
LAW ON PAPER, DESTRUCTION ON THE GROUND: ILLEGAL MINING AND THE CRISES OF ENVIRONMENTAL GOVERNANCE IN JHARKHAND

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ABSTRACT

Jharkhand is one of the most mineralized producing states of India, but the environmental damage of its mining sector in the state continues to raise a serious concern. Illegal mining has become a frequent problem which leads to pollution, deforestation, land degradation, abandoned mines and depletion of natural resources. These environmental impacts are not just limited to ecological damage but also affect the health, way of life, and traditional means of subsistence and customs of the tribal people and local populations. Jharkhand is plagued by illicit mining, while India has enacted a number of environmental and mining laws to control and regulate the extraction of minerals and to safeguards natural resources. This raises a key question: whether the problem is that the legislation is inadequate or with the law enforcement? This article suggests that the legislative structure is generally adequate, but the lack of the regulatory monitoring, institutional capacity and poor adherence to environmental commitments are the reason for the inconsistent implementation of its legal framework. The study, based on the current incidents of unlawful mining operations in Jharkhand, recent judgements, and statutory provisions, mainly focuses on the growing gap between environmental law and its enforcement. It comes to the conclusion that the issue of illegal mining requires more than just legislative reform; there is a need for greater institutional responsibility, scientific closure of mines, effective monitoring, and increased role or involvement of local populations in environmental governance.

1. INTRODUCTION

Mineral resources have been seen as essential to the industrial and economic growth of India for a long time. Jharkhand is one of the states that best exemplify this. The state has rich deposits of coal, bauxite, mica, iron ore, and several other mineral resources and has greatly aided to the development of the nation's mining industry.¹ Furthermore, this abundance has also come at an invisible cost. Over time, illicit mining has gone from isolated cases of illegal extraction to a persistent issue that impacts the sustainability of the environment, weakens the power of the regulatory bodies and compromises the rule of law.

India has a good legal regime to regulate the mining and environmental protection, but the effects of illegal mining go beyond the illicit extraction of minerals. Unregulated mining has resulted in increased deforestation, agriculture degradation, adverse impact on air and water resources and abandonment of mines that continues to pose danger to the local populations.² In Jharkhand the consequences are severe due to the dependency of a large portion of the population, especially the tribal communities, that depend directly on land, rivers and forests for their living. The degradation of these natural resources, therefore, presents ecological concerns, as well as issues of environmental justice and of safeguarding constitutional rights.

Although India has a strong legal regime to regulate the mining and safeguard the environment, repeated instances of illicit mining, indicates that the problem lies elsewhere. The recent judicial action by the Jharkhand High Court in the case of illegal mining in Hazaribagh and the enforcement measures like the Zero Coal Leakage Drive,³ shows that the authorities continue to struggle with the issue of widespread violations despite the fact that there are statutory safeguards. These developments suggest that the issue is not merely a matter of failed legislation but also of regulatory and implementation failure.

This article discusses about the gap between the environment law and its practical application in Jharkhand. It talks about how, in spite of strong legal framework, unlawful mining persisted

¹ Department of Mines & Geology, Government of Jharkhand, *Minerals in Jharkhand*, <https://minerals.jharkhand.gov.in/>.

² Environment (Protection) Act, No. 29 of 1986, INDIA CODE (1986); Water (Prevention and Control of Pollution) Act, No. 6 of 1974, INDIA CODE (1974); Air (Prevention and Control of Pollution) Act, No. 14 of 1981, INDIA CODE (1981).

³ Ministry of Coal, Govt. of India, *Zero Coal Leakage Drive and Anti-Theft Policy Directives in Jharkhand Mining Belts* (2023).

due to regulatory, institutional coordination and environmental obligation failures. In addition, this article makes recommendations that would improve environmental governance in the context of balancing environmental protection, mineral development, and the rights of affected communities.

2. THE NATURE AND SCALE OF ILLEGAL MINING IN JHARKHAND

Jharkhand is one of the states which exemplifies the tight linkage between mineral wealth and mineral-based development. The State has significant reserves of coal, iron ore, bauxite, limestone, mica and other minerals and mining is a significant industrial and economic activity. However, this mineral wealth has also provided a favourable environment for the continued presence of illegal miners. The issue is not just concerned with single instances of unauthorised extraction. It occurs in various forms and is found in various mineral producing areas of the State.

