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From Forest Dependence to Wage Labour: Livelihood Vulnerability among the Katkari Tribe in Nashik District, Maharashtra

Dr. Pravin Deepak Sonawane

Abstract

The Katkari, a Particularly Vulnerable Tribal Group (PVTG) of Maharashtra, have traditionally relied on forest resources for their subsistence and livelihood security. However, declining access to forest resources, landlessness and limited livelihood opportunities have increasingly pushed Katkari households to engage in informal wage labor and seasonal migration. The study investigates the livelihood vulnerability of the Katkari tribe in Nashik District, covering brick-kiln labor, migration, income and housing conditions, and analyzes the shift from forest dependence to wage labor. The study has been conducted on primary data collected from 575 Katkari households in seven tehsils of Nashik District and secondary data from census records and institutional sources. Relationships among occupation, migration, income, landholding and housing conditions were analyzed descriptively and correlatively. The study results show that 58% of the surveyed households are dependent on brick-kiln labor, 21% on agricultural wage labor and only 9% on forest-related activities. About 30% of the Katkari population reported seasonal migration, with higher levels of migration in Igatpuri, Peth and Trimbakeshwar. Household income remains low ranging from ₹5,500 to ₹9,500 per month. The correlation results show a strong positive relationship between brick-kiln dependence and migration intensity (r = +0.81) and a negative relationship between migration and income (r = −0.56). Income also shows positive relationship with landholding (r = +0.63) and housing quality (r = +0.72) (Sonawane P.D.2026). The study argues that the transition from forest dependence to informal wage labor is an expression of livelihood vulnerability due to structural constraints rather than a voluntary economic diversification. The findings highlight the need of strengthening land and forest rights, improving regulation of informal labor, diversifying livelihoods and implementing location-specific social protection measures to reduce distress migration and increase livelihood security to the Katkari community.

Keywords: *Particularly Vulnerable Tribal Groups (PVTGs); Wage Labor; Livelihood Vulnerability; Brick-Kiln Labor; Informal Labor.*

Introduction

Forest and other natural resources have traditionally been the source of subsistence, livelihood security and cultural practices for tribal communities in India. Out of these communities, Katkari, a Particularly Vulnerable Tribal Group (PVTG), are one of the most socio-economically marginalized tribal groups of Maharashtra (Tribal Research and Training Institute, 2020; Sonawane, 2026). Traditionally Katkari households relied on forest based livelihood activities like catechu extraction, collection of firewood, honey gathering and bamboo related activities. These livelihood patterns were important sources of food, income and household resources and were closely linked to the community's traditional knowledge and way of life. Over time, however, access to traditional forest-based livelihood resources has decreased due to restrictions on forest use, resource depletion, land alienation and the absence of secure access to productive resources. These changes have weakened the traditional livelihood base of Katkari households and increased their dependence on informal sources of employment.

As a consequence, wage labour in brick kilns, agriculture, construction, and other casual activities has become increasingly important for household survival. Seasonal migration, particularly in connection with brick-kiln employment, has consequently emerged as an important component of the livelihood strategies of many Katkari households. This transformation raises an important question concerning the nature of livelihood change among the Katkari. The transition from traditional livelihoods to wage employment does not necessarily indicate economic progress or diversification of sources of livelihood. When the change is prompted by limited access to resources, land scarcity, limited employment options and weak institutional support, it can be a form of livelihood adaptation within the constraints of structural factors. When this occurs, families become more vulnerable to irregular incomes, insecure jobs, substandard housing and other socio-economic vulnerabilities due to their dependence on informal labor and seasonal migration.

The relationship between occupational dependence, migration, income, and household living conditions is therefore important for understanding the contemporary livelihood situation of the Katkari community. Although existing studies have examined tribal poverty, migration, forest dependence, and informal labour, relatively limited attention has been given to the interrelationships among these dimensions within the Katkari population of Nashik District. In particular, there is a need for empirical analysis of how dependence on brick-kiln labour and seasonal migration is associated with household income, landholding, and housing conditions. Against this background, the present study examines livelihood vulnerability among the Katkari tribe in Nashik District, Maharashtra.

The study is based on a household survey of 575 households in seven tehsils, and looks at the changing importance of forest-based and wage-based livelihoods, and analyzes the relationships between occupation, migration, income, landholding and housing conditions. The study aims to contribute to a better understanding of the structural factors underlying livelihood vulnerability among the Katkari, and to identify policy measures that can strengthen livelihood security and reduce dependence on distress migration and precarious informal employment.

Objectives

The study is guided by the following objectives:

1. To examine the shift from forest-based livelihood dependence to wage labour among the Katkari tribe, with particular emphasis on brick-kiln employment.
2. To analyse the socio-economic factors associated with livelihood vulnerability, with particular focus on migration, income instability, and household well-being.
3. To examine the interrelationships among occupation, migration, income, landholding, and housing conditions to understand the patterns of livelihood vulnerability among Katkari households.
4. To suggest sustainable livelihood strategies and policy measures for strengthening livelihood security, reducing distress migration, and promoting inclusive development among the Katkari PVTG.

