

Indigenous Identity, Environmental Transitions, and Demographic Displacement in Jharkhand: A Multi-Dimensional Analysis of Tribal Resilience and State Policy

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The geographical and cultural landscape of Jharkhand is characterized by a profound historical continuity and an intricate relationship between its people and the natural environment. Historically known as the Chotanagpur Plateau, this region represents a unique cultural name given to a high-land area surrounded by forests at the eastern extremity of the Vindhya mountain range.¹ Jharkhand, literally translating to the "land of forests," is not merely a political entity established in the year 2000 but a historically distinct geographical zone whose mention dates back to at least the 13th century.¹ The region has served as the ancestral home to thirty-two major tribal groups, each possessing unique social structures, linguistic traditions, and ecological wisdom.¹ However, the post-colonial era, particularly the period between the 1991 and 2011 censuses, has witnessed a significant transition in the state's demographic and environmental profile. The expansion of mining, rapid urbanization, and the resulting displacement of indigenous populations have created a state of flux, where the survival of indigenous identity is increasingly contingent on the effective implementation of protective legislation and the restoration of ecological balance.

Historical Evolution and the Roots of Regional Consciousness

The political and social history of Jharkhand is a narrative of resistance and the preservation of autonomy. Early records, such as the copper plate inscriptions of Narasimhadeva II, king of northern Odisha, identify the region as Jharkhand, indicating its long-standing recognition as a separate territory.¹ Throughout the medieval period, particularly during the Nagvanshi era, the region maintained its distinct geographical and cultural identity, which was reflected in contemporary compositions and epigraphical sources.¹ The tribal societies of Jharkhand—including the Munda, Santhal, Oraon, and Ho—developed self-governing village systems based on consensus, communal property rights, and gender equality.¹ During the colonial period, the intervention of British administration introduced alien legal and land-tenure systems that fundamentally altered the tribal way of life. The introduction of private property and landlordism replaced lineage-based or community-based ownership, leading to widespread land alienation.⁵ This period saw the rise of iconic movements like the Santhal Rebellion (1855–56) and the Birsa Munda Movement (1899–1900), which were pivotal in shaping a unified tribal consciousness.⁶ These movements were not only struggles against economic exploitation by "Dikus" (outsiders) but were also assertions of the right to *Jal, Jangal, and Jameen* (water, forest, and land).⁷ The modern demand for statehood was a continuation of these historical struggles. Leaders like Jaipal Singh Munda articulated the vision of Jharkhand as a "nation of tribes," seeking a political entity that could safeguard indigenous culture and ensure socio-economic development tailored to local needs.⁶ The eventual formation of Jharkhand on November 15, 2000, marked the culmination of a centuries-long struggle for recognition and self-determination.¹

Demographic Transitions: Longitudinal Insights (1991–2011)

The demographic profile of Jharkhand has undergone a significant transformation, characterized by a declining proportion of the tribal population relative to the total population. This trend, often referred to as demographic displacement, is a consequence of heavy in-migration of non-tribal populations to industrial and mining centers, combined with the out-migration of indigenous people for seasonal labor.¹

Demographic Parameter	1991 Census	2001 Census	2011 Census	Trend Analysis
Total Population	21,843,911	26,945,829	32,988,134	51% increase since 1991 ³
ST Population (Absolute)	6,044,010	7,087,068	8,645,042	Growth slower than total ¹¹
ST Population (%)	27.67%	26.3%	26.21%	Steady relative decline ¹
SC Population (%)	11.85%	11.8%	12.08%	Relative stability ¹
Urban Population (%)	21.25%	22.24%	24.05%	Accelerating urbanization ¹
Literacy Rate (Total)	41.39%	53.56%	66.41%	Significant improvement ³
Sex Ratio	922	941	948	Gradual improvement ³

The decline in the Scheduled Tribe (ST) proportion from 36.81% in 1951 to 26.21% in 2011 is a cause for concern regarding the long-term demographic sustainability of indigenous communities.¹ While the absolute number of tribal individuals is increasing, their lower growth rate compared to non-tribals is attributed to factors like chronic malnutrition, high mortality rates in remote areas, and the massive influx of outsiders into the state's urban and industrial hubs.¹⁰

District-Wise Population Distribution

A detailed analysis of the 2011 census reveals that the tribal population is highly concentrated in certain districts, though the number of "tribal majority" districts has decreased over the decades.¹³

