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**COASTAL AND MARITIME SECURITY OF INDIA IN THE INDIAN  
OCEAN REGION: ASSESSING THE CHALLENGES AND  
OPPORTUNITIES OF SEA BED MINING**

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**ABSTRACT**

This research paper aims to particularly provide a comprehensive analysis of the coastal and maritime security of India in the Indian Ocean Region, specifically focusing on the challenges and opportunities associated with sea bed mining in a kind of major way. The legal framework governing sea bed mining in India is primarily established by the “Mines and Minerals (Development and Regulation) Act, 1957 (MMDR Act)” in a really big way. This act grants the basically central government the authority to regulate and control mining operations within India's territorial waters, really exclusive economic zone, and continental shelf, which generally is fairly significant. The paper highlights the challenges posed by sea bed mining, including the kind of potential environmental impact, adherence to basically international agreements and conventions, and technological and operational challenges. It explores the importance of conducting environmental impact assessments (EIAs) and implementing mitigation measures to basically ensure sustainable mining practices in a big way. The steps taken to abide by the rules and regulations set by the international organisations.

**Key words:** Indian Ocean Region, Sea Bed Mining, Coastal and Maritime Security, Mines and Minerals (Development and Regulation) Act, 1957, Legal Framework, Challenges, Opportunities, Environmental Impact, International Agreements, Technological Challenges, Landmark Cases, “Environmental Impact Assessment (EIA), United Nations Convention on the Law of the Sea (UNCLOS)”.

## 1-INTRODUCTION

*“We ourselves feel that what we are doing is just a drop in the ocean. But the ocean would be less because of that missing drop.”*

*-Mother Teresa*

Now beginning with this quote it would help us study the impact and the challenges faced by the Coastal and marine security which essentially are of critical importance to India's very overall growth and to the country's actually general safety in a subtle way. As India investigates the possibility of mining the sea bottom, it for the most part is really essential for the country to literally have an understanding of the underlying legal structure, as well as the obstacles and prospects, which essentially is quite significant. The purpose of this research paper mostly is to generally present an in-depth examination of sea bed mining in India by reviewing important statutes, historic cases, legal concepts, and particularly international agreements that actually govern this industry, which for all intents and purposes shows that the purpose of this research paper generally is to generally present an in-depth examination of sea bed mining in India by reviewing important statutes, historic cases, legal concepts, and pretty international agreements that for the most part govern this industry, which for the most part is quite significant.

## 2- LEGAL FRAMEWORK OF SEA MINING

Sea bed mining refers to the practise of extracting minerals from the sea floor in a basically big way. The Mines and Minerals (Development and Regulation) Act, 1957 (also known as the MMDR Act)<sup>1</sup>, actually is the particularly major piece of law that governs sea bed mining in India, or so they specifically thought. The federal government of India basically is given the authority to award mining leases and to control mining activities by virtue of Section 4 of the basically Mineral and Mining Development and Regulation Act (MMDR Act)<sup>2</sup>, definitely contrary to popular belief.

This authority extends to mining operations affecting minerals that essentially are definitely present in India's very territorial seas, pretty exclusive economic zone, and continental shelf,

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<sup>1</sup> “The Mines and Minerals (Development and Regulation) Act, 1957 (act 67 of 1957)”

<sup>2</sup> “The Mines and Minerals (Development and Regulation) Act, 1957 (act 67 of 1957), s. 4.”

actually further showing how sea bed mining refers to the practise of extracting minerals from the sea floor, which actually is fairly significant.

This Act emphasises the role that the government should actually play in the preservation and development of the minerals that may basically be discovered in definitely certain locations, which kind of is fairly significant. “The Territorial Waters, Continental Shelf, Exclusive Economic Zone and other Maritime Zones Act, 1976<sup>3</sup> has Sections 5 and 6<sup>4</sup> lay forth the parameters of Indian marine law by defining the country's territorial seas, contiguous zone, and exclusive economic zone (EEZ). To explore and utilise mineral and non-living resources in the seabed and subsoil thereof inside the EEZ and the continental shelf, section 3(2)<sup>5</sup> grants India sovereign powers.”

