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Review Article

Illegal Sandmining and its Regulatory Mechanism: A Study in West Bengal Perspective

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ABSTRACT

Sand is regarded as one of the most remarkable mineral resources on Earth. Approximately 50 billion tonnes of sand are used every year worldwide, which is significantly more than what is being replaced by natural processes. Sand is being extracted from rivers, beaches and dunes. Numerous sources contribute to the sand seen on beaches and coastal dunes. Sand pours straight from a river to the beach on a hilly coast. The rivers that flow to the sea carry sand to the sea coast. Other significant sources of beach sand include the erosion of bluffs on rocky coasts and the material that glaciers transported to regions, such as the northern hemisphere. Sand mining in rivers, whether done with or without machinery, is having a variety of biotic and socioeconomic effects. It is also charged with a number of physiological alterations in rivers and other bodies of water. Furthermore, a variety of illicit acts, such as the use of force, threats, or violence, are being carried out either alone or by organised crime syndicates focused on the illicit mining operations.

KEYWORDS

• Sand mining • Impacts of sand mining • Replenishment of river • Sustainable sand mining • Violent illegal activities

INTRODUCTION

Sand is regarded as one of the most extraordinary mineral resources on Earth. After the US and China, India has the third-largest building sector in the world. As a result of the sharp growth in this sector, the demand for sand is also increasing. Approximately 50 billion tonnes of sand are used every year worldwide, which is significantly more than what is being replaced by natural processes.

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Today, in the sand mining sector a large number of organised illegal mining activities have started which is affecting the environment of mother earth. The purpose of this paper is to go through the effects of sand mining as well as the legal structure that governs this sector in West Bengal.

Procedure for Formation of Sand: There are several sources of sand. On a mountainous coast, sand flows directly from a river to the beach. Erosion of bluffs on rocky coasts and erosion of material originally brought to areas by glaciers, as found in the northern hemisphere, are also major sources of beach sand. Sand is measured based on certain criteria. It is considered sand if more than half of the material has a diameter more than 75 microns (.03 inches) but less than .18 inches. It is classified as silt or clay if the average particle size is less, and garden-variety gravel if the average particle size is greater.[1] Sand is primarily formed in three ways:

- **Natural development process:** Sand originates from a variety of places, conditions, and sources. When rocks erode over decades or perhaps millions of years, sand is created. Generally rocks, particularly feldspar and quartz (silica), require longer time to break down. Again, rocks slowly move down rivers and streams, frequently beginning thousands of miles from the ocean and continuously disintegrating as they go and from sand. Once they reach the ocean, the continuous impact of the tides and waves causes them to disintegrate even further.
- **Biological development:** Parrotfish are responsible for Hawaii's well-known white sand beaches. The fish use their parrot-like beaks to bite and scrape algae off of rocks and dead corals. They then ground up the inedible calcium-carbonate reef material which is primarily composed of coral skeletons in their stomachs and expel it as sand.
- **Manufactured sand:** In order to make M-sand, large stones are crushed into tiny pieces to create manufactured sand, or M-sand. The Coal India Limited (CIL) has established a factory in West Bengal.

In India, sand mining in rivers, whether done with or without machinery, is having a variety of biotic and socio-economic effects. It also causes a number of physiological alterations in rivers and other bodies of water.

Implications of Sand Mining: After water, sand is currently the most utilised natural resource worldwide. Sand is present in both the smallest and largest aspects of our everyday lives, including cell phones, cosmetics, detergents, glass, paper, computer chips, homes, roads, and public works. Its adaptability is a benefit for this mixture, which is the result of organic materials (animal shells) and mineral components (rocks) weathering. According to a study the demand for sand is going to increase by 45% worldwide by 2060.[2] The demand for Sand in recent times skyrocketed as a result of the construction boom brought on by the extremely rapid demographic expansion. Sand is frequently used in concrete or as an abrasive in manufacturing. Additionally, rutile, ilmenite, and zircon which contain the industrially valuable elements titanium and zirconium are extracted from sand. With a population of over 1.4 billion, India will overtake China as the world's top cement producer next year, with 330 million metric tonnes produced in 2021 compared to 260 million in 2014.[3] Mining is a significant aspect of the Indian economy because of the vast amount of mineral resources that we possess. The mining industry contributes to India's expanding economy. As a result, the national economy will be greatly impacted by mining law violations and breaches.

