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# Exploring Legal Frameworks for Regulating and Combating Illegal & Unscientific Mining Practices: A Comparative Analysis of Jurisdictions and their Efficacy in Environmental Protection and Resource Conservation

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## ABSTRACT

*It has been noted recently that guidelines for the efficient execution of regulatory provisions and their monitoring are urgently needed, in addition to supervisory and diligent mining methods. There have been many instances of unlawful mining throughout the nation, and in certain situations, numerous authorities have died while carrying out their responsibilities to reduce the occurrence of illicit mining. The state loses money as a result of unregulated illegal mining, and the ecosystem deteriorates. India's development is accelerating, with significant technology advancements made in the areas of remote mining tracking and oversight as well as the establishment of numerous legislative frameworks. Therefore, it becomes vital to make use of technological advancements to effectively oversee the mining operations and carry out the aforementioned laws and regulatory frameworks. Furthermore, citizens must work with government organizations to ensure efficient surveillance and regulation. Every Indian citizen has a duty to safeguard our natural resources, and laws that are operational are possible only if all relevant parties—the government at large, state legislatures and citizens—commit to sustainable mining practices and abide by all applicable laws. It is thought crucial to determine the minimal specifications in every geographic area in order to provide a consistent framework for the oversight and implementation of the mining-related regulatory provisions. This document outlines the fundamental infrastructure needs required for efficient monitoring of sustainable mining and will act as a reference for analysing jurisdictional competence and enforcing the relevant statutory rule or provisions.*

*The analysis presented in this research paper relies on a methodical assessment of the literature, and it intends to be a helpful resource for people who are interested in conducting the in depth study and discovering more about the issue of illegal mining as well as for people who merely seek out information and want to just grasp the idea*

**Keywords:** *Illegal, Mining, Natural Resources, Regulatory, Unscientific.*

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## **I. INTRODUCTION**

“Illegal mining refers to mining activities conducted without proper authorization, violating laws and regulations, and lacking adherence to scientifically sound practices. Such activities can result in severe consequences for the environment, society, and the economy, often associated with a range of negative impacts. Illegal mining typically involves individuals or companies engaging in mining activities without acquiring necessary permits or licenses from relevant government agencies. Those participating in illegal mining may gain access to mining sites without proper authorization, frequently encroaching on protected or restricted areas.

Operations related to illegal mining often neglect environmental regulations and standards, leading to significant degradation of environment, including deforestation, water pollution and erosion of soil. Harmful substances such as mercury or cyanide may be used in the extraction processes, posing serious environmental risks and contaminating water sources. Unauthorized mining activities can spark conflicts with local communities, encroaching on their land and disrupting their livelihoods, resulting in land disputes and social tensions. Governments may lose potential revenue from taxes, royalties, and fees associated with legal mining activities. Illegal miners often operate outside the formal economy, undermining government revenue streams.

On the other hand, "unscientific mining" refers to mining practices that deviate from established scientific and technical standards, leading to environmental degradation, safety hazards, and inefficiencies in resource extraction. Unlike legal and responsible mining that adheres to industry best practices and environmental regulations, unscientific mining lacks proper planning, technology, and environmental stewardship. Unscientific mining often occurs without adequate geological surveys and exploration, resulting in inefficient extraction due to a lack of a comprehensive understanding of mineral deposits.

Safety standards are frequently compromised in unscientific mining operations, with miners working in hazardous conditions without proper protective gear or safety equipment, increasing the risk of accidents and health issues. These operations often neglect the importance of conducting Environmental Impact Assessments (EIAs), meaning that the potential environmental consequences of mining activities are not thoroughly evaluated and mitigated. Waste management practices are commonly inadequate in unscientific mining, with the disposal of overburden, tailings, and other mining waste occurring without proper containment measures, leading to polluting of water and land degradation. Due to lack of modern technology and scientific methods, unscientific mining operations often extract resources inefficiently,

resulting in lower yields and economic losses for both miners and the broader economy.

Efforts to tackle illegal and unscientific mining involve advocating for responsible mining practices, implementing stringent environmental regulations, and enforcing safety standards. Governments, industry stakeholders, and communities all play crucial roles in ensuring that mining activities are conducted in an economically viable and environmentally sustainable manner. Additionally, education and awareness campaigns are essential to help miners comprehend the significance of adopting scientific and responsible mining practices.

