

## **Empowering the Tribes in Mining Districts of India: How Sustainable Livelihood Can Protect Their Culture and Environment**

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### **Abstract**

The marginalised tribal groups who live in the mining areas of India confront a variety of difficulties and problems. It is widely believed that one of the primary reasons for the marginalisation of many tribal people in India is that these communities were historically ignored. After taking into consideration the anguish experienced by residents living near locations in which mining activities are carried out, the policies in question have been put into effect. People who live in locations where mining activity has a direct impact on their day-to-day life need to be eligible for financial advantages that are derived from the revenues that are created by mining operations. Some of the most impoverished regions in India are also home to some of the most abundant mineral reserves in the nation. This severe economic and social disparity is also a concern in the state of Jharkhand, Odisha, and Chhattisgarh which has a significant impact on the mining sector throughout the country. It is common knowledge that individuals have the legal right to profit from the natural resources located in their region. In this article, we shall concentrate on the emancipation of India's indigenous peoples, sustainable livelihoods, and the conservation of the environment. The Paper addresses the ways in which tribal livelihoods may preserve their culture as well as their natural surroundings. In addition to this, it will discuss the ways in which sustainable alternative livelihoods have the potential to improve the general well-being of tribal people by making use of policies that are currently in place.

**Keywords:** Livelihood, Mining areas, Policy, Sustainability, Tribal area

### **1. Introduction**

Marginalized tribal communities in mining districts in India face various challenges and issues. The marginalisation of numerous tribal communities in India is widely attributed to the significant factor of historical neglect towards these groups. Mining activities and mining-induced displacement have significant mental health implications for Adivasi (tribal) communities in Andhra Pradesh. The displacement process due to land alienation has affected the livelihoods of tribal communities in the Keonjhar district of Odisha (Dash, 2022). Scheduled Tribes are the best predictors of violence in Maoist-affected districts. The groups that are part of India's Scheduled Tribes are characterised by a lack of economic and social opportunity, a primitive way of life, geographical isolation, and educational backwardness. There is a lack of knowledge of the Tharu tribal community's health profile, which is because the Tharu people live in the Indian state of Uttar Pradesh (Kant et al., 2022).

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Sustainable livelihoods are crucial for protecting tribal culture and the environment. Tribal communities have a deep understanding of their local ecosystems and have developed sustainable practices that ensure the preservation of their cultural heritage and the environment. Studies have shown that enforcing customary environmentalism is linked to securing livelihood sources for tribal peoples (Oka, 2018). The incorporation of Indigenous ecological knowledge (IEK) is imperative for the effective ecological management of tribal landscapes and the sustainable utilisation of natural resources (Das et al., 2021). Despite this, the unchecked expansion of mineral-based enterprises in tribal areas has resulted in the deprivation of traditional means of subsistence for the local population (Meher, 2009). Food security, job opportunities, and the ability to generate revenue are three of the primary reasons why sustainable agricultural and forest-based livelihoods are essential for indigenous groups (KUMAR et al., 2015; Patidar et al., 2018). Traditional knowledge that is related to biodiversity, both natural and human-managed, may be investigated for the purpose of sustainable management of natural assets, with a focus on the concerns of local people about their ability to maintain a sustainable way of life (Vardan et al., 2010). By gaining an understanding of the environmental philosophy and traditions of indigenous societies, one may get insights into environmentally responsible lifestyles and conservation practices (Balehegn, 2016). Therefore, sustainable livelihoods are essential for protecting tribal culture and environment and promoting the well-being of tribal communities.

## **2. Existing Policy related to Mining Area Welfare in India**

Mining and tribal welfare in India are governed by various policies and laws. The economic liberalisation, privatisation, and globalisation (LPG) model for growth in India has led to an uncontrolled expansion of mineral-based companies in tribal territories, which has resulted in the deprivation of tribal people of their traditional methods of maintaining a sustainable life ("The Relationship Between Forests and Tribal Peoples: An Anthropological Study in South Bengal," 2023). But the government of India has put in place a number of plans, aid programmes, and other programmes to help the tribal people of India (Dr. Basavaraj Bheemaraya, 2022). The Ministry of Tribal Affairs (MoTA) is responsible for the formulation of plans, policies, and coordination of programmes aimed at promoting the progress and empowerment of Scheduled Tribe communities in India (Satapathy, 2022). The National Green Tribunal has implemented a ban on conventional, craft-based, and rat-hole coal mining in the Jaintia Hills of Meghalaya as a measure to safeguard the environment and preserve biodiversity (Nomani et al., 2021). The safeguarding of the rights of indigenous and tribal communities during natural resource management endeavours falls under the purview of the government (Saly & APHA, 2020). 8.6% of India's total population consists of tribal populations, with over 53 million tribal individuals adhering to 550 communities and 227 ethnic groups (Phondani et al., 2010; Bhalakiya & Modi, 2019). Achieving sustainable development objectives depends on the optimal health of tribal populations (Mavalankar, 2016). The initial documentation of sickle haemoglobin in India was reported among the Nilgiri hill tribes residing in the southern region of the country (Jawarkar & Bhatia, 2018).

