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Changing livelihood structure of tribal households in Bankura district, West Bengal, India

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Abstract

This study examined the changing livelihood structure of tribal households in Bankura district, West Bengal, by combining Census data for 2001 and 2011 with primary survey evidence from 421 tribal households in nine selected villages of Bankura-II, Chhatna and Gangajalghati blocks. The analysis focused on changes in the occupational structure of tribal workers and the relative contribution of major household income sources. Census data showed a marked decline in the share of cultivators from 32.0% in 2001 to 14.0% in 2011, accompanied by an increase in the share of agricultural labourers from 54.0% to 70.0%. In the primary survey, average annual household income was ₹43,698.15. Agriculture contributed 24.48% of average income, followed by agricultural labour (10.02%), livestock (3.39%), migration (3.02%) and household industry (2.69%); the residual category “Others” accounted for 56.40%. Considerable village-level variation was observed in both total income and the composition of income sources. The findings indicate that livelihood diversification in the study area was substantial in terms of income sources, but the dominant structural shift from cultivation towards agricultural labour does not by itself establish an improvement in livelihood security. The study highlights the need for context-specific agricultural extension, livestock development, skill development, rural non-farm enterprise promotion, market linkage and convergence of livelihood programmes to strengthen more productive and resilient livelihood options.

Keywords: Tribal livelihoods, livelihood diversification, occupational structure, agricultural labour, rural non-farm employment, Bankura

1. Introduction

Livelihood is a multidimensional concept encompassing the capabilities, assets and activities through which households secure a means of living. The sustainable livelihoods perspective emphasises the interaction between household assets, livelihood strategies and the institutional and environmental context, while livelihood diversification refers to the construction of portfolios of activities that may spread risk and improve livelihood security^[1-3]. In agrarian settings, households may combine cultivation, wage labour, livestock, forest-based activities and non-farm employment rather than depend on a single source of income.

Evidence from rural India indicates that participation in non-farm activities is influenced by household resources and socioeconomic characteristics, while diversification may arise either from opportunity or from pressure associated with low and uncertain agricultural returns^[4, 5]. Recent research also cautions that diversification into informal wage employment may coexist with livelihood precarity^[5]. These distinctions are important when interpreting occupational change: a decline in cultivation accompanied by an increase in wage labour is not equivalent to diversification into higher-return enterprises.

Tribal households in eastern India frequently depend on combinations of agriculture, livestock, wage labour and

forest resources. In the Jangalmahal region of West Bengal, forest products such as sal leaves, mahua flowers, fuelwood and fodder continue to contribute to household livelihoods, particularly where agricultural opportunities are seasonal or uncertain^[6]. At the same time, access to land, education, credit, institutional support and local employment opportunities can shape the range of livelihood strategies available to tribal households^[7-10].

Bankura district provides an important setting for examining this transition because its rural economy includes agriculture, agricultural wage employment, forest-related activities and a range of informal and non-farm occupations. Census-based evidence provides a long-term perspective on occupational change, whereas household-level income data can show how different livelihood sources contribute to current household earnings. The combination of these two perspectives is therefore useful for distinguishing structural occupational change from the contemporary composition of household income.

Previous work from West Bengal has shown that non-farm activities can make a substantial contribution to rural income and that education, family characteristics and asset access influence participation in more remunerative non-farm employment^[14, 15]. Research on farming systems in West Bengal has likewise demonstrated the potential for

combining crop and allied activities to strengthen income and resilience^[16]. These findings provide a useful comparative context for examining tribal livelihoods in Bankura.

The present study was undertaken with the following objectives: (i) to examine changes in the occupational structure of tribal workers in Bankura district between 2001 and 2011; (ii) to assess the contribution of major income sources to the annual income of sampled tribal households; and (iii) to identify village-level differences in livelihood composition and discuss their implications for agricultural extension and rural development.

2. Materials and Methods

2.1 Study area

The study was conducted in Bankura district of West Bengal, India, with particular focus on selected tribal-concentrated rural areas. Three Community Development blocks—Bankura-II, Chhatna and Gangajalghati—were selected for the primary household survey. The selected areas represent rural settings in which agriculture, agricultural wage employment and other livelihood activities form important components of household economies. The broader regional context includes the Jangalmahal landscape of south-western West Bengal.