## **II. TYPES OF ILLEGAL AND UNSCIENTIFIC MINING**

Illegal and unscientific mining manifests in various ways, typically contingent on the targeted minerals and the specific methodologies utilized. Following some common types of illegal and unscientific mining are:

- **Artisanal and Small-Scale Gold Mining (ASGM):** Illegal ASGM involves the unauthorized extraction of gold in remote areas, often without proper permits or adherence to mining regulations. Miners operating illegally may use rudimentary equipment, disregard safety measures, and employ harmful substances like mercury in gold extraction processes. This activity can result in environmental degradation, water pollution, and health risks for both miners and nearby communities.

Unscientific ASGM refers to small-scale gold mining that lacks adherence to established scientific and technical standards. This may include inefficient extraction methods, inadequate safety precautions, and the neglect of environmental stewardship. Miners may operate without proper planning, leading to ecological damage and inefficiencies in resource extraction.

- **Sand Mining:** Illegal sand mining involves the extraction of sand from riverbeds, beaches, or other areas without proper permits. This activity can lead to habitat destruction, erosion, and alterations in riverbeds. The illegal sand trade often contributes to environmental degradation and can have social and economic implications. Unscientific sand mining refers to extraction practices that do not consider the ecological impact. This may involve inefficient methods, inadequate restoration efforts, and a lack of proper planning. Unscientific sand mining can result in habitat disruption, changes in river dynamics, and increased risks of flooding.
- **Quarrying:** Illegal quarrying entails the extraction of minerals and rocks from quarries without proper authorization or compliance with mining regulations. This activity can result in habitat destruction, alteration of landscapes, and safety hazards for both workers and

nearby communities. Unscientific quarrying involves extraction methods that lack proper planning and adherence to environmental stewardship. This may lead to inefficient resource extraction, degradation of ecosystems, and insufficient measures for land reclamation.

- **Coal Mining:** Illegal coal mining involves the extraction of coal without proper permits, often leading to deforestation, habitat destruction, and environmental pollution. Unauthorized coal mining can have significant social, economic, and environmental consequences. Unscientific coal mining practices may include inefficient extraction methods, inadequate safety measures, and a lack of adherence to environmental regulations. This can result in hazards for miners and ecological degradation, impacting both local communities and the broader environment.
- **Gemstone Mining:** Illegal gemstone mining refers to the unauthorized extraction of precious stones, often associated with smuggling and illicit trade. This activity can lead to environmental damage, habitat disruption, and social conflicts. Unscientific gemstone mining involves practices that lack proper exploration and planning. This may result in inefficiencies in resource extraction, ecological consequences, and the depletion of valuable gemstone deposits.
- **Bauxite Mining:** Illegal bauxite mining involves the unauthorized extraction of bauxite, often without proper permits. This activity can lead to deforestation, habitat destruction, and water pollution. Unscientific bauxite mining practices may include insufficient adherence to safety standards and environmental regulations. This can result in inefficiencies in resource extraction and negative ecological impacts.
- **Rare Earth Element Mining:** Illegal rare earth element mining involves the unauthorized extraction of these valuable resources, potentially contributing to environmental degradation and geopolitical issues. Unscientific rare earth element mining practices may include inadequate planning and environmental considerations. This can lead to ecological damage and inefficient resource extraction.
- **Iron Ore Mining:** Illegal iron ore mining involves the extraction of iron ore without proper authorization, often leading to environmental degradation and revenue loss for governments. Unscientific iron ore mining practices may include a lack of adherence to environmental standards and safety regulations. This can result in inefficiencies in resource extraction and ecological damage.
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### III. CONSEQUENCES OF ILLEGAL AND UNSCIENTIFIC MINING

Consequences of illegal and unscientific mining encompass a range of environmental, biodiversity, health, social, and economic impacts.

#### (A) Environmental Degradation:

- **Deforestation:** Illicit mining often necessitates clearing extensive forested areas to reach mineral deposits, leading to biodiversity loss and ecosystem disruption.
- **Soil Erosion:** Inadequate mining practices can induce soil erosion, impacting land fertility and causing sedimentation in nearby water bodies.
- **Water Pollution:** Mining activities can pollute adjacent water reservoirs containing detrimental chemicals and heavy metals, adversely affecting aquatic life and communities dependent on these water bodies.

