



Mining, Environment, and Regional Conflict: Socio-Economic Implications of Resource Exploitation in India

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Abstract

The expansion of mining activities in India has become a double-edged sword—fueling economic growth while deepening environmental degradation and regional tensions. This article explores the intricate linkages between mining, environment, and regional conflict, focusing on the socio-economic implications of resource exploitation across India's mineral-rich states such as Jharkhand, Chhattisgarh, and Odisha. While mining contributes significantly to GDP, employment, and infrastructure, it often triggers ecological imbalance, displacement of indigenous populations, and unequal distribution of benefits. The study analyzes how extractive industries reshape regional economies, exacerbate environmental vulnerabilities, and intensify social conflicts over land, water, and livelihood. Using evidence from government reports and field studies, it argues that the “resource curse” manifests not only in economic disparities but also in social unrest and ecological decline. The paper advocates for a transition toward sustainable mining governance, emphasizing environmental accounting, community participation, and equitable revenue sharing as essential pathways to resolve regional conflicts and ensure inclusive development.

Keywords: mining, environment, regional conflict, resource exploitation, socio-economic impact, sustainable development, resource governance, displacement, India, environmental justice.

Introduction

Mining has long been celebrated as the engine of industrial progress and national development. From the coalfields of Jharkhand to the iron ore belts of Odisha and the bauxite mines of Chhattisgarh, India's subsoil wealth has been both a blessing and a battleground. The extraction of mineral resources has powered steel plants, fueled power generation, and boosted export revenues, anchoring India's economic growth story. Yet, beneath this glitter of prosperity lies a darker reality—one marked by ecological disruption, social displacement, and regional conflict. The paradox of mining in India lies in this contradiction: while it enriches the economy at the macro level, it impoverishes the ecology and local communities at the micro level. The geography of India's mineral wealth coincides strikingly with regions inhabited by tribal and marginalized populations. Districts rich in coal, iron ore, and bauxite—such as Korba, Keonjhar, and Singrauli—are often among the poorest in terms of human development indicators. Mining-induced displacement, land alienation, and loss of traditional livelihoods have rendered these areas socially volatile and economically unequal. Environmental degradation—manifested through deforestation, water contamination, air pollution, and soil erosion—further intensifies these inequalities, creating a vicious cycle of resource exploitation and underdevelopment. The natural abundance that should have catalyzed prosperity has instead become the root of persistent regional disparities and socio-political tensions.

The relationship between mining and conflict is not merely ecological but deeply socio-economic. As mineral extraction expands, the contest over land, royalties, and governance structures becomes more pronounced. In several states, resistance movements—ranging from local protests to armed insurgencies—have emerged as reactions to perceived injustices in resource distribution. The so-called “Red Corridor” of India, extending through mineral-rich states, illustrates how economic deprivation, ecological degradation, and political alienation can coalesce into violent conflict. These struggles underscore the failure of existing policy frameworks to balance development with justice and sustainability. Environmental governance in India remains fragmented and often reactive. While institutions such as the Ministry of Environment, Forest and Climate Change (MoEFCC) and the Indian Bureau of Mines have established regulatory frameworks, enforcement is frequently weak, and ecological restoration is inadequately prioritized. The Environmental Impact Assessment (EIA) process, though well-intentioned, has often been reduced to a bureaucratic formality rather than a genuine tool for sustainability. Simultaneously, local communities—whose lives and landscapes are most affected—are seldom given a meaningful voice in decision-making processes. This democratic deficit exacerbates regional conflict and fuels mistrust between the state, corporations, and citizens. In this context, the need for an integrated approach to mining governance becomes urgent. Sustainable mining must move beyond profit metrics to incorporate environmental costs, social equity, and long-term regional well-being. This article seeks to explore the complex dynamics of mining, environment, and regional conflict in India by analyzing their socio-economic implications. It aims to understand how resource exploitation shapes regional development trajectories, why ecological justice remains elusive, and what policy frameworks could transform mining from a source of conflict into a foundation for inclusive and sustainable growth.