Review of Literature

Research on tribal livelihoods in India has always stressed the importance of natural resources, especially forests, for the socio-economic and cultural life of vulnerable tribal communities. Historically, Particularly Vulnerable Tribal Groups (PVTGs) depend on forests and other natural resources for their subsistence, income and access to basic household resources. For the Katkari community, traditional livelihood activities included catechu extraction, fuel wood collection, collection of non-timber forest products, and other forest-based occupations. However, changes in forest access, resource availability, and land ownership have progressively weakened this traditional livelihood base (Tribal Research and Training Institute, 2020; Mutatkar, 2017; Pardhi, 2024).

1. **Forest Dependency and Change in Livelihoods**

Studies on tribal communities have reported gradual decline in dependence on traditional forest based livelihoods and increasing dependence on wage employment. Decreased capacity of tribal households to sustain traditional livelihoods is attributed to restrictions on forest access, resource depletion, land alienation and limited ownership of productive assets. Mutatkar (2017) and Pardhi (2024) have pointed out the significance of forest resources for the livelihood systems of tribal populations, and the implications of limited access of resources and changing institutional circumstances. This has meant greater dependence on casual wage employment in agriculture, construction, brick kilns and other informal activities for the Katkari. Distress migration and informal employment have been emphasized as important livelihood strategies among vulnerable tribal groups (Sahu, 2019) . The findings indicate that migration for wage labor cannot be considered as a mark of economic development especially when the households do not have access to other productive assets and sustainable employment opportunities.

2. **Seasonal Migration and Informal Labour**

Seasonal migration has become an important component of livelihood strategies among many economically vulnerable tribal households. The literature indicates that migration frequently occurs in response to limited local employment opportunities and insufficient household income. Migration in the case of brick-kiln employment may be household-based and may be facilitated through advances provided by labor contractors. Such arrangements may enhance household dependence on informal labor markets and create conditions of economic insecurity. Studies of tribal brick-kiln workers have documented seasonal and family-based migration, insecure employment conditions, and the possibility of debt-related labor dependence. Migration may also have consequences beyond income, especially through disruptions to children's education, household stability, and access to social protection. These findings suggest that migration needs to be studied not simply as a mobility process but as an important dimension of livelihood vulnerability.

3. **Livelihood vulnerability and socio-economic Condition**

Livelihood vulnerability is multi-dimensional, and is determined by the household's access to productive resources, employment opportunities, income, housing and institutional support. Limited land ownership and reliance on casual employment can increase exposure to income instability and economic shocks. For tribal households, the interaction between the livelihood opportunities and access to physical and financial assets is particularly important in determining household well-being. Existing studies indicate that the households with higher livelihood insecurity are more likely to rely on the volatile wage employment and seasonal migration. Sahu (2019) and Gore (2024) demonstrate the importance of employment insecurity and limited livelihood opportunities in understanding vulnerability among tribal communities and PVTGs. These studies provide a significant basis to explore the relation of occupation, migration, income and household living conditions among the Katkari.

4. **Katkari Livelihoods in Maharashtra**

There is evidence from research and institutional reports that the socio-economic disadvantages of the Katkari community in Maharashtra have persisted with landlessness, dependence on wage labor, seasonal migration, inadequate housing and limited access to livelihood resources being some of the key issues (Tribal Research and Training Institute, 2020). An important institutional account of the socio-economic conditions of the Katkari in Maharashtra is provided by the Tribal Research and Training Institute (2020). Earlier research has also examined the historical importance of forest resources and traditional livelihood practices, while more recent studies have drawn attention to forest rights, resource depletion, and livelihood transformation (Mutatkar, 2017; Pardhi, 2024). Despite these contributions, much of the existing literature examines individual aspects of Katkari livelihood conditions, such as forest dependence, migration, labour, or socio-economic deprivation. There remains comparatively limited empirical attention to the way in which these dimensions interact at the household level.

5. **Research Gap**

The review indicates three important gaps in the existing literature. First, relatively limited attention has been given to the relationship between the decline of forest-based livelihood opportunities and increasing dependence on informal wage labour among the Katkari. Second, although seasonal migration and brick-kiln employment have been documented, fewer studies have quantitatively examined their relationship with household income and living conditions. Third, there is a need for household-level analysis that brings together occupation, migration, income, landholding, and housing conditions within a common analytical framework. The present study addresses these gaps by analysing primary data from 575 Katkari households across seven tehsils of Nashik District. It examines the changing livelihood base of the community and investigates the interrelationships among occupation, migration, income, landholding, and housing conditions. By doing so, the study seeks to provide a more integrated understanding of livelihood vulnerability among the Katkari and contribute to discussions on sustainable and inclusive tribal development.

Conceptual Framework

The present study is guided by the Sustainable Livelihood Framework (SLF) proposed by Chambers and Conway (1992). The framework provides a useful approach for understanding how households use different forms of livelihood assets and respond to changing social, economic, institutional, and environmental conditions. It considers livelihood outcomes as the result of interactions among natural, physical, human, financial, and social resources within a broader institutional and vulnerability context. For the Katkari community, natural capital has historically constituted an important foundation of livelihood security through access to forests and forest-based resources. Reduced access to forest resources, limitations on forest use and resource depletion have weakened this component of the traditional livelihood system. At the same time, limited ownership of agricultural land and productive assets limits the ability of households to develop alternative livelihood activities. Physical and financial capitals are also important determinants of household livelihood security. Limited landholding, inadequate housing, low household income and limited access to productive assets increase dependence on casual wage employment. In the absence of stable local employment, households increasingly participate in informal labor markets, particularly the brick-kiln sector. The income which such employment generates is an important source of financial capital but its seasonal and uncertain nature limits it's ability to generate long-term livelihood security.