#### (B) Impact on Biodiversity:

- **Habitat Destruction:** Mining operations can obliterate the habitats of various plant and animal species, resulting in biodiversity loss and the potential extinction of certain organisms.
- **Ecosystem Disruption:** The disturbance caused by mining activities can upset the delicate balance of ecosystems, affecting the interdependence of different species.

#### (C) Health Risks:

- **Air Pollution:** Dust and particulate matter generated during mining contribute to air pollution, causing respiratory problems for both wildlife and local communities.
- **Water Contamination:** Water sources contaminated by mining activities pose significant health risks to humans and wildlife relying on these water supplies.

#### (D) Social Consequences:

- **Displacement of Communities:** Illegal mining often forces local communities to leave their homes without proper compensation or resettlement plans.
- **Conflict and Illegal Activities:** Mining operations conducted outside the legal framework can contribute to social unrest, conflict, and the proliferation of illegal activities such as human trafficking and drug trade.

#### (E) Economic Impacts:

- **Loss of Revenue:** Governments experience potential revenue loss due to the absence of

regulation and taxation on illegal mining operations, impacting public services and infrastructure development.

- **Unsustainable Resource Depletion:** Illegal and unscientific mining can deplete natural resources faster than they can be replenished, leading to long-term economic challenges for affected regions.

**(F) Legal and Regulatory Challenges:**

- **Undermining Rule of Law:** Illegal mining undermines the rule of law, making it challenging for governments to enforce environmental regulations and protect the rights of affected communities.
- **Resource Management Issues:** Unregulated mining can result in poor resource management, making it difficult to sustainably utilize and conserve mineral resources for future generations.

#### **IV. REGULATORY AND LEGAL FRAMEWORK FOR COMBATING ILLEGAL & UNSCIENTIFIC MINING IN INDIA**

The legislative framework governing the mining sector in India comprises the MMDR Act, 1957,<sup>3</sup> and the Mines Act, 1952, both enacted by the Central Government. Overseeing mining activities falls under the purview of the Ministry of Mines, which is entrusted with tasks such as surveying and exploring minerals (excluding coal, natural gas, atomic minerals and petroleum), managing non-ferrous metal mining and metallurgy, and administering laws related to prospecting and mining.

The historical context of the MMDR Act, 1957, can be outlined as follows:

- i. Central Government authority for the "Regulation of mines and mineral development" under Entry 54 of List I (Union List) of the Seventh Schedule, as declared expedient by Parliament in the public interest.
- ii. State Governments' power for "Regulation of mines and mineral development," as per Entry 23 of List II (State List) of the Seventh Schedule, subject to Union control provisions outlined in List I.
- iii. Parliament's enactment of the MMDR Act, 1957, with Section 2 stating the expediency of Union control over the regulation of mines and mineral development.

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<sup>3</sup> Mines and Minerals (Development and Regulation) Act, 1957.

- iv. Following the declaration, the Union has assumed control over mine regulation and mineral development. The MMDR Act, 1957, delineates procedures for granting mineral concessions, regulating mining activities, and provisions for mineral development within the country.<sup>4</sup>

The existing regulations under the MMDR Act include the MCR, 1960, which outline the processes and prerequisites for obtaining a prospecting license or a mining lease. Additionally, the Mineral Conservation and Development Rules, 1988, provide guidelines to ensure environmentally sound and scientifically based mining practices. All major minerals fall under the jurisdiction of the Central Government, while minor minerals, separately identified, are under the governance of State Governments that have established Mineral Concession Rules for their oversight.

In the federal system, State Governments own minerals within their respective territorial jurisdictions. Conversely, in offshore areas, the exclusive economic zone, and the continental shelf, rights are vested in the Central Government. National agencies, including the GSI, Mineral Exploration Corporation, National Remote Sensing Agency, National Geophysical Research Institute, and IBM<sup>5</sup>, have compiled high-quality geological databases. Commercially accessible databases make investments in mining exploration in India a proposition with minimal risk.

Furthermore, the Federation of Indian Mining Industries (FIMI), representing participants in the mining business, periodically proposes to the government desired alterations to the already prevailing policies related to mining, aiming to enhance activities in the sector.

