



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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