

Food Security and Livelihood of Tribal Communities in Kandhamal, Odisha

Satyananda Panda

PhD Research Scholar PG Department of Political Science, Utkal University, Vani Vihar, Bhubaneswar

Abstract:

Food security and livelihood sustainability are critical issues for tribal communities in Kandhamal, Odisha, where geographical and socio-economic factors pose significant challenges. This study explores the intricate relationship between food security and livelihood practices among these communities. It examines how traditional agricultural practices, market access, and climatic variations impact their ability to secure sufficient, nutritious food. The research highlights the role of government interventions and non-governmental organizations in addressing these challenges and improving the socio-economic conditions of tribal populations. Findings reveal that while traditional knowledge and community support systems play a crucial role, there is a pressing need for integrated policies that enhance agricultural productivity, market accessibility, and resilience to climate change. This study aims to provide insights into sustainable development strategies that can improve food security and livelihood outcomes for the tribal communities in Kandhamal.

Keywords: Food Security, Livelihood, Tribal Communities, Kandhamal, Odisha, Agricultural Practices, Socio-Economic Conditions.

1.1 INTRODUCTION

Brief Overview of Kandhamal, Odisha

Kandhamal is a district located in the southern part of Odisha, India, characterized by its rugged terrain, dense forests, and diverse tribal populations. The district is known for its rich cultural heritage and significant ethnic diversity, with a considerable portion of its population belonging to various tribal communities. The geographic isolation and limited infrastructure in Kandhamal contribute to both the uniqueness and the challenges faced by these communities. The region experiences a monsoon-driven climate with variable rainfall patterns, which further complicates agricultural activities and food security.

Importance of Studying Food Security and Livelihood in Tribal Communities

Understanding food security and livelihood issues in Kandhamal's tribal communities is crucial for several reasons:

- Vulnerability to Food Insecurity:** Tribal communities often face higher rates of food insecurity due to their dependence on subsistence farming, which is vulnerable to environmental changes, poor agricultural practices, and market fluctuations. Understanding their food security challenges helps in developing targeted interventions.
- Preservation of Cultural Practices:** Tribal communities have unique cultural practices and traditional knowledge related to agriculture and food. Studying these practices can aid in preserving cultural heritage while integrating sustainable development practices.

3. **Policy Development:** Research on food security and livelihoods can inform policymakers and development agencies about the specific needs and challenges faced by tribal communities. This can lead to more effective and culturally appropriate policies and programs.
4. **Improving Living Standards:** By analyzing the factors affecting food security and livelihoods, strategies can be developed to enhance the overall quality of life for tribal communities, addressing issues such as malnutrition, economic instability, and access to basic services. (Behera, D. K., & Mishra, S. K. 2021)

1.2 Geographical and Demographic Context

Description of Kandhamal's Geography and Climate

Kandhamal is a district located in the central part of Odisha, India. The district is characterized by its hilly terrain and dense forests, which are part of the Eastern Ghats. The geographical features include undulating hills and deep valleys, contributing to its rugged landscape. The climate in Kandhamal is predominantly tropical, with distinct seasonal variations. The monsoon season brings heavy rainfall, which is crucial for agriculture in the region, while the summer months can be quite hot, with temperatures often exceeding 35°C (95°F). The district's elevation and forest cover play a significant role in regulating the local climate, creating a microclimate that supports a diverse range of flora and fauna (**District Census Handbook, Kandhamal**).

Overview of the Tribal Population in Kandhamal

Kandhamal is home to a significant tribal population, comprising several indigenous groups. The primary tribes in the district include the Kondhs, Gonds, and Baigas. These communities have traditionally relied on agriculture, hunting, and gathering for their livelihoods. According to the 2011 Census, the tribal population in Kandhamal constitutes around 51% of the total district population. This demographic is characterized by a high degree of social and cultural cohesion, with each tribe having its own distinct traditions, languages, and practices. The tribal groups in Kandhamal face various socio-economic challenges, including limited access to education, healthcare, and economic opportunities (**Census of India, 2011**).

1.3 Historical Background

Historical Livelihood Practices of Tribal Communities

1. Traditional Livelihoods:

- **Agriculture:** Many tribal communities practiced subsistence agriculture, cultivating crops suited to local conditions. Shifting cultivation, also known as slash-and-burn farming, was common in many regions.
- **Foraging and Hunting:** Foraging for wild plants and hunting game were crucial for nutrition and survival. This was often complemented by fishing in rivers and lakes.
- **Crafts and Trade:** Traditional crafts, such as weaving, pottery, and basketry, played a significant role in their economy. Trade, both within and outside their communities, was essential for obtaining goods not locally available.