The Paradox of Plenty: Mining and the Resource Curse in India

India stands among the world’s top ten mineral-producing nations, boasting vast reserves of coal, iron ore, bauxite, and manganese. According to the Ministry of Mines (2023), over 1.2 million hectares of land are under mining leases, spanning across mineral-rich belts that stretch from Jharkhand and Chhattisgarh to Odisha and Madhya Pradesh. These resources have historically been viewed as national assets vital for energy security, industrialization, and employment generation. Yet, the “paradox of plenty” persists—regions rich in natural resources remain economically impoverished and socially unstable. This contradiction mirrors the *resource curse* phenomenon observed globally, where resource abundance often correlates with slower economic growth and greater inequality. In India, states with substantial mineral wealth tend to have lower human development indices (HDI) and higher levels of conflict. The 2022 NITI Aayog *SDG Index* highlights that Jharkhand, despite contributing significantly to national coal output, ranks among the lowest in health, education, and gender equality. Such trends reveal that extractive growth has not translated into broad-based prosperity, primarily because resource exploitation benefits capital-intensive industries and state revenues but marginalizes local communities and ecosystems.

Environmental Degradation: The Ecological Toll of Mining

Mining operations, by their very nature, impose significant ecological costs. The stripping of vegetation, removal of topsoil, and discharge of tailings alter entire landscapes. According to the *India State of Forest Report (2023)*, mining and associated infrastructure have contributed to over 1.5 million hectares of forest loss since independence. Forest-dense districts such as Keonjhar (Odisha) and Dantewada (Chhattisgarh) have experienced dramatic deforestation, fragmenting ecosystems and threatening biodiversity. Moreover, the contamination of air and water resources has reached alarming levels. Open-cast coal mining, which accounts for nearly 90% of India’s coal output, releases massive quantities of particulate matter and sulfur oxides. Rivers such as the Damodar and Subarnarekha are burdened with heavy metal pollution from mine effluents and industrial runoff. Groundwater levels have declined due to over-extraction and siltation, while soil fertility has suffered from acidification and erosion. Climate implications are equally grave. The coal sector alone accounts for nearly 70% of India’s power sector emissions, positioning mining as a key contributor to national greenhouse gas emissions. Ecological degradation thus extends far beyond local damage—it intersects with India’s global sustainability commitments under the Paris Agreement and the Sustainable Development Goals (SDGs).

Displacement and Livelihood Loss: The Human Cost of Extraction

The socio-economic impacts of mining are often most visible through displacement and livelihood disruption. The Ministry of Tribal Affairs estimates that nearly 40% of India's internally displaced persons belong to Scheduled Tribes, many of whom live in mineral-rich districts. Large-scale open-cast mining projects frequently require the acquisition of vast tracts of forest and agricultural land, displacing entire communities without adequate compensation or rehabilitation. The *Coal Bearing Areas (Acquisition and Development) Act, 1957* and other mining-related legislations often prioritize state ownership of resources over community rights. Though amendments like the *Panchayats (Extension to Scheduled Areas) Act, 1996* (PESA) and the *Forest Rights Act, 2006* sought to empower tribal communities, implementation remains weak. The result is social alienation—where communities lose not only their land but also their cultural and ecological identity. Traditional livelihoods—farming, foraging, and artisanal crafts—collapse when land is lost, leading to a cycle of unemployment and poverty. Women, in particular, face double burdens: economic insecurity and social dislocation. Mining's promise of employment often turns hollow, as modern mechanized operations employ few locals and rely heavily on migrant labor.

Regional Conflict and Governance Failures

The intersection of environmental degradation, economic inequality, and weak governance often translates into regional conflict. The “Red Corridor”—spanning Jharkhand, Chhattisgarh, Odisha, and parts of Andhra Pradesh—illustrates this reality. These mineral-rich states are also epicenters of left-wing extremism, where local populations, feeling excluded from development benefits, have turned to resistance and sometimes insurgency. Poor governance is a central driver of these tensions. The asymmetry of power between corporations, state agencies, and local communities often results in opaque decision-making, corruption, and misallocation of mining royalties. Although the *District Mineral Foundation (DMF)* was established under the *Mines and Minerals (Development and Regulation) Amendment Act, 2015* to channel a portion of mining revenues to local development, numerous audits by the *Comptroller and Auditor General (CAG)* reveal underutilization and diversion of funds. Environmental conflicts are not always violent, but they are pervasive—manifesting as protests, legal battles, and grassroots movements. The 2010 Niyamgiri agitation against Vedanta's bauxite project, where the Dongria Kondh tribe successfully asserted its rights, remains a landmark case of environmental justice in India. Such resistance reflects both ecological awareness and frustration over systemic exclusion from decision-making.

