

# Regulatory aspect related to use of Stone slurry and M sand



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# Journey of Environmental legislations in India

- ◎ **Water (Prevention & Control of Pollution) Act, 1974:** A comprehensive legislation to maintain and restore the 'wholesomeness' of water.
- ◎ **Air (Prevention & Control of Pollution) Act, 1981:** Enforced for the prevention, control, and abatement of Air Pollution.
- ◎ **The Environment (Protection) Act, 1986:** Umbrella Act. Main objective to provide the protection and improvement of environment and for matters connected therewith.
  - Mostly relevant to waste management
  - Subsequently in 1989 Hazardous waste (management & handling) rules were laid down.
- The last decade has seen enactment of various waste management rules such as;
  - Solid Waste Management Rules, 2016
  - Construction & Demolition Waste Management Rules, 2016.
  - Plastic Waste Management Rules, 2016
  - Bio-medical Waste Management Rules 2016,
  - E-waste Management Rules, 2016

# STONE SLURRY WASTE

## Background : Stone Slurry Waste

- State has more than 95% of marble processors. Kota and Jhalawar areas have approximately 2000 Kota stone cutting units.
- Total number of marble, Granite, Kota stone, Sand stone processing unit are 8,010 mainly located in cluster areas i.e. Kishangarh (Ajmer), Makrana (Nagaur), Nathdwara, Rajsamand, Kota, Jodhpur, Jalore, Bayana (Bharatpur), Udaipur, and Abu Road (Sirohi).
- Total Marble slurry generation in the State is approx 37 Lacs MT/Year.
- cutting of Kota Stone leads to generation of cutting waste and slurry, disposed off at 9 identified dumping areas, 3 in Kota, 3 in Ramganj Mandi and 3 in Jhalawar.

# Gainful Utilization of Kota Stone Slurry Waste

- RSPCB funded a study to develop technology for safe disposal of slurry to Central Building Research Institute (CBRI) Roorkee.
- The CBRI has developed a technology to produce value added products such as paver blocks, flooring tiles and light weight concrete blocks by studying the engineering properties of Kota stone waste.
- The products are manufactured using stone cutting waste (after sizing) as grit, dried slurry as sand and cement as binder along with some chemicals as raw materials.
- The State Board and CBRI Roorkee have entered into an agreement for technology transfer to State Board .
- The Board has transferred the technology to organizations i.e. Pashan Welfare Foundation, Kota and Burhani Flooring Chambers, Jhalawar 02.02.2021.
- M/s Pashan welfare Foundation, Kota has manufactured 9190 MT interlocks/ tiles/bricks from June, 2018 -2020.
- We welcome proposals from entrepreneurs wishing to set up such units. We also have a start up policy to part fund such projects.

# Gainful Utilization of Marble Slurry Waste

- As per data with the Board, out of total 37 Lac/MT per year generation of slurry,
  - 22.80 Lacs MT/Year (60%) are disposing in dumping yards,
  - 12.53 Lacs MT/Year (34%) utilizing in land filling/Levelling in low lying area,
  - 66,300 MT/Year (1.8%) utilizing Bricks/Tiles manufacturing and 9300 MT/year is mixing in other minerals and grinding.
- Various stages/options of utilization of stone slurry are as below:-
  - In cement manufacturing.
  - Production of synthetic gypsum through chemical reaction with marble slurry.
  - Utilization of Marble slurry dust (MSD) in road construction.
  - As a Low Cost Binder.
  - In brick manufacturing.
  - In mineral grinding plants.

**M-SAND**

# Objectives of M Sand

- ④ Meet deficit in demand & supply scenario of sand
- ④ Prevent damage to Eco System by rationalizing use of river sand
- ④ Reclamation of large land area by use of overburden & waste dump
- ④ M-sand plants can also use C & D Waste as raw material. This will not only encourage gainful utilization of C & D waste but will also increase viability of such plants.



# A typical M-sand plant



# Legal Provision for seeking Consent:

SECTION	PROVISIONS	
21	No person shall, without the previous consent of the State Board, establish or operate any industrial plant in an air pollution control area	
CONSENT TO ESTABLISH(CTE)	Before taking any step to establish Physical activity on ground	Four months before
CONSENT TO OPERATE	Before making any discharge	Four months before commissioning

# Prevailing Categorization by RSPCB:

Sector	Category
<ul style="list-style-type: none"><li>• Cutting, sizing and polishing of marble, granite, kota stone and other stones (Except edge cutting &amp; Chowkhat making)</li><li>• Mineral Grinding</li><li>• Stone Crushers</li></ul>	Orange
M Sand	Categorization under consideration into Orange category

# Documents for Consent to Establish (CTE)

- ④ Authority letter/Board Resolution/Power of attorney in favour of authorized signatory.
- ④ Affidavit in prescribed format.
- ④ Feasibility Report on pollution control measures (as generic structure)
- ④ Copy of land ownership/land allotment/land conversion order/conveyance documents for project for intended land use/Mining Lease as the case may be
- ④ Copy of the receipt of application submitted to Central Ground Water Authority for abstraction of ground water/to Appropriate Authority for supply of requisite quantity of water/Affidavit to effect that ground water will not be extracted.
- ④ Aadhar Udyog/DIC Registration.
- ④ Copy of duly signed project report, certified by Chartered Accountant/financial institutions \*\*
- ④ List of Name and addresses of all directors/partners.
- ④ Application submitted for obtaining Environmental Clearance (For the projects covered under EIA Notification, 2006/ Aravalli Notification, 1992)

# Documents for Consent to Operate (CTO)

- ⦿ Authority letter/Board Resolution/Power of attorney in favour of authorized signatory.
- ⦿ Affidavit in prescribed format.
- ⦿ Certificate of capital investment in the project (without depreciation) as on date of application/end of financial year, in the format, in original certified by the Chartered Accountant.
- ⦿ Point wise evidence based compliance report of previously granted CTE.
- ⦿ Copy of valid insurance policy under Public Liability Insurance Act (wherever applicable).
- ⦿ List of name and addresses of all directors/partners.
- ⦿ Environmental Clearance (For the projects covered under EIA Notification, 2006/ Aravalli Notification, 1992)

# Pollution Control Measures

- M Sand with Vertical Shaft Impactor (VSI) and vibratory screen shall be provided with adequate dust suction and collection arrangement with closed storage for stone dust collection.
  - Dust Containment System
  - Dust Suppression System
  - Construction of compound wall
  - Green Belt

# Other general points for compliance:

- ⦿ Periodical cleaning of water spray nozzles should be carried out to avoid choking.
- ⦿ Fine dust accumulated in the unit should be periodically cleaned and the dumps should be covered with tarpaulins to arrest erosion by wind
- ⦿ The drop height of the processed material should be kept at a minimum during loading and unloading.
- ⦿ Conveyor chutes should be provided at the discharge points
- ⦿ Approach roads should be laid with tar and concrete and regular spraying of water.
- ⦿ As an occupational safety, all workers should be provided with personal protective equipments.

# Use of water and Treatment of Wastewater

- Presence of clay and silt retards the setting of the cement and makes the mortar weaker and the walls or the slab leaks and holds dampness.
- Accordingly, many a times the m-sand may be required to be washed to remove silt/clay particles.
- In such a case, the wash water needs to be collected, treated and again reused in the process.
- Such wastewater can be easily treated by plain settling or may also employ physico-chemical process to treat the water.



**THANKS**