## **V. NATIONAL MINERAL POLICY**

The updated policy specifies that, in collaboration with State Governments, the Central Government will establish necessary legal measures to implement the National Mineral Policy of 2008<sup>6</sup>. This aims to ensure consistent mineral administration nationwide, align mineral resource development with national objectives, and maintain pace with evolving demands. The National Mineral Policy (NMP) emphasizes a market-oriented strategy for mineral development, taking into consideration short, medium, and long-term demand and supply dynamics for each mineral. It adopts a mineral-specific approach to capitalize on the country's comparative advantages, prioritizing import substitution, value addition, and exportation.

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<sup>4</sup> Revival of Mining Sector in India: Analyzing Legislations and Royalty Regime; <http://www.nipfp.org.in>

<sup>5</sup> Development of Indian Mining Industry—The Way Forward; see, [www.ficci.com](http://www.ficci.com);

<sup>6</sup> See, National Mineral Policy, 2008.



The revised NMP introduces initiatives such as the guaranteed right to the next stage of mineral concession, the transferability of mineral concessions, and increased transparency in concession allocation. These measures are intended to alleviate delays perceived as obstacles to investment and technological advancements in the Indian mining sector. Additionally, the Mining Policy strives to establish a sustainable framework for optimizing the utilization of the nation's natural mineral resources, fostering industrial growth while enhancing the quality of life for residents in mining areas, typically situated in economically disadvantaged and tribal regions of the country.

The new National Mineral Policy focuses on several key areas, including:

- i. Introducing increased liberalization and private sector engagement, expanding the government's regulatory role in the mining sector. The emphasis shifts from traditional management of mineral concession systems to a holistic regulatory approach, addressing simplification, transparency, and best practices from the Ministry of Mines. This aims to attract capital and technology from new sources.
- ii. Cultivating partnerships with stakeholders such as State Governments, mineral and mineral-based industries, and relevant Central Government Ministries/Departments. The objective is to foster the development and conservation of mineral resources, formulate strategies for ensuring raw materials security, and enhance the developmental framework. This includes better resource management, increased focus on Research and Development, and the development of human resources in the sector.
- iii. Safeguarding the interests of host populations and vulnerable sections while promoting equitable benefits for stakeholders. Given that a significant portion of mineral wealth is located in forested areas inhabited by tribal or underprivileged communities, the policy addresses socioeconomic concerns. These concerns encompass perceptions about displacement, outsider control of the area, economic isolation, environmental degradation, and loss of livelihood and habitat. The policy recognizes the need to incorporate provisions in mining legislation to establish institutional mechanisms for involving local people, especially tribal and underprivileged communities, in the development of mineral resources through the creation of stakeholder rights.<sup>7</sup>

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<sup>7</sup> Ibid.

## VI. FRAMEWORK REGARDING JURISDICTION

Section 23C of MMDR Act of 1957 empowers State Governments to create regulations to prevent illegal mining, transportation, and storage of minerals, as well as address related matters. This places the oversight and control of illegal mining within the legislative and administrative purview of State Governments.

Additionally, the MMDR Act contains specific provisions aimed at combating illegal mining:

(i) Amendments made to the MMDR Act in 2015 increased penalties for illegal mining. Violations of Section 4(1) and 4(1A) now incur more severe penalties, raised from Rs. 25 thousand per hectare to Rs. 5 Lakh per hectare, and the imprisonment term extended from 2 years to 5 years. Section 30B grants State Governments the authority to establish Special Courts for the expeditious trial of illegal mining, transportation, and storage cases, with Section 30C designating these Special Courts as Courts of Session.

(ii) Rule 45 of the MCDR in 2017 mandates the registration of all miners, traders, stockists, exporters, and end-users of minerals with the IBM. It requires the submission of online reports on mineral production, trade, and utilization to State Governments and the IBM.

(iii) The Ministry of Mines, in collaboration with the IBM, introduced the Mining Surveillance System (MSS). MSS utilizes satellite technology to identify and report illegal mining activities to State Governments for necessary action. This satellite-based monitoring system detects unauthorized mining activities beyond leased areas using satellite images.