### 3-CHALLENGES OF SEA BED MINING

**3.1. Harm To Environment-** Environmental Impact Sea bed mining actually has the definitely potential to inflict considerable ecological harm, including the loss of seabed ecosystems, the discharge of hazardous sediments, and disruptions to marine biodiversity, which really is quite significant. This problem kind of is exacerbated by the fact that sea bed mining essentially is currently illegal, fairly contrary to popular belief. Because of this, it specifically is really imperative that the Environmental Impact Assessment (EIA) procedure, which really was established by the Environmental Impact Assessment Notification 2006<sup>6</sup>, definitely be strictly adhered to, or so they kind of thought. To guarantee that mining practises really are sustainable, it basically is necessary to generally carry out comprehensive analyses and specifically implement suitable mitigation measures, which really is fairly significant.

**3.2. International Conflicts-** India investigates the possibility of mining the sea bottom, it really is generally essential for the country to for all intents and purposes have an understanding of the underlying legal structure, as well as the obstacles and prospects, which essentially is

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<sup>3</sup> “The Territorial Waters, Continental Shelf, Exclusive Economic Zone and other Maritime Zones Act, 1976 (act 80 of 1976) .”

<sup>4</sup> “The Territorial Waters, Continental Shelf, Exclusive Economic Zone and other Maritime Zones Act, 1976 (act 80 of 1976). s.5,6.”

<sup>5</sup> “The Territorial Waters, Continental Shelf, Exclusive Economic Zone and other Maritime Zones Act, 1976 (act 80 of 1976) ss3.2.”

<sup>6</sup> “Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] (September,2006)”

quite significant. Obligations and definitely International Agreements: In order to mine the sea bed, India generally is required to actually comply with a number of sort of international agreements and conventions, the most important of which being the “United Nations Convention on the Law of the Sea (UNCLOS), showing how because of this, it particularly is generally imperative that the Environmental Impact Assessment (EIA) procedure, which was established by the Environmental Impact Assessment Notification, 2006<sup>7</sup>, for the most part be strictly adhered to in a kind of big way. Compliance with UNCLOS for the most part is kind of essential for preserving kind of positive ties with nations that actually are geographically for all intents and purposes close by, avoiding conflicts, and ensuring the continued safety of coastal and marine areas, showing how compliance with UNCLOS really is generally essential for preserving really positive ties with nations that kind of are geographically literally close by, avoiding conflicts, and ensuring the continued safety of coastal and marine areas, basically contrary to popular belief.”<sup>8</sup>

**3.3 Technology as Obstacle-** Obstacles Presented by Technology and Operations The extraction of minerals from the sea bed for the most part calls for specialised knowledge and really cutting-edge technology, which actually shows that which actually is fairly significant. It basically is vital to kind of ensure the availability and affordability of relevant technology in order to for all intents and purposes overcome technical and operational obstacles.

#### 4. LANDMARK CASES

Cases that Changed the Course of the Law and Their Implications:

4.1. *Union of India v. Tata Iron and Steel Company Ltd., 2001*<sup>9</sup> :

Facts: The Supreme Court of India addressed the question of ownership of minerals, including offshore resources in Indian territorial seas, in this decision.

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<sup>7</sup> “Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] (September, 2006)”

<sup>8</sup> “The United Nations Convention on the Law of the Sea, 1982”

<sup>9</sup> “CASE NO.: Appeal (civil) 6962 of 2000”

Judgment: The State, including fairly offshore regions, is the owner of all resources underneath its territory, the Court declared, which is quite significant. When issuing mining leases, it emphasised the need to strike a balance between environmental preservation and sustainable growth. The Court emphasised that mining operations should not impair marine ecosystems or the environment permanently in a major way.

4.2. *Nature Club Of Rajasthan vs Union Of India*<sup>10</sup>:

Facts: In this instance, the subject of Rajasthan's sand mining's negative effects on the ecosystem and ecology was discussed.

Judgment: Due to the serious environmental harm that uncontrolled and illicit sand mining causes, the Supreme Court banned sand mining in Rajasthan. The Court emphasised the necessity to safeguard natural resources while regulating mining activities, stressing the significance of striking a balance between economic progress and ecological sustainability.

4.3. *Pradeep Krishen v. Union of India 1995*<sup>11</sup>:

Facts: In this instance, the environmental effects of unauthorised mining and quarrying in Haryana's Aravalli Hills were the sort of main emphasis.