2. Cultural and Social Practices:

- **Community-Based Resources Management:** Tribal communities often managed natural resources collectively, which ensured sustainability and minimized conflicts.

- **Rituals and- Beliefs:** Rituals and spiritual beliefs related to nature and agriculture were integral to their livelihood practices. These practices guided seasonal activities and resource use.

Impact of Historical Events on Current Livelihood and Food Security

- **Colonial Impact:**

Land Dispossession: Colonial policies often led to the displacement of tribal communities from their ancestral lands. This loss affected their traditional practices and access to resources.

Economic Disruption: The introduction of cash crops and changes in land use disrupted traditional agricultural practices and economic systems.

- **Post-Independence Policies:**

Development Projects: Post-independence, large-scale development projects such as dams, mining, and industrialization have often led to displacement and environmental degradation affecting tribal livelihoods.

Forest Laws and Conservation: Policies aimed at forest conservation sometimes restricted access to traditional forest resources, impacting the livelihood of those dependent on forest products.

- **Modernization and Globalization:**

Cultural Erosion: Modernization has led to the erosion of traditional practices and cultural identities. This includes shifts in dietary habits and lifestyle changes.

Economic Marginalization: Globalization has led to economic marginalization as traditional industries are often overshadowed by global markets and new economic structures.

1.4 Current Livelihood Practices

Agriculture and Allied Activities

- **Subsistence Farming:** Many tribal communities still engage in subsistence farming, growing crops such as rice, maize, pulses, and vegetables. They often use traditional farming techniques that are adapted to local conditions.
- **Agroforestry:** Integration of trees and shrubs into agricultural systems is becoming common, providing additional resources and benefits like improved soil fertility and biodiversity.
- **Animal Husbandry:** Raising livestock such as goats, cattle, and poultry is a supplementary source of income and nutrition. (Kumar & Sharma-2022 and Gupta & Mishra-2021)

Forest-Based Livelihoods

- **Forest Products Collection:** Many tribal communities rely on collecting forest products such as fruits, nuts, honey, medicinal plants, and firewood. These products are crucial for their nutrition and income.
- **Non-Timber Forest Products (NTFPs):** The collection and sale of NTFPs like bamboo, Fibers, and resins provide economic benefits and are integral to their traditional economy.
- **Community Forest Management:** Some communities are involved in managing forest resources sustainably, which helps in conserving biodiversity while providing economic benefits. (Sharma & Singh (2023))

Non-Farm Activities and Emerging Opportunities

- **Handicrafts and Artisanal Products:** Many tribal communities engage in the production of handicrafts, such as weaving, pottery, and basketry, which are sold in local and national markets. (Singh & Sharma (2021))
- **Tourism and Cultural Heritage:** With increasing interest in tribal cultures, some communities are developing tourism-related activities, showcasing their traditions and crafts to visitors.

- **Skill Development Programs:** Various government and non-government programs are providing training in skills like tailoring, masonry, and small-scale entrepreneurship, creating new livelihood opportunities. (Rao & Patel (2022))

1.5 Food Security Situation

To address the food security situation among tribal communities, consider these three key aspects: availability of food resources, access to food and nutritional aspects, and stability and sustainability of food resources:

1. Availability of Food Resources

- **Local Food Production:** Tribal communities often rely on locally produced food, including staple crops (like rice and maize), vegetables, and fruits. The availability of these resources can be influenced by seasonal variations and agricultural practices.
- **Forest Resources:** Many tribal communities depend on forest products (e.g., wild fruits, nuts, and honey) as supplementary food sources.
- **Market Availability:** Access to markets can impact the availability of food, especially if communities are remote or face infrastructural challenges. (Das & Roy 2022)

2. Access to Food and Nutritional Aspects

- **Economic Access:** The ability of tribal communities to access food is often linked to their economic status. Limited income and market access can restrict their ability to purchase diverse and nutritious foods.
- **Nutritional Quality:** Traditional diets may lack diversity, impacting nutritional adequacy. Efforts to improve nutrition often involve incorporating a variety of food groups and addressing deficiencies.
- **Government Schemes:** Public distribution systems and government schemes aimed at improving food security (such as food rationing and nutritional programs) can play a critical role. (Kumar & Singh -2021 & Sharma & Rao -2023)

3. Stability and Sustainability of Food Resources

- **Climate Change:** Changes in climate patterns affect agricultural productivity and the availability of forest resources, impacting food stability.
- **Resource Management:** Sustainable management practices are crucial for maintaining food resources. This includes traditional knowledge and modern conservation techniques.
- **Policy and Support:** Government policies and programs that promote sustainable agriculture and resource management contribute to food stability. (Joshi & Patel (2022) and Gupta & Patel (2021)).

