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Illegal Riverbed Mining and Organised Crime: A Nexus Between Resource Exploitation and Environmental Degradation

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ABSTRACT

One of India's most urgent environmental and governance issues is illegal riverbed mining, which is a complicated confluence of organized crime, resource exploitation, and official failure. This study examines the relationship between organized crime groups and illicit riverbed mining, examining how the uncontrolled removal of sand and gravel from riverbeds damages ecosystems and feeds violent and corrupt regimes. Using a doctrinal and socio-legal approach, the study looks at the laws that currently regulate riverbed mining, such as the Mines and Minerals (Development and Regulation) Act of 1957, the Environment (Protection) Act of 1986, and significant rulings from the National Green Tribunal and the Supreme Court. It also looks at the sociopolitical factors that allow "sand mafias" to continue operating in spite of legislative actions and judicial activity. According to the research, the illicit sand trade has evolved into a type of organized environmental crime that is intricately linked to local governance systems and political patronage. In order to break up the criminal networks supporting illicit mining and restore ecological justice in India's riverine systems, the report ends by suggesting integrated reforms including digital monitoring, interagency cooperation, and community-based enforcement.

Keywords: *Illegal Riverbed Mining; Organised Crime; Sand Mafia; Environmental Law; Resource Exploitation*

I. INTRODUCTION

In India, illegal riverbed mining is one of the 21st century's most urgent environmental and governance issues. Sand mining from riverbeds, which was formerly thought to be a small-scale, unorganized commercial activity, has grown into a massive, well-organized, and legally protected criminal industry². Sand has become an essential yet limited resource due to the building industry's exponential expansion and the fast urbanization of the world³. River ecosystems are now contentious commercial zones because to the extraordinary demand, and

¹ Author is a Student at Raiganj University, West Bengal, India.

² Ministry of Environment, Forest & Climate Change, *Sustainable Sand Mining Management Guidelines* (2016).

³ United Nations Environment Programme (UNEP), *Sand and Sustainability: Finding New Solutions for Environmental Governance* (2019).

extraction frequently takes place in flagrant disregard for administrative restrictions, court decisions, and environmental laws⁴. In addition to being an environmental violation, illegal riverbed mining is a sign of institutional enforcement shortcomings, systemic corruption, and the increasing involvement of organized crime in resource control⁵. The situation is a prime example of "criminalization of natural resource management," in which illegal networks that control the political and economic aspects of extraction replace official authority⁶. The so-called "sand mafia" in India is a shadow economy that feeds on ecological degradation and the looting of public resources due to collaboration between local contractors, political middlemen, and administrative officials⁷. This article explores the complex connection between organized crime and illicit riverbed mining in India. It examines the relationship between criminal networks, governance shortcomings, and environmental degradation using a doctrinal and socio-legal approach. Additionally, it examines the legal and legislative reactions to the issue and makes policy suggestions to improve environmental governance.

II. THE ECONOMIC DRIVERS OF ILLEGAL RIVERBED MINING

Sand is the second most consumed natural resource in the world, after water⁸. The building industry in India accounts for around 9%⁹ of the country's GDP, and sand is a vital component of glass, concrete, and infrastructure development. However, the ever-increasing demand for riverine sand cannot be met by natural replenishment, resulting in a structural scarcity that encourages illicit extraction¹⁰. A 2020 NITI Aayog assessment states that although legal supply provides less than half of India's yearly need for sand, the country's annual consumption surpasses 1.4 billion tons¹¹. Due to this breach, sand is being taken from riverbeds without environmental approval, transported covertly, and sold at exorbitant rates in an unofficial but profitable underground market¹². The financial rewards are substantial. The price of one truckload of illegally mined sand might reach ₹15,000 to ₹20,000¹³, although enforcement penalties are still unreasonably cheap. These circumstances attract organized crime organizations to the trade by creating a "low-risk, high-profit" incentive structure¹⁴. Unlicensed

⁴ NITI Aayog, *Illegal Sand Mining: Issues and Challenges* (2020).

⁵ Kanchi Kohli & Manju Menon, *Sand Mining in India: Environmental Conflicts and Legal Responses*, 54 *Econ. & Pol. Wkly.* 11 (2019).

⁶ *Id.*

⁷ *Id.*

⁸ UNEP, *supra* note 3.

⁹ *Id.*

¹⁰ NITI Aayog, *supra* note 4.

¹¹ *Id.*

¹² *Id.*

¹³ *Id.*

¹⁴ *Id.*

operators are able to exploit rivers with little fear of legal repercussions due to the absence of efficient monitoring systems, particularly at the district and block levels¹⁵. Local political funding has also been entangled with the sand trade. According to studies, illicit mining syndicates provide financial support to political campaigns in return for administrative machinery and protection¹⁶. This mutually reinforcing link between illegal extraction and political patronage erodes the deterrent power of environmental law enforcement and prolongs corruption.