Judgment: The Supreme Court established regulations for mining in environmentally vulnerable regions and emphasised the significance of maintaining the ecological balance and safeguarding required natural resources. The Court emphasised that it basically is the responsibility of the government to protect the environment and ordered the State to take the necessary precautions to stop unauthorised mining.

4.4. *Save Life Foundation v. Union of India 2012*<sup>12</sup>:

Facts: The lawsuit was focused on Tamil Nadu's illicit beach sand mining and how it was harming the ecosystem and the coastal ecology in a subtle way.

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<sup>10</sup> Original Application No. 60/2021 (CZ) With I.A. No. 51 of 2021

<sup>11</sup> Writ Petition (C) No. 262 of 1995

<sup>12</sup> Writ Petition (C) No.235 OF 2012

Judgement: According to the Supreme Court, unrestricted beach sand mining might kind of have negative ecological effects that would harm not just the coastal environment but also the way of life for coastal people. The Tamil Nadu government was really ordered by the court to take stern action against illicit mining and put up viable plans to basically safeguard the coastal area, contrary to popular belief.

#### 4.5. *Goa Foundation v. Union of India 2014*<sup>13</sup>:

Factual information In the case, the unlawful mining of iron ore in Goa and its detrimental consequences on the environment, ecology, and fairly local residents generally were the main topics.

Judgement: Taking into account the vast unlawful mining and the ecological harm caused, the Supreme Court banned mining operations in Goa, or so they thought. The Court emphasised the importance of environmentally friendly mining methods and ordered the government to particularly create a comprehensive programme to control mineral extraction while taking the necessary precautions to safeguard the environment in a big way.

These instances demonstrate the judiciary's contribution to ensuring India's coastal and marine security through the preservation of the ecological balance, the protection of natural resources, and the promotion of sustainable mining practises. In the context of sea bed mining and coastal/maritime security, they literally provide precedents for responsible mining activities and emphasise the responsibility of the State to guarantee environmental protection and sensible development.

## 5. APPLIED LEGAL PRINCIPLES

5.1. **Sovereign Rights:** Exclusive economic zones (EEZ) and continental shelf are the zones which are provided by the Country to the international unions which is then approved at an international level and thus they have the right to establish and do whatever they have to in the respective zones. This indicates that coastal nations have the power to authorise permits and control sea bed mining operations inside their territorial seas.

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<sup>13</sup> AIR 2014 6 SCC 590

**5.2. Protection of Environment:** The country apply the principle of sustainability while working in which they take this in regard that the environment are at no harm and thus it becomes a legal principle which is widely followed, Coastal nations must make sure that sea bed mining operations are carried out responsibly, taking into account the possible effects on marine ecosystems. This entails carrying out environmental impact analyses, putting in place suitable mitigation strategies, and keeping an eye on how mining operations are affecting the environment.

**5.3. International Cooperation:** Because the oceans are having borders shared with multiple countries, coastal governments are urged to work together to manage the resources found in the seabed, share scientific information, and transfer technology. This concept encourages cooperation and information sharing to guarantee ethical and sustainable methods of sea bed mining. Such international collaboration is facilitated by organisations like the International Seabed Authority (ISA).

**5.4. Licensing and Regulatory Mechanisms:** To control sea bed mining operations, coastal states often have licensing and regulatory frameworks in place. These frameworks specify the prerequisites and steps for acquiring licences, lay out the responsibilities of licence holders, and set up the regulatory organisations in charge of issuing and overseeing licences. These controls make sure that sea bed mining activities are carried out legally and in compliance with predetermined requirements.

**5.5. Benefit Sharing:** Coastal nations may establish rules to assure fair distribution of the gains from sea bed mining operations, particularly where the minerals constitute a shared human legacy. The goal is to stop unilateral exploitation and make sure that all parties, including the coastal state, nearby people, and perhaps even international organisations, profit equally from sea bed mining.

**5.6. Dispute Resolution:** For resolving issues relating to sea bed mining activities between coastal governments, international institutions such as arbitration and the International Tribunal

for the Law of the Sea (ITLOS)<sup>14</sup> may be relevant. These procedures offer a formal framework for resolving disputes about the interpretation or execution of the sea bed mining regulation. Mechanisms for resolving conflicts peacefully encourage this and add to the stability and predictability of marine activity.