Illegal mining can occur thru: mining without a valid mining lease; mining following the end of or cancellation of the mining lease; and mining outside the area and/or beyond the quantity authorised under a mining lease.⁴ The mining in some instances could also be conducted without necessary environmental, forestry or other statutory clearances in accordance with the relevant legislation. It is not enough that the mines are illegal. Unauthorised transportation, storage and trading of minerals is an important aspect of the illegal mining chain and refers to the transportation of minerals without a valid permit or the mineral transportation document.⁵ The enforcement is complicated in the coal sector because of coal mining theft and coal mining from abandoned and active mining areas.

Illegal mining is also found to be different depending on the mineral and the geographical characteristics of the various areas of Jharkhand. Illegal coal mining and theft of coal is an issue in coal bearing regions like Dhanbad, Ramgarh and Bokaro. Illegal stone quarrying, blasting without permission and lack of compliance in stone crushers has been a concern in areas like Hazaribagh, Pakur and Sahibganj regarding environmental and regulatory issues. Similarly, the extraction of sand (illegal) from riverbeds is another illegal form of mineral

⁴ Mines and Minerals (Development and Regulation) Act, 1957, § 4(1), No. 67, Acts of Parliament, 1957 (India).

⁵ Jharkhand Minerals (Prevention of Illegal Mining, Transportation and Storage) Rules, 2017, rule 3 (India).

extraction, potentially affecting the river ecosystem, groundwater and neighbouring land. The environmental impact of quarrying and mineral extraction can be increased by the use of crushers/processing units without the required permissions.

The geographic extent and multiple contact of enforcement agencies and courts demonstrate the extent of the issue. The recent proceedings before the Jharkhand High Court are a reminder that the illegal stone mining and stone-crusher activities in Hazaribagh have continued to be an issue of grave concern to the environment and the constitution.⁶ The launch of Zero Coal Leakage Drive is a testament to the relentless efforts of combating the illegal extraction of coal and leakage.⁷ These happenings show that the problem of illegal mining in Jharkhand is not just about a single event, but it is a persistent challenge in the whole process of mineral extraction, transportation, processing and trading which falls under the purview of the mineral authorities.

But, the ubiquity of these activities also calls for a separation between illegal mining and normal environmental degradation caused by mining issues. When extracted without legal permission, exceeding limits, contravening environmental requirements, or any combination of these, such damage is not just an issue of environmental protection, but also one of regulatory accountability, sustainable resource management, and effective law enforcement. This is particularly true of the forests, agriculture area, water resources and its dependent communities of the Jharkhand region due to the impact of mining.

3. ILLEGAL MINING'S IMPACT ON THE ENVIRONMENT IN JHARKHAND

The illegal mining isn't just about taking minerals illegally. The effects of mining are sometimes apparent once the extraction has been completed. The damage may also be more extensive and more difficult to remediate, since such activities could be conducted without necessary environmental protection measures, monitoring or reclamation plans.

The mining operations in Jharkhand are closely associated with forest, agriculture land and water resources and therefore environmental impacts need special attention.

⁶ *Hemant Kumar Shikarwar v. State of Jharkhand*, W.P. (PIL) No. 290 of 2013 (Jharkhand H.C.) (India).

⁷ *Illegal Mining: Home Minister Amit Shah Orders Zero Coal Leakage Plan*, *Economic Times* (July 5, 2026).

3.1 Forest Destruction and Loss of Biodiversity

The land is greatly affected by mining. Vegetation is removed, the forests are logged, roads are laid and the fill from the mine is placed. Such disturbance can be the result of extraction when carried out without the proper authorisations, outside the zone of extraction, and without appropriate compensation and restoring measures put in place for the forest.⁸

Deforestation also affects biodiversity. Deforestation and habitat fragmentation could affect wildlife populations, including their ability to move about. Nearby ecosystems can also be disturbed by mining operations, including blasting, movement of heavy vehicles and stone crushing. The result is a gradual degradation of ecological systems which may be difficult to repair in the years ahead.

3.2 Air Pollution

Dust and particulate matter are generated during operations like drilling, blasting, stone quarrying, crushing and mineral transport. Where these operations are carried out without adequate pollution control measures the dust generated can be dispersed into the surrounding areas.⁹ The situation can be worsened by unauthorised stone crushing units and coal mining, handling and transporting can also cause coal dust emissions.

