



## Manufactured Sand

**For Prelims:** Coal India Limited (CIL), Manufactured Sand, Opencast Coal Mining, Minor mineral, The Mines and Minerals (Development and Regulations) Act 1957, Sustainable Sand Mining Management Guidelines 2016, Luni River, Kosi River.

**For Mains:** Benefits of Manufactured Sand (M-Sand), Issues Related to Sand Mining in India, Regulation of Mining Activities in India.

### Why in News?

[Coal India Limited \(CIL\)](#) is making headlines for its innovative solution to the sand shortage problem. The company is using **crushed rock fines (crusher dust)**, **sand from Overburden (OB) of coal mines and soil removed during opencast coal mining**, to produce **Manufactured Sand (M-Sand)**.

- This not only **repurposes waste materials** but also **reduces the need for natural sand mining** and creates an additional revenue stream for the company.

### What are the Benefits of Manufactured Sand (M-Sand)?

- **Cost-effectiveness:** Using manufactured sand can be **more cost-effective than using natural sand**, as it can be produced in large quantities at a lower cost.
- **Consistency:** Manufactured sand can have a **consistent grain size and shape**, which can be beneficial for construction projects that require a specific type of sand.
- **Environmental Benefits:** Using manufactured sand can help to **reduce the need for mining natural sand**, which can have negative environmental impacts.
  - Additionally, using the overburden from coal mines can help to repurpose materials that would otherwise be considered waste.
- **Reduced Water Consumption:** Using manufactured sand can help to reduce the amount of water required for construction projects, as it does not require washing before use.
- **Other Benefits:** Apart from commercial use, sand produced shall also be consumed for **sand stowing in Underground Mines enhancing safety & conservation**.
  - **Also, lesser Sand extraction from rivers** will reduce erosion of channel bed & banks and protect water habitat.

### What is the Status of Sand Mining in India?

- **About:**
  - **Sand** is classified as a “**minor mineral**”, under The [Mines and Minerals \(Development and Regulations\) Act, 1957 \(MMDR Act\)](#) and administrative control over minor minerals vests with the State Governments.
  - **Rivers and coastal areas** are the main sources of sand, and the demand for it has increased significantly in recent years due to the construction and infrastructure development boom in the country.
  - The **Ministry of Environment, Forests, and Climate Change (MoEFCC)** has issued

"[Sustainable Sand Mining Management Guidelines 2016](#)" to promote **scientific sand mining** and environmentally friendly management practices.

▪ **Issues Related to Sand Mining in India:**

- **Environmental Degradation:** Sand mining can lead to the destruction of habitats and ecosystems, as well as erosion of **river banks and coastal areas**.
- **Water Scarcity:** Sand mining can **deplete the water table** and reduce the availability of water for **drinking and irrigation**.
  - For example, in the state of Rajasthan, sand mining has led to a **decline in the water level of the [Luni River](#)**, affecting the drinking water supply of nearby villages.
- **Floods:** Excessive sand mining can cause the **riverbeds to become shallow**, which can increase the risk of floods.
  - For example, in the state of Bihar, sand mining has led to increased **flooding in the [Kosi River](#)**, causing damage to crops and property.
- **Corruption:** Sand mining is a highly profitable activity, and there have been instances of **corruption and bribery** in the allocation of mining leases and the enforcement of regulations.

## Way Forward

- **Sustainable Mining Practices:** Sand mining can be carried out in an environmentally sustainable manner by using **scientific methods and equipment that minimise damage to the environment**.
  - This could include the **use of dredging and mining techniques** that do not disturb the riverbeds, or the use of manufactured sand as an alternative to river sand.
- **Strict Regulation and Enforcement:** The government can regulate sand mining through legislation and **enforce strict penalties for illegal mining**.
  - This can also include the formation of a **regulatory body that monitors the mining activities** and ensures compliance with the laws and regulations.
- **Community Participation:** Local communities can be involved in the **decision-making process related to sand mining**, which can help to address their concerns and ensure that their livelihoods are not adversely affected.
- **Innovative Solutions:** The government can explore innovative solutions to address the issues related to sand mining.
  - For example, the **use of [drones](#) and [satellite imagery](#)** can be used to monitor mining activities, to detect and stop illegal mining.

## UPSC Civil Services Examination Previous Year Question (PYQ)

### Prelims

Q. Consider the following minerals: (2020)

1. Bentonite
2. Chromite
3. Kyanite
4. Sillimanite

In India, which of the above is/are officially designated as major minerals?

- (a) 1 and 2 only
- (b) 4 only
- (c) 1 and 3 only
- (d) 2, 3 and 4 only

Ans: (d)

### Mains

**Q.** Coastal sand mining, whether legal or illegal, poses one of the biggest threats to our environment. Analyse the impact of sand mining along the Indian coasts, citing specific examples. **(2019)**

**Source: PIB**

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