2.2 Data sources and study coverage

The study used two complementary data sources. Secondary data were drawn from the Census of India for 2001 and 2011 to examine the occupational structure of tribal workers and the broad occupational pattern of tribal and non-tribal workers. The occupational categories considered were cultivators, agricultural labourers, household-industry workers and other workers. Primary data covered 421 tribal households from nine villages: Boroachaka, Dharampur and Kendbani in Bankura-II; Hanshapahari, Dumdumi and Paragala in Chhatna; and Koyamoti, Bamundiha and Soyabasa in Gangajalghati.

2.3 Sampling and household income measurement

The manuscript records the coverage of 421 tribal households across nine selected villages; however, the available study material does not specify the sampling frame, probability/purposive selection procedure, survey year, questionnaire development process or household selection ratio. These details should be inserted from the original field records before submission because the journal requires sufficient methodological detail for reproducibility.

Household income was classified into agriculture, livestock, agricultural labour, household industry, migration and “Others”. The annual income attributed to each source was aggregated at household level and used to calculate average income and the relative contribution of each source. Because the “Others” category is residual and is not further disaggregated in the available study material, its composition cannot be inferred from the reported data.

2.4 Analytical techniques

Percentage analysis was used to describe the distribution of workers across occupational categories. Inter-temporal comparison was used to examine changes between Census 2001 and 2011. For the primary survey, the income share of source i was calculated as:

$$S_i = (Y_i / Y) \times 100$$

where S_i is the percentage share of income source i , Y_i is average annual income from source i , and Y is average annual total household income.

The study uses descriptive and comparative analysis only. Therefore, the observed associations are interpreted as patterns rather than causal effects.

2.5 Ethical considerations

Because the study involved household-level primary data, the final submission should include the applicable statement on informed consent and, where relevant, institutional ethical approval. The available manuscript does not provide sufficient information to make a factual claim about formal ethical approval; the authors should insert the appropriate statement based on the actual field protocol.

3. Results and Discussion

3.1 Changing occupational structure of tribal workers

The Census comparison shows a pronounced change in the occupational structure of tribal workers in Bankura between 2001 and 2011 (Table 1). The share of cultivators declined from 32.0% to 14.0%, a fall of 18 percentage points, while agricultural labour increased from 54.0% to 70.0%, an increase of 16 percentage points. Household-industry workers declined marginally from 4.0% to 3.0%, whereas other workers increased from 10.0% to 13.0%. These figures indicate a clear reallocation of workers away from cultivation and towards agricultural wage labour.

The direction of change is important for interpreting livelihood diversification. Diversification is often associated with households maintaining multiple activities, but a shift from self-cultivation to agricultural wage labour may reflect constrained access to productive assets or insufficient returns from cultivation rather than a transition into higher-return employment^[4, 5]. In rural India, non-farm participation can also be constrained by education, land and other household assets^[15].

The findings are broadly consistent with recent evidence from eastern India showing that tribal households combine agriculture with labour, livestock and other activities, while access to land and institutional resources shapes the available livelihood combinations^[12]. The results therefore suggest that the occupational transformation in Bankura should be interpreted as restructuring of livelihood dependence rather than automatically as an improvement in livelihood status.

Table 1: Occupational distribution of tribal workers in Bankura district, 2001 and 2011 (%)

Occupational category	2001	2011	Absolute change (percentage points)
Cultivators	32.0	14.0	−18.0
Agricultural labour	54.0	70.0	+16.0
Household industry	4.0	3.0	−1.0
Other workers	10.0	13.0	+3.0

Source: Census of India, 2001 and 2011^[17, 18]

3.2 Tribal and non-tribal occupational pattern

The 2011 Census comparison presented in the study indicates that tribal workers were more concentrated in agricultural labour, whereas non-tribal workers had relatively greater

representation in cultivation, household industry and other occupations (Table 2). The qualitative comparison suggests a narrower occupational base among tribal workers and stronger dependence on agricultural wage employment. Since the underlying numerical percentages are not provided in the available manuscript, the table is retained as a qualitative comparison and should be replaced by exact Census values if the authors have the original tabulation. Evidence from neighbouring eastern Indian tribal settings similarly indicates that agriculture remains important while land access, credit, self-help groups and institutional programmes can influence diversification^[12]. Recent work also shows that occupational diversification among tribal households can involve several simultaneous activities rather than a complete shift away from agriculture^[10].