## **3. Policy for Tribal Livelihood**

The analysis of the references suggests that there are several gaps and limitations in the current welfare programs for the welfare of mining host tribal communities. The studies indicate that the state's welfare programs have not been able to address the backwardness and lack of access to basic amenities among the tribal people (Harsha, 2018). It has been determined that the corporate social responsibility (CSR) programmes of mining companies influence the well-being of the surrounding community, but there are still concerns regarding the programmes, transparency, and accuracy (Muhammad Elwan et al., 2018). The role of government employees and departments in executing welfare programmes is also being scrutinised (Hunt, 2005). The welfare reforms have had varying impacts on individuals residing in rural reservations and urban

areas (Ward et al., 2000). Primary health centres (PHCs) were established with the aim of providing curative, preventive, primitive, and family welfare services. However, they have been unable to effectively address the high incidence of oral mucosal lesions among the adult population (Ananda et al., 2019). The indigenous environmental research grants provided by the United States Environmental Protection Agency (USEPA) under the Science to Achieve Results (STAR) programme have demonstrated efficacy in tackling the environmental health disparities and inequities faced by tribal communities (McOliver et al., 2015). Mining enterprises that are owned by foreign entities delegate the responsibility of safeguarding the well-being of the populace from the government to the business sector (Schnoor, 2021). Furthermore, it has been noted that there exists an uneven allocation of wealth among societies that are affected by mining exploration and exploitation, whether directly or indirectly (Resnawaty, 2017). The blueprint for augmenting the mining sector's contribution to the welfare of affected individuals has been established, however, its efficacious execution is yet to be realised (Michel & Kime, 2021). Therefore, mining host tribal communities require more effective and clear welfare programmes that address their specific needs and challenges in addition to existing central government's initiative. Followings are major livelihood schemes for Tribal Community:

### ***3.1 Pradhan Mantri Janjatiya Vikas Mission (PMJVM)***

A combination of "Institutional Support for Development and Marketing of Tribal Products/Produce" and "Mechanism for Marketing of Minor Forest Produce (MFP) via "Minimum Support Price (MSP) and Development of Value Chain for MFP" shaped the programme. From 2021-22 to 2025-26, the PMJVM will boost tribal entrepreneurship activities and provide easier access to sustainable livelihoods by encouraging businesses based on MFP/farm and non-farm tribal products to be more efficient, egalitarian, self-managed, and resource-efficient. The programme is managed by TRIFED.

### ***3.2 Marketing and Logistics Development for Promoting Tribal Products from the North Eastern Region (PTP-NER)***

In order to better provide tribal craftsmen in India's North Eastern States with sustainable employment prospects, the government has authorised a plan for the next fiscal year of 2021–2022. The scheme's central implementing agency is called TRIFED.

### ***3.3 Equity Support to National / State Scheduled Tribes Finance and Development Corporation (NSTFDC / STFDCs)***

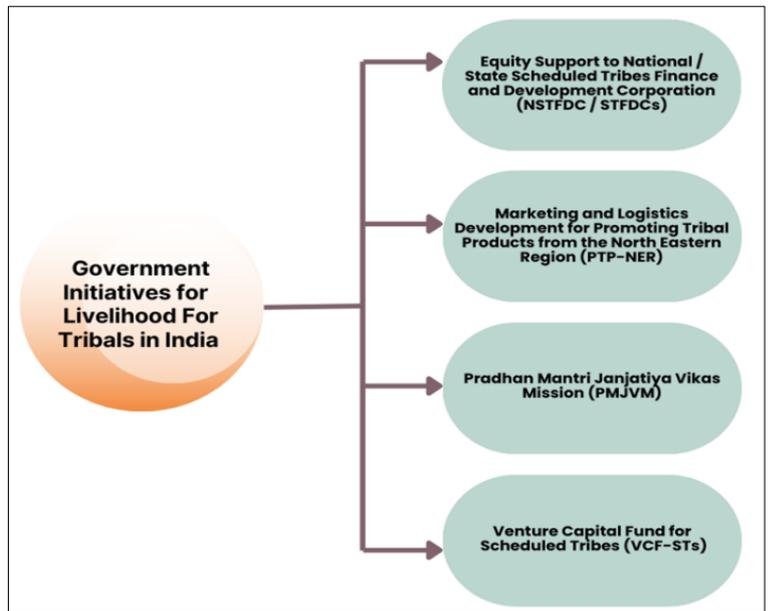
NSTFDC/STFDCs get Equity Share Capital from the Ministry for Scheduled Tribe concessional loans. State Channelising Agencies nominated by the respective State Government, certain Public Sector/Co-op. Banks, Regional Rural Banks having refinance agreements with NSTFDC and National Cooperative Development Corporation (NCDC), Stree Nidhi Credit Cooperative Federation Ltd., North Eastern Development Finance Corporation Ltd. (NEDFi), NABKISAN Finance Ltd., etc. provide concessional loans.