Human capital including education, skills, health and labor availability influences the capacity of households to diversify their livelihoods. Low educational attainment and limited access to skill development opportunities can limit access to secure and better paid employment. Seasonal migration can also impact human capital through disruption of children's education and access to regular health and social services for households. Social and institutional capital also affect livelihood outcomes. Access to government welfare programs, forest rights, labor protections, self-help groups and other institutional mechanisms may improve the capacity of households to cope with livelihood shocks. However, a lack of awareness, poor institutional access and difficulties in accessing entitlements can limit the effectiveness of available development interventions. Within this framework, decline of traditional forest-based sources of livelihood can be seen as a major vulnerability factor. Households respond to this changing livelihood environment by increasing their dependence on informal wage labor and seasonal migration. These responses may provide short term income but can also expose households to job insecurity, volatile earnings, poor housing and other socio-economic risks.

Thus, the conceptual linkage studied here is as follows:

Declining forest dependence and restricted access to land → Greater dependence on informal wage labor → Seasonal migration → Income instability → Poor housing and household vulnerability

The framework does not imply that all households follow the same path; rather, it provides an analytical basis to explore how variations in occupation, landholding, migration, income and housing conditions correspond to differences in livelihood vulnerability among Katkari households. Thus, the Sustainable Livelihood Framework helps contextualize the Katkari experience within a larger understanding of livelihood adaptation under structural constraints. It also provides a basis for interpreting whether the shift to wage labor is livelihood diversification or a distress response to the weakening of traditional livelihood resources.

Methodology

1. **Research Design**

The research was based on a mixed-methods design combining quantitative household survey data with qualitative field observations and secondary institutional information. The quantitative component was used to examine the occupational structure, migration patterns, household income, landholding, and housing conditions of the Katkari community. Qualitative observations and field interactions provided contextual understanding of the livelihood conditions and the factors influencing the transition from forest dependence to wage labour. The study followed a cross-sectional research design, in which

household-level information was collected during the field survey and analysed to understand the contemporary livelihood conditions of Katkari households in Nashik District.

2. Study Area

Nashik District consists of 15 tehsils. The Katkari population considered in the present study is distributed across seven tehsils: Igatpuri, Trimbakeshwar, Peth (Peint), Nandgaon, Niphad, Nashik, and Dindori**.** These seven tehsils contain the Katkari settlements included in the study.

The study covered 116 Katkari villages comprising 2,850 Katkari households. From this population, a total of **575** households were surveyed, representing approximately 20% of the identified Katkari households.