Thus, air pollution resulting from illegal mining activities can not only impact the mining area but also the external environment. The continuous mining and crushing without proper controls raise doubts about the effectiveness of current environment protection measures.

3.3 Water Pollution and Disturbance of Water Resources

Surface and ground water may both be impacted by mining operations. The excavation of land can change natural drainage patterns and waste materials and runoff from mines can transport sediment and pollutants to nearby rivers, streams and other water bodies.¹⁰ Mining waste can

⁸ Forest (Conservation) Act, 1980, § 2, No. 69, Acts of Parliament, 1980 (India).

⁹ Environment (Protection) Act, 1986, § 3, No. 29, Acts of Parliament, 1986 (India); Air (Prevention and Control of Pollution) Act, 1981, § 21, No. 14, Acts of Parliament, 1981 (India).

¹⁰ Water (Prevention and Control of Pollution) Act, No. 6 of 1974, §§ 24–25, INDIA CODE (1974).

also adversely impact water resources if it is not disposed of properly.

The illegal sand mining is also a manifestation of the same. Over-removal of sand from riverbeds can alter the natural river morphology, lead to erosion and affect ground water recharge. Therefore, the environmental impacts of mining sand do not only occur on the site where sand is excavated, and can extend to the wider river system.¹¹

3.4 Soil Degradation and Land Damage

Illegal mining activities can alter the physical nature of land greatly. Excavation includes removing the topsoil, digging pits and changing the natural shape of the land. Soil quality can be further degraded and erosion increased by overburden and mining waste dumping. Where agricultural land is affected, these changes can lead to a decrease in its productivity.¹²

The situation is worse when the land is not reclaimed properly. Open pits, slopes subject to instability and waste dumps can persist for long periods of time, making land unusable for agricultural or other productive purposes. That's why a company's environmental responsibility does not and cannot come to an end at the end of its mining operations.¹³

3.5 Abandoned Mines and Their Long-Term Impact

Unregulated mining is one of the longest-lasting legacies of abandoned mines. But a deserted mine is not an environmentally safe site because it's not mined anymore. Open pit can result in accidents and piece of land subsidence. Waste and altered drainage can continue to affect surrounding soil and water.¹⁴

In coal-mining areas, abandoned workings may also be accompanied by mine fires and emissions of greenhouse gases like methane and carbon dioxide depending on the type of the

¹¹ Ministry of Environment, Forest & Climate Change, Gov't of India, *Sustainable Sand Mining Management Guidelines* 16–20 (2016); *Deepak Kumar v. State of Haryana*, (2012) 4 SCC 629, ¶ 10.

¹² Ministry of Environment, Forest & Climate Change, Gov't of India, *Sustainable Sand Mining Management Guidelines* 16–20 (2016); Mines & Minerals (Development & Regulation) Act, No. 67 of 1957, § 18, INDIA CODE (1957).

¹³ *Common Cause v. Union of India*, (2017) 9 SCC 499, 535–39; *Vellore Citizens' Welfare Forum v. Union of India*, (1996) 5 SCC 647, 658–60.

¹⁴ Mines & Minerals (Development & Regulation) Act § 18; Mineral Conservation & Development Rules, 2017, rr. 26–27.

mine and the geology. Closure and reclamation of these mines, coupled with long-term monitoring, is imperative in the context of these risks.¹⁵ If such measures are not taken, the cost of environmental damage cleanup could be borne over time by public bodies and impacted communities.

3.6 Cumulative Environmental Damage

The environmental harm resulting from illegal mining can be difficult to distinguish between various types. Removal of vegetation can lead to increased soil erosion with eroded soil potentially entering water bodies. The dust generated by quarrying and crushing operations can lead to higher dust concentration in the future, and closed quarries can also have the negative effects of land and water pollution. If multiple activities occur in an area, the over-all stress to the local ecosystem can be a persistent stress.

However, the environmental issue of illegal mining in Jharkhand is not limited to illegal extraction of minerals. Altogether, forest loss, loss of biodiversity, water pollution, air pollution, soil degradation and the continuing dangers of abandoned mines are more general failures of the protection of ecological resources by regulation and enforcement.