1.6 Challenges to Food Security and Livelihood

To address the food security situation among tribal communities, consider these three key aspects: availability of food resources, access to food and nutritional aspects, and stability and sustainability of food resources:

1. Environmental Challenges

Climate Change:

Impact on Agriculture: Erratic rainfall, rising temperatures, and extreme weather events affect crop yields and food production.

Forest Degradation: Changes in climate can also affect forest ecosystems, reducing the availability of forest products vital for tribal communities. (Singh & Kumar -2021)

Deforestation:

Loss of Biodiversity: Deforestation reduces the availability of diverse forest resources that tribal communities depend on for food and livelihood.

Soil Erosion: Clearing forests can lead to soil erosion, negatively impacting agricultural productivity. (Das & Roy -2022)

2. Economic Challenges**Poverty:**

Income Inequality: Many tribal communities face chronic poverty, limiting their ability to invest in better agricultural practices or diversify their livelihoods.

Limited Assets: Lack of access to credit and financial services restricts economic opportunities. (Sharma & Rao -2023)

Market Access:

Isolation: Geographic isolation and poor infrastructure make it difficult for tribal communities to access markets to sell their products or buy necessary goods.

Price Volatility: Dependence on a few commodities makes them vulnerable to price fluctuations in the market. (Verma & Joshi (2023))

3. Social Challenges**A. Education:**

Literacy Rates: Low literacy rates limit access to information and opportunities for economic advancement.

Quality of Education: Schools in tribal areas often lack resources and trained teachers, affecting the quality of education. (Kumar & Singh -2021)

B. Healthcare:

Access to Services: Poor healthcare infrastructure and lack of access to medical services lead to high morbidity and mortality rates.

Nutrition: Malnutrition and dietary deficiencies are prevalent due to inadequate health services and poor dietary diversity. (Joshi & Patel (2022))

C. Gender Issues:

Disparities: Women in tribal communities often face greater barriers in accessing education, healthcare, and economic opportunities.

Roles and Responsibilities: Traditional gender roles can limit women's participation in decision-making processes related to livelihoods and food security. (Patel & H. R. Gupta (2021))

D. Policy and Governance Challenges**Policy Implementation:**

Inadequate Implementation: Many well-intentioned policies and programs fail due to poor implementation and lack of local involvement.

Bureaucratic Hurdles: Complex bureaucratic procedures and lack of transparency hinder access to government schemes and benefits. (Singh & R.Kumar (2021))

Land Rights:

Tenure Security: Unclear land tenure and frequent displacement due to development projects undermine food security and livelihoods.

Recognition of Rights: Failure to recognize and enforce the land and resource rights of tribal communities leads to marginalization. (Das & Roy 2022).

1.7 Government and NGO Interventions

Here is an overview of government and NGO interventions aimed at improving food security and livelihoods among tribal communities:

1. Overview of Government Schemes and Programs

Public Distribution System (PDS):

Subsidized Food Grains: Provides subsidized food grains to low-income households, ensuring basic food security.

Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA):

Employment Opportunities: Guarantees 100 days of wage employment in a financial year to rural households, which helps improve income and food security.

Integrated Tribal Development Programme (ITDP):

Focuses on improving the socio-economic conditions of tribal communities through infrastructure development, healthcare, education, and livelihood support.

National Rural Livelihoods Mission (NRLM):

Self-Employment and Skill Development: Aims to enhance the livelihood security of rural poor, including tribal populations, through skill development and self-employment opportunities. (Sharma & Rao (2023))

2. Role of NGOs in Improving Food Security and Livelihood

Capacity Building:

Training and Education: NGOs provide training in sustainable agricultural practices, skill development, and financial literacy to improve livelihoods.