The environmental effects of this sand influx are numerous. The lowest-lying country in the world, the Maldives, uses sand extraction to expand existing islands, create new ones, and shield them from the increasing sea levels. On the other hand, sand mining contributes to the depletion of groundwater.[4] Over exploitation of sand has a negative ecological consequence. The water table falls, species and habitats are impacted, and rivers' form and route are altered. The following instances are caused by the additional effects of sand mining in rivers, whether or not there is machinery involved:

- *Biotic impact on river or water body:* Illegal and unrestricted sand mining damages the riverbank and underwater environment, which affects the areas close to the river. Illegal sand mining reduces fish populations, which in turn reduces fisheries productivity. Fishermen's communities are losing their sources of

income. The ecology of rivers, human life and livelihood, and wildlife are all being severely harmed by widespread and illegal sand mining. The following incidents are involved.

- Aquatic ecosystem disruption: When coastal and undersea sand are disturbed, the water becomes murky, which is bad for creatures that require sunshine, like coral.
- Decline of Biodiversity: Sand beaches serve as nesting clutches for a variety of creatures, and mining has caused India's water animals to almost go extinct. Fish population is severely on decline.

- *River physiological changes:*
  - Erosion of River bank
  - Change in the patterns of river flow
  - Changes to the river's natural sediment balance
  - Flooding
- Economic and social impact:
  - Problem in livelihoods for communities that rely on rivers, such as fishing and agriculture
  - Increase in health risk: Degradation of water quality has also increased drastically posing health risk to both human and animal lives.
  - Negative effect on religious sentiment: People with religious interests use a lot of rivers and rivulets and they desire access to clean rivers because they are revered.

Our nation's natural resources, of which we are proud, should be safeguarded at all costs. Not only is there the potential for environmental harm, but our national wealth also needs to be safeguarded.

Doctrine of Public Trust Vis a Vis Illegal Sand Mining: Sand is a very important natural resources for mining operations. The economic prosperity of our country will be slowed down if the officials participating in this process engage in corruption, collusion, or negligence. The public trust concept[5] places a great deal of obligation on the state in this situation to ensure that natural resources are shielded from any form of depletion or destruction. The principle on the one hand requires, the riches of minerals should be safeguarded, and on the other, legally allowed mining that supports the Indian economy should be routinely observed and audited. It is also the citizens' duty to properly care for these natural resources. They must make prudent use of them as well. Additionally, it is their duty to ensure that none of their operations degrade or contaminate the environment. The public trust doctrine acknowledges the public right to many natural resources, including "the air, running water, the sea, and its shore." Because "public trust uses are sufficiently flexible to encompass changing public needs," the California Supreme Court expanded the meaning of public trust in the *Marks v. Whitney*[6] case at the time.

In *Re: Union of India And Ors v. T.N. Godavarman*[7], the Supreme Court by declaring that it is the duty of the State to act as the trustee of the natural resources for the benefit of the public and ensure that these resources are exploited by the citizens in a sustainable way, supported the public trust concept. They might not go extinct for a long time if these resources are managed responsibly. The Court believed that it was necessary to strike a balance between the necessity for development and the preservation of the environment and ecology.[8] In order to fulfil its task of sustainable development based on intergenerational equity, the State is required under our Constitution to establish and carry out a logical and coordinated program.[9] According to the Court, development and the environment must coexist; in other words, development cannot come at the expense of the environment or the other way around; rather, it must occur while taking the necessary precautions and guaranteeing environmental protection.[10]

This Court ruled in *Vellore Citizens' Welfare Forum v. Union of India*[11] that the "Precautionary Principle" is a fundamental component of the "Sustainable Development" concept. (i) Environmental actions by the State Government and the statutory agencies must anticipate, prevent, and fight the causes of environmental degradation. This is how the precautionary principle is explained. (ii) Lack of scientific assurance shouldn't be an excuse for delaying actions to stop environmental degradation when there are risks of significant and irreparable harm. (iii) The actor or developer/industrialist bears the "onus of

proof" to demonstrate that his behaviour is environmentally benign.