4. IMPACT ON ILLEGAL MINING ON TRIBAL AND LOCAL COMMUNITIES

Illegal mining impacts on forest, land and water cannot be the only factors to be assessed in the context of the impacts of illegal mining in Jharkhand. The environmental alterations caused by mining directly affect the people of the mining and surrounding regions.

It is particularly important in Jharkhand where a significant number of tribal and rural communities rely on forests, agricultural land, rivers and other natural resources to sustain their livelihoods and daily living. Thus, the loss of these resources can have an economic, social and health impact on the populations involved.

¹⁵ Id. rr. 26–27.

4.1 Loss of livelihood, displacement and forest dependency

The negative effects of deforestation, land degradation and pollution caused by mining may impact resources that local communities depend upon and result in a decrease in the availability and productivity of those resources. Degradation of agricultural land could impact agriculture and food security, while destruction of forests could limit availability of firewood, other forest products, grazing lands and other forest products.¹⁶ Such transformations may result in the decline of traditional jobs and increased economic vulnerability of the communities relying on forest activities and agriculture.

The activities of the mine can also displace and disrupt settled communities in particular when the mineral extraction is extended into agricultural lands or areas where people have settled. Even if not physically displaced, traditional settlements and livelihoods can become increasingly fragile, if the surrounding lands, forests and water resources deteriorate.¹⁷ The deprivation of land and forest could also affect tribal communities beyond their economic worth, because land and forest may also be linked to community practices and traditions, as well as to their social identity.

4.2 Water Scarcity, Health and Safety Concerns

Rivers, streams and ground water decreases can affect communities that get their water from those sources for drinking, farming and domestic purposes. This can result in water scarcity and increased challenges for accessing safe water due to the pollution or depletion of these sources. This can create further pressures on households and impact upon agricultural activities and everyday life.¹⁸

The dust, particulate pollution, noise and other pollution that may result from illegal mining and other mining activities could contaminate the environment of the residents who reside near the activity. Other physical hazards are open mine pits, and unstable excavated areas and

¹⁶ Ministry of Tribal Affairs, Gov't of India, *Annual Report 2023–24*, 54–57 (2024); Ministry of Environment, Forest & Climate Change, Gov't of India, *India State of Forest Report 2023*, 18–20 (2023).

¹⁷ *Narmada Bachao Andolan v. Union of India*, (2000) 10 SCC 664, 727–31 (discussing displacement, rehabilitation and the socioeconomic consequences for affected communities).

¹⁸ Central Ground Water Board, Ministry of Jal Shakti, Gov't of India, *Ground Water Year Book—Jharkhand 2022–23*, 25–30 (2023).

abandoned workings. Adjacent communities may be at risk of loss due to subsidence and fire in coal mines.¹⁹ The impact that can happen as a result of illegal mining activities may not just be for the mining population alone but for the wider population that lives in the surrounding of the illegal mines.

4.3 Impact on Women and Child

The impacts of environmental degradation may be different for women and children. Loss of forest or water sources may place more of a burden on women to fetch water and fuel and other domestic commodities, particularly for natural resource dependent communities. An economic insecurity may also arise in households due to loss of agricultural livelihoods and forest-based livelihoods.²⁰

The air and water in children's breathing zones in mining areas may be particularly contaminated, and the children may be exposed to physical hazards from open pits, blasting and abandoned mines.²¹ Mining's economic shock can also have an impact on their education and general welfare. But only when there is proper evidence about child labour specific to Jharkhand, the allegation can be made.

4.4 Environmental Justice and Constitutional Concerns

This disparity in environmental damage poses a wider issue of environmental justice. The economic gains that can be derived from the minerals may not be limited to the mining location, but the initial environmental and social impacts can frequently be felt by the communities closest to the mineral extraction sites. Densely populated areas might therefore be more likely to suffer from the impacts of mining degradation.

The degradation of the environment has a constitutional dimension to its consequences when it affects the ability of people and communities to live in safety and dignity. The Supreme Court's definition of 'clean and healthy environment' as a part of the right to life, under Article

¹⁹ Directorate Gen. of Mines Safety, Ministry of Labour & Employment, Gov't of India, *Annual Report 2023–24*, 43–46 (2024).

²⁰ Ministry of Tribal Affairs, Gov't of India, *Annual Report 2023–24*, 54–57 (2024).