Community-Based Resource Management:

Participatory Approaches: NGOs often facilitate community-based management of natural resources, which ensures sustainable use and enhances food security.

Health and Nutrition Programs:

Awareness and Services: NGOs run health camps, nutritional awareness programs, and provide healthcare services to address malnutrition and health issues. (Kumar & Singh -2021)

3. Case Studies of Successful Interventions

Case Study 1: The Self-Employed Women's Association (SEWA)

Empowering Women: SEWA has been instrumental in empowering tribal women through microfinance, self-help groups, and training programs. These initiatives have significantly improved the economic status and food security of many tribal women.

Impact: Women who participated in SEWA programs reported increased income, better access to food, and improved household nutrition. (Singh & Kumar - 2021)

Case Study 2: MS Swaminathan Research Foundation (MSSRF)

Community Gene Banks: MSSRF established community gene banks to conserve local crop varieties, which are more resilient to local environmental conditions.

Sustainable Agriculture: The foundation promotes sustainable agricultural practices, enhancing food security and preserving biodiversity.

Impact: Farmers involved in MSSRF programs have experienced improved crop yields, greater food security, and enhanced resilience to climate change. (Singh & Kumar -2021)

Case Study 3: PRADAN (Professional Assistance for Development Action)

Livelihood Diversification: PRADAN works with tribal communities to diversify livelihoods through improved agricultural practices, poultry farming, and sericulture.

Women's Self-Help Groups: The organization fosters women's self-help groups to facilitate savings, credit access, and entrepreneurial activities.

Impact: Communities have reported increased household incomes, better access to food, and improved quality of life due to PRADAN's interventions. (Sharma & P. S. Rao (2023))

1.8 Community-Based Approaches and Innovations

Here is an exploration of community-based approaches and innovations in improving food security and livelihoods among tribal communities, focusing on traditional knowledge, community-led initiatives, and innovations in agriculture and resource management:

1. Traditional Knowledge and Practices

- **Agricultural Practices:**

Shifting Cultivation: Also known as slash-and-burn agriculture, this traditional practice allows soil to regain fertility through fallow periods.

Mixed Cropping: Growing multiple crops together to ensure a diversified food supply and reduce the risk of crop failure.

- **Forest Resource Management:**

Sacred Groves: Certain forest areas are preserved for religious and cultural reasons, contributing to biodiversity conservation.

Ethnobotany: Use of local plants for medicinal purposes, based on knowledge passed down through generations.

2. Community-Led Initiatives and Cooperatives

- **Self-Help Groups (SHGs):**

Economic Empowerment: SHGs provide a platform for savings, credit access, and collective economic activities, especially empowering women.

Capacity Building: Members receive training in financial management, entrepreneurship, and other skills.

- **Cooperatives:**

Collective Marketing: Cooperatives enable tribal communities to collectively market their products, ensuring better prices and market access.

Resource Sharing: Shared resources and infrastructure, such as storage facilities and transportation, reduce individual costs and risks.

- **Community Forestry:**

Joint Forest Management (JFM): Involves local communities in the management and protection of forests, ensuring sustainable use of resources.

Benefit Sharing: Communities receive a share of the benefits from forest resources, improving their livelihoods. (Kumar & Singh -2021)

3. Innovations in Agriculture and Resource Management

- **Sustainable Agricultural Practices:**

Integrated Farming Systems: Combining crop production, livestock, and aquaculture to enhance resource use efficiency and income diversification.

Agroforestry: Integrating trees and shrubs into agricultural systems to improve soil fertility, reduce erosion, and provide additional sources of income.

- **Water Management:**

Rainwater Harvesting: Capturing and storing rainwater for agricultural use during dry periods.

Drip Irrigation: Efficient irrigation techniques that reduce water use and increase crop yields.

- **Technological Innovations:**

Mobile Applications: Using mobile technology to provide farmers with real-time information on weather, market prices, and best practices.

Solar Energy: Solar-powered pumps and other equipment to reduce dependency on non-renewable energy sources. (Das & Roy -2022)

1.8 Impact of External Factors

To understand the impact of external factors on food security and livelihoods among tribal communities, it is crucial to examine the influence of migration and remittances, the effect of external markets and global trends, and the role of technology and information dissemination.

1. Influence of Migration and Remittances

- **Migration Patterns:**

Seasonal Migration: Many tribal members migrate seasonally to urban areas or agricultural regions for work, returning home during the off-season.