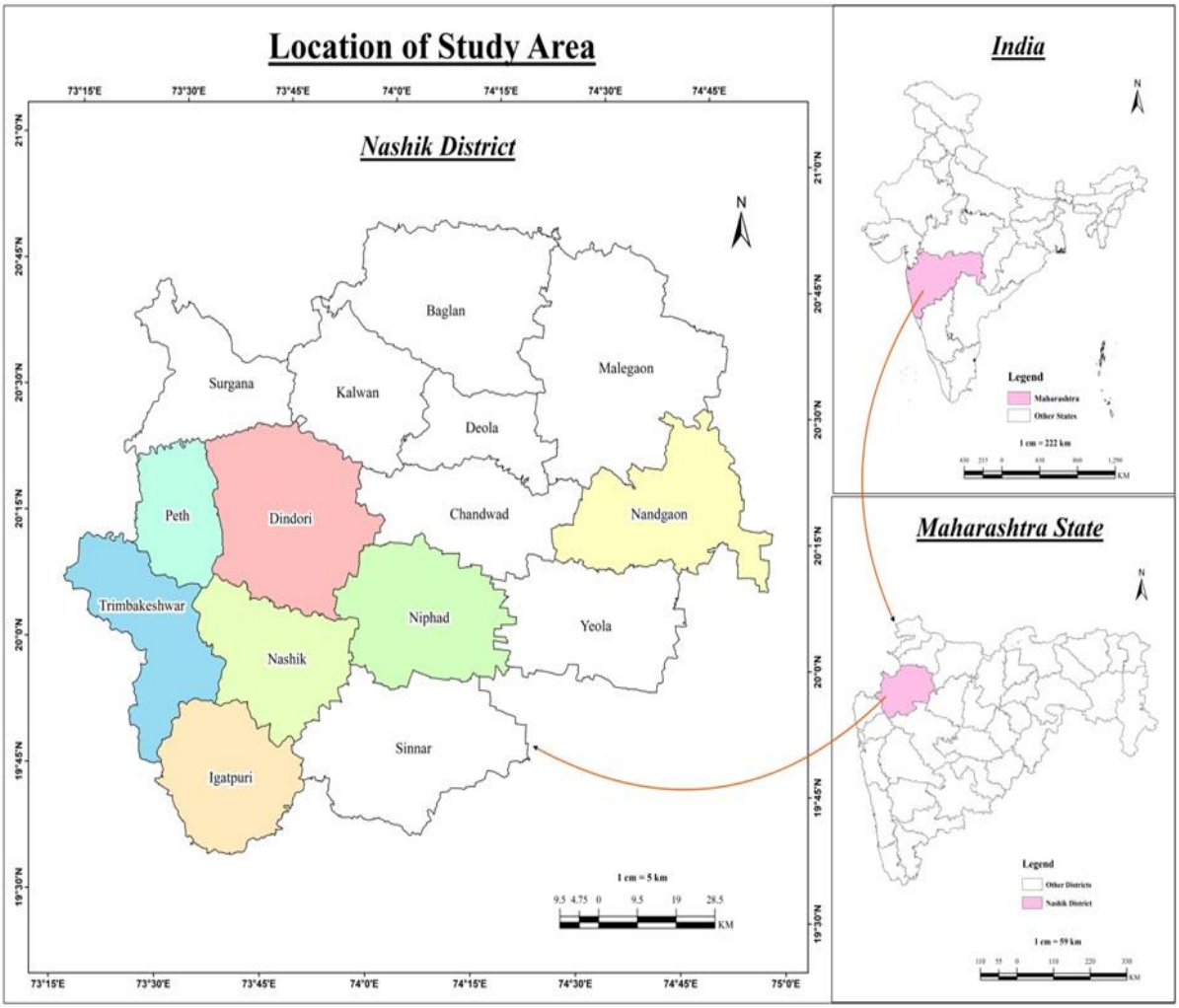


Figure No.1. Study Area

3. Sources of Data

This study is primarily based on household survey data collected from Katkari households in selected tehsils of Nashik District. The data was collected through a structured questionnaire administered to the household heads through direct field visits and face-to-face interactions. The questionnaire collected information on household demographic characteristics, occupation, livelihood activities, income, migration, landholding, literacy and education, housing conditions and other socio-economic characteristics relevant to livelihood vulnerability. Secondary information was also collected from Census of India, Tribal Research and Training Institute (TRTI), District Census Handbook of Nashik, Adivasi Vikas Bhavan and other relevant institutional sources. These sources were used to provide demographic, historical and institutional context for interpreting the primary survey findings.

4. Sampling Design

A **simple random sampling technique** was used for the selection of household respondents from the identified Katkari household population. The study covered 2,850 Katkari households distributed across 116 villages in seven tehsils of Nashik District. A sample of **575 households**, representing approximately 20% of the total Katkari households, was selected for the household survey.

Table No.1 Tehsil-wise Distribution of Katkari Households and Sample Respondents

Sr. No	Name of Tehsil	Total villages in Tehsils	Katkari Tribe Villages	Total Katkari Population	Total Katkari Household	Total Respondent H O F
1	Igatpuri	128	54	5101	1091	220
2	Trimbakeshwar	119	36	2986	647	130
3	Peth	147	14	2200	446	90
4	Nandgaon	101	3	2034	514	103
5	Niphad	137	3	439	112	23
6	Nashik	110	3	102	21	5
7	Dindori	155	3	68	19	4
	Total	**897**	**116**	**12930**	**2850**	**575**