²¹ World Health Org., *Children's Environmental Health*, 2–5 (2019); Directorate Gen. of Mines Safety, Ministry of Labour & Employment, Gov't of India, *Annual Report 2023–24*, 43–46 (2024).

21, turns the protection of the communities affected by the mining activity from being merely a social policy to being a constitutional issue.

5. ENVIRONMENTAL LAW AND REGULATORY FRAMEWORK

The illegal mining for Jharkhand is embedded in a vast legal framework in relation to mineral extraction and protection of the environment. The framework consists of constitutional provisions, mining laws and environmental legislation and principles derived from court judgments. These provisions are to ensure that mineral development does not compromise environmental protection, public health and the rights of people affected.

The wider framework of environmental protection is given by the Constitution of India. It has been ruled by judges interpreting the right to the enjoyment of a healthy and clean environment as being included in the right to life.²² Article 48A of the Constitution mandates the State to protect and improve the environment and also protect forests, wildlife etc and Article 51A(g) places a similar responsibility on members of the public to protect and improve the natural environment. Article 46 and Fifth Schedule are also applicable here when it comes to Jharkhand where mining operations have an impact on the tribal communities, land and natural resources.

The Mines and Minerals (Development and Regulation) Act, 1957 (MMDR Act) is the main law governing the development and regulation of mines and minerals.²³ It sets the conditions for granting mining leases and prescribes the conditions for the extraction and transportation of minerals. Unauthorized mining could lead to statutory action, in contravention of the terms of the lease or beyond the terms of an authorised lease. The Act therefore makes a significant legal provision to address illegal mining operations including the unauthorised extraction.

The Environment (Protection) Act, 1986 is the broad-based legislation for prevention and control of degradation of the environment. Mining projects have to obtain environmental clearance and environmental conditions to assess and manage environmental effects. So, no one just gets a mining lease and then exploits it for an infinite amount of time. The mining operations must be in accordance with the applicable environmental requirements.

²² *Subhash Kumar v. State of Bihar*, (1991) 1 SCC 598, 604.

²³ Mines & Minerals (Development & Regulation) Act, No. 67 of 1957, §§ 4, 21, INDIA CODE (1957).

If mining occurs on forest land, then any forest conservation regime that applies will include other requirements relating to the use of forest land for non-forest purposes.²⁴ This is particularly significant in the context of Jharkhand where the mining activity is occurring inside and around forest regions. In the same manner, the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981 prescribe pollution control measures to be taken as a result of mining, quarries and stone crushing and related activities.

This legislation has been reinforced by the Indian Environmental jurisprudence through key principles such as Sustainable Development, Precautionary Principle, Polluter Pays Principle and Public Trust Doctrine. In *Vellore Citizens' Welfare Forum v. Union of India* (1996), the Supreme Court declared sustainable development as one of the important concepts of environmental law, Precautionary Principle and Polluter Pays Principle as the two key pillars of the concept of sustainable development.²⁵ The principles are especially relevant in the mining industry where the environmental impact is likely to be severe and irreversible if the activity is carried out without control, but this responsibility must not be squarely shouldered by the public.

The Public Trust Doctrine was recognised by the Supreme Court in the case of *M.C. Mehta v. Kamal Nath* (1997).²⁶ The doctrine calls on the State to embrace a role as trustee of natural resources used for public purposes and for the public good, thereby limiting the unrestricted use of natural resources. Its connection with Jharkhand is very clear that it is where illegal mining of coal, stone, sand and other minerals is responsible for irreversible destruction of forests, rivers, land and other natural resources.

Notwithstanding such safeguards in the constitution, there is illegal mining taking place in various parts of Jharkhand, as directed by the statutory provisions and rules of judicial principles. This implies that there is a disconnect between the law and implementation, with enforcement being the primary challenge to addressing illegal mining in the State.

²⁴ Forest (Conservation) Act, 1980, § 2, No. 69, Acts of Parliament, 1980 (India).

²⁵ *Vellore Citizens' Welfare Forum v. Union of India*, (1996) 5 SCC 647 (India).