Economic Dimensions: Contribution and Contradiction

From a purely economic standpoint, the mining sector remains a critical contributor to India's GDP and export earnings. According to the *Economic Survey 2023–24*, mining and quarrying accounted for around 2.2% of national GDP and nearly 11% of total industrial output. The sector also provides indirect employment to millions through transportation, processing, and allied industries. However, this economic gain is offset by hidden costs. Environmental degradation, health burdens, and loss of ecosystem services impose substantial economic liabilities. A 2018 study by the *Centre for Science and Environment (CSE)* estimated that environmental damage from mining-related air and water pollution alone costs India nearly ₹3 trillion annually—approximately 2.5% of GDP. When such costs are internalized through Green GDP frameworks, mining's net contribution appears far less impressive. Moreover, the fiscal federalism of mineral royalties often deepens regional disparities. Wealth generated from mineral extraction is typically concentrated at the state or corporate level, with limited trickle-down to local communities. This uneven distribution undermines inclusive development and perpetuates resentment among those most affected by extraction.

Legal and Policy Framework: Strengths and Gaps

India's legal architecture governing mining and the environment is extensive yet fragmented. Key legislations include the *Mines and Minerals (Development and Regulation) Act, 1957*, the *Environment (Protection) Act, 1986*, and the *National Mineral Policy, 2019*. These frameworks aim to balance economic growth with sustainability, yet implementation gaps remain vast. The *Environmental Impact Assessment (EIA)* mechanism, while crucial, has often been criticized for lack of transparency and weak enforcement. Public consultations, a cornerstone of the EIA process, are frequently bypassed or conducted superficially. Moreover, inter-agency

coordination between the MoEFCC, the Ministry of Mines, and state pollution boards remains inconsistent. The *National Mineral Policy 2019* acknowledges the need for sustainable mining practices, environmental restoration, and social accountability. However, it stops short of mandating ecological accounting or stringent rehabilitation standards. Without robust monitoring and local participation, even well-intentioned policies risk becoming symbolic gestures rather than transformative instruments.

Toward Sustainable and Equitable Mining Governance

To resolve the contradictions inherent in India's mining economy, a multi-dimensional approach is essential—anchored in sustainability, equity, and transparency. The following principles can guide this transition:

- **Ecological Resource Accounting:**
Integrating *Green GDP* and *Natural Capital Accounting* into regional planning would ensure that environmental costs are explicitly considered in evaluating mining's contribution. This would discourage reckless extraction and promote eco-restoration investments.
- **Community-Centric Governance:**
Strengthening the implementation of *PESA* and *Forest Rights Act* is critical. Genuine participation of Gram Sabhas in mining approvals and revenue allocation would align development with local priorities.
- **Rehabilitation and Resettlement (R&R) Justice:**
The *Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013* must be enforced rigorously. Compensation should extend beyond monetary terms to include livelihood restoration, skill development, and cultural preservation.
- **Environmental Restoration:**
Mandatory mine closure plans, afforestation, and water remediation should be treated not as postscriptal obligations but as core project costs. The creation of ecological buffers and biodiversity offsets can mitigate long-term environmental damage.
- **Revenue Transparency:**
The *District Mineral Foundation (DMF)* and *Pradhan Mantri Khanij Kshetra Kalyan Yojana (PMKKKY)* should be subjected to social audits and digital disclosure to prevent fund diversion.
- **Technological and Policy Innovation:**
The adoption of cleaner mining technologies, waste recycling, and renewable energy in extraction operations can reduce carbon intensity and improve resource efficiency.