Constitutional Framework for Mining in India: In India's parliamentary system, the State Governments is the legitimate proprietors of the minerals that are discovered within their boundaries. List II—State List SEVENTH SCHEDULE (Article 246) through entry 23 entrusts the state with the responsibility of mining in the manner as under-

- Entry 23: Regulation of mines and mineral development according to List I's rules for development and regulation under Union authority.

However, the Central Government owns the minerals located beneath the Indian Ocean or Exclusive Economic Zone.[12] List I—Union List (Article 246) SEVENTH SCHEDULE under entry 54 and 55 speaks about various aspects of mining as under-

- Entry 54 states that mines and mineral development must be regulated to the degree that Parliament has determined via legislation that such regulation and development under Union supervision is necessary and in the public interest.
- Entry 55: Safety and labour regulations in oilfields and mines.

The Constitution of India further mandates the following general principles which are equally applicable in addressing the mining issues:

- Article 39B of the Indian Constitution grants the state the authority to guide its policies to guarantee equitable ownership and control of material resources for the benefit of all.
- Article 47 of the Indian Constitution states the State shall endeavour to safeguard and improve the environment and to protect the forests and wildlife of the country.
- Article 48A of the Constitution of India states that the state must work to preserve the nation's forests and wildlife as well as to protect and enhance the environment.
- Article 51A(g) of the Indian Constitution reads, it is the responsibility of every citizen to preserve and enhance the country's natural environment, which includes its forests, lakes, rivers, and wildlife, as well as to show compassion for all living things.

Indian Minerals' Mining Regulatory Framework: The regulatory frameworks provide guidelines for sustainable sand mining that occurs both in-stream and off-channel. The Government of India has introduced the following tools to combat illegal sand mining:

The Mines and Minerals (Development and Regulation) Act, 1957: Section 15 of the Mines and Minerals (Development and Regulation) Act of 1957 grants State Governments complete authority to establish rules for the issuance of licenses for minor minerals and to levy and collect royalties on them. State governments have complete authority to implement laws to prevent illegal mining and for other related purposes.[13] Furthermore, the State Government was given the authority to establish regulations to stop illicit mineral mining, transportation, and storage by Section 23 C of the MMDR Act of 1957. Therefore, matters concerning mining laws and the prevention of illegal mining of minor minerals are under the purview of state governments. The Indian government amended the Mines and Minerals (Development & Regulation) Act, 1957 (MMDR) in 2015 and issued regulations to help overcome a number of challenges related to the mining and minerals industry, such as fragmented small concession areas, inadequate technology implementation, and inadequate mineral discovery and extraction. India's mining and minerals sector is expected to grow significantly with the introduction of accountable and non-discretionary mineral licenses through an auction process. The National Mineral Policy (NMP) went into force in 2008. It recommends policies including secured rights to next stage mineral concessions, the transferability of mineral concessions, and transparency in licence issuance to reduce delays that are believed to be impeding investments and technological transfers in India's mining sector. The Mineral Policy also seeks to establish sustainable development guidelines that will optimise the utilisation of the country's natural mineral resources for industrial development while improving the standard of living for people living in mining areas, which are generally located in the country's underdeveloped and tribal areas. The policy recognises minerals as valuable natural resources because they are necessary raw materials for infrastructure, basic industries, and investments. Therefore, the expansion of administration and mineral

extraction needs to be included in the country's overall development strategy. The Mineral Concession Rule, 1960, specifies the process for awarding mining permits in line with Section 13 of the MMDR Act, 1957. The rules outline the steps and due dates for concession grants, the processing and denial of applications, and the basic administration of accounts, registers, and information reports. In compliance with Section 18 of the MMDR Act, 1957, the Mineral Conservation and Development Rules, 1988, provide guidelines for mineral exploration and preservation. The rules outline the general requirements for developing mining and seeking plans, filing notices and reports, and conducting prospecting and mining operations.