²⁶ *M.C. Mehta v. Kamal Nath*, (1997) 1 SCC 388 (India)

6. ENFORCEMENT CHALLENGES IN CONTROLLING ILLEGAL MINES IN JHARKHAND

6.1 Poor inspection, insufficient manpower and oversight

A major problem of illegal mining in Jharkhand is the lower level of inspection and monitoring. Mines are often located in large areas that are hard to access, making routine physical inspections difficult. Challenges in detection of extraction without valid extraction permits, beyond approved mining boundaries and violation of lease conditions lead to shortage of manpower, lack of technical expertise and reliance on conventional monitoring methods.²⁷

It is especially challenging in the stone quarrying, sand mining, coal mining and crushing operations industry, where illegal operations can take place at several sites at the same time. If detection is delayed a considerable amount of environmental damage can be done before regulatory action can be taken. Monitoring is therefore still needed in order to be able to identify illegal extraction and to ensure adherence to environmental clearances and other requirements relating to legal mining activities.

6.2 Inadequate protection of the environment

Merely having environmental clearance requirements does not ensure environmental protection. Mining can take place outside the approved limits of mining, environmental conditions or requirements for the prevention of pollution. Illegal blasting, stone crushing and extraction outside the permissible areas can lead to deforestation, air and water pollution, soil degradation, loss of ecological resources etc.

One of the main challenges of enforcement is the absence of a systematic check on compliance by mining companies of the environmental conditions of their permit. There is no prevention; inspections are only when complained of or when serious damage is detected.²⁸

²⁷ Mines and Minerals (Development and Regulation) Act, 1957, § 23C, No. 67, Acts of Parliament, 1957.

²⁸ Comptroller & Auditor General of India, *Report of the Comptroller and Auditor General of India on Revenue Sector, Government of Jharkhand*, No. 1 of 2018, 62–64 (2018).

6.3 Abandoned mines and Mine Closure

Abandoned mines pose both an environmental and enforcement problem. Stopping mining is neither automatic nor is the risk associated with it eliminated without doing so. Threats to neighbouring ecosystems and communities include open pits, unstable excavated land, mine waste, subsidence and fire mines.

Also, the abandoned workings of the coal mines are places where new illegal mining and coal theft activities are carried out. The problem is exacerbated when responsibility for the securing and rehabilitation of abandoned sites is unclear, or when mine closure measures have not been properly implemented.²⁹ Abandoned mines should not be regarded as a 'scar' of previous mining activity and can continue to cause environmental damage and illegal mining after formal mining has stopped.

6.4 Inadequate or non-existent interdepartmental collaboration

Illegal mining typically is a violation of multiple laws and regulations, and requires action by several agencies. The Department of Mines and Geology or the district administration, or the police, or forest authorities or the State Pollution Control Board may have different responsibility in case of violation depending on the type of violation.

Coordination problems between these agencies can sometimes result in delays in inspection, seizure, prosecution and environmental action. What happened in the recent days in Hazaribagh regarding illegal stone mining and stone crushing activities is an example for coordination between different authorities to act.³⁰ Decentralised responsibility can lead to enforcement gaps which illegal operators can exploit.

6.5 Illegal Transportation and Coal Leakage

Illegal mining control cannot be limited to the mining process. Illegal transportation, storage and selling of minerals leads to entry of coal, stone or sand from illegal source in the market and makes it difficult to differentiate legal minerals from illegal ones.

²⁹ Mineral Conservation & Development Rules, 2017, rr. 26–27.

³⁰ *Hemant Kumar Shikarwar v. State of Jharkhand*, W.P. (PIL) No. 290 of 2013 (Jharkhand H.C.) (addressing inter-departmental enforcement directives for illegal stone quarrying in Hazaribagh).

Prevention of illegally mined coal from getting into the supply chain remains a challenge, as is indicated by the Zero Coal Leakage initiative and enforcement actions against illegal coal extraction.³¹ Monitoring the entire extraction to final use therefore is essential for effective enforcement.

6.6 Organised Illegal Mining and Administrative Failures

Illegal mining can involve organised groups at a number of levels of mining, transport and trading. Rather than the larger network that facilitates illegal mining, however, enforcement could be targeted at specific mines or at lower-level operators.

The weak deterrence can be further undermined by administrative delays, lack of follow-up action. The economic incentive to continue illegal extraction might persist if illegal extraction is detected and recovery or prosecution is delayed, or environmental restoration is delayed. In the context of illegal mining, allegations of corruption and political and administrative influence have been raised in discussions but should only be brought up in a journal article if backed by credible official investigations, judicial findings or reliable evidence.