District	2011 Population	ST Percentage	Dominant Tribal Groups
Gumla	1,025,213	68.4%	Oraon, Munda ¹⁴
Khunti	531,885	73.2%	Munda ¹⁴
Lohardaga	461,790	56.4%	Oraon ¹⁴
West Singhbhum	1,502,338	67.3%	Ho, Munda ¹⁴
Simdega	599,578	70.7%	Kharia, Munda ¹⁴
Pakur	900,422	42.1%	Santhal, Paharia ¹⁴
Ranchi	2,914,253	35.7%	Munda, Oraon ¹⁵

The 2011 census also highlights the sharp contrast between rural and urban residency. Approximately 91.7% of the Scheduled Tribe population in Jharkhand resides in rural areas, maintaining a direct dependence on land and forest resources for their livelihoods.¹¹ In contrast, the rapid expansion of towns—from 134 in 1991 to 228 in 2011—primarily reflects the growth of non-indigenous populations in commercial and industrial sectors.¹

Socio-Cultural Symbiosis: Tribes, Sadans, and the Nag Jati

The social fabric of Jharkhand is characterized by a unique co-existence between tribal groups and the "Sadans" communities. Sadans are the non-tribal indigenous people of the region who have shared a symbiotic relationship with the tribes for centuries.¹ This community is often referred to as the local representatives of the "Nag Jati," an ancient ethnic group that lived alongside tribes like the Munda and Oraon.¹⁶ The Sadan culture is a synthesis of Proto-Austroloid, Dravidian, and Aryan traditions. Their languages—including Nagpuri, Khortha, Kurmali, and Panchpargania—demonstrate structural adaptations and word exchanges with tribal languages like Mundari and Kurukh.¹ This linguistic and

cultural synthesis is most evident in the communication medium of "Nagpuri," which reflects the shared history and behavioral norms of the region's inhabitants.¹

Shared Traditions and Governance

The symbiosis between tribes and Sadans extends to their religious and social practices. Both groups participate in festivals such as Sarhul, Karma, Jitia, and Sohrai, which celebrate the bounty of nature and the cycles of agriculture.¹⁶ Traditional governance systems, such as the *Parha-Panchayat* of the Oraons and the *Manki-Munda* system of the Mundas, have historically influenced the social organization of Sadan villages, fostering a sense of collective identity against external pressures.¹

Despite this shared heritage, the colonial and post-colonial periods introduced divisions. The term "Diku," which originally meant "unknown or predatory outsider," was often manipulated by colonial administrators to drive a wedge between tribal and non-tribal indigenous groups.¹⁶ Today, while the Scheduled Tribes constitute about 26.2% of the population, another 45% to 50% consist of Sadan communities who, while classified as Backward Classes, share a similar historical continuity with the land.¹

Environmental Sociology of Jharkhand: Mining and Deforestation

The environmental narrative of Jharkhand is dominated by the tension between industrial resource extraction and ecological preservation. As a state possessing 40% of India's mineral resources, Jharkhand's environment has been significantly altered by mining operations, particularly in the coal, iron ore, and mica belts.¹⁸

The Impact of Open-Cast Mining on Land and Forests

The transition from underground to open-cast mining has had a devastating impact on the region's forest cover and soil health. Every million tons of coal extracted through surface mining methods damages approximately 4 hectares of land.²⁰ Between 2001 and 2011, the pace of land diversion for mining projects accelerated, often without adequate reclamation efforts.

Forest Category	Area (km ²)	Percentage of Geographical Area
Very Dense Forest	2,635.35	3.31% ²¹
Moderately Dense Forest	9,640.99	12.09% ²¹
Open Forest	11,489.44	14.41% ²¹
Total Forest Cover	23,765.78	29.81% ²¹
Scrub/Degraded Land	558.32	0.70% ²¹

While the official forest cover is reported around 29%, a significant portion of this consists of "open forest" or degraded lands with canopy density less than 40%.²² In mineral-rich districts like Singhbhum and Dhanbad, mining-induced deforestation has led to the loss of biodiversity and the fragmentation of wildlife corridors, particularly for the majestic Asiatic elephant.²

Technical Analysis of Soil Degradation

The stripping of topsoil for mining operations leads to a total destruction of the genetic soil profile. Research in the Eastern Coalfields indicates that stockpiled soil loses its biological and chemical fertility within a short period, making post-mining reclamation difficult.²⁰