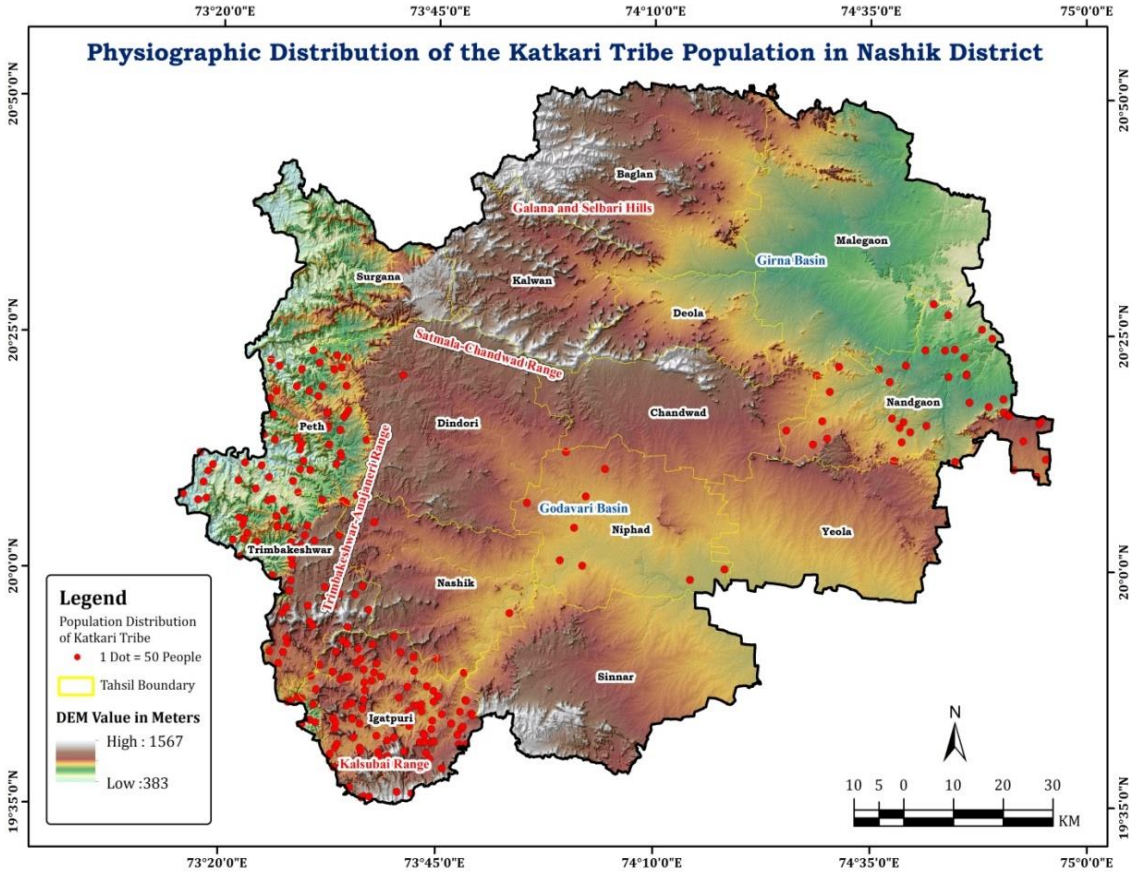


Figure No.2 Physiographic Distribution of Katkari Tribe in Nashik District

Source: ***ALOS PALSOR, 12.5m***

The selected respondents were household heads, as they were considered appropriate respondents for providing information concerning household occupation, income, migration, landholding, housing conditions, and livelihood activities. The distribution of surveyed households across the seven tehsils provided the empirical basis for comparing livelihood conditions within the study area.

5. **Variables Considered**

The analysis focused on variables directly related to livelihood vulnerability and household well-being. The principal variables included:

1. **Occupation:** brick-kiln labour, agricultural wage labour, forest-related work, own farming/landholding, and other wage employment.
2. **Migration:** participation in seasonal migration and migration intensity.
3. **Income:** average monthly household income.
4. **Landholding:** availability of agricultural land and its relationship with household livelihood conditions.
5. **Housing:** type and quality of household dwelling.
6. **Forest dependence:** participation in forest-related livelihood activities.
7. **Education and literacy:** selected indicators of human capital and household well-being.

These variables were selected to examine the relationship between livelihood dependence and socio-economic vulnerability among Katkari households.

6. **Analytical Techniques**

The collected data were organised and analysed using descriptive and statistical techniques. Frequencies and percentages were used to describe the occupational structure, migration, housing conditions and other household characteristics. Comparative analysis was done to examine the variations across the seven tehsils. Karl Pearson's correlation coefficient (r) was used to examine the relationships among selected livelihood variables, especially occupation, migration, income, landholding and housing conditions. The correlation analysis was used to find out the direction and strength of associations among these variables. The quantitative findings were interpreted along with field observations and secondary information for developing a contextual understanding of livelihood vulnerability and the increasing dependence of Katkari households on informal wage labor.

Findings and Results

1. **Occupational structure and Dependence on Wage Labor**

The occupational structure of the surveyed Katkari households reflects a significant dependence on informal wage employment. Of the 575 surveyed households, about 58 per cent were engaged in brick-kiln labor, which was the dominant livelihood activity. Agricultural wage labor accounted for about 21 per cent of the households, while about 9 per cent were still involved in forest-related activities. Own farming or landholding constituted only a small proportion of household livelihoods and was particularly evident in Nandgaon. The remaining households were engaged in other forms of wage employment. The occupational structure indicates that forest-based livelihood activities no longer constitute the principal source of household livelihood for the majority of the surveyed population. Instead, informal wage employment (especially brick-kiln work) has become a major source of income for the households.

Table No.2 Tehsil-wise Occupational Structure of Katkari Households

Sr. No.	Tehsil	Brick-Kiln Labour	Agricultural Labour	Forest Work	Own Farming / Landholding	Other Wage Work	Total Households
1	Igatpuri	150	45	20	0	5	220
2	Trimbakeshwar	85	25	15	0	5	130
3	Peth	60	20	10	0	0	90
4	Nandgaon	25	25	5	45	3	103
5	Niphad	12	6	2	0	3	23
6	Nashik	3	1	0	0	1	5
7	Dindori	3	1	0	0	0	4
Total		**338**	**123**	**52**	**45**	**17**	**575**
Total (%)		**58.78**	**21.39**	**9.04**	**7.83**	**2.96**	**100.00**

This trend indicates a significant decline in the dependence toward traditional livelihoods and increasing dependence on insecure wage-based employment. Occupational structure reveals a strong dependence of the surveyed Katkari households on wage-based livelihoods. Brick-kiln work is the dominant occupation with 338 households (58.78%) followed by agricultural wage work 123 households (21.39%). Forest-related work is reported by only 52 households (9.04%), and 45 households (7.83%) are involved in own farming or landholding. Other wage employment represents a relatively small share of 17 households (2.96%). The tehsil-wise distribution shows considerable variation in occupational dependence. The most visible form of brick-kiln labor is observed in Igatpuri, Trimbakeshwar and Peth. Nandgaon, however, exhibits a different occupational pattern with 45 of the 103 surveyed households (43.69%) involved in own farming or landholding. Thus, land access to productive land is associated with higher scope for livelihood diversification and relatively less reliance on brick-kiln labor. Overall, the table indicates the limited role of traditional forest-based work in the present livelihood structure and the increasing importance of informal wage employment among Katkari households.