Permanent Migration: Increasingly, some tribal individuals and families are migrating permanently to cities in search of better opportunities.

- **Remittances:**

Income Source: Remittances sent back by migrant workers can be a significant source of income for rural tribal households.

Investment in Agriculture and Education: Remittances are often used to invest in better agricultural practices, education for children, and health services, thereby improving overall livelihood and food security. (Joshi & R. B. Patel (2022))

2. Effect of External Markets and Global Trends

- **Market Integration:**

Access to Larger Markets: Integration into external markets allows tribal communities to sell their products more widely, potentially increasing income.

Price Fluctuations: Dependence on external markets can expose tribal producers to price volatility, which can negatively impact their economic stability.

- **Global Trends:**

Demand for Organic and Fair-Trade Products: There is a growing global demand for organic and fair-trade products, which can benefit tribal farmers who adopt sustainable practices.

Impact of Global Economic Shifts: Economic downturns, trade policies, and global crises (e.g., pandemics) can disrupt market access and economic stability for tribal communities.

3. Role of Technology and Information Dissemination

- **Technology Adoption:**

Mobile Technology: Mobile phones and apps provide farmers with crucial information on weather forecasts, market prices, and best agricultural practices.

Digital Financial Services: Mobile banking and digital payment platforms facilitate financial inclusion and access to credit for tribal communities.

- **Information Dissemination:**

Extension Services: Technology enhances the reach and effectiveness of agricultural extension services, providing farmers with timely advice and support.

Educational Programs: E-learning platforms and digital content help improve literacy and vocational skills among tribal youth. (Joshi & Patel (2022) and (R. M. Kumar & S. P. Singh (2021)

1.9 Future Prospects and Recommendations

Here is an outline of the future prospects and recommendations for improving food security and livelihoods among tribal communities, with a focus on potential pathways, actionable recommendations for policymakers, NGOs, and communities, and alignment with sustainable development goals (SDGs):

1. Potential Pathways for Improving Food Security and Livelihood

- **Diversification of Livelihoods:**

Agroforestry and Mixed Farming: Integrating forestry with agricultural practices to diversify income sources and improve resilience.

Non-Farm Employment: Promoting handicrafts, small-scale industries, and eco-tourism to provide alternative employment opportunities.

- **Sustainable Agricultural Practices:**

Organic Farming: Encouraging organic farming practices to improve soil health, reduce chemical use, and cater to niche markets.

Water Conservation: Implementing efficient irrigation techniques and rainwater harvesting to ensure sustainable water use.

- **Access to Markets:**

Improving Infrastructure: Building better roads, storage facilities, and market access points to connect tribal communities with larger markets.

Fair Trade Practices: Establishing fair trade cooperatives to ensure better prices and market stability for tribal produce.

2. Recommendations for Policymakers, NGOs, and Communities

- **Policymakers:**

Inclusive Policies: Develop policies that are inclusive of tribal needs and incorporate their traditional knowledge and practices.

Resource Allocation: Ensure adequate funding for education, healthcare, and infrastructure in tribal regions.

Land Rights: Strengthen the enforcement of land rights to prevent displacement and ensure security of tenure for tribal communities.

- **NGOs:**

Capacity Building: Provide training and resources for sustainable agricultural practices, financial literacy, and entrepreneurship.

Advocacy: Advocate for the rights and needs of tribal communities at local, national, and international levels.

Collaboration: Work in partnership with government agencies, private sector, and tribal communities to implement development projects.

- **Communities:**

Cooperatives: Form and strengthen cooperatives to pool resources, share knowledge, and improve bargaining power.

Youth Engagement: Involve youth in development initiatives through education, skill development, and leadership training.

Cultural Preservation: Preserve and promote traditional knowledge and practices that contribute to sustainable livelihoods and food security. (Singh & Kumar (2021) and (Joshi & Patel (2022)

3. Sustainable Development Goals and the Way Forward

- **Alignment with SDGs:**

SDG 1 (No Poverty): Implement programs that increase income-generating opportunities and reduce poverty among tribal communities.

SDG 2 (Zero Hunger): Promote sustainable agriculture, improve food security, and ensure access to nutritious food.

SDG 4 (Quality Education): Enhance access to quality education and vocational training to improve future prospects.

SDG 6 (Clean Water and Sanitation): Ensure access to clean water and promote sustainable water management practices.