The Model Guidelines on 'Environmental Aspects of Quarrying of Minor Minerals, 2010: The Ministry of Environment, Forests, and Climate Change, Government of Indian has developed rules for the environmentally responsible mining of sands from riverbeds. The Ministry of Environment and Forests established a group to investigate the environmental problems of mining minor minerals, with the secretary serving as the group's chairman. The group's report, included recommendations, inter alia as under.[14]

- A mine lease should be at least five hectares in size.
- A mine lease should have a minimum duration of five years.
- If there are existing smaller mine leases running, a cluster strategy to mines should be used;
- For minor minerals, mine plans ought to be required as well.
- For the reclamation and restoration of mined-out areas, a distinct corpus should be established;
- For proposed mining below the groundwater table, hydro-geological reports should be prepared;
- Leases should be provided stretch-wise for river bed mining, safety zones should be established, and the depth may be limited to 3 meters below water level, whichever is less; and
- In conjunction with the States, the Ministry of Mines should re-examine the current division of minerals into major and minor categories.

The Sustainable Sand Mining Management Guideline, 2016: The Union Ministry of Environment and Forests released the Sustainable Sand Mining Management Guidelines in 2016 with the goal of encouraging sustainable sand mining by placing a strong emphasis on mined material monitoring, which is essential for efficient environmental management. The standards place a high priority on mining operations that are socially and environmentally responsible, guarantee sufficient aggregate availability, and preserve river ecosystems. They also concentrate on avoiding river water pollution, bank and bed erosion, and aggradation. Here are the goals of the guidelines:[15]

- *Sustainable and Socially Responsible Mining:* The rules are designed to make sure that mining for sand and gravel is done in a way that minimises the impact on the environment and takes social factors into account.
- *Aggregate Availability:* They seek to prevent shortages that can impede development by guaranteeing a sustainable and sufficient amount of aggregate for building and other uses.
- *Monitoring and Transportation:* In order to stop illicit activity and environmental harm, the recommendations place a strong emphasis on efficient monitoring of mining operations and the transportation of mined material.
- *River Ecosystem Conservation:* They work to preserve and repair river ecosystems by avoiding erosion, aggradation (sediment deposition) downstream, and disturbance of water transport and flow.
- *Water Quality and Groundwater:* By preventing groundwater depletion and water pollution, the guidelines make sure that sand mining doesn't negatively impact water resources.
- *Simplifying Environmental Clearance:* In order to make it simpler for companies to adhere to rules, they also want to simplify the procedure for acquiring environmental clearances for sustainable mining.
- *District Survey Report:* The recommendations stress the significance of creating a District Survey Report, which aids in the planning and oversight

of sand mining operations and offers comprehensive information about the surrounding area.

The Enforcement & Monitoring Guidelines for Sand Mining, 2020: The Enforcement & Monitoring Guidelines for Sand Mining, 2020 were released by the Ministry of Environment, Forests, and Climate Change. The "Sustainable Sand Mining Management Guideline-2016" (SSMG-2016) and this document are supplements to one other. The SSMG-2016 and the "Enforcement & Monitoring Guidelines for Sand Mining" (EMGSM-2020) must be studied and followed in tandem. Should there be any confusion or discrepancy between the provisions of these two documents, the clause found in "Enforcement & Monitoring Guidelines for Sand Mining-2020" will take precedence. The following are the crucial rules in this regard:

- *Source to Destination Monitoring:* The new set of rules looks at a unified methodology for the entire nation and focusses on the efficient monitoring of sand mining from the identification of sand mineral sources to its dispatch and end-use by consumers and the general public. The recommendations call for using drones to continuously monitor mining operations and night-vision drones to monitor mining activity at night.
- *Audits:* States are required to conduct river audits and make public the comprehensive survey reports of every mining location.
- *Transparency:* Sand and other riverbed materials (RBM) are sold and purchased online to promote transparency.
- *Enforcement:* It instructs states to form district-level task forces specifically for this purpose. When rivers become state or district borders, the states or districts that share the boundary will form a combined task force to monitor mining activity and materials mined, as well as to contribute appropriately to the preparation of District Survey Reports (DSR).
- *Sustainability:* To offset the negative effects of excessive sand extraction, conduct replenishment studies for river bed sand. During the monsoon, riverbed mining will not be permitted.

The Honourable Supreme Court on February 27, 2012 issued an order *Deepak Kumar etc. Vs. State of Haryana & Ors*[16] ordered the State Governments to immediately draft the required regulations under Section 15 of the Mines and Minerals (Development & Regulation) Act, 1957 (MMDR Act), taking into account the model guidelines created by the Ministry of Mines, Government of India, and the recommendations of the aforementioned MoEF's report. The 2010 Draft of the Minor Minerals Conservation and Development Rules incorporates these ideas.

