percentage of households with access to safe drinking water facilities, the low infant mortality rate, and the juvenile sex ratio contribute to the high level of food security in tribal households in these tehsils.

II) MODERATE FOOD SECURITY REGION-

The moderate level of food security ranges from 0.41 to 0.59 (min-max score). The sample tribal households in Nashik district categorize nine tehsils, namely Igatpuri (0.59), Kalwan (0.57), Yeola (0.52), Chandwad (0.50), Sinnar (0.49), Nandgaon (0.46), Dindori (0.46), Deola

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(0.44), and Malegaon (0.41), under the moderate food security region. A detailed assessment of thirteen food security indicators in Igatpuri Tehsil classifies eight as high, Kalwan Tehsil as six as high, four as moderate, Yeola Tehsil as five as high, four as moderate, Chandwad Tehsil as five as high, four as moderate, Sinnar Tehsil as five as high, three as moderate, Nandgaon Tehsil as six as high, two as moderate, and Dindori Tehsil as five as high, four as moderate. Deola Tehsil: four as high, two as moderate, and Malegaon Tehsil: three as high, four as moderate. Tribal households in these tehsils exhibit high and moderate levels of the following indicators: the percentage of households with enough food every day, the availability of milk per capita per day, the percentage of the working population, the percentage of households with ration cards, the percentage of households with at least twice the frequency of food, the percentage of households with safe drinking water facilities, the infant mortality rate, and the juvenile sex ratio. However, these tehsils do not observe sufficient levels of per capita land availability (measured in hectares), per capita daily domestic food grain availability (measured in grams), monthly income, the ratio of agricultural laborers to total workers, and the proportion of irrigated area to total agriculture area.

III) LOW FOOD SECURITY REGION-

The low level of food security ranges below 0.35 min-max scores. The sampled tribal households in Nashik district categorize three tahsils, namely Triembak (0.39), Surgana (0.34), and Peint (0.31), under the low food security region. A detailed assessment of thirteen food security indicators in Trimbakeshwar Tehsil classifies seven as the lowest level; Surgana Tehsil classifies eight as the lowest level; and Peint Tehsil classifies ten as the lowest level. In these tehsils, only the juvenile sex ratio and the working population demonstrate high levels. In contrast, other indicators, such as the availability of land per capita and the availability of domestic food grains per capita per day, show significant differences. Percentage of households with enough food every day, per capita per day milk availability, percentage of households with an average monthly income of more than 10,000 rupees, percentage of agricultural labourers to total workers, percentage of irrigated area total agriculture area, percentage of household ration card availability, percentage of households with at least two times the food frequency, percentage of household safe drinking water facilities available, The tehsils in question have a high infant mortality rate and demonstrate moderate to low levels of food security.

CONCLUSION

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The level of food security for tribal households in the study region is not uniform. Agriculture and industrially developed tehsils (Niphad, Baglan, and Nashik) exhibit a high level of food security, meeting all food security indicators at a sufficient level. Igatpuri, Kalwan, Yeola, Chandwad, Sinnar, Nandgaon, Dindori, Deola, and Malegaon tehsils exhibit moderate levels of food security. these tehsils are mostly concentrated in the north and eastern part of the study region. It observes high or moderate levels of food accessibility, food stability, and food utilization-related indicators, but it does not find sufficient levels of food availability indicators, such as per capita land availability and per capita domestic food grain availability. Uneven rainfall, less developed agriculture, and industry have an impact on the moderate-level food security of tribal households in these tehsils. The western part of the study region, such as Triembak, Surgana, and Peint tehsils, has seen low food security in tribal households. Factors such as a highly concentrated tribal population, high rainfall, uneven physiography, low infrastructural facilities, limited transport connectivity, traditional agriculture, and limited industrial development can contribute to the low level of food security in these tehsils. Therefore, the food security-related indicators such as food availability, food accessibility, food stability, and food utilization varies among tribal households in the study area. Physical features like physiography and rainfall, as well as manmade features like agriculture, industry, literacy level, and infrastructural facilities, play an important role in food security levels in tribal households in study regions.