2. **Seasonal Migration and Livelihood Dependence**

Seasonal migration is closely associated with the occupational structure of Katkari households. Approximately 30% of the surveyed Katkari population reported migration during the reference period.

Table No.3 Tehsil-wise Migration and Average Monthly Household Income

Sr. No.	Tehsil	Migration (%)	Average monthly income (₹)
1	Igatpuri	37.53	6,200
2	Trimbakeshwar	31.07	6,000
3	Peth	35.78	5,800
4	Nandgaon	13.02	9,500
5	Niphad	26.09	6,500
6	Nashik	33.33	7,000
7	Dindori	27.27	5,500

Migration rates were significantly different across the seven tehsils. Highest rates were observed in Igatpuri (37.5%), Peth (35.8%) and Trimbakeshwar (31.0%). Nandgaon had a comparatively lower migration rate of around 13%. The

comparatively lower migration in Nandgaon is linked to comparatively better access to land holding and own-farming opportunities. The spatial variation shows that households with less access to productive resources are more dependent on seasonal wage employment and migration. Thus migration appears to be primarily a livelihood strategy to compensate for lack of local employment and household income.

3. **Household Income and Economic Vulnerability**

The income levels of the households are relatively low across the study area. The average monthly household income in the seven tehsils was in the range of about Rs. 5,500 to Rs. 9,500. Nandgaon had the highest average monthly household income at approximately Rs. 9,500 whereas Dindori had the lowest at approximately Rs. 5,500. The relatively higher income level in Nandgaon is associated with a higher access to landholding and relatively lower dependence on seasonal migration. However, the households that are highly dependent on casual wage labor and migration are exposed to irregular employment and unstable income. The findings therefore suggest that participation in informal wage labor does not necessarily result in better livelihood security. Rather, wage employment may provide short-term income, but it leaves the households vulnerable to variations in employment availability, migration requirements and labour-market conditions.

4. **Housing Conditions and Material Vulnerability**

Housing conditions provide an important indicator of the material well-being and livelihood vulnerability of Katkari households. The distribution presented in Table 4 shows considerable variation in housing conditions across the seven tehsils.

Table No.4 Tehsil-wise Distribution of Katkari Households by Housing Type

Sr. No.	Tehsil	Hut	Kaolaru House of Kuda	Kaolaru House of Stone	Cement Concrete	Total Households
1	Igatpuri	93	35	83	9	220
2	Trimbakeshwar	51	32	42	5	130
3	Peth	37	19	28	4	90
4	Nandgaon	15	27	55	6	103
5	Niphad	11	9	3	0	23
6	Nashik	2	1	2	0	5
7	Dindori	2	1	1	0	4
Total		**211**	**124**	**214**	**24**	**575**
Calculated %		**36.82**	**21.64**	**37.35**	**4.19**	**100.00**

The surveyed households are distributed among huts, Kaolaru houses constructed with mud, Kaolaru houses constructed with stone, and cement-concrete houses. The dominance of traditional and semi-permanent housing structures indicates the continued material vulnerability of a large proportion of Katkari households. Tehsil-wise pattern shows large variation in housing conditions across the study area. Igatpuri, with the largest sample of 220 households, has large number of households living in huts and Kaolaru houses. Trimbakeshwar and Peth also show large presence of traditional housing structures. Nandgaon shows a comparatively different pattern with a large number of households living in stone Kaolaru houses and relatively large number of cement-concrete houses. This pattern is consistent with the relatively greater availability of landholding and relatively higher household income as observed in Nandgaon.