(iv) In accordance with Section 23(C) of the Act, 21 State Governments have established rules to combat illegal mining. Furthermore, 22 State Governments have implemented Task Forces to oversee and evaluate actions taken by member departments to curb illegal mining at both state and district levels.<sup>8</sup>

In the context of illegal mining in India, jurisdiction is delineated by the legal and administrative structures established by both the central and state governments.<sup>9</sup> The following outlines the principal facets of jurisdiction pertaining to illegal mining in India:

**Central Government Authority:** The MMDR Act of 1957 serves as a central legislation conferring regulatory powers upon the central government for the management and preservation of minerals. This central authority establishes the comprehensive legal and policy framework

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<sup>8</sup> Ministry of Mines, Rules and Measures in Place to Curb Illegal Mining In States

<sup>9</sup> Lekha Chakraborty, Revival of Mining Sector in India: Analysing Legislations and Royalty Regime, Working Paper No. 2014-129; available on [http://www.nipfp.org.in/media/medialibrary/2014/03/WP\\_2014\\_129.pdf](http://www.nipfp.org.in/media/medialibrary/2014/03/WP_2014_129.pdf)

governing mining activities nationwide.

**State Government Oversight:** Within their respective territories, state governments wield substantial jurisdiction over mining activities. Their responsibilities encompass the implementation and enforcement of mining laws, issuance of licenses, and the regulation of mining operations. State governments are entrusted with the task of taking corrective measures against instances of illegal mining occurring within their jurisdiction.

**Establishment of Special Courts:** Provisions within the MMDR Act, 1957 empower state governments to institute special courts. These specialized judicial bodies are dedicated to handling cases associated with illegal mining, including issues related to transportation and storage of minerals. Special courts are vested with the authority to conduct prompt trials, ensuring the effective enforcement of relevant laws.

**Role of Law Enforcement Agencies:** Operational at the state level, law enforcement agencies, including the police and specialized units focused on mining enforcement, are tasked with investigating and addressing instances of illegal mining. These agencies possess the jurisdiction to enforce laws and pursue legal actions against individuals or entities engaged in illicit mining practices.

**Involvement of Ministry of Mines and Indian Bureau of Mines:** At the central level, the Ministry of Mines, in collaboration with agencies like the IBM, assumes a regulatory role overseeing mining activities. Utilizing technologies such as the Mining Surveillance System (MSS), they monitor and report occurrences of illegal mining to state governments, prompting necessary actions.

**Task Forces Implementation:** Various state governments in India have established task forces aimed at controlling and rectifying illegal mining activities. Comprising officials from diverse departments, these task forces operate at both state and district levels, coordinating efforts and reviewing actions taken to curb instances of illegal mining.

## VII. CHALLENGES AND INEFFICIENCY OF LEGAL FRAMEWORKS

Several regulatory and administrative hurdles in India impede the expansion of the mining sector. These challenges can be elucidated as follows:

- i. The existing regulatory provisions pose considerable obstacles to the transfer of mining leases, making the process challenging, if not impractical. Additionally, prospecting licenses lack transferability.
- ii. Despite a company successfully conducting exploration activities, there is no

assurance of securing a mining lease, adding uncertainty to the process.

- iii. Mining licenses are ostensibly allocated on a first-come, first-served basis in principle, but the absence of a transparent system introduces ambiguity to the process.
- iv. The approval process for mining involves multiple agencies and is protracted, leading to significant delays in the clearance of various applications.
- v. Private sector participation in enhancing technology and equipment in mining projects is deterred by limited incentives, given that the mining industry bears the heaviest tax burden in India.

In summary, the current regulatory and administrative landscape in India presents obstacles to the growth of the mining sector, ranging from complexities in lease transfers to uncertainties in obtaining mining leases after successful exploration, lack of transparency in license allocation, prolonged approval processes, and limited incentives for technological advancements in the private sector due to heavy taxation.<sup>10</sup>

While the legal structure in India attempts to combat illegal mining, various shortcomings and difficulties persist, enabling such activities to endure. Some of the deficiencies in the regulatory framework for illegal mining in India comprise:

#### **1. Licensing and Lease Transfers:**

- The absence of stringent measures to thwart unauthorized transfers of mining leases and licenses creates opportunities for illegal mining. Exploitable loopholes in the system allow unauthorized entities to partake in mining activities through fraudulent transfers.

#### **2. Enforcement and Monitoring:**

- Insufficient monitoring and enforcement mechanisms contribute to the persistence of illegal mining. A lack of manpower and resources for regular site inspections makes it simpler for illicit operations to evade detection.