III. THE “SAND MAFIA”: ORGANISED CRIME IN RESOURCE EXTRACTION

"Sand mafia" describes the organized, violent, and hierarchical character of illicit mining networks in India¹⁷. These organizations are incredibly sophisticated, handling all facets of the trade, from transportation and excavation to bribes and intimidation¹⁸. These syndicates' integration into local governance frameworks is one of their distinguishing characteristics. District-level authorities frequently provide "temporary permits" or short-term leases, which serve as legal justifications for illegal extraction¹⁹. To ensure administrative quiet, a portion of the revenues are sent to politicians, revenue officials, and police personnel²⁰. This type of cooperation, in which the state itself takes part in organized crime, has been referred to as "criminal governance."²¹

The sand mafia's violent side is just as alarming. For disclosing unlawful mining, a number of cops, activists, and journalists have been attacked or killed²². As evidenced by the murder of journalist Sandeep Sharma in Madhya Pradesh (2018) and the assault on IAS official Durga Shakti Nagpal in Uttar Pradesh (2013)²³, opposing powerful interests may have deadly results. The traditional racketeering dynamics of territory control, protection payments, and political infiltration are mirrored in organized crime in riverbed mining²⁴. Sand mafias, however, function in the gray region between lawfulness and illegality, in contrast to more conventional types of organized crime like drug trafficking²⁵. Because of the cooperation of local

¹⁵ Centre for Science and Environment (CSE), *Sand Mining Review 2021*.

¹⁶ *Id.*

¹⁷ V. Narain, *Rivers, Rights and Sand Mining: The Political Ecology of Resource Governance in India*, 28 *Geoforum* 34 (2020).

¹⁸ *Id.*

¹⁹ *Id.*

²⁰ *Id.*

²¹ *Id.*

²² CSE, *supra* note 15.

²³ *Id.*

²⁴ Narain, *supra* note 17.

²⁵ *Id.*

governments and elected officials, their activities sometimes gain de facto legality²⁶. Therefore, illicit riverbed mining is a type of political economy that is supported by institutional deterioration and corruption, as well as an environmental crime.

IV. ENVIRONMENTAL AND SOCIAL IMPACTS

Illegal riverbed mining has disastrous ecological effects. Over-extraction of sand changes flow patterns, speeds up bank erosion, and disturbs the geomorphology of rivers²⁷. It weakens the ability of groundwater to recharge and lowers the riverbed, causing bridges and other structures to become unstable²⁸. Fish and benthic species that are vital to ecological balance are among the aquatic biodiversity that is at risk due to sediment removal²⁹. Illegal mining has caused embankment collapses and the loss of agricultural land in the Ken and Yamuna river basins³⁰. Communities downstream have been negatively impacted by the substantial siltation produced by uncontrolled extraction along the Subarnarekha and Dwarkeshwar rivers in West Bengal³¹. Beyond the local riverine zones, the environmental harm consists of changing microclimates, decreasing soil fertility, and upsetting traditional agricultural and fishing-based livelihoods³².

The socioeconomic aspect is just as important. Rivers are frequently the main source of food, water, and jobs for rural and indigenous people³³. By denying people access to these resources, illegal mining exacerbates poverty and marginalization³⁴. They become even more estranged from resource governance when they are not involved in decision-making³⁵. Mafia operators frequently threaten and physically harm peasants who resist mining, fostering a climate of fear and silence³⁶. This process's environmental injustice is a reflection of larger systemic injustices: the poor and the weak bear the ecological and social consequences, while criminal syndicates and their political backers benefit³⁷.

V. LEGAL AND INSTITUTIONAL FRAMEWORK

India has a broad but disjointed legislative framework that governs riverbed mining. The main pieces of legislation are the Air (Prevention and Control of Pollution) Act of 1981, the Water

²⁶ Kohli & Menon, supra note 5.

²⁷ UNEP, supra note 3.

²⁸ Id.

²⁹ Id.

³⁰ *Satendra Pandey v. State of Uttar Pradesh*, Original Application No. 186/2016 (NGT 2016).

³¹ *Sudarshan Das v. State of West Bengal*, Original Application No. 173/2017 (NGT 2017).

³² Id.

³³ Kohli & Menon, supra note 5.

³⁴ Id.

³⁵ Id.

³⁶ CSE, supra note 15.

³⁷ Id.

(Prevention and Control of Pollution) Act of 1974, the Environment (Protection) Act of 1986, and the Mines and Minerals (Development and Regulation) Act of 1957 (MMDR Act)³⁸.