### ***3.4 Venture Capital Fund for Scheduled Tribes (VCF-STs)***

The Scheduled Tribes Entrepreneurship Promotion and Concessional Financing Scheme, authorised for 2021-22, intends to do both of those things. To encourage ST youth to pursue entrepreneurial opportunities, as well as to provide financial backing and business advice for ST youth start-ups, the VCF-ST plan would be a social sector effort. IFCI VCF Ltd. would be in charge of overseeing the plan.

**Fig. 1** Indian Government Initiatives for Livelihood for Tribes

(Source: <https://tribal.nic.in/Livelihood.aspx>)



#### 4. Importance of Sustainable Livelihood

A stable economy is essential for the development of India's tribal communities. In India, the unchecked expansion of mineral-based companies in tribal areas has stripped locals of their traditional sources of income thanks to the country's adoption of a globalised economic model. India's agricultural extension system might be improved by the introduction of creative initiatives targeted at improving sustainable

production, such as encouraging and organising rural and tribal people to adopt environmentally friendly farming methods (Suman et al., 2014). For the growth of India's tribal inhabitants, it is crucial to create policies and initiatives that prioritise socioeconomic development, community empowerment, sustainable livelihoods, and improved quality of life (Rath, 2018). Food security, medical benefits, and the creation of new jobs are just a few ways in which traditional medicinal trees may contribute to the long-term prosperity of indigenous communities (Rathod et al., 2022). Income-generating activities are crucial for tribal livelihoods, and the study indicates a noteworthy and affirmative correlation between agricultural modernization and the attainment of sustainable livelihood among non-tribal farmers (Singh et al., 2022; Mayur et al., 2014). The Wadi model, which focuses on economic betterment, social empowerment, improvement in quality of life, and women empowerment through sustainable agriculture, can be effective for tribal development in India (Tripathy, 2018). The livelihoods among tribal communities in India are complex, dynamic, and multidimensional, and promoting tribal entrepreneurship through initiatives such as Pradhan Mantri van Dhan Vikas Yojna can improve tribal livelihood and sustainably harness the wealth of the forest (Chuadhari et al., 2022; Srivastava, 2022). Sustainable agriculture is also important for tribal communities, as forest-based livelihoods provide employment and income generation. Therefore, sustainable livelihoods are crucial for tribal empowerment in India, and promoting sustainable practices can improve the well-being of tribal communities.

#### 5. Exploration of Various Sustainable Livelihood Options for Tribal Communities in Mining Districts

**5.1 Agriculture and Horticulture-Based livelihoods:** Sustainable livelihood options such as Agriculture and Horticulture-Based livelihoods, and forest-based livelihoods are crucial for tribal communities in mining districts of India. Due to the unchecked development of mineral-based companies in tribal areas, indigenous people have lost access to their traditional sources of income. Agriculture and horticulture-based livelihoods can provide food security, employment, and income generation for tribal communities. The Wadi model, which focuses on economic betterment, social empowerment, improvement in quality of life, and women empowerment through sustainable agriculture, can be effective for tribal development in India. Horticulture-based livelihoods, such as the cultivation of medicinal plants, can also provide income generation and employment opportunities for tribal communities. Forest-based livelihoods, such as non-timber forest produce (NTFP) collection, can provide employment and income generation for tribal communities. The sustainable management of natural resources, such as bamboo, can also provide employment and income generation for tribal communities (Moharana Choudhury et al., 2019). Promoting sustainable forest-based

livelihoods may also aid in biodiversity and environmental preservation. Therefore, sustainable livelihood options such as agriculture and horticulture-based, and forest-based livelihoods are crucial for tribal communities in mining districts of India, and promoting sustainable practices can improve the well-being of tribal communities.