#### **3. Corruption and Bribery:**

- Instances of corruption within regulatory bodies and law enforcement agencies can undermine the efficacy of the regulatory framework. Bribery may facilitate the continuation of illegal mining operations without adequate scrutiny or

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<sup>10</sup> A report on Mining Industry in India, October 2013

repercussions.

**4. Ambiguity in Regulations:**

- Ambiguities or loopholes in the language of mining regulations can be manipulated. Lack of clarity may result in diverse interpretations, creating challenges in consistently enforcing the law.

**5. Inadequate Penalties:**

- Current penalties for illegal mining may not be potent enough to deter illicit activities. In some cases, imposed fines may be relatively meager compared to potential profits from illegal mining, diminishing the deterrent impact.

**6. Delayed Legal Proceedings:**

- Prolonged legal proceedings and delays within the judicial system impede the prompt resolution of cases related to illegal mining. These delays afford opportunities for illegal activities to persist during the legal process.

**7. Lack of Stakeholder Engagement:**

- Limited participation of local communities and stakeholders in decision-making processes can lead to discontent and opposition. This may result in non-compliance with regulations, elevating the likelihood of illegal mining activities.

**8. Resource Constraints:**

- Regulatory bodies may grapple with limitations in resources, constraining their ability to effectively address illegal mining. This encompasses constraints in technology, personnel, and funding necessary for monitoring and enforcement.

**9. Interstate Coordination:**

- The multi-state nature of mining activities can be exploited due to the lack of seamless coordination between state governments. Inconsistencies in regulatory approaches and enforcement efforts create opportunities for illegal mining.

**10. Informal Mining Sector:**

- The substantial presence of an informal or unorganized mining sector complicates the regulation and monitoring of all mining activities. This sector often operates beyond regulatory oversight.

To rectify these issues, comprehensive reforms are imperative, encompassing more stringent penalties, bolstered monitoring and enforcement capabilities, heightened transparency, and

increased engagement with stakeholders. Strengthening the regulatory framework is crucial to curbing illegal mining in India.

## VIII. MINING OPERATIONS AND ENVIRONMENTAL CONCERNS: RULINGS OF THE SUPREME COURT

### **Lafarge Umiam Mining Private Limited v. Union of India & Ors**<sup>11</sup>

In the *Lafarge Umiam Mining Private Limited v. Union of India & Ors*<sup>12</sup> case, the Supreme Court, without intervening in the Ministry of Environment and Forests (MoEF) decisions approving the Lafarge Umiam Mining Private Limited's mining project, outlined guidelines in Part-II of its order for future cases. The Court urged the Central Government to designate a National Regulator under Section 3(3)<sup>13</sup> of the Environment (Protection) Act, 1986. This regulatory body would be responsible for project assessments, ensuring compliance with environmental conditions, and imposing penalties on those violating environmental regulations. Despite a prior order on July 6, 2011, instructing the appointment of a National Regulator, the Central Government failed to comply. As a result, the Court asked Mr. Mohan Parasaran, the Solicitor General, to provide information on when the Court's directive would be implemented.<sup>14</sup>

### **Bellary Mining Scam (Karnataka)**

The Bellary mining scandal, situated in Karnataka's Bellary district, India, emerged as a prominent case of illicit mining in the mid-2000s. This scandal involved widespread and unregulated extraction of iron ore, leading to significant environmental damage, financial losses for the state, and accusations of corruption involving politicians, government officials, and mining entities.

**Unauthorized Mining Activities:** Mining operations in Bellary proceeded without proper licenses and environmental clearances. Extensive illegal mining caused substantial deforestation, harm to ecosystems, and depletion of natural resources.

**Involvement of Politicians and Officials:** Several notable politicians, including the Reddy brothers—G. Janardhana Reddy, G. Karunakara Reddy, and G. Somashekara Reddy—were implicated in the unlawful mining practices. Officials in key positions were accused of

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<sup>11</sup> (2011) 7 SCC 338.

<sup>12</sup> Ibid.

<sup>13</sup> Section 3(3) of the Environmental Protection Act, 1986..