Soil Marker	Unmined Soil (Mean)	1-Year Old Dump	10-Year Old Dump
Bulk Density (g/m^3)	1.39	1.66	1.72 ²⁰
Organic Carbon (%)	0.72	0.38	0.26 ²⁰
Available Nitrogen (kg/ha)	221.0	151.7	112.5 ²⁰
Available Phosphorus (kg/ha)	8.4	6.5	5.5 ²⁰
Available Potassium (kg/ha)	223.6	162.0	121.2 ²⁰
Microbial Population	Baseline (100%)	12-20%	< 5% ²⁰

The increased bulk density reduces the soil's water-holding capacity, while the sharp decline in Nitrogen (N), Phosphorus (P), and Potassium (K) renders the land unproductive for agriculture. Furthermore, mining tailings often contain heavy metals like Lead (Pb) and Cadmium (Cd), which contaminate the soil in concentrations exceeding permissible limits.²⁴

Water Quality and Pollution: A Chemical Perspective

Water pollution in Jharkhand's mining regions is primarily caused by Acid Mine Drainage (AMD), industrial effluents, and the leaching of pollutants from overburden dumps. Acid Mine Drainage occurs when sulfide minerals in coal or mine waste are exposed to air and water, resulting in the formation of sulfuric acid.²⁵

Hydrogeochemical Analysis of the Jharia Coalfield

Studies conducted in the Jharia region highlight the deteriorating quality of both surface and groundwater. Parameters such as Total Dissolved Solids (TDS), hardness, and Biological Oxygen Demand (BOD) frequently surpass the safety limits set by the World Health Organization (WHO).²⁵

Parameter	Unit	Observed Range	WHO Permissible Limit	Environmental Consequence
pH	-	6.8 - 8.3	6.5 - 8.5	Generally stable, but localized AMD is acidic ²⁵
TDS	mg/L	432 - 1080	500	Unsafe for direct drinking ²⁵
Hardness	mg/L	154 - 159	200	Scaling in pipes, poor lathering ²³
Iron (Fe)	mg/L	1.1 - 1.4	0.3	Metallic taste, possible organ damage ²⁶
Sulfate	mg/L	468 - 567	200-400	Causes severe chronic diarrhea ²⁶
Cadmium (Cd)	mg/L	Exceeds limit	0.003	Highly toxic, carcinogenic ²⁷

The presence of heavy metals like Aluminium and Cadmium in all samples indicates a high risk of bioaccumulation in the food chain.²⁷ The low levels of Dissolved Oxygen (DO), sometimes dropping to 1.1 mg/L , threaten aquatic biodiversity in the Damodar River and its tributaries.²⁶

Health and Nutritional Consequences of Industrial Displacement

The intersection of environmental degradation and socio-economic displacement has led to a severe health crisis among Jharkhand's indigenous population. The National Family Health Survey (NFHS-5, 2019–21) provides a comprehensive overview of the nutritional challenges facing the state's tribal communities.

Nutritional Deficiency and Anemia

There is a high prevalence of nutritional deficiency among tribal women and children, often double the state average. This is attributed to the loss of traditional food sources from forests and a transition toward nutrient-poor, market-dependent diets.²⁹

Health Indicator	Scheduled Tribes (ST)	State Average (Jharkhand)
Anemia (Female)	72.0%	65.3% ²⁹
Anemia (Male)	38.2%	25.4% ³¹
BMI < 18.5 (Female)	28.0%	26.2% ³¹
BMI < 18.5 (Male)	28.0%	23.4% ³¹
Overweight/Obese (Female)	6.6%	11.9% ³¹

The nutritional crisis is compounded by occupational health hazards in mining zones. A study in the iron ore mining districts found that 3.4% of mine workers suffered from pneumoconiosis (black lung disease), while nearly 24% exhibited noise-induced hearing loss.³² In tribal households near mines, undernutrition and anemia are pervasive, affecting nearly half of the school-age children.³²

The Impact of Modernization and Substance Abuse

While industrialization has introduced modern medical facilities, they are often culturally mismatched with tribal healing practices. The loss of traditional healers and the high cost of modern medicine create a vacuum in healthcare delivery.³³ Furthermore, cultural disorientation among tribal youth has led to an increase in substance abuse and mental health issues, including a rising rate of suicides in certain communities.³³

Policy Frameworks and Governance: PESA and the Forest Rights Act

To mitigate the adverse effects of development-induced displacement and empower indigenous communities, the Indian state has established specific legal frameworks. The most prominent among these are the Panchayats (Extension to Scheduled Areas) Act (PESA), 1996, and the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (FRA).