Lessons from Global Practices

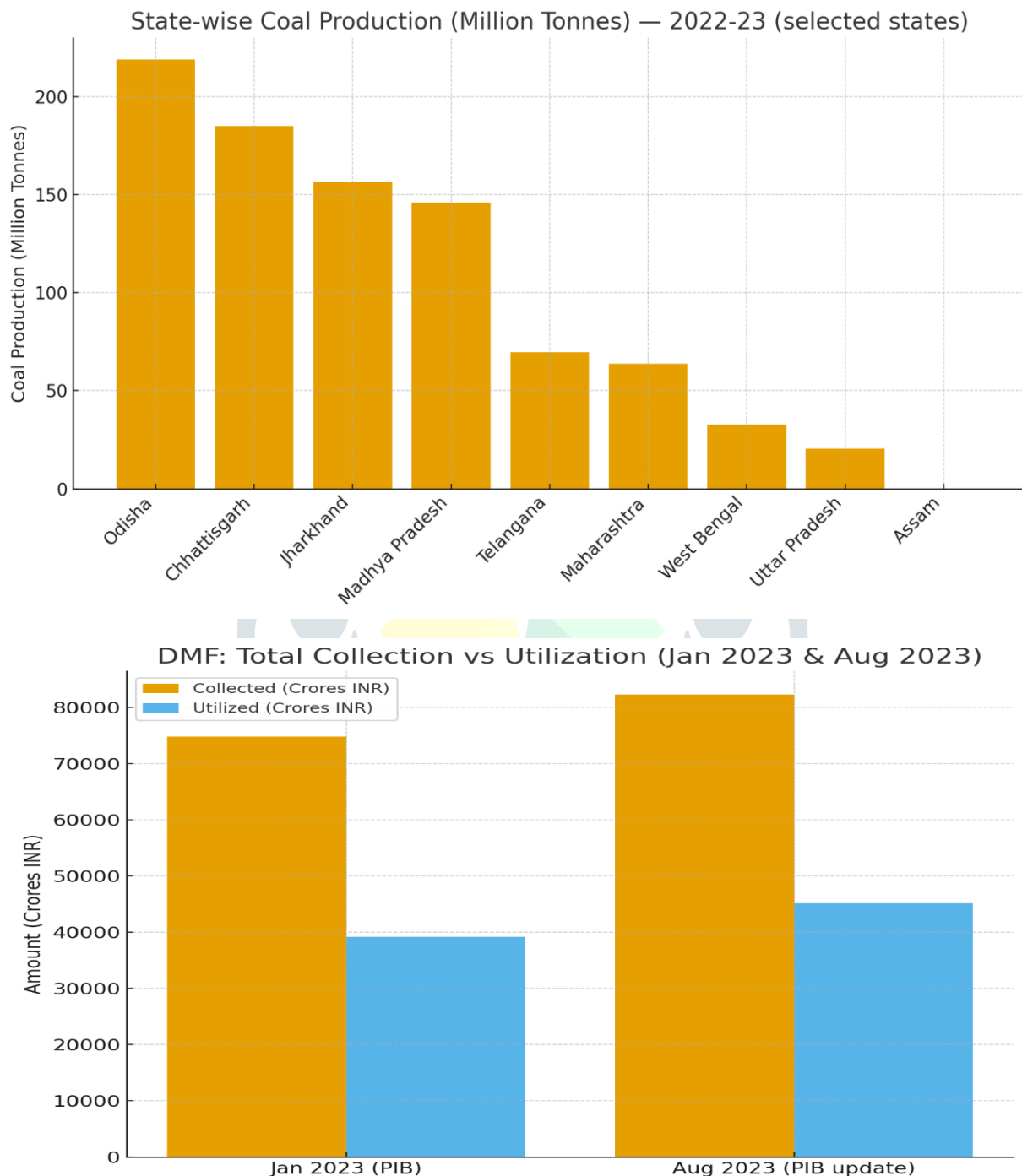
India can learn from international experiences that have successfully balanced resource extraction with sustainability.

- **Norway** established a sovereign wealth fund that invests oil revenues for future generations, ensuring intergenerational equity.
- **Botswana** leveraged diamond wealth through state-controlled partnerships, channeling profits into education and infrastructure.
- **Chile's mining policy** integrates environmental restoration with revenue transparency through its *National Copper Corporation (CODELCO)*.
- **Australia's mining rehabilitation laws** mandate ecological restoration before lease closure, ensuring accountability.

Adapting such practices in India would require strong political will, institutional reform, and civil society engagement.

The Role of Local Institutions and Decentralization

Decentralization is vital for reconciling development and democracy. Local bodies—Panchayats and District Planning Committees—must play a proactive role in monitoring environmental impacts, planning rehabilitation, and managing DMF funds. Building local capacity through training, digital platforms, and environmental education can empower communities to hold corporations and governments accountable. Moreover, academic and research institutions can contribute through participatory resource mapping, social audits, and impact assessments, ensuring that data-driven policymaking replaces top-down decision-making. The integration of local knowledge systems—particularly those of indigenous and tribal populations—can enhance ecological resilience and social harmony.