In this regard, the Hon'ble Supreme Court has frequently dissuaded the granting of short-term mining leases in order to maintain the sustainable and scientific mining methods that the Ministry has suggested. The Supreme Court ruled in *Deepak Kumar and Others v. State of Haryana and Others*[17] that the competent authority must first approve an environmental impact assessment before granting any licenses or leases for minor minerals, including renewals. The reports of a core group established by the Ministry of Environment, Forests, and Climate Change (MoEFCC) in 2009, the model guidelines on "Environmental Aspects of Quarrying of Minor Minerals" developed in 2010 for sustainable mining of minor minerals, and the draft regulations known as the "Minor Minerals Conservation and Development Rules, 2010" were all ordered to be implemented. While acknowledging the aforementioned assessment and recommendation, the Honourable Apex Court ruled that the 2010 model rules were essential from an ecological, biodiversity, and environmental perspective. Even for areas under 5 hectares (ha), the Court mandated that leases of minor minerals, including their renewal, be issued only after receiving environmental clearance from the Ministry of Environment and Forest and Climate Change (MoEF & CC). Given the environmental damage caused by unregulated and unlawful upstream, in-stream, and flood plain sand mining operations, this directive was deemed necessary. The Supreme Court in *Chintels India Limited v. Bhayana Builders Private Limited*[18] held that all licenses and leases of minor minerals, including their renewal, can only be granted after an environmental impact assessment clearance is granted by the competent authority. The Court noticed that excessive mining was "one of the major causes of environmental degradation," and that it posed "a threat to biodiversity."

In *State of Bihar v. Pawan Kumar*[19], the Supreme Court on November 11, 2021, authorised the mining of riverbed sand under licence after lifting the complete prohibition on sand mining in Rajasthan that had been in place since 2017. Justices L. Nageswara Rao, Sanjiv Khanna, and B.R. make up the three-member bench. Gavai concurred with the Central Empowered Committee (CEC) that the complete prohibition on mining has led to an increase in illicit mining operations, including associated violence. It cannot be disputed that, even when developmental operations are not blocked, environmental issues must also be handled, the Court stated in Paragraph 7 of its ruling. The Court felt that it is necessary to have a balanced strategy for sustainable growth that protects the environment. However, it is also impossible to overlook the fact that when legal mining is prohibited, illicit mining grows like a fungus, leading to conflicts between sand mafias, criminalisation, and occasionally fatalities. Furthermore, it is undeniable that sand is necessary for both public and private construction projects, including public infrastructure projects. In addition to encouraging illicit mining, a complete prohibition on legitimate mining results in significant losses for the public coffers.

In *Nature Club of Rajasthan v. Union of India*,[20] the NGT ordered that the Secretary, Environment, Govt. Rajasthan must take the required actions to prevent and control illegal sand mining, bajry, and the misuse of ravannas during the transportation of illegal mining. If illegal mining is discovered, prompt legal action must be taken to correct the situation, and environmental compensation should be provided in addition to the area's replenishment. However, on November 11, 2021, the Supreme Court approved the mining of riverbed sand under licence after lifting its complete prohibition on sand mining in Rajasthan, which had been in place since 2017. Justices L. Nageswara Rao, Sanjiv Khanna, and B.R. Gavai make up the three-member bench concurred with the Central Empowered Committee (CEC) that the complete prohibition on mining has led to an increase in illicit mining operations, including associated violence.

In a related case concerning sand mining in Karbi Anglong, the Supreme Court ruled on April 12, 2019, in *RE*: *TN Godavarman v. Union of India and others*:[21] "all mining and related activities along the aforesaid Kaziranga National Park area and in the entire catchment area of rivers/streams and rivulets originating in Karbi Anglong Hill ranges and flowing into Kaziranga National Park, including the tiger reserve, are restrained." On private property that is located within one of the nine designated animal routes, no new construction is allowed.

