

Manufactured Sand (M-Sand)

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In news

Recently, the High Court of Karnataka has struck down the fee rule on M-sand and other materials

What is M-Sand?

- M-Sand is artificial sand produced from crushing hard stones into small sand sized angular shaped particles, washed and finely graded to be used as construction aggregate.
- It is a superior alternative to River Sand for construction purposes.
- Manufactured Sand (M-sand) is the most common alternate of river sand, which has already gained prominence in some of the southern States. It is produced by crushing of rocks, quarry stones to a stipulate size of 150 microns.
- To arrive at the required grain size, existing coarser hard rock deposits are crushed in a series of crushers and the crushed material is segregated in different fractions as suited to various construction activities.
- The sand obtained through this process is further refined by removing fine particles and impurities through sieving and washing.
- The bulk density and specific gravity of both are comparable as well as the chemical characteristics and strength of M-sand are similar to that of river sand as per IS-383. M-sand has a silt content of around 0.2% and water absorption of 1.6%, as compared to 0.45% and 1.15% respectively, in river sand

Difference between River Sand and M-Sand

Parameters	M-Sand	River Sand
Process	Manufactured in a Factory	Naturally available on river banks
Moisture content	Moisture is available only in water washed M sand	Moisture is trapped in between particles which are good for concrete purposes
Concrete strength	Higher Concrete strength compared to river sand. M-sand concrete has a marginally higher bond strength, and mortar made of M-sand shows higher compressive strength and modulus for masonry, over those of river sand.	lesser Concrete compared to M sand
Silt content	Zero silt	Minimum permissible silt content is 3%. It may have 5-20% silt content
Cement Consumption	M-Sand is free of impurities such as clay, dust and silt and has denser particle packing than natural sand particles thereby reducing the voids in aggregate and hence saves cement requirement in concrete production.	But it needs more cement

Current Status of M-sand in India

- Due to the deficit of natural sand supply, Karnataka has

- intensified the efforts for production of M-sand.
- The State has 164 M-sand manufacturing units and produces 20 million tonnes of Msand per annum.
 - Karnataka has separate section for M-sand in the State Minor Mineral Concession Rules and has widely promoted it resulting in wide-spread adoption of M-sand in the State.
 - Apart from Karnataka, the other States working in the direction to promote M-sand are Andhra Pradesh, Gujarat, Tamil Nadu and Telangana.
 - Andhra Pradesh and Telangana also have separate policy for M-sand.
 - Andhra Pradesh and Telangana offer multiple incentives through their G.O.s for setting up M-sand production units.
 - The total M-sand production in Karnataka, Telangana, Tamil Nadu, Andhra Pradesh and Gujarat is 20 MMT, 7.2 MMT, 3.24 MMT, <1 MMT and <1 MMT respectively.

Separate M-sand policy

- A few States have separate policies to promote M-sand such as Andhra Pradesh, Telangana and Karnataka.
- Andhra Pradesh and Telangana have granted industry status to M-sand producing units in their State. Karnataka has reserved few blocks for M-sand plants only as end user category.
- Tamil Nadu's M-sand policy is under formulation.
- Recently, Gujarat has also reduced royalty for M-sand units to promote production of M-sand.