Source:

- Press Information Bureau (PIB) / Ministry of Coal — “Domestic Coal Production” press release (07 Aug 2024) reporting state-wise coal production for 2022–23 (figures in million tonnes).
- [Press Information Bureau / Forest Survey of India \(FSI\), India State of Forest Report \(ISFR\) 2023, Volume I & II. Foreign Service Institute + Irea](#)
- [Press Information Bureau \(PIB\) / Ministry of Mines — District Mineral Foundation updates \(Jan 2023 & Aug 2023 summaries\); Ministry of Mines National DMF portal.](#)

Conclusion:

The mining sector embodies both India's economic promise and its developmental contradictions. It has generated wealth, jobs, and infrastructure—but often at the expense of environmental stability and social justice. The persistence of conflict in mineral-rich regions reveals that extraction without inclusion is unsustainable, and growth without governance is perilous.

For India to realize the full potential of its natural wealth, mining must evolve from an exploitative enterprise into an equitable partnership between state, industry, and society. This transformation demands not just regulatory reform but moral recalibration—recognizing that the earth's resources are not commodities to be exhausted but commons to be conserved.

Balancing the triad of economic growth, environmental protection, and social equity is the defining challenge of India's resource future. Through ecological accounting, community empowerment, and sustainable policy frameworks, the country can turn its mineral wealth from a source of conflict into a foundation of harmony. The question is not whether mining will continue—it will—but whether it will continue to divide or finally begin to heal the regions it has long scarred. Mining in India stands at a paradoxical crossroads — it is both a cornerstone of economic progress and a crucible of social and ecological upheaval. The analysis of India's mineral corridors reveals that while mining has generated substantial revenues, employment, and infrastructure, it has simultaneously deepened regional inequalities and environmental degradation. The states of Odisha, Jharkhand, and Chhattisgarh exemplify this duality — abundant in natural wealth yet persistently poor in human development outcomes. Environmental degradation through deforestation, soil erosion, air pollution, and displacement of indigenous populations has triggered persistent regional conflicts and eroded trust between communities, corporations, and the state. The socio-economic implications extend beyond local hardships. Unbalanced revenue distribution and weak enforcement of environmental safeguards have perpetuated the "resource curse," wherein mineral-rich regions remain underdeveloped despite their vast natural endowments. Mechanisms such as the District Mineral Foundation (DMF) and Environmental Impact Assessment (EIA) were designed to mitigate such disparities but have often fallen short due to inefficiency, corruption, and lack of local participation. True sustainability requires reimagining mining governance — embedding ecological accounting, ensuring equitable benefit-sharing, and empowering local communities in decision-making.

India's path forward lies in transforming mining from an extractive enterprise into a regenerative one. Integrating environmental economics, resource accounting, and green technology can align mining with the Sustainable Development Goals (SDGs). Only when natural wealth is treated as both an economic and ecological asset can mining cease to be a source of regional discord and become a driver of inclusive, sustainable growth. The challenge is immense, but so is the opportunity — to mine not just minerals, but a future that is just, resilient, and green.

References :

1. Ministry of Coal. (2024, August 7). *Domestic Coal Production Report 2022–23*. Press Information Bureau, Government of India.
2. Forest Survey of India. (2023). *India State of Forest Report 2023*. Ministry of Environment, Forest and Climate Change.
3. Ministry of Mines. (2023, August). *District Mineral Foundation (DMF) Statistics and Utilization Report*. Press Information Bureau, Government of India.
4. NITI Aayog. (2022). *Sustainable Development of Mining Sector in India: Policy and Framework Report*. Government of India.

5. Planning Commission. (2011). *Working Group on Mineral Exploration and Development (Other than Coal & Lignite)*. Twelfth Five Year Plan (2012–17).
6. Kumar, S., & Singh, R. (2021). Environmental impact of coal mining in India: Challenges and policy implications. *Environmental Economics Review*, 19(3), 102–118.
7. Lahiri-Dutt, K. (2018). *The Coal Nation: Histories, Ecologies and Politics of Coal in India*. Routledge.
8. Centre for Science and Environment. (2020). *Rich Lands, Poor People: Is Sustainable Mining Possible?* CSE Publications.
9. World Bank. (2021). *The Role of Extractives for Economic Transformation in India*. Washington, DC: World Bank Group.
10. United Nations Development Programme (UNDP). (2022). *Extractive Industries and Sustainable Development Goals: India Country Report*. New Delhi: UNDP India.