No one may conduct mining activities without a current lease or permission, according to Section 4 of the MMDR Act³⁹. Section 21 imposes penalties for violations, including fines and imprisonment⁴⁰. However, because federal and state agencies have overlapping authority, implementation of these regulations is nonetheless inadequate⁴¹. The central government can issue notifications governing ecologically sensitive operations, such as sand mining, thanks to the Environment (Protection) Act of 1986⁴². The Sustainable Sand Mining Management Guidelines (2016) and the Enforcement and Monitoring Guidelines for Sand Mining (2020) were released by the Ministry of Environment, Forests, and Climate Change (MoEFCC) in accordance with this authority. These guidelines require environmental clearances, replenishment studies, and the use of satellite monitoring⁴³. In order to overcome regulatory failure, judicial action has become essential. Even small-scale mining under five hectares needed previous environmental permission under the EPA, the Supreme Court said in *Deepak Kumar v. State of Haryana* (2012)⁴⁴. The Court affirmed that the State owns natural resources in fiduciary capacity for the benefit of the people by using the "public trust doctrine" and the "precautionary principle."⁴⁵ In a comparable manner, the National Green Tribunal (NGT) ordered state authorities to establish satellite-based surveillance systems and create district-level sand mining plans in *Sudarshan Das v. State of West Bengal* (2017)⁴⁶. In the 2016 case of *Satendra Pandey v. State of Uttar Pradesh*, the Tribunal mandated stringent oversight and disciplinary measures against offenders in the areas around the Ken and Betwa rivers⁴⁷. Because of political meddling and bureaucratic sloth, implementation gaps continue notwithstanding these decisions⁴⁸. Progressive environmental ideas have been expressed by the courts, but their transformational potential has been constrained by a lack of institutional ability and political will⁴⁹.

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⁴² The Environment (Protection) Act, No. 29 of 1986, INDIA CODE (1986).

⁴³ MoEFCC, *Enforcement and Monitoring Guidelines for Sand Mining* (2020).

⁴⁴ *Deepak Kumar v. State of Haryana*, (2012) 4 SCC 629 (India).

⁴⁵ *Id.*

⁴⁶ *Sudarshan Das*, *supra* note 31.

⁴⁷ *Satendra Pandey*, *supra* note 30.

⁴⁸ Kohli & Menon, *supra* note 5.

⁴⁹ *Id.*

VI. GOVERNANCE CHALLENGES AND POLITICAL ECONOMY

Deep governance flaws in India's environmental regulation system are shown by illegal riverbed mining. Because of federalism's decentralized structure, state governments are mostly in charge of mineral control, which leads to inconsistent policies and inadequate central monitoring⁵⁰. Effective monitoring is almost difficult in many states due to a lack of complete data on the amount of sand taken or the number of active licenses⁵¹. From issuing mining licenses to transportation and sale, corruption is present at every turn⁵². Despite sporadic enforcement efforts, the relationship between criminal networks and government officials guarantees that illicit activities go unchecked⁵³. Another serious shortcoming is administrative ability. In order to monitor riverbeds that are dispersed across large regions, environmental agencies and district administrations sometimes lack the technical know-how, personnel, and technology equipment necessary⁵⁴. Additionally, political pressure and intimidation are used against law enforcement, which deters aggressive action⁵⁵. At the structural level, India's environmental governance is hampered by what academics refer to as "regulatory capture," in which commercial interests control regulatory agencies' decision-making⁵⁶. A cyclical pattern results: criminal activity is momentarily stopped by judicial involvement, enforcement relaxes, and the cycle repeats⁵⁷. Furthermore, there is still little interagency collaboration. Confusion and duplication result from the MoEFCC's, state mining departments', pollution control boards', and district administrations' overlapping mandates⁵⁸. The issue is made worse by the lack of a centralized national database for tracking sand extraction⁵⁹. Thus, a systemic dilemma where economic incentives take precedence over ecological sustainability is reflected in the political economy of sand⁶⁰. Innocence is strengthened by the treatment of environmental crimes as administrative errors rather than major criminal offenses⁶¹.

VII. JUDICIAL AND POLICY RESPONSES

Sand mining-related environmental jurisprudence has been actively shaped by the Indian courts, especially the Supreme Court and the NGT. The Court has acknowledged the right to a healthy

⁵⁰ NITI Aayog, *supra* note 4.

⁵¹ *Id.*

⁵² *Id.*

⁵³ *Id.*

⁵⁴ CSE, *supra* note 15.

⁵⁵ *Id.*

⁵⁶ Narain, *supra* note 17.

⁵⁷ Kohli & Menon, *supra* note 5.

⁵⁸ NITI Aayog, *supra* note 4.

