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Forest Resource Utilization and Economic Development in Bilaspur Division, Chhattisgarh: A Geographical Analysis

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Abstract: Forest resources constitute a major component of the natural-resource base of Chhattisgarh and have an important role in rural livelihoods, employment generation and local economic development. This paper examines the utilization of forest resources and their contribution to household economic development in Bilaspur Division, Chhattisgarh, from a geographical perspective. The paper is based on the framework of a Ph.D. study that combines secondary information with household-level primary data. The study considers the six districts forming the relevant 2020 administrative framework of Bilaspur Division—Bilaspur, Mungeli, Janjgir-Champa, Korba, Raigarh and Gaurela-Pendra-Marwahi—and investigates differences in forest dependence, non-timber forest product (NTFP) collection, forest-based employment, household income, market access and livelihood diversification. The analysis shows that forest resources should be understood not simply as ecological assets but as productive assets within rural economies. Their economic significance is expressed through direct consumption, sale of NTFPs, seasonal employment, supplementary income and risk reduction during periods of agricultural uncertainty. At the same time, economic returns vary spatially according to resource availability, accessibility, market connectivity, household characteristics and institutional support. The paper argues that sustainable forest-based economic development requires value addition, better market access, improved storage and processing, community participation, women's involvement and effective implementation of government programmes. The geographical approach adopted in the study helps connect forest-resource availability with uneven livelihood opportunities across the study region.
Keywords: Forest resources; forest utilization; NTFPs; rural economy; household income; employment; livelihood diversification; Bilaspur Division; Chhattisgarh; geographical analysis.

Introduction - Forests perform multiple ecological, economic and social functions. In rural regions, their importance extends beyond timber and includes fuelwood, fodder, fruits, fibres, medicinal plants, bamboo, lac, tendu leaves, gums, resins, honey and other NTFPs. These resources contribute to household consumption and provide opportunities for cash income and employment. The thesis on which this paper is based identifies forest resources as a significant part of the natural-resource base supporting ecological stability, livelihoods and regional economic development. It also emphasizes that the intensity of forest utilization differs with physical conditions, resource availability, accessibility, population pressure, market demand and livelihood systems.

Bilaspur Division provides an appropriate geographical setting for studying these relationships because the region contains considerable variation in forest distribution, rural settlement, occupations, market accessibility and dependence on natural resources. The research framework uses the administrative structure applicable when the Ph.D. research was registered in 2020, covering six districts: Bilaspur, Mungeli, Janjgir-Champa, Korba, Raigarh and Gaurela-Pendra-Marwahi. The thesis methodology specifies one forest-related block from each district and one forest-related or forest-fringe village from each selected block, with a planned primary sample of 600 rural households, or 100 households per selected village.

Economic development in forest-dependent areas is multidimensional. Forest products may generate income directly, but their contribution also appears through reduced expenditure on purchased fuel and food, seasonal employment, household consumption, livelihood diversification and risk management. The economic value of forests is therefore partly visible in markets and partly embedded in household subsistence. A geographical analysis is especially useful because the same forest product may have different economic importance in different villages depending on distance, transport, market conditions

and household dependence.

Objectives:

1. To examine the pattern and present status of forest-resource utilization in the study area.
2. To assess the contribution of forest resources to household income and employment.
3. To examine the relationship between forest utilization, NTFP collection and economic development.
4. To identify spatial variations in forest-based economic opportunities and constraints.
5. To suggest measures for sustainable and inclusive forest-based economic development.

Methodology: The research adopts an integrated geographical methodology. Secondary information is used to understand the regional framework, forest distribution, demographic conditions and broader economic context. Primary household information is designed to capture the actual use of forest resources, collection frequency, purposes of use, quantities, forest-derived income, employment, marketing practices and livelihood dependence. The thesis states that the principal instrument is a structured household questionnaire, supported by a field-observation schedule. The questionnaire also records perceptions concerning changes in forest-resource availability and government programmes.

The household-level variables include forest-collection frequency, annual collection days, forest-product output, annual forest income, the share of forest income in total household income, forest-based employment, landholding, occupation, market accessibility and livelihood diversification. The research also uses coding and index-based approaches for forest utilization and socio-economic indicators. The prepared research schedule classifies utilization into low, medium and high categories and includes a five-point scale for forest-management and government-policy perceptions.

For analysis, information can be presented through percentages, averages, rankings, composite indices, correlation and association tests. The thesis framework also proposes statistical examination of relationships between forest utilization and forest-cover status, household income, forest-product output, and government policy support and forest management. Such analysis is useful for determining whether observed differences represent systematic spatial relationships rather than isolated household experiences.

Forest Resources as Economic Assets: The economic contribution of forests can be understood through four linked channels: subsistence, income, employment and livelihood security. First, households use forest products directly for fuel, fodder, food and medicinal purposes. Such consumption has an implicit economic value because it substitutes for market purchases. Second, households sell NTFPs and other forest products, generating cash income. Third, forest collection, processing, transport and marketing create employment. Fourth, forest resources provide a buffer during agricultural lean periods and reduce dependence on a single livelihood source.

The thesis literature review identifies a major research gap in studies that examine these dimensions separately. It notes that comparatively less research integrates forest condition, household income, employment, value addition, ecosystem services, market access, management practices and government policy within a single geographical framework. It also highlights that forest-based economic benefits are influenced by institutions, procurement arrangements, cooperatives, local processing and market conditions.