SUGGESTIONS

There is an urgent need to increase all food security-related indicators such as food availability, food accessibility, food stability, and food utilization in low-food security regions within the study area. Only the working population and juvenile sex ratio are observed at a high level, but other indicators do not develop in these tehsils. The development of all indicators is necessary to enhance food security in tribal households. While Niphad, Baglan, and Nashik tahsils have successfully achieved all food security-related indicators for tribal households, there is still a need to enhance aspects related to food availability, such as the availability of per capita land and domestic food grains. In regions with moderate food security, there is a need to develop indicators related to food availability and accessibility. Therefore, planners must consider this point in future planning and give special attention to it when framing their plans.

REFERENCES

ISSN PRINT 2319 1775 Online 2320 7876

 UGC CARE Listed (Group -I) Journal Volume 11,Iss 11 , 2022

1. Mishra R.P. (1988) - Evaluation of Food Sufficiency in Madhya Pradesh, Hill Geographer, Vol.7:1&2, pp. 27-33,
2. Majid Husain (1994)- Medical Geography Anmol Publications Pvt. Limited New Delhi.
3. R. P. Mishra (2007) Geography of Health, Concept Publishing Company, New Delhi.
4. Dr. Prakash Patil (2010) - Geographical review of nutritional status and deficiency diseases in scheduled caste and scheduled tribe population in Jalgaon district of Maharashtra state in India Unpublished Ph.D. Thesis submitted to North Maharashtra University
5. Nitin Tagade (2012) - Food Security in Maharashtra: Regional Dimensions Report the Institute for Social and Economic Change, Bangalore
6. Varun Singh, Soham Sen, Meera Chatterjee. (2014). India - Food security and nutrition in tribal areas. Washington: The World Bank.
7. Dr. D. Solomon Raj (2015)- 'Health Status in Tribal India : A Study of Tamil Nadu' Vedams eBooks (P) Ltd, New Delhi, India
8. Gholap N.N. (2016) - the socio-economic life of the tribal people in the western part of Nashik district as a geographical study. Unpublished Ph.D. Thesis submitted toDr. Babasaheb Ambedkar Marathwada University.
9. Dr. Abhay Banga (February 2016 Yojana Magazine) - article on health facilities in the tribal areas - present and future.
10. Akashraj D.P, Mahesh T.M (2017) –Evaluation of Tribal Food Security in Mysore District, Karnataka. International Journal of Research & Review Vol.4; Issue: 1; Jan 2017 PP.109-113
11. P. Shirisha (2019) Socio-economic determinants of nutritional status among ‘Baiga’ tribal children In Balaghat district of Madhya Pradesh. School of Health System Studies, Tata Institute of Social Sciences, Deonar, Mumbai, India. DOI:10.1371/journal.pone.0225119
12. K. Radhakrishna Murty (2018); Food Security Eludes Tribals of Adhra Pradesh. SAGE Journal of Social Change Volume 48 Issue 2. https://doi.org/10.1177/0049085718768900
13. Rajput, S. & Arora, K. (2020). Measuring and Mapping the State of Food Insecurity in Rajasthan, India. Geography, Environment, Sustainability. pp. 33-40

ISSN PRINT 2319 1775 Online 2320 7876

 UGC CARE Listed (Group -I) Journal Volume 11,Iss 11 , 2022

14. Vishal S Thorat, Y. A. Garde, and Krishna Patil. (2022). Factors Governing Food Security Among Rural Households in Tribal District Of South Gujarat. Gujrat journal of extension education, 84-88. DOI:10.56572/gjoee.2022.33.1.0016
15. Government of Maharashtra- Gazetteer of Nashik district
16. Govt.of India Nashik District Census Handbook 2011
17. Socio-economic abstract of the Nashik District