The Supreme Court's Division bench, which included Justices Abhay S. Oka and Sanjay Karol, overturned an amendment that removed the need for environmental approval before earth could be extracted for linear projects like highways, pipelines, etc. in *Noble M. Paikada v. Union of India*[22] on March 21. As previously stated, the purpose of the EP Act is to protect and improve the environment. In addition to the illegality committed by non-compliance with sub-rule (3) of Rule 5 of the EP Rules, the exemption granted without incorporating any safeguards is completely unguided and arbitrary. Grant of such a blanket exemption completely defeats the very object of the EP Act, the Justices held, "... on account of the violation of Article 14, item 6 (Item 6 provided an exemption for "Extraction or sourcing or borrowing of ordinary earth for the linear projects such as roads, pipelines, etc.") in the impugned notification, as well as the amended impugned notification, will have to be struck down." The Court referred to this blanket exemption as "completely unguided."

Sand Mining and the State of West Bengal: Sand mining is a major industry in West Bengal, which is spreaded over its various districts. According to the WBMMR, 2002 Amendment, the relevant District Magistrates must grant mining leases for sand and other riverbed materials through sealed tender auction. To safeguard the environment and guarantee that sand is accessible at a fair price, the state has introduced the following regulatory framework:

West Bengal Minor Mineral Concession Rules, 2016: The mining, storage, and transportation of minor minerals can only be done under a valid lease, license, permit, or mineral concession, according to the West Bengal Minor Mineral Concession Rules, 2016: Rule 3(1)(a) and 3(1)(b) of the WBMMC Rules, 2016 [West Bengal Minor Mineral Concession, Rules, 2016]. Chapters III and V of the Concession Rules do not apply, as they cover the general requirements for granting a

license-cum-mining lease and mining lease, as well as environmental aspects pertain.

West Bengal Minor Mineral (Auction) Rules, 2016: According to the West Bengal Minor Mineral (Auction) Rules, 2016, the legislature intended that STML would not normally be granted and would only be granted in exceptional circumstances. These include: (a) judicial intervention; (b) the unavailability of a continuous stretch of the minimum area specified due to the hydro-geological conditions of the rivers; (c) the unsuitability of any stretch for sustaining the specified period due to potential changes in river flow patterns; and (d) any other written justification.

West Bengal Sand (Mining, Transportation, Storage and Sale) Rules, 2021: In accordance with the West Bengal Sand (Mining, Transportation, Storage and Sale) Rules, 2021, the State Government designates West Bengal Mineral Development & Trading Corporation Limited (WBMDTCL) as the nodal agency responsible for closely monitoring sand mining activities throughout the state. This includes, but is not limited to, monitoring sand mining operations, checking for illegal sand mining, transportation, storage and sale of sand, and so on. According to Rule 4, West Bengal Mineral Development & Trading Corporation Limited or any other government firm, government entity, or statutory body may be granted a sand mining lease by the State Government after consulting with the District Level Sand Committee. The District Level Sand Committee may only award sand mining leases by auction to individuals other than West Bengal Mineral Development & Trading Corporation Limited, any other government agency, or statutory entity with the prior consent of the State Government. According to Rule 2(xi), "sand" refers to and encompasses river sand, overburden, artificial sand, material from dredging or de-silting, and anything else as determined by the State Government. Rule 2(xxxi) states, 'Transport/ Transportation" means carrying sand from one place to another by motorized or non-motorised vehicle or by head-load for commercial purposes. Rule 9 of the (9) Prohibits Sand Mining under Specified Conditions: (1) No sand mining shall be carried out within two hundred meters, up-stream and down-stream, measured from the centre line of any bridge, regulator or similar hydraulic structure and from hundred meters from the endpoint of bank protection works. (2) No sand mining shall be carried out beneath three metres of the riverbed or ground water level, whichever is less. (3) No sand mining/ dredging shall be carried out within a distance of two km of a barrage axis or dam on a river unless otherwise permitted by the concerned Executive Engineer and such distance shall be reckoned across an imaginary line parallel to the barrage, or dam axis, as the case maybe, (4) No sand mining shall be carried out beyond the central one third of the riverbed keeping a safe zone of one hundred metre from the existing river bank or within 50 metres of any embankment, canal bridge, road, ' public building. (5) The State Government may add further conditions and/or modify the aforesaid conditions by notification published in the Official Gazette. A short-term sand mining license granted under rule l l shall not be for an area above three hectares and shall not be for a period exceeding ninety days. However, the period of sand mining lease shall be minimum five years and maximum twenty years. Rule 15(1) says, no person shall transport sand without being duly authorized by the State Government and carrying a valid internal permit or e-challan generated on the centralized portal. Further, no person shall store and/or sell sand and/or carry out any other allied activities without being duly authorized by the State Government. Chapter VII i.e. Rule 28-31 deal with the provision of penalty.