This integrated perspective is important for Bilaspur Division because economic benefits cannot be explained by resource availability alone. A village with abundant forest resources may receive lower economic returns if roads are poor, markets are distant, storage is absent or collectors have weak bargaining power. Conversely, relatively accessible villages may obtain greater returns through frequent collection, better market connections and value addition. Thus, spatial accessibility acts as a bridge between ecological assets and household economic outcomes.

Forest Utilization, NTFPs and Household Income: NTFPs are particularly significant for vulnerable rural households because they can be collected with relatively limited financial investment and often provide seasonal employment. Products such as tendu leaves, mahua, tamarind, bamboo, medicinal plants, honey and lac may be consumed, exchanged or sold. The economic importance of a product depends on quantity, seasonality, market price, processing requirements and the proportion retained for household use.

Forest income should not be interpreted only as a single annual monetary value. It may be distributed across several months and may fluctuate with rainfall, resource availability and market prices. Consequently, the timing of income can be as important as its total amount. Seasonal forest income can help households meet food, education, health and agricultural expenses when farm income is unavailable. This makes forest resources an important element of livelihood resilience.

The thesis framework records annual forest-derived income and its share in total household income, along with employment generated by forest activity. This permits classification of households according to the degree of forest dependence. The prepared coding schedule also includes forest-product output and forest income as distinct analytical variables.

Market Access and Value Addition: The economic value realized by forest collectors depends strongly on the marketing system. Direct sale to consumers, cooperative procurement or government-supported collection centres may offer different returns from sale through local traders. Problems such as low prices, middlemen, lack of storage, inadequate transport, limited processing facilities and weak

market information can reduce the share of final value received by primary collectors.

Value addition offers an important pathway for improving forest-based economic development. Cleaning, grading, drying, packaging, processing and local manufacturing can transform low-value raw materials into higher-value products. Such activities can also generate local employment, especially for women and self-help groups. However, value addition requires skills, equipment, credit, market information and institutional support. Therefore, policies should move beyond collection and focus on complete value chains.

Forest Employment and Livelihood Diversification: Forest activities generate direct and indirect employment. Collection is often undertaken by household members, while transport, sorting, processing, storage and marketing create additional work. In areas where agricultural employment is seasonal, forest activities may reduce periods of unemployment. The thesis framework explicitly records forest-based employment and asks whether forest collection provides off-season employment and reduces migration. These variables are important because the economic contribution of forests cannot be captured adequately through income alone.

Livelihood diversification is another important outcome. Households may combine agriculture, wage labour, livestock, forest collection, small trade and services. Forest income can function as a complementary source rather than replacing agriculture. Diversification may reduce vulnerability to crop failure, fluctuating agricultural prices and seasonal unemployment. In this sense, sustainable forest utilization contributes to economic resilience.

Spatial Dimension: Forest distribution is spatially uneven because it reflects variations in relief, climate, rainfall, soil, drainage, geological conditions and human intervention. Accessibility and land-use change further influence forest concentration and fragmentation. The thesis emphasizes that geographical analysis can identify areas of high, moderate and low forest concentration and explain spatial differences in livelihood opportunities.

For Bilaspur Division, spatial analysis should therefore compare selected villages and blocks in terms of forest dependence, collection frequency, output, income, employment and market access. The resulting pattern can reveal whether forest-based economic development is concentrated in particular locations or broadly distributed. Such evidence is valuable for targeted planning because a uniform policy may not address the different constraints experienced by resource-rich, market-connected and remote villages.

Major Economic Constraints:

1. Declining availability of selected forest products and seasonal fluctuations.
2. Poor road and transport connectivity in forest-fringe settlements.
3. Low returns to primary collectors because of weak bargaining power.
4. Limited storage, processing and value-addition facilities.
5. Inadequate market information and dependence on intermediaries.
6. Limited awareness or accessibility of government livelihood programmes.
7. Potential conflict between short-term extraction and long-term resource conservation.

Policy Implications: Forest-based economic development should be designed around sustainability and local value retention. First, collection should be linked with regeneration and resource monitoring. Second, procurement and market systems should improve price realization for primary collectors. Third, village-level storage and processing infrastructure should be strengthened. Fourth, women's self-help groups and community institutions should be supported in processing and marketing. Fifth, training should focus on sustainable harvesting, quality control, packaging and enterprise development. Finally, GIS and remote sensing can support spatial monitoring of forest condition and help identify areas where utilization pressure is increasing.

The literature review in the thesis also indicates that forest governance has evolved toward conservation, community participation, livelihood security and climate objectives, while implementation remains influenced by administrative capacity, local institutions, market forces and community participation.

Conclusion: Forest resources make an important contribution to the rural economy of Bilaspur Division through subsistence, income, employment and livelihood diversification. Their contribution is spatially differentiated and depends on ecological availability as well as accessibility, market conditions, household characteristics and institutions. A development strategy that treats forests only as sources of raw materials will not fully capture their economic potential. Sustainable harvesting, value addition, better market access, community participation and effective policy implementation are necessary to increase household benefits while maintaining forest resources. The geographical approach of the underlying Ph.D. study provides a useful framework for understanding these interrelationships and for designing location-specific strategies for sustainable forest-based economic development.

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