The Evolution of PESA in Jharkhand

Although PESA was enacted by the central government in 1996, the state of Jharkhand delayed the notification of its specific rules for nearly 25 years. The Jharkhand PESA Rules, notified in late 2024 and implemented in early 2025, aim to restore tribal self-governance in Fifth Schedule areas.³⁴

Key Feature of PESA	Objective	Current Implementation Status in Jharkhand
Gram Sabha Supremacy	Empowerment of village assemblies	Rules apply fully in 13 districts, partially in 3 ³⁶
Resource Control	Authority over minor minerals and water	Gram Sabhas can manage sand, stone, and small ponds ³⁵
Land Acquisition	Mandatory community consent	Required consultation, but concerns over "administrative dominance" persist ³⁵
Customary Law	Protection of traditional systems	Recognizes heads like Manki-Munda and Majhi-Pargana ³⁴
Financial Autonomy	Management of village funds	Access to local funds, but excluded from major mining royalties ³⁶

Critics of the new rules argue that they dilute the original spirit of the PESA Act. For instance, the District Deputy Commissioner still holds the power to notify village boundaries, and the Gram Sabha lacks authority over the District Mineral Foundation Trust (DMFT) funds, which are critical for rehabilitating mining-affected communities.³⁴

Implementation Challenges of the Forest Rights Act (FRA)

The FRA was designed to correct the "historical injustice" of denying forest dwellers their ancestral land rights. However, the ground reality in Jharkhand remains challenging due to bureaucratic resistance and a lack of awareness among the claimant population.³⁹

As of August 2025, only approximately 56% of the 110,756 claims filed in Jharkhand have been approved.³⁶ The major hurdles include:

- **Legal Illiteracy:** Most forest dwellers are unable to read or understand the technical language of the Act, making them dependent on intermediaries.³⁹
- **Lack of Documentation:** The requirement for documentary evidence of 75 years of residence for non-tribal forest dwellers (OTFDs) is nearly impossible to meet for communities with oral traditions.³⁹
- **Bureaucratic Obstruction:** There is a notable lack of accountability among officials, who often refuse to provide receipts for filed claims or delay the necessary plot surveys.³⁹

Tribal Movements and the Persistence of Identity

The history of Jharkhand is a history of resistance. From the Koel-Karo movement against hydroelectric projects in the 1980s to the Pathalgadi movement of 2017–18, tribal communities have consistently used their customary rights as a weapon to protect their land and culture.⁴¹

The Pathalgadi Movement: A Case of Constitutional Assertion

The Pathalgadi movement involved the installation of stone slabs in villages, inscribed with constitutional provisions such as Article 244 (1) and the Fifth Schedule. This movement asserted that the Gram Sabha is the supreme authority in tribal areas and challenged the state's right to acquire land without community consent.⁴² This movement highlighted the deep-seated mistrust between the state and the indigenous population, fueled by decades of displacement and the perceived failure of protective laws.

Linguistic Identity and Preservation

Language is a central pillar of tribal identity. Jharkhand is the meeting point of three major language groups: Indo-Aryan, Dravidian, and Austro-Asiatic.¹ Languages like Santhali, Mundari, Ho, and Kurukh are not just modes of communication but repositories of ecological knowledge and oral histories.⁴ However, the decline of these languages—often excluded from schools and lacking written scripts—threatens the intergenerational transfer of traditional knowledge.⁴³ Recent efforts to revive tribal literature and scripts represent a vital part of the broader movement for cultural survival.

Economic Distress and the Migration Paradox

Jharkhand presents a paradox: it is a land of immense mineral wealth, yet its people are among the most economically marginalized in India. This disconnect has led to widespread distress-driven migration.