**5.2 Tribal Eco-tourism:** It is a sustainable livelihood option for tribes. It includes community development and environmental preservation (Mohanty et al., 2021). Tribal ecotourism helps preserve culture and the environment (Chang et al., 2020). Ecotourism with a focus on local communities has emerged as one of the most popular trends worldwide and in developing countries (Gebremariam, 2018). Tribal tourism must include cultural, social, and environmental systems to be sustainable (Liu et al., 2017). tourist's economic, environmental, and social benefits may enhance tribal populations' quality of life and support tourist growth. Tourism may cause indigenous people to resist and reduce their quality of life (Chang et al., 2019). Tourism eco-efficiency has been widely studied, with positive outcomes (Lu et al., 2021). Due to the negative effects of traditional tourism, eco-tourism is growing (DOLUI & Chakraborty, 2022). Eco-tourism is linked to sustainable development in community-based conservation organisations, protected areas and environmental and habitat preservation aims (Ogweno, 2021). Tribal agro-eco tourism may support regional development (Suamba et al., 2021).

**5.3 Skill Development and Entrepreneurship Opportunities:** Opportunities for *Business Creation and Skill Improvement* abound in indigenous communities. Building SHG clusters among the tribal population and transforming them into Tribal Van Dhan Kendras is the primary goal of the Pradhan Mantri Van Dhan Vikas Yojana which is a market-linked development programme for tribal entrepreneurs (Srivastava, 2022). The woods provide most of the food, medicine, and other necessities for the tribal groups, and bamboos are an important part of the diet of the indigenous people (Bhatt et al., 2005).

**Fig. 2** Sustainable Livelihood Options for Mining Host Tribal Community



## 6. Case Studies Showcasing Successful Implementation of Sustainable Livelihood Initiatives

There are several case studies showcasing the successful implementation of sustainable livelihood initiatives in mining-affected tribal areas. The study entitled "Pig-Based Production System Contributing Towards Sustainable Livelihood of the Tribes in Govindpur and Ormanjhi Blocks, Dhanbad and Ranchi Districts, 2013-14" represents an example of research in this field (KUMAR et al., 2015). Utilising the sustainable livelihood paradigm of the Department for International Development (DFID), an additional study examines the correlation between artisanal and small-scale mining (ASM) and livelihood within the Prestea mining region of Ghana (Arthur et al., 2015). sustainable development, local procurement, and shared Value, and are also analysed in a case study of Mongolia's mining industry (Fraser et al., 2021). These studies show how crucial it is to consider the interconnected and interdependent nature of the problems that plague mining, traditional lifestyles, and sustainable development. There are also studies that provide a policy viewpoint on how weak

interdependencies may be exploited to promote sustainable livelihoods in rural Sierra Leone, as well as research that advocates an integrated framework for building a sustainable natural resource management practice for tribal people (Cartier & Bürge, 2011). However, other research warns that mining communities' livelihood assets might slowly drain once a mine closes, leading to the collapse of coping methods and livelihood outcomes (Ackermann et al., 2018).

### **7. Challenges Faced in Implementing Sustainable Livelihood Initiatives**

Implementing sustainable livelihood initiatives for mining-affected tribal areas faces several challenges. One of the primary obstacles is the issue of economic instability, which arises from limited access to supplies and markets, coupled with a low level of education and literacy within tribal communities (D.M. et al., 2021). Furthermore, the incorporation of mining into the developmental agenda has resulted in a plethora of social and environmental concerns, including but not limited to displacement, exploitation, resettlement, alterations in livelihood, and ecological degradation (Tzudir & Srikanth, 2022). The mining and other enterprises that are devouring the ecological systems of these indigenous peoples and impoverished farmers have not provided them with better or more secure livelihoods. In addition, the tribes' means of sustenance and survival have been threatened by rising rates of deforestation and eco-degradation caused by expanding industry, mining, and other development projects (Sahu, 2019). Sustaining crop production and productivity without damaging the resources and environment is also posing a big challenge to tribal farming. Other challenges include the need to address factors that need to be addressed before favourable environments for fostering sustainable mining might be achieved (Gilberthorpe et al., 2016), and the impact of agricultural modernization on the extent of sustainable livelihood among the tribal farmers (Mayur et al., 2014).