6.7 Use of weak deterrence and environmental rehabilitation.

Another issue is whether the enforcement efforts now are sufficient to stop reoffending. Illegal mining can be very profitable and the punishment for illegal mining is often delayed, poorly enforced and is not a deterrent to the profit.

In addition, enforcement cannot stop after the minerals are seized or the offender(s) are prosecuted. In areas of deforestation, soil degradation, water pollution or damage to abandoned mines due to illegal mining, environmental restoration must be part of the response.” If environmental damage is not addressed, the consequences of illegal mining continue to be felt even after the initial violation is put to a stop.³²

³¹ Ministry of Coal, Govt. of India, *Zero Coal Leakage Drive Directives for Coal Producing Subsidiaries in Jharkhand* (2023).

³² *Vellore Citizens' Welfare Forum v. Union of India*, (1996) 5 SCC 647, 658–60 (recognizing the polluter-pays principle); *Common Cause v. Union of India*, (2017) 9 SCC 499, 535–39 (addressing environmental compensation and consequences of unlawful mining).

7. PROPOSALS AND RECOMMENDATIONS

However, the prevalence of illegal mining in Jharkhand suggests that the issue is not only about the lack of legal measures, but also their implementation. The emphasis, therefore, should be on enhancing enforcement, improving environmental governance and ensuring that mining-affected areas and communities get the protection they deserve. The following are ways to address the challenges of illegal mining in terms of regulation and environment.

7.1 Improving Enforcement of Existing Laws

There is a need for effective implementation of the existing mining and environmental laws, in the first place. We already have a reasonable regulatory framework in the guise of the Mines and Minerals (Development and Regulation) Act, the Environment (Protection) Act, the forest conservation laws and the pollution control laws. Authorities should ensure that the inspections are done on time, violations identified, the illegally extracted minerals seized, due recovery, prosecution of violations and implementation of environmental compensation, rather than relying heavily on legislation.

In addition to the miners who remove the minerals from the ground, those who transport, store and commercially use the minerals—even if they are illegally obtained—should also be covered by enforcement. Continued infractions, if any, should be dealt with in a proper manner by imposing appropriate sanctions and administrative action for continued failures to enforce should be held accountable.

7.2 Scientific Mine Closure and Reclamation

Closing a mine is not something that is done only at the end of the mining operation, but is rather a part of the mining process. The scientific closure of abandoned and exhausted mines should incorporate open pits, unstable land, mine waste, subsidence, mine fires, contaminated water and vegetation loss.

The uncompleted workings in coal mines in Jharkhand are also turned into the places of re-starting of illegal working and coal stealing. Adequate provision of authorities should therefore be made to keep a current register of abandoned and inactive mines and to regularly inspect

these locations. Land reclamation, ecological restoration, dangerous area stabilisation, restoration of water resources and re-vegetation should be planned wherever suitable, as part of the closure plan. The responsibility for restoration should be clearly stated and closure measures to be implemented should be independently monitored.

7.3 Accountability and Transparency

Regulatory gaps need to be filled and public oversight needs to be raised in mining governance. Mining leases, environmental clearances, approved mining areas, production limits and violations etc. should be maintained in readily available digital records; environmental compensation and mine-closure measures should be included.

This accountability has to be implemented at the operator level as well as the regulator level. The operators who keep on doing so when it comes to environmental and mining conditions should be held to account by the appropriate legislation and the officials who cannot do their job or fail to see breaches, should be held to account institutionally. Clear documentation of inspection and enforcement measures can assist in recognising reoccurring issues and minimise the chance of regulatory manipulation.³³

7.4 Effective Monitoring

Continued and reliable monitoring is essential for effective control of illegal mining. Field inspections of the areas particularly at risk of illegal coal mining, stone quarrying, sand mining and illegal use of crushers should have been strengthened. Inspections should not be complaint based and high-risk mining areas should be periodically monitored based on risk.

Monitoring needs to be extended throughout the mineral supply chain as well. However, in cases where the illegal mineral can be transported, stored and re-entered the legal marketplaces later, it is not sufficient to simply identify the illegal extraction at the mining site. Improved monitoring of mineral movement can then help to reduce the risk of unlicensed mining becoming a seemingly legal trade.