Patterns of Seasonal and Permanent Migration

Between 2001 and 2011, Jharkhand lost approximately 5 million working-age individuals to migration—about 5% of its workforce each year.⁴⁴ Most of this is seasonal migration among Scheduled Tribes and Scheduled Castes, driven by a lack of irrigation (mono-cropping) and a lack of employment opportunities during the non-agricultural season.⁴⁴

Migration Type	Driving Factors	Social Impact
Seasonal	Lack of irrigation, mono-cropping	Temporary relief from poverty, disruption of family units ⁴⁴
Distress-led	Displacement by dams/mining	Loss of ancestral land, move to urban slums ⁴⁴
Voluntary	Pursuit of higher education/jobs	Emergence of a tribal middle class, cultural assimilation ⁴⁴

Women's migration is also on the rise, with tribal women moving to cities like Delhi, Mumbai, and Kolkata for domestic work. While this brings in remittances, it also exposes them to increased vulnerability and exploitation.⁴⁴

Conclusion: Toward a Model of Sustainable Indigenous Governance

The multi-dimensional analysis of Jharkhand from 1991 to 2011 reveals a state in a state of deep transition. The demographic displacement of tribes, the ecological devastation caused by unregulated mining, and the persistence of malnutrition and poverty despite mineral abundance are symptoms of a development model that has historically marginalized the original inhabitants of the land.

However, the persistence of tribal identity and the historical legacy of resistance provide a foundation for a more sustainable and equitable future. The path forward requires:

1. **Genuine Decentralization:** Moving beyond the notification of PESA rules toward the actual empowerment of Gram Sabhas, ensuring they have control over land acquisition, mineral royalties, and development planning.³⁶
2. **Ecological Restoration:** Mandating and monitoring the scientific reclamation of mined lands, including the reintroduction of native flora like Sal and Mahua, which are central to the tribal socio-economic fabric.²
3. **Integrating Traditional Knowledge:** Incorporating traditional ecological knowledge (TEK) into mainstream conservation strategies and healthcare delivery.¹⁷
4. **Addressing the Nutritional Crisis:** Implementing area-specific nutrition programs that respect indigenous diets and focus on the high prevalence of anemia among women.²⁹

The establishment of Jharkhand was a major step toward addressing historical injustices. For this potential to be fully realized, the state must transition from being a mere "mining colony" to becoming a model of indigenous-led sustainable development, where the rights to *Jal, Jangal, and Jameen* are not just slogans but lived realities. Without such a shift, the unique cultural and ecological heritage of Jharkhand risks becoming a chapter of history rather than a living civilization.