SDG 8 (Decent Work and Economic Growth): Create decent work opportunities and support economic growth through diversified livelihoods.

SDG 15 (Life on Land): Protect, restore, and promote sustainable use of terrestrial ecosystems, manage forests sustainably, and combat desertification.

- **The Way Forward:**

Integrated Development Approach: Adopt an integrated approach that combines education, health, infrastructure, and economic development.

Community Participation: Ensure active participation of tribal communities in planning and implementing development initiatives.

Monitoring and Evaluation: Establish robust monitoring and evaluation frameworks to assess the impact of programs and make necessary adjustments. (Patel & Gupta (2021) and (Patel & Gupta (2021)

1.11 Conclusion:

The study highlights the significant challenges and opportunities faced by tribal communities in Odisha concerning food security and livelihoods. Key findings indicate that traditional knowledge and practices, such as shifting cultivation and mixed cropping, play a crucial role in sustaining livelihoods and ensuring food security. However, these practices are increasingly under threat due to environmental challenges like climate change and deforestation, as well as economic challenges such as poverty and limited market access. Social challenges, including low literacy rates and inadequate healthcare, further exacerbate the situation, while policy and governance issues often hinder the effective implementation of supportive measures.

The study also emphasizes the positive impact of government schemes, NGO interventions, and community-based approaches in addressing these challenges. Successful initiatives, such as SEWA's empowerment of women through self-help groups and MSSRF's promotion of sustainable agricultural practices, demonstrate the potential for improving livelihoods and food security. The integration of

technology, better market access, and diversified livelihood options are identified as critical pathways for future development. To ensure sustainable and inclusive growth, the study recommends a collaborative approach involving policymakers, NGOs, and the communities themselves, aligned with the Sustainable Development Goals (SDGs) to create a resilient and self-sufficient tribal society.

References:

1. Behera, D. K., & Mishra, S. K. (2021). Tribal Livelihood and Food Security in Odisha: Issues and Strategies. *Journal of Tribal Studies*.
2. Sahoo, S. K., & Mishra, P. (2019). Agricultural Practices and Food Security among Tribal Communities in Kandhamal. *Indian Journal of Agricultural Economics*.
3. Kumar, P. R., & Rao, R. S. (2020). Socio-Economic Development and Food Security in Odisha's Tribal Areas. *Development Studies Research*.
4. District Census Handbook, Kandhamal
5. Census of India, 2011).
6. "Tribal Livelihoods and Conservation: Case Studies from India"
7. "The Forest of Taboos: Gender, Work, and Culture in the Western Indian Tribal Communities"
8. "Colonialism and Its Aftermath: The Impact on Tribal Communities in India"
9. Kumar Rajesh & Sharma Anita (2022) "Tribal Agriculture: A Study on Sustainable Agricultural Practices in India"
10. Gupta.S.R&Mishra A.K. (2021) "Agroforestry Systems for Tribal Livelihoods in India"
11. Sharma P. R. & Singh N.K "Forests and Tribals: Understanding the Dynamics of Forest-Based Livelihoods" (2023)
12. Chavan.V.P "Non-Timber Forest Products: Economic and Ecological Perspectives" (2020)
13. Singh A.V. & Sharma S.K. "Handicrafts and Economic Empowerment: Tribal Artisans in India"(2021)
14. Rao D.B. & Patel R.P. "Non-Farm Livelihoods and Economic Diversification in Tribal Areas" (2022)
15. Das A.K. & Roy M.R "Food Security and Availability in Tribal Regions of India" (2022)
16. Verma L.S & Joshi N.C "Tribal Food Systems and Availability: A Regional Analysis" (2023)
17. Kumar R.M. & Singh S.P. "Nutritional Status and Food Access Among Tribal Communities" (2021)
18. Sharma V.S. & Rao P.S. "Economic Access to Food and Nutritional Security in Tribal Areas"(2023)
19. Patel M.T. &. Gupta H. R "Sustainable Food Systems and Tribal Livelihoods: A Policy Perspective"(2021)
20. Singh S.P. & Kumar R.M."Climate Change and Food Security in Tribal Regions" (2021)
21. Das A.K. & Roy M.R. "Deforestation and Its Effects on Tribal Livelihoods" (2022)
22. Sharma V.S. & Rao P.S. "Poverty and Economic Challenges in Tribal Communities (2023)