<sup>14</sup> The judgment of the Court was delivered on 09.09.2013

collaborating with mining companies and ignoring violations.<sup>15</sup>

**Revenue Loss:** Illicit mining operations resulted in a significant revenue loss for the state government. Minerals were extracted without the payment of proper royalties, contributing to financial irregularities and economic setbacks.

**Environmental Deterioration:** The environmental impact of illegal mining was profound, causing extensive deforestation, contamination of water bodies, and disruption of the overall ecological balance. The region experienced severe damage to its flora and fauna.

**Legal Intervention:** The matter gained attention through public interest litigation (PIL) and media coverage. Reports submitted by the Karnataka Lokayukta exposed the illegal activities. The judiciary, especially the Supreme Court, played a pivotal role in investigating and addressing the scandal.

**Iron Ore Mining Ban:** In 2011, the Supreme Court imposed a ban on iron ore mining not only in Bellary but also in other regions of Karnataka and Goa to curb illegal mining practices. The ban was intended to provide authorities with an opportunity to assess and regulate mining operations for environmental sustainability.

**Political Fallout:** The Bellary mining scandal had significant repercussions on the political scenario in Karnataka. The Reddy brothers faced legal consequences and political fallout due to their association with the scandal. The incident contributed to a broader discourse on corruption within Indian politics.

**Reform Initiatives and Regulatory Enhancements:** Following the scandal, measures were implemented to reform mining regulations and governance. The Karnataka government introduced initiatives to combat illegal mining, streamline mining lease allocations, and enhance regulatory oversight.

The Bellary mining scam stands as a landmark case that brought to light the intricate connections between politics, business, and illegal mining in India. It sparked demands for increased transparency, accountability, and sustainable practices in the nation's mining sector.

### **Thoothukudi Sand Mining Controversy** <sup>16</sup>

The Thoothukudi Sand Mining Controversy in Tamil Nadu, India, emerged as a noteworthy

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<sup>15</sup> The Horrors of Bellary, 18 December 2014, by Intercultural Resources Climate Change, Corporate Accountability, Indigenous Struggles for Land, Mining Scams and Urban Displacement; <https://www.ritimo.org/The-Horrors-of-Bellary>

<sup>16</sup> <https://frontline.thehindu.com/the-nation/a-sand-scam/article5088732.ece> ; A sand scam, S. DORAIRAJ, Published : Sep 04, 2013 12:30 IST

environmental issue involving unapproved sand mining activities in the Thoothukudi district. The controversy encompassed various aspects, including environmental degradation, the involvement of influential entities, and public concerns. The focus was on the Thoothukudi district in Tamil Nadu, where reports indicated extensive illicit sand mining activities. There were widespread operations of unauthorized sand mining in the area, leading to adverse environmental consequences. The extraction of sand without proper authorization raised worries about the ecological sustainability of the local region. Unregulated sand mining had detrimental effects on the environment, causing alterations in river morphology, erosion of riverbanks, and disruption of aquatic ecosystems. The controversy emphasized the need for adopting sustainable practices in sand extraction. It revealed alleged involvement by politically influential individuals and entities in illegal sand mining operations, prompting inquiries into the role of power dynamics in facilitating illicit activities. Regulatory bodies responsible for overseeing and monitoring mining activities faced criticism for enforcement lapses, highlighting governance challenges and the need for robust mechanisms to curb unauthorized sand mining. The issue sparked public outrage, with local communities and environmental activists expressing concerns about the environmental and social repercussions of illegal sand mining. Demonstrations and protests called for immediate action to address the problem. In response, the Tamil Nadu government implemented measures to combat illegal sand mining, including crackdowns on unauthorized operations, suspension of mining permits, and the establishment of specialized teams for monitoring and enforcement. Legal interventions, such as court-filed petitions, played a significant role in resolving the issue. Judicial directives aimed to ensure government accountability, enforce regulations, and impose penalties on those involved in illegal sand mining.

## **IX. ANALYSIS & SUGGESTIONS**

The paper discusses the concept of illegal and unscientific mining, its various types (such as Artisanal and Small-Scale Gold Mining, sand mining, quarrying, coal mining, gemstone mining, bauxite mining, rare earth element mining, and iron ore mining), and the consequences associated with these activities. It further delves into the regulatory and legal framework for combating illegal and unscientific mining in India, including the MMDR Act, 1957, and the NMP. The text also outlines challenges and inefficiencies in the existing legal frameworks, issues in licensing and lease transfers, enforcement and monitoring, corruption, ambiguity in regulations, inadequate penalties, delayed legal proceedings, lack of stakeholder engagement, resource constraints, interstate coordination, and the presence of an informal mining sector.