³³ Environment Impact Assessment Notification, S.O. 1533(E), cl. 10 (Ministry of Environment and Forests, Govt. of India, Sept. 14, 2006).

7.5 Technology-Assisted Monitoring

In order to identify illegal mining, technology can be used in conjunction with traditional inspection and assist the authorities. Satellite imagery, Geographic Information System (GIS) mapping, a drone and digital mining records and tracking of mineral-transport can assist in the detection of changes in land use, extraction beyond approved limits, and unauthorised mining.³⁴

Technology should be used as a means to assist rather than replace human eyes and human action for inspection and administration. It just seems reasonable for the authorities to act fast, based on the violation that has been detected from the satellite picture or other technology. Moreover, a digital system that integrates the mining lease, environmental clearance, inspection report and transportation record will help better manage regulatory oversight.

7.6 Community engagement

Tribal/local communities should play a key role in environmental monitoring. The changes in forests, farmland, water sources and pollution that are occurring as a result of the mining activity that is taking place can occur in the neighbourhood of the mining site, exposing people living near the site directly. Creating easy methods for residents to report illegal extraction, unauthorised blasting, pollution or damage to natural resources, can aid detection of violations early in the process.

Participating in the community is especially crucial where forest-based livelihoods are concerned, as well as agriculture and local water resources. The participation of communities should not only be included in the consultancy after the environmental impact of the mining activity has occurred, but it should also allow communities to make meaningful concerns as well as gain information regarding the activity of mining that affects their environment.

7.7 Improved utilisation of District Mineral Foundation Funds

The District Mineral Foundation (DMF) is an important tool to address the developmental and

³⁴ Ministry of Mines, Govt. of India, *Mining Surveillance System (MSS) Guidelines for Satellite-Based Illegal Mining Detection* (2016).

welfare requirements of people and areas affected by mining. But the effectiveness of DMF depends on the extent to which its resources are targeted to the real needs of mining-affected communities.

The priorities like safe drinking water, health service, education, livelihood development, environmental rehabilitation and basic infrastructure in affected areas should be dealt with using DMF funds. There is a need for transparency in identification of projects, allocation of funds and monitoring of expenditure. DMF resources should not be dissociated from the problems resulting from mining either. Local communities should be given the opportunity to be involved in identifying real local priorities.

7.8 Environmental Governance Integration

Illegal mining is a single regulatory space that is cut. It can be a “marriage of convenience” with violations of mining, environmental, forest, pollution-control and criminal laws. More co-ordination between the mining department, district administration, police, forest authorities and pollution-control authorities as well as other relevant agencies will be required for effective enforcement.

An integrated approach can help prevent duplication, responsibility gaps, and environmental breaches go hand in hand with the mining offence. Consistent and responsive enforcement can be achieved through regular inter-departmental coordination, shared databases and coordinated inspections.

8. CONCLUSION

Illegal mining in Jharkhand poses serious issues of environmental protection, mineral governance and social justice. Unauthorised coal, stone and sand mining, illegal transportation, unregulated crushing and renewed mining from abandoned mines have all been blamed for deforestation, water pollution, air pollution, degradation of soil, destruction and loss of biodiversity and for present ecological risks. These impacts are especially severe for tribal and local communities that rely on land, forest and water resources to make a living.

There is already a considerable body of law in place in India to control these activities, namely,

the MMDR Act, environmental law, environmental pollution-control law, forest law, and constitutional protection. The law also further protects natural resources by the inclusion of judicial principles such as sustainable development, the Precautionary Principle, Polluter Pays Principle and the Public Trust Doctrine. However, the illegal mining activity indicates the issue is mostly a matter of lawlessness, rather than a lack of law.

Weak inter-departmental coordination, lack of manpower, weak inspection and coordination, illegal transportation and poor management of abandoned mines continue to affect the effectiveness of enforcement. We need to strengthen our current laws, rather than simply make new ones to address these issues. There is scope for enhancing environmental governance by scientific closure of the mines, technology-based monitoring, transparency and accountability and meaningful community participation and effective utilization of funds from District Mineral Foundation.

In conclusion, mineral resources are a valuable resource for Jharkhand and their exploitation must be conducted in a way that ensures the sustainability of the environment and the health of the people. Good mining governance therefore should guarantee that mineral development is done in a legal, environmental and socially responsible way and that the natural resources that future generations will need are conserved.