Works cited

1. Jal, Jungle & Jameen - Mantra for biodiversity conservation | Ranchi News - Times of India, accessed on February 17, 2026, <https://timesofindia.indiatimes.com/city/ranchi/jal-jungle-jameen-mantra-for-biodiversity-conservation/articleshow/120857702.cms>
2. Jharkhand Population 2023 - District wise, Religion wise, Pie Chart - Testbook, accessed on February 17, 2026, <https://testbook.com/jharkhand-gk/jharkhand-population>
3. EVOLUTION OF TRIBAL MOVEMENTS AND THE EMERGENCE OF STATEHOOD IN JHARKHAND - Granthaalayah Publications and Printers, accessed on February 17, 2026, <https://www.granthaalayahpublication.org/Arts-Journal/ShodhKosh/article/download/5434/4926/28753>
4. Virginius Xaxa - Centre for Studies in Social Sciences Calcutta, accessed on February 17, 2026, https://cssscal.org/pdf/unicef/OP_Virginius_Xaxa.pdf
5. The Role of Tribal Identity in the Formation of Jharkhand State - Ijesti, accessed on February 17, 2026, <https://ijesti.com/uploads/issues/12072024164552.pdf>
6. Representation of Jharkhand Movement in India, accessed on February 17, 2026, <https://www.ijlmh.com/wp-content/uploads/Representation-of-Jharkhand-Movement-in-India.pdf>
7. Jal Jangal Jameen: Why these three words can't be separated from India's tribes — and an early 20th-century tribal hero | Hindustan Times, accessed on February 17, 2026, <https://www.hindustantimes.com/analysis/jal-jangal-jameen-why-these-three-words-can-t-be-separated-from-india-s-tribes-and-an-early-20th-century-tribal-hero-101707316237169.html>
8. Subnationalism, Identity and the Political Economy of Statehood: The Case of Jharkhand - Journal of Ideal Research Review, accessed on February 17, 2026, <https://journalirr.com/wp-content/uploads/2025/07/Vivek-Kumar-Hind-8.pdf>
9. (PDF) Demography of Tribal Population in Jharkhand 1951-1991 - ResearchGate, accessed on February 17, 2026, https://www.researchgate.net/publication/262124683_Demography_of_Tribal_Population_in_Jharkhand_1951-1991
10. Tribal Majority in Jharkhand: Myth and Reality - Journal of Ideal Research Review, accessed on February 17, 2026, <https://journalirr.com/wp-content/uploads/2022/10/Kamna-Lohani-Dinesh-Narayan-Verma-20.pdf>
11. Jharkhand - Wikipedia, accessed on February 17, 2026, <https://en.wikipedia.org/wiki/Jharkhand>
12. Growth and Distribution of Tribal Population in Jharkhand 1961-2001: A Census Analysis - paa2006, accessed on February 17, 2026, <https://paa2006.populationassociation.org/papers/61800>
13. Jharkhand's Analysis of Districts as per Census 2011 - Unacademy, accessed on February 17, 2026, <https://unacademy.com/content/bank-exam/study-material/general-awareness/jharkhands-analysis-of-districts-as-per-census-2011/>
14. List of districts of Jharkhand - Population Census 2011, accessed on February 17, 2026, <https://www.census2011.co.in/census/state/districtlist/jharkhand.html>
15. Sadan Community - Pyara Kerketta Foundation, accessed on February 17, 2026, <https://kharja.org/pkf-sadan-community.html>
16. (PDF) Cultural Ecology and Conservation: Indigenous Knowledge Systems in Jharkhand, accessed on February 17, 2026, https://www.researchgate.net/publication/391444704_Cultural_Ecology_and_Conservation_Indigenous_Knowledge_Systems_in_Jharkhand
17. Tribal Displacement in Mining Centric Zones in ... - RSIS International, accessed on February 17, 2026, https://rsisinternational.org/journals/ijriss/download_pdf.php?id=5622
18. Jal Jamin Jangal Movement - URI.org, accessed on February 17, 2026, <https://www.uri.org/uri-story/20241010-jal-jamin-jangal-movement>
19. Effect of opencast mining on soil fertility - Toward Freedom, accessed on February 17, 2026, <https://towardfreedom.org/wp-content/uploads/2012/05/JSIR%2063%2812%29%201006-1009.pdf>
20. Jharkhand forests at a glance | Department of Forest, Environment & Climate Change, accessed on February 17, 2026, https://forest.jharkhand.gov.in/aboutus_jharkhand-forests-at-a-glance.aspx
21. A Macroeconomic Analysis of Forest Land Degradation in the State of Jharkhand: The Total Economic Value (TEV) Approach, accessed on February 17, 2026, <https://www.multiarticlesjournal.com/counter/d/3-5-43/IJCRM-2024-3-5-43.pdf>
22. soil and water quality monitoring in opencast mines - thesis, accessed on February 17, 2026, <http://ethesis.nitrkl.ac.in/5240/1/109MN0650.pdf>