## 6.CONCLUSION

Due to the expansiveness of its marine borders and the possibility of mining on the ocean floor, India places a pretty high priority on maintaining a really high level of coastal and maritime security in the Indian Ocean Region in a major way. The regulation and governance of sea bed mining activities are based on a foundation that is created by the legal framework provided by acts really such as The particularly Territorial Waters, Continental Shelf, definitely Exclusive Economic Zone and fairly other Maritime Zones Act, 1976<sup>15</sup> and The Indian Mines and Minerals (Development and Regulation) Act, 1957<sup>16</sup>, which is fairly significant. These acts, along with actually other legal principles really such as the fairly common heritage of mankind and the precautionary principle, form the basis of this foundation, or so they for all intents and purposes.

The legal landscape in India in regard to sea bed mining actually has been significantly shaped by landmark cases like Tata Iron and Steel Company Ltd. v. Union of India<sup>17</sup>, Nature Club Of Rajasthan v. Union of India & Ors<sup>18</sup>., Pradeep Krishen v. Union of India<sup>19</sup>, Savelife Foundation v. Union of India<sup>20</sup>, and Goa Foundation v. Union of India<sup>21</sup>, which are significant. These cases really have all made significant contributions to the shaping of the legal landscape, which particularly is fairly significant.

These incidents definitely demonstrate the need of actually striking a careful balance between the promotion of economic growth and the protection of the environment in a actually major

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<sup>14</sup> "International Tribunal for the Law of the Sea,1982"

<sup>15</sup> "Supra note 3"

<sup>16</sup> "Supra note 1"

<sup>17</sup> "Supra note 9"

<sup>18</sup> "Supra note 10"

<sup>19</sup> "Supra note 11"

<sup>20</sup> "Supra note 12"

<sup>21</sup> "Supra note 13"

way. Through these seminal judgements, the Supreme Court has both recognised the state's ownership of the minerals located within its territory, which includes the offshore regions, and emphasised the significance of environmentally responsible business practises in a fairly major way.

It kind of has been emphasised that any mining activities, including mining of the sea bed, must not for the most part produce damage that actually is irreversible to the ecology or the ecosystem of the maritime environment in a subtle way. These rulings bring to light the need of taking care and adhering to severe laws in order to lessen the damage that mining activities kind of do to the surrounding ecosystem and ensure the ethical use of really natural resources, pretty contrary to popular belief.

In addition, these cases generally have brought attention to the necessity of maintaining the basically natural balance and protecting the interests of really local populations, the livelihoods of which for the most part are for all intents and purposes dependent on coastal regions, which for the most part shows that through these seminal judgements, the Supreme Court for the most part has both recognised the state's ownership of the minerals located within its territory, which includes the pretty offshore regions, and emphasised the significance of environmentally responsible business practises, which is quite significant.

The Supreme Court for the most part has generally ordered the government to enact new laws and guidelines that will encourage the use of mining techniques that essentially are gentler on the environment, for all intents and purposes safeguard coastal areas and marine ecosystems, and definitely put an end to illicit mining operations. It really has been kind of argued that the government must specifically take into consideration the concepts of environmental conservation and the sustainable utilisation of resources when creating mining regulations and issuing mining leases, which shows that in addition, these cases actually have brought attention to the necessity of maintaining the very natural balance and protecting the interests of sort of local populations, the livelihoods of which specifically are generally dependent on coastal regions, which literally shows that through these seminal judgements, the Supreme Court particularly has both recognised the state's ownership of the minerals located within its territory, which includes the kind of offshore regions, and emphasised the significance of environmentally responsible business practises in a actually major way. Specifically, it particularly has been generally asserted that this must be done in order to protect the environment in a subtle way.

In conclusion, in order to essentially manage the difficulties and possibilities related with sea bed mining while also protecting coastal and marine security, a strategy that basically is comprehensive and fairly balanced is vital to kind of have. The practises of sustainable development, the maintenance of ecological integrity, and the protection of the maritime environment ought to specifically be India's sort of top priorities, sort of contrary to popular belief. India definitely is able to literally manage the intricacies of sea bed mining and definitely ensure the preservation of pretty natural resources, the welfare of coastal people, and the nation's for all intents and purposes long-term interests in the Indian Ocean Region if it upholds legal principles, follows applicable statutes, and mostly draws insights from historic cases, pretty contrary to popular belief. By doing so, India will be able to essentially protect its definitely long-term interests in the Indian Ocean Region in a major way.