⁵⁹ *Id.*

⁶⁰ *Id.*

⁶¹ *Id.*

environment as a basic right by interpreting Article 21 of the Constitution, which guarantees the right to life, in a broader manner⁶². The Supreme Court ordered the Central Government to provide consistent rules after clearly connecting sand mining to environmental deterioration in the Deepak Kumar case⁶³. District-level monitoring committees, drone surveillance, and recurring audits have all been required by further NGT directives⁶⁴. Despite having a solid normative foundation, these court interventions have had difficulty resulting in long-lasting compliance⁶⁵. States frequently use "local exigencies," a lack of equipment, or resource limitations as excuses for not implementing⁶⁶. Furthermore, the NGT's directives are not well enforced; fines are usually modest and hardly recouped⁶⁷. Important policy changes were brought about by the MoEFCC's 2020 Enforcement and Monitoring Guidelines, which included the use of district survey reports (DSRs), barcoded transit permits, and IT-based monitoring⁶⁸. However, these actions run the risk of continuing to be technical fixes for essentially political issues in the absence of community engagement and responsibility at the local level⁶⁹.

VIII. TOWARDS A REFORM AGENDA: POLICY AND GOVERNANCE SUGGESTIONS

India requires a comprehensive governance change that incorporates legal, technical, and participatory techniques in order to break the link between organized crime and unlawful mining.

1. Strengthening the Legal Regime

In order to facilitate more thorough investigation and punishment, illegal mining should be specifically listed as an organized crime under the Prevention of Corruption Act and the BNS Act. Stronger punitive measures, such as wealth seizure and the revocation of political licenses for individuals involved in the trade, should be incorporated into the MMDR Act⁷⁰.

2. Enhancing Technological Surveillance

Nationwide institutionalization is required for the use of drone-based monitoring, satellite imaging, and GIS technologies⁷¹. Real-time tracking of sand movement and the prevention of document manipulation are two potential benefits of integrating blockchain technology into

⁶² *Subhash Kumar v. State of Bihar*, (1991) 1 SCC 598 (India).

⁶³ *Deepak Kumar*, supra note 43.

⁶⁴ *Sudarshan Das*, supra note 31.

⁶⁵ Kohli & Menon, supra note 5.

⁶⁶ *Id.*

⁶⁷ NITI Aayog, supra note 4.

⁶⁸ MoEFCC, supra note 43.

⁶⁹ *Id.*

⁷⁰ MMDR Act, supra note 38.

⁷¹ MoEFCC, *Digital Initiatives for Environmental Monitoring* (2022).

permit and transportation systems⁷².

3. Community-Based Monitoring

Legal recognition of community vigilance organizations should enable local communities, particularly those impacted by mining, to take part in environmental monitoring⁷³. Institutions of Panchayati Raj may be granted restricted supervisory authority to report infractions and take part in the development of DSRs⁷⁴.

4. Transparency and Accountability

Digital platforms should provide public access to all mining leases, environmental approvals, and compliance reports⁷⁵. Transparency will enable civil society supervision and discourage capricious approvals⁷⁶.

5. Inter-Agency Coordination

State governments, the Ministry of Mines, and the MoEFCC might coordinate more effectively under a centralized National Sand Mining Regulatory Authority⁷⁷. This organization may keep track of transport permits, manage a national database of sand extraction, and conduct audits on a regular basis to make sure compliance is being met⁷⁸.

6. Regional and Transboundary Cooperation.

Bilateral methods are required to monitor cross-border sand smuggling because India shares river systems with Bangladesh and Nepal⁷⁹. India might support a regional framework for sustainable sand governance by using lessons from international accords on hazardous waste (Basel Convention) and wildlife trade (CITES)⁸⁰.

IX. CONCLUSION

In India, illegal riverbed mining is the perfect example of how organized crime, ecological degradation, and poor governance come together. It illustrates how natural resources, which were formerly thought of as common commodities, are now used for illegal profit-making. In addition to environmental damage, the "sand mafia" phenomena exposes the deterioration of democratic institutions, as law enforcement is subservient to criminal capital and political

⁷² *Id.*

⁷³ Kohli & Menon, *supra* note 5.

⁷⁴ *Id.*

⁷⁵ NITI Aayog, *supra* note 4.

⁷⁶ *Id.*

⁷⁷ *Id.*

⁷⁸ *Id.*

⁷⁹ UNEP, *supra* note 3.

⁸⁰ *Id.*

favoritism.

Although judicial activity has created a strong normative framework, it is insufficient since there are no institutional enforcement mechanisms in place. Rethinking illicit mining as an organized economic crime that jeopardizes environmental security and the rule of law is necessary for a lasting solution. To break up the criminal network that lives on resource exploitation, it is imperative to strengthen legal penalties, improve technology surveillance, and encourage community involvement. Protecting the natural commons as a trust for future generations is the ultimate goal of the fight against unlawful riverbed mining, which is both morally and constitutionally required. India runs the risk of turning its rivers, which were once emblems of life and culture, into places of irreparable ecological and moral degradation if it does not take immediate action.