23. Analysis of the Environmental Impact of Open-Pit Mining of Mineral Resources and Soil Contamination with Heavy Metals - Preprints.org, accessed on February 17, 2026, <https://www.preprints.org/manuscript/202503.0131>
24. Qualitative Assessment of Mine Water of the Western Jharia Coalfield Area, Jharkhand, India - Current World Environment, accessed on February 17, 2026, <http://www.cwejournal.org/vol11no1/qualitative-assessment-of-mine-water-of-western-jharia-coal-field-jharkhandindia>
25. Impact of Mining on Land Degradation and Tribal Health of Hazaribagh and Ramgarh Districts, Jharkhand, India - International Science Community Association, accessed on February 17, 2026, <https://www.isca.me/rjcs/Archives/v5/i4/7.ISCA-RJCS-2015-047.pdf>
26. Impact of coal mining activities on the water quality: A case study of Jharia Coalfield, Dhanbad, India - PubMed, accessed on February 17, 2026, <https://pubmed.ncbi.nlm.nih.gov/41638341/>
27. Impact of coal mining activities on the water quality: A case study of Jharia Coalfield, Dhanbad, India | Request PDF - ResearchGate, accessed on February 17, 2026, https://www.researchgate.net/publication/400374552_Impact_of_coal_mining_activities_on_the_water_quality_A_case_study_of_Jharia_Coalfield_Dhanbad_India
28. (PDF) Health Status of Schedule Tribes in Jharkhand - ResearchGate, accessed on February 17, 2026, https://www.researchgate.net/publication/390742061_Health_Status_of_Schedule_Tribes_in_Jharkhand
29. Indigenous food environment and dietary patterns of Munda community of Jharkhand, India, accessed on February 17, 2026, <https://pmc.ncbi.nlm.nih.gov/articles/PMC12539013/>
30. Health Status of Schedule Tribes in Jharkhand - IJFMR, accessed on February 17, 2026, <https://www.ijfmr.com/papers/2025/2/40808.pdf>
31. (PDF) Health Status Evaluation of mine workers and nearby population around iron ore mines in tribal district of Jharkhand, India - ResearchGate, accessed on February 17, 2026, https://www.researchgate.net/publication/322106971_Health_Status_Evaluation_of_mine_workers_and_nearby_population_around_iron_ore_mines_in_tribal_district_of_Jharkhand_India
32. Preserving the tribal identity: A policy imperative for indigenous well-being and conservation of the Nilgiri Biosphere Reserve in South India - PMC, accessed on February 17, 2026, <https://pmc.ncbi.nlm.nih.gov/articles/PMC12409803/>
33. PESA Act implemented in Jharkhand after 25 years, but will it change tribal lives? - Earth, accessed on February 17, 2026, <https://www.downtoearth.org.in/governance/pesa-act-implemented-in-jharkhand-after-25-years-but-will-it-change-tribal-lives>
34. Implementation of PESA Law in Jharkhand After 25 Years – Historic Revival of Tribal Self-Governance - Sanskriti IAS, accessed on February 17, 2026, <https://www.sanskritiias.com/current-affairs/implementation-of-pesa-law-in-jharkhand-after-25-years-historic-revival-of-tribal-self-governance>
35. PESA Act Implemented in Jharkhand after 25 Years - Legacy IAS Academy, accessed on February 17, 2026, <https://www.legacyias.com/pesa-act-implemented-in-jharkhand-after-25-years/>
36. PESA Rules Rolled Out in Jharkhand After Long Delay - Current Affairs Usthadian Academy, accessed on February 17, 2026, <https://www.usthadian.com/pesa-rules-rolled-out-in-jharkhand-after-long-delay/>
37. PESA Act implemented in Jharkhand after 25 years, accessed on February 17, 2026, <https://www.insightsonindia.com/2026/01/13/pesa-act-implemented-in-jharkhand-after-25-years/>
38. Forest Rights Act Implementation in Jharkhand: Field Notes - jaldi, accessed on February 17, 2026, <https://jaldi-vidhilegalpolicy.in/jaldilab/notes-from-field/notes?id=226&title=Forest-Rights-Act-Implementation-in-Jharkhand:-Field-Notes-->
39. Implementation of the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Rights) Act 2006 in Jharkhand: Problems and Challenges - ResearchGate, accessed on February 17, 2026, https://www.researchgate.net/publication/347198537_Implementation_of_the_Scheduled_Tribes_and_Other_Traditional_Forest_Dwellers_Recognition_of_Rights_Act_2006_in_Jharkhand_Problems_and_Challenges
40. Adivasis as Ecological Warriors: Colonial Laws and Post-Colonial Adivasi Resistance in India's Jharkhand - MDPI, accessed on February 17, 2026, <https://www.mdpi.com/2313-5778/8/4/130>
41. accessed on February 17, 2026, <https://www.scribd.com/document/441487372/Jal-Jangal-aur-Jameen-the-Pathalgadi-Movement-and-Adivasi-Rights-pdf#:~:text=Jal%2C%20Jangal%20aur%20Jameen%3A%20the%20Pathalgadi%20Movement%20and&text=nation%2Dstate%2C%20and%20instead%20calls,secure%20stable%20livelihoods%20during%20both>
42. Challenges and Prospects of Tribal Literature: In Special Context to ..., accessed on February 17, 2026, <https://www.ijmrjournal.org/gallery/83-files-data-a3c65c2974270fd093ee8a9bf8ae7d0b-108.pdf>
43. Trends and Patterns of Migration from Jharkhand, India | Humanities ..., accessed on February 17, 2026, <https://mgcsjournals.com/hssr/article/download/6004/3865/17275>
44. Béteille, A. (1992). Society and Politics in India: Essays in a Comparative Perspective. Athlone Press.
45. Devy, G.N. (2014). People's Linguistic Survey of India. Orient BlackSwan.
46. Elwin, V. (1959). A Philosophy for NEFA. Shillong.
47. Fernandes, W. (2008). Displacement and Rehabilitation in India.
48. Munda, R.D. (2000). Jharkhand Movement: Struggle for Identity.
49. Padel, F. (2010). Sacrificing People: Invasions of a Tribal Landscape. Orient BlackSwan.