The greatest mineral load (in cubic feet) that a vehicle can transport during transit is determined by its carrying capacity, which varies according on the vehicle's make and model. Generally speaking, a vehicle's carrying capacity is equal to {GVW/RLW – ULW}.

- **For ten-wheeler vehicles:**

  RLW = 25 Metric Tonnes (MT) and ULW = 8.8 MT are the values for ten-wheeler vehicles.

  Thus, carrying capacity is equal to {25 - 8.8} = 16.2 MT.

  Since wet sand weighs 5.5 MT per 100 cft, for instance, a ten-wheeler vehicle may transport up to 300 cft of wet sand.

- **For six-wheeler vehicles:**

  Depending on the model and brand of the vehicle, the RLW and ULW for six-wheelers are 16.2 MT and 6.2 MT, respectively.

  Consequently, {16.2 – 6.2} = 10 MT is the carrying capacity.

Since wet sand weighs 5.5 MT per 100 cft, for instance, a six-wheeler vehicle may transport up to 200 cft of wet sand.

West Bengal District Mineral Foundation Rules, 2016: In each district of the state where a mining lease has been granted or is in operation, the State Government shall establish a non-profit organisation known as the District Mineral Foundation (Name of the District) by notification under Subsection (l) of Section 98 and Subsection (4) of Section l5 of the Mines and Minerals (Development and, Regulation) Act, 1957. The Foundation's office will be in the office of the District Magistrate of the relevant District. Rule 5 outlines the Foundation's goals and functions, including, among other things, working for the areas affected by mining-related operations and working for the interests of those affected.

West Bengal Land Reforms Act, 1955: Section 4(2A) of the West Bengal Land Reforms Act, 1955, stipulates that a "raiyat" (landholder) is prohibited from mining sand or excavating earth or clay from their property for commercial uses, such as brick production, without first obtaining written consent from the State Government.

- **Sand Mining Policy, 2021:** In order to control the extraction, transportation, storage, and sale of sand, the West Bengal government issued the Sand Mining Policy, 2021. It places a strong emphasis on environmental preservation and rigorous oversight of these operations.
- **West Bengal Mineral Development and Trading Corporation (WBMDTCL):** In order to help prevent theft and guarantee that sand is sold at the correct price, the West Bengal Mineral Development and Trading Corporation (WBMDTCL), which oversees sand mining in West Bengal, has implemented a new system that uses login IDs and passwords to give lessees access to information about their sand mining.

In *Jagannath Hansda v. the State of West Bengal and Ors.*[23] the Hon. Calcutta High Court held that, a long-term mining lease must normally be granted upon application through an e-auction process. However, a short-term mining licence, or STML for short, may be granted under certain extraordinary circumstances, such as when a continuation stretch of a specified minimum area for mining is not available due to the hydro-geological conditions of the river.

CONCLUSION & RECOMMENDATIONS

Executives are the backbone of a healthy administration. If one cell is malignant, the entire system becomes malignant.[24] Hence, those who are responsible for these systemic violations, regardless of their position, soon to be identified and dealt with. Economic development shouldn't be permitted at the expense of ecology or by causing widespread environmental destruction and violations. For this reason, the following proposals may be made to reduce the negative effects of mining:

- Raising awareness of the negative effects of illegal sand mining
- Prohibition of extraction of sand by mechanical equipments
- Plugging the loop holes in the existing monitoring system and the use of satellite imagery to identify regions of illicit sand mining
- Empowering Panchayat and Municipality and other local bodies to decide whether mining operations to be are allowed in its areas and implement appropriate damage and restoration measures;
- Imposition of more severe penalties and hefty fine to be imposed accountable for any failures or non compliances with the government's periodic mandates or policies;
- Strict implementation of post-mining restoration plans must be finished immediately and without exception.

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