This paper also covers two notable legal cases related to mining: the Lafarge Umiam Mining Private Limited case, where the Supreme Court outlined guidelines for future cases, and the Bellary Mining Scam in Karnataka, which exposed widespread illegal iron ore mining, involvement of politicians, revenue loss, and subsequent legal and regulatory interventions. Additionally, the Thoothukudi Sand Mining Controversy in Tamil Nadu is highlighted, focusing on environmental degradation, political influence, public concerns, regulatory challenges, and legal interventions.

In essence, the paper thoroughly examines illegal and unscientific mining practices, their types, associated consequences, and the regulatory landscape in India, while also highlighting challenges and pertinent legal cases to provide a comprehensive understanding of the subject matter.

### **(A) Suggestions**

Enhancing the legal framework to combat illegal mining in India requires a comprehensive strategy that considers various aspects. The following suggestions aim to improve the legal framework while avoiding plagiarism:

- Enhance penalties for unauthorized mining, aligning them with the severity of environmental and economic consequences.
- Incorporate cutting-edge technologies like satellite monitoring, drones, and geospatial data for improved surveillance and detection of illegal mining activities.
  - Adopt state-of-the-art satellite monitoring systems for real-time tracking of mining operations.
  - Establish a transparent licensing system with well-defined criteria for the issuance of mining permits, ensuring fairness and compliance with regulations.
  - Periodically conduct independent audits of mining activities to verify adherence to environmental laws, safety protocols, and social obligations.
  - Promote the involvement of diverse stakeholders, including environmentalists, local communities, and NGOs, in shaping and revising mining policies.
  - Launch awareness initiatives to educate communities, miners, and stakeholders on the environmental, social, and economic consequences associated with unauthorized mining.
  - Conduct regular reviews and updates of mining laws to tackle emerging challenges and integrate industry best practices.

- Identify deficiencies in current mining laws, enhance enforcement mechanisms, and strengthen penalties to address shortcomings.

Implementing these recommendations collectively can contribute to a more robust legal framework for combating illegal mining in India. Successful execution requires collaboration among the government, industry, and civil society to ensure effective implementation of these measures.

## **X. CONCLUSION**

In conclusion, the issue of illegal and unscientific mining in India presents a complex and multifaceted challenge with far-reaching consequences for the environment, society, and the economy. The distinction between illegal mining, which involves activities conducted without proper authorization, and unscientific mining, characterized by practices deviating from established scientific standards, highlights the diverse nature of the problem. The consequences span environmental degradation, health risks, social conflicts, and economic setbacks, underscoring the urgency for comprehensive solutions.

The regulatory and legal framework governing mining activities in India, primarily outlined in the MMDR Act, 1957, and the Mines Act, 1952, faces numerous challenges and inefficiencies. Loopholes in licensing and lease transfers, inadequate penalties, delayed legal proceedings, corruption, and limited stakeholder engagement contribute to the persistence of illegal mining. Additionally, the presence of an informal mining sector further complicates regulation and oversight.

Notable legal cases, such as the Lafarge Umiam Mining Private Limited case, the Bellary Mining Scam in Karnataka, and the Thoothukudi Sand Mining Controversy in Tamil Nadu, serve as illustrative examples of the environmental, social, and economic ramifications of illicit mining activities. These cases also highlight the role of the judiciary in addressing and rectifying the issues, emphasizing the need for legal interventions and regulatory enhancements.

Efforts to combat illegal and unscientific mining in India necessitate a holistic approach involving increased penalties, advanced surveillance technologies, transparent licensing systems, independent audits, and stakeholder participation. Public awareness campaigns and periodic reviews and updates of mining laws are crucial for adapting to evolving challenges and incorporating best practices.

While recent initiatives, such as the updated National Mineral Policy and regulatory measures, indicate a commitment to reform, persistent challenges like corruption, resource constraints,

and inadequate penalties must be addressed. Strengthening the legal framework, fostering inter-state coordination, and promoting sustainable mining practices are essential for the effective prevention and mitigation of illegal and unscientific mining activities in India.

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