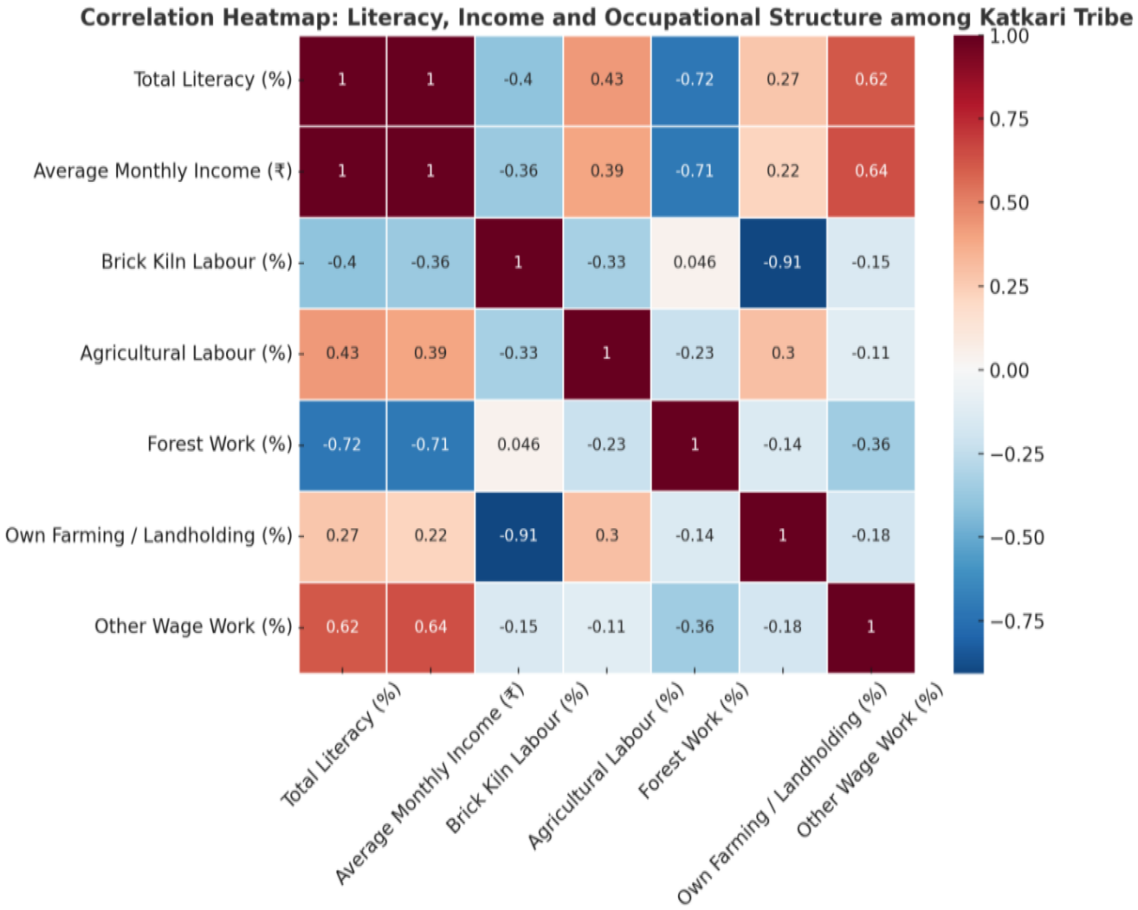
The prevalence of traditional housing structures can be understood in relation to the livelihood conditions of the Katkari community. Households dependent on casual wage labor and seasonal employment typically have a narrow and irregular income, which can limit their ability to invest in permanent housing. Seasonal migration can further reduce the households' motivation or capacity to invest in permanent residential structures. Housing conditions are a reflection not only of physical quality of dwellings but also of the economic security and asset base of households. Interestingly, Nandgaon has a relatively higher proportion of cement-concrete houses. The tehsil also has the highest percentage of households engaged in own farming or landholding and the highest mean monthly household income among the surveyed tehsils. This spatial linkage suggests that access to productive assets and relatively stable incomes may result in better housing conditions.

However, the present analysis identifies an association rather than establishing a direct causal relationship. Overall, the housing pattern reinforces the argument that livelihood vulnerability among the Katkari is multidimensional. Household well-being is characterized by dependence on informal wage labor, limited access to productive assets, seasonal migration, low and irregular income, and substandard housing. Improving housing conditions, therefore, entails interventions for livelihood security, productive assets and steady income opportunities, as well as housing assistance.

5. **Relationship between Occupation, Migration, Income and Landholding**

Correlation analysis reveals significant inter-relationships between the major livelihood variables. A strong positive correlation ($r = +0.81$) was found between dependence on brick-kiln labor and migration intensity. This means that the higher the dependence on brick-kiln employment, the higher the seasonal migration levels of households. A moderate negative correlation ($r = -0.56$) was found between migration and household income. This suggests that greater dependence on migration is associated with lower household income levels within the surveyed population. Migration therefore appears to be more closely related to livelihood insecurity than to sustained economic improvement.

Table No.5 Correlation Heatmap



Income and landholding are positively correlated (r = + 0.63), which implies that households with better access to land have relatively better income conditions. Income is also positively correlated (r = + 0.72) with housing quality suggesting that households with higher income are better placed to maintain or improve their residential conditions. Together these correlations illustrate the interconnectivity of livelihood vulnerability. Limited access to productive resources leads to dependence on informal wage labor; wage dependence is associated with seasonal migration; and unstable livelihood conditions are manifested in lower income and poorer housing conditions. The findings support the argument that the shift from forest dependence to wage labor among the Katkari should be understood in a broader structural livelihood vulnerability context, rather than simply as occupational diversification.

Policy and Theoretical Implications

- **Theoretical implications**

The empirical results of the study validate the interpretation of change in Katkari livelihoods through the Sustainable Livelihood Framework. The decrease in forest based livelihood options leads to reduced access to natural capital and limited landholding and inadequate productive assets restricts the availability of alternate livelihood options. Therefore, households are resorting to informal wage employment and seasonal migration as short term livelihood strategies. The strong positive correlation between dependence on brick-kilns and migration (r = +0.81) and the negative correlation between migration and income (r = −0.56) shows that wage-based migration does not necessarily lead to improved livelihood security. Rather, migration seems to be a coping strategy in a constrained livelihood environment. The strong correlations between income and landholding (r = +0.63) and income and housing quality (r = +0.72) also underscore the importance of productive and material assets for the development of household well-being.

