



C&D WASTE MANAGEMENT

- **Points under discussion**

1) C&D waste management Regulation -2016

C&D waste management is regulated by SWM-2016

Its objective is to Recycle, Reuse or Refill.

Swachh Bharat Mission (under MOUD) envisages processing of 100% solid waste Generated in cities.

“Construction” means – Process of Erecting of building or built facilities or Structure.

“de-construction” means – Planned selective demolition.

“Demolition” means – breaking down or tearing down building.

Activities which generates C&D waste in cities

By demolition of existing buildings

- Renovation of existing buildings/premises.
- Construction of New buildings.
- Excavation/reconstruction.
- All services.
- Collection/disposal system (MSW).

2) Objectives scope and of regulation

“To prepare operational guidelines related to Environment management of construction & Demolition (C&D) waste management.

CPCB (Central Pollution Control Board) has therefore prepared guidelines.

- a) To promote an integrated approach, where by environmental management of C&D is given due consideration throughout the duration of the project.
- b) Approach towards reduction of environmental impacts.

The guidelines recommended, mitigation measures in operation of C&D dumping sites waste processing plants facilities.

The guidelines are generally applicable for C&D waste generated 20 Tonnes daily or 300 Tonnes in project.

As regards, Mumbai its area is 4355 sq.km. population 1,2,442,373, wards 24/ zones 6 MCGM is ULB-2500MT C&D waste generated.

3) Main constituents of C & D

Waste – i) Concrete/ aggregates/sand/gravel - 28%

ii) Soil/Rocks- 36%

iii) Steel, wood, plastic- 04%

iv) Brick/Mortar- 32%

Here, when building is being demolished, Developer grants the contract to Demolition/Transport contractor & contractor pays money for the salvage. The contract is generally for Demolition and Transportation of debris generated out of breaking of old buildings each & every material like, Bricks/windows/doors/steel/floor tiles are recycled/reused.

- However, it is seen that pieces of concrete are dumped are not recycled to any processing unit or used by manufacturer Paver Blocks unit
- 50-60 kg per Sq. Mt. demolition waste is generated for new and repairs of building.
- 300 – 500 Kgs. For demolition of building.
- out of that 70% is estimated to be reused/recycled by the contractor
- In case of excavation Earth for new construction -if soil is Murum then it is reused for Good Price and if soil is ordinary then it goes to any of the designated dumping sites like Outside Mumbai Jnpt, Ulwe, Uran, New Mumbai SEZ.
- As of now MCGM has opened 12 Nos of dumping sites where 12 lakh bras dumping of C&D waste.

Last year, MCGM has given 1700 NOC'S with 9 lakh Brass C & D waste.

In Mumbai-There are 5 sites designated by MCGM. Kanjur(60.90Hec), Deonar(120Hec), Mulund 64.0 Hec. Now closed, (Airoli 32.77 Hec, Karavale at Ambernath 52 Hec) Both in dispute & not operational.

In Mulund dumping Ground MCGM they have invited tender for processing C & D waste.

As on today total 11000 MSW is generated in MCGM limits & by 2020, 18000MT per day MSW will be generated.

All these dumping grounds has capacity to store / process 8000 MT MSW.

It's clearly stated is MSW 2010 Regulation that state government shall give required land / processing facilities to ULB'S and handover it to them. But that has not been observed seriously.

4) Provisions in Indian standard codes

IS-383 stipulates the reuse / recycle concrete (RCA) Indian standard course, fine aggregate for concrete.

SPECIFICATION (Third Revision)

| C & D waste BIS IS: 383 | Plain Concrete | Reinforced Concrete | Lean Concrete (< M15 grade) | Extent of Utilization |
|--|-----------------------|----------------------------|---------------------------------------|------------------------------|
| Recycled Concrete Aggregate (RCA) | 25% | 20% (only up to M25 grade) | 100% | as Coarse Aggregate |
| Recycled Aggregate (RA) | nil | nil | 100% | as Coarse Aggregate |
| Recycled Concrete Aggregate (RCA) | 25% | 20% (only up to M25 grade) | 100% | as Fine Aggregate |

NBC: -IS - 383

Recycled Coarse Aggregate may be used in concrete for bulk fills, embankment protection, base/fill of

- i. drainage structures, pavements, sidewalks, kerbs and gutters etc.
- ii. Up to 30 percent of natural crushed coarse aggregate can be replaced by the recycled concrete aggregate.
- iii. This percentage can be increased up to 50 percent for pavements and other areas which are under pure compression specific to the standards and practices pertaining to construction of roads.'

5) Recycling practices in other countries includes range of strategies.

Its mandatory to register a project with C and D Waste management dept.

And give quantitative analysis as to materials that can be reused, good for processing plants, back fill, transported to dumping sites Etc.

- a. Source separation -
- b. Drop off
- c. Commercial recycling
- d. Curb side programmes
- e. Landfills sites

6) Present scenario in Mumbai

In Mumbai particularly it is seen that there is no provision of dedicated dumping sites provided either by government / M.C.G.M. Hence, C&D generator who is generating C&D waste more than 20 Tonnes daily or 300 Tonnes in single project required to be searched for dumping sites.

There are no dumping sites available in MCGM Jurisdiction. Hence, it is a costly matter to dispose of the C&D waste particularly an excavated soil.

Further, there are no C & D processing plants made oil 30% excavated soil is required to be dumped elsewhere on unloading sites.

Mumbai is old city & It's getting re shaped by introduction of Smart city initiative. Building in Mumbai are old and getting dilapidated, Hence, requires redevelopment. It is estimated that every year 2000 Building proposals are submitted to MCGM for re development. If the old buildings get demolished it is estimated that 25 lakh Brass debris will be generated every Year.

7) What are the solutions: -

i) To allow all development and re development sites to be raised by raise at least 1 Mt. ground level from the existing Road level. As you all are aware of threat of Global Warming and probable rise of Sea level. It is estimated that 3 Mt. rise in sea level by end of the century if the average temperature rises to 2 degrees Celsius. Today we all know that average temperature has already risen to 1.2 degree Celsius from the year 1930 to 1916