Table 2: Broad occupational pattern of tribal and non-tribal workers, Bankura, 2011

Occupational category	Tribal workers	Non-tribal workers
Cultivators	Relatively low	Relatively higher
Agricultural labour	Very high	Lower
Household industry	Very low	Relatively higher
Other workers	Lower	Higher

Source: Census of India, 2011.

3.3 Average annual household income by source

The primary survey shows a mixed income structure (Table 3). Average annual household income was ₹43,698.15. Agriculture contributed ₹10,695.47 (24.48%), agricultural labour ₹4,379.89 (10.02%), livestock ₹1,482.94 (3.39%), household industry ₹1,175.14 (2.69%) and migration ₹1,318.73 (3.02%). The residual category “Others” contributed ₹24,645.98, equivalent to 56.40% of average household income.

The relatively modest contributions of livestock and household industry suggest that these activities had limited weight in the recorded income portfolio, although their role may be greater in subsistence or non-monetary terms that are not captured by the reported income figures. The very large “Others” category is the main limitation for interpreting the diversification profile because its component activities are not specified. Consequently, it is not appropriate to classify the entire residual category as non-farm, informal or wage income without the underlying household records. The

pattern nevertheless supports the broader literature showing that rural households combine farm and non-farm sources, and that diversification is shaped by household assets, skills, education and access to institutional support^[4, 13, 14, 15].

Table 3: Average annual household income by source

Income source	Average annual income (₹)	Share (%)
Agriculture	10,695.47	24.48
Livestock	1,482.94	3.39
Agricultural labour	4,379.89	10.02
Household industry	1,175.14	2.69
Migration	1,318.73	3.02
Others	24,645.98	56.40
Total	43,698.15	100.00

3.4 Village-level income structure

Considerable variation was observed across the nine villages (Table 4). Average annual household income ranged from ₹27,056.85 in Kendbani to ₹60,702.70 in Bamundiha. Agriculture generated the highest village-level average income in Bamundiha (₹16,038.88), whereas agricultural labour was highest in Koyamoti (₹7,245.00). Household-industry income was also highest in Bamundiha (₹2,630.00). Migration income was reported in five villages, with the highest average in Dharampur (₹4,714.28).

These differences indicate that livelihood portfolios are spatially heterogeneous. Bamundiha combined relatively high agricultural, household-industry and residual income, while Koyamoti showed a relatively high contribution from agricultural labour. Such variation is consistent with the livelihood portfolio perspective, under which households combine activities according to local opportunities, assets and constraints^[1, 2]. Recent evidence from West Bengal also indicates that the agriculture-livestock-forestry nexus can support income diversification where households have access to technology, skills and financial resources^[13]. The earlier West Bengal evidence on non-farm employment is also relevant: access to education, family resources and land assets can affect entry into more remunerative non-farm activities^[15]. This reinforces the importance of linking livelihood diversification programmes with skills, assets and market access rather than treating diversification itself as the final policy outcome.

Table 4: Source-wise average annual income of sampled tribal households (₹)

Village	Agriculture	Livestock	Agricultural labour	Household industry	Migration	Others	Total
Borochaka	10,371.91	1,872.92	5,056.25	508.33	0.00	16,964.06	34,773.47
Dharampur	10,231.50	1,637.50	5,378.00	607.14	4,714.28	23,039.29	45,607.71
Kendbani	8,289.85	737.86	4,992.00	1,058.57	0.00	11,978.57	27,056.85
Hanshapahari	8,281.31	1,254.31	2,750.00	810.34	2,281.00	29,051.72	44,428.68
Dumdumi	6,323.38	1,236.54	2,224.61	461.54	1,940.00	22,978.46	35,164.53
Paragala	13,974.35	1,331.45	1,543.87	290.32	2,933.33	25,256.45	45,329.77
Koyamoti	11,179.35	1,686.25	7,245.00	2,285.00	0.00	27,888.00	50,283.60
Bamundiha	16,038.88	1,772.06	5,311.76	2,630.00	0.00	34,950.00	60,702.70
Soyabasa	11,568.68	1,817.53	4,917.53	1,925.00	0.00	29,707.26	49,936.00
Average	10,695.47	1,482.94	4,379.89	1,175.14	1,318.73	24,645.98	43,698.15