### **8. Opportunities for Collaboration between Government, NGOs, and Local Communities**

There are some examples of collaboration between government, NGOs, and local communities for the development of mining host communities in other countries. In Indonesia, the issue of unauthorised mining has been found to be most effectively addressed by cross-sector cooperation involving government, NGOs, local people, security or police agencies and the commercial sector (Tiyas Tinov et al., 2022). The attainment of sustainable development in mining communities situated in South Africa's West Wits Goldfield necessitates the collaboration of various mining enterprises, government agencies, civil society, and communities. This also entails prompt interventions in the areas of educational and vocational development, internet connectivity, and the establishment of employment opportunities beyond the mining sector (Cole & Broadhurst, 2022). Non-governmental organisations (NGOs) in Sri Lanka have supported local development by serving as a go-between for the government and the people ("NGOs as Partners of Local Development and Governance: The Sri Lankan Experience," 2022). Mining licencing and development in South Africa have been impacted by political relationships between the mining sector and the government, including collaboration between mining firms and local community leaders. In India, a collaboration between a local NGO and communities was established to explore the potential effects of mining on threatened communities (Leonard, 2018). In Ecuador, the community was able to increase the cost of development and ultimately force the mining corporation to leave thanks to the connections they made between local organisers and nongovernmental organisations (Kuecker, 2007). Working together as communities, mining companies, and lobbying groups, and with the backing of local governments, the adversarial stance between community members and mining companies can be transformed into a corporate interaction and partnership model in several different countries (Feyen et al., 2015). More investigation of the varying effects of mining on South African communities, governmental structures, and the difficulties of forming partnerships to promote mining-led regional growth is needed (Christian M. Rogerson, 2011). Mining benefit administration for sustainable

development in Indonesia required the participation of several stakeholders, including local government/local boards, mining firms, non-governmental organisations (NGOs), educational institutions, and communities (Alwi et al., 2020).

## 9. Capacity Building and Awareness Programs in India

Capacity building and awareness programs are essential for the sustainable development of mining-affected areas in India. Community members and their ability to influence decision-making and better their own lives are a primary focus of these initiatives. Here are some examples of capacity-building and awareness programs in mining-affected areas in India:

1. The Indian Bureau of Mines (IBM) has initiated several capacity-building programs for mining-affected communities, including training programs on sustainable mining practices, environmental management, and occupational health and safety (Indian Bureau of Mines, Nagpur)
2. The Ministry of Mines has launched a program called "Sustainable Development Framework for Mining" to promote sustainable mining practices and capacity building of stakeholders, including local communities, in mining-affected areas (Ministry of Mines, Government of India, Home).
3. The Centre for Science and Environment (CSE) has conducted several awareness programs on sustainable mining practices and environmental management for mining-affected communities in India.
4. The National Institute of Rural Development and Panchayati Raj (NIRDPR) has conducted capacity-building programs for local communities in mining-affected areas on sustainable livelihoods, natural resource management, and community development (National Institute of Rural Development and Panchayati Raj – Home).
5. The Indian School of Mines (ISM) has established a Centre of Excellence in Mining Safety and Automation to provide training and capacity-building programs for mining professionals and local communities on safety, health, and environmental management.
6. The Tata Steel Rural Development Society (TSRDS) has implemented several capacity-building programs for local communities in mining-affected areas on sustainable agriculture, livestock management, and entrepreneurship development.

Local populations in India's mining-affected regions have benefited from capacity-building and awareness programmes that have increased their knowledge and skills, allowing them to take part in decision-making processes and better their lives in a sustainable manner.

## 10. Conclusion

The maintenance of sustainable livelihoods in mining affected areas is an essential component in the preservation of indigenous culture as well as the surrounding environment. In many cases, tribals have established a strong relationship with the natural environment in which they live, as well as traditional knowledge and practice that has enabled them to maintain their way of life for many generations. There are several ways that are important in which the maintenance of sustainable livelihoods contributes to the protection of indigenous traditions and the surrounding environment. The Maintenance of Previously Acquired Skills and Knowledge: Traditional tribal tribes can continue to practise their traditional skills, knowledge, and cultural practices because they have sustainable livelihoods. These practices are directly related to the environment. Tribal groups may ensure the continuation of their cultural traditions and the transmission of their ancestral wisdom to succeeding generations by participating in activities such as subsistence farming, fishing, hunting, and gathering. The Panchayats Extension to Schedule Areas (PESA) Act, 1996 and other constitutional provisions along with government policies can install Sustainable Livelihood among the tribes in mining-affected areas that can protect their culture and environment.

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The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper

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