These findings suggest that the livelihood vulnerability among the Katkari is multidimensional and cannot be understood by occupational status or income alone. Access to natural, physical, financial and human resources together shape the ability of households to achieve more secure livelihoods. The study thus contributes to the understanding of livelihood transition by highlighting the difference between voluntary livelihood diversification and structurally constrained livelihood change. But if households resort to informal wage labor, with restricted access to land, forests and local employment opportunities, this shift can be viewed as adaptation to vulnerability, rather than a pathway to sustainable development.

- **Policy Implications**

The findings suggest the need for a multidimensional and location-specific approach to improving Katkari livelihood security. First, strengthening access to land and forest rights should remain a major policy priority. Effective implementation of existing legal and institutional provisions relating to forest and land rights can improve access to productive resources and

reduce excessive dependence on informal wage employment. Greater security of resource access would also strengthen the natural and physical asset base of vulnerable households. Second, informal labour conditions, particularly in the brick-kiln sector, require greater institutional attention. Effective workers' registration, proper implementation of applicable labor protections, a transparent wage system and regular monitoring can help reduce exploitation and improve employment security. Particular attention should be given to households that migrate seasonally for brick-kiln employment. Third, livelihood diversification should be promoted at the local level. These may include skill development, small-scale enterprises, self-help groups, livestock-based activities, suitable agricultural opportunities, and sustainable forest-based enterprises. Such interventions need to be planned considering the availability of local resources and the capabilities of the households rather than adopting a uniform approach for all Katkari settlements. Fourth, measures are needed to mitigate the negative consequences of seasonal migration. Access to social protection, healthcare, nutrition services, and educational support in a portable manner can ensure migrant households' access to essential public services. Special attention should be paid to children of migrant households to prevent seasonal migration from disrupting their education. Fifth, housing improvement should be integrated with livelihood development. The positive relationship between income and housing quality can be interpreted as an indication that increasing the economic security of households may lead to better living conditions. Housing programmes should therefore be complemented by livelihood and income-generation interventions rather than being treated as an isolated welfare measure.

Finally, development planning should be spatially and socially differentiated. The differences observed among the seven tehsils indicate that livelihood vulnerability is not uniform across the Katkari population. Local planning agencies should identify settlements with high dependency on informal labor and migration and prioritize them for livelihood support, social protection, infrastructure and institutional assistance.

- **Overall Implication**

The central policy implication of the study is that reducing Katkari livelihood vulnerability requires more than increasing access to wage employment. Sustainable improvement requires strengthening the underlying asset base of households, expanding secure livelihood opportunities, protecting workers in informal employment, improving access to social protection, and reducing the structural conditions that generate distress migration. A rights-based, participatory and location-specific approach can contribute to transform livelihood strategies from short-term coping mechanisms to more secure and sustainable pathways of development.

Conclusion

The present study was conducted on the livelihood vulnerability of the Katkari tribe of Nashik District, Maharashtra with special reference to the changing dependence on forest-based resources, informal wage labor, seasonal migration, income, landholding and housing conditions. The study was based on primary data collected from 575 households belonging to seven tehsils. The results reveal that the traditional forest-based livelihood activities have been replaced by informal wage employment especially brick-kiln labor. The occupational structure shows that the brick-kiln labor has become the dominant livelihood activity, accounting for about 58 % of the surveyed households while only 9 % of the population is engaged in forest-related activities. Seasonal migration is also an important component of the livelihood system with about 30 % of the surveyed population reporting migration. The very strong positive correlation between dependence on brick-kiln work and migration ($r=+0.81$) confirms the importance of the links between informal employment and seasonal mobility. The negative correlation between migration and income ($r=-0.56$) indicates that migration is not a necessary mechanism for sustained economic improvement.

The findings further demonstrate the importance of access to productive resources and household assets. The positive relationship between income and landholding ($r = +0.63$) indicates the role of productive assets in strengthening household economic conditions, while the positive relationship between income and housing quality ($r = +0.72$) highlights the connection between economic security and material well-being. These relationships indicate that the Katkari livelihood vulnerability is multidimensional and its causes are a function of the interaction of employment, access to resources, migration, income and standard of living. The study argues that the transition from dependence on the forests to informal wage labor should not be seen as a simple case of occupational diversification. For many Katkari households, this transition seems to be taking place in a context of limited livelihood options, productive assets and employment opportunities in the local economy. The potential for short-term income from seasonal migration and informal wage labor does not necessarily address the structural causes of livelihood insecurity. Such vulnerability calls for a multidimensional development approach. Improving land and forest rights, employment security, formalization of informal labor conditions, expanding locally appropriate livelihood opportunities, supporting migrant households and better housing and social protection can enhance long term livelihood security. Development interventions need to recognize the heterogeneities in livelihood conditions across locations and households, rather than uniform approaches.

In sum, the Katkari experience shows that sustainable livelihood development among PVTGs requires enhancing household assets and expanding secure livelihood choices rather than depending primarily on precarious informal employment. Taking a rights-based, participatory and context specific approach can help reduce distress migration, improve household well-being and create more sustainable livelihood pathways for the Katkari community in the Nashik District.

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Conflicts of interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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