3.5 Relative contribution of livelihood sources

Agriculture accounted for 24.48% of average household income, followed by agricultural labour at 10.02%. Livestock, migration and household industry contributed

3.39%, 3.02% and 2.69%, respectively, while “Others” accounted for 56.40% (Table 5). The agricultural share exceeded 30% in Kendbani (30.64%) and Paragala (30.83%) but was lowest in Dumdumi (17.98%). Agricultural labour

contributed most in Kendbani (18.45%) and Borochaka (14.54%).

Migration was concentrated in a smaller number of villages: its income share was 10.34% in Dharampur and was zero in five villages. This indicates that migration was not a uniform livelihood strategy across the study villages. The observed pattern is compatible with the broader finding that livelihood strategies vary across households according to asset access and local opportunities^[12].

The low aggregate contribution of household industry—below 5% in each village—suggests limited monetised returns from this activity within the recorded income portfolio. From an extension perspective, the result points to an opportunity for targeted interventions in value addition, skills, enterprise development and market linkage, but the

feasibility of such interventions would need to be established through village-specific resource and market assessments. Evidence from West Bengal indicates that technology transfer, skill development and financial support can strengthen income diversification^[13].

Overall, the evidence suggests that diversification in Bankura should be evaluated not only by the number of income sources but also by their value, stability, productivity and control over productive assets. The shift towards agricultural labour and the large residual income category indicate that the present data are better interpreted as evidence of livelihood restructuring than as proof of improved livelihood security. This interpretation is consistent with research showing that diversification can be both an opportunity-driven strategy and a response to agrarian precarity^[15].

Table 5: Distribution of average annual household income by source (%)

Village	Agriculture	Livestock	Agricultural labour	Household industry	Migration	Others
Borochaka	29.83	5.39	14.54	1.46	0.00	48.79
Dharampur	22.43	3.59	11.79	1.33	10.34	50.52
Kendbani	30.64	2.73	18.45	3.89	0.00	44.28
Hanshapahari	18.64	2.82	6.19	1.82	5.13	65.39
Dumdumi	17.98	3.52	6.33	1.31	5.52	65.35
Paragala	30.83	2.94	3.41	0.64	6.47	55.72
Koyamoti	22.23	3.35	14.41	4.54	0.00	55.46
Bamundiha	26.42	2.92	8.75	4.33	0.00	57.58
Soyabasa	23.17	3.64	9.85	3.85	0.00	59.49
Overall	24.48	3.39	10.02	2.69	3.02	56.40

4. Conclusion

The study demonstrates a substantial restructuring of tribal livelihoods in the selected areas of Bankura district. Census data show a marked decline in the share of tribal workers engaged in cultivation, from 32.0% in 2001 to 14.0% in 2011, alongside an increase in agricultural labour from 54.0% to 70.0%. The primary survey indicates a mixed household income structure, with agriculture contributing 24.48% of average annual income and agricultural labour 10.02%. Livestock, household industry and migration made smaller contributions, while the residual “Others” category accounted for 56.40%. Agricultural extension should prioritize improved productivity, irrigation where feasible, appropriate technologies, quality inputs and market access. Livestock-based livelihoods can be strengthened through animal health services, improved management, training and market linkages. Rural non-farm and household enterprises require skills, finance, technology, value addition and reliable market connections. Convergence among agricultural extension, tribal development agencies, self-help groups and livelihood programmes can improve access to productive assets and services. Such measures are consistent with evidence that technology, skills, financial support and institutional access can influence livelihood diversification and resilience^[13, 14, 15].

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Ethics statement

The study involved a household-level field survey. Prior to data collection, the purpose of the study was explained to the respondents, and participation was voluntary. Informed consent was obtained from the respondents before collecting the required information. The confidentiality of the information provided by individual households was maintained, and the data were used solely for research purposes.

Conflict of Interest

The authors declare that they have no conflict of interest in relation to the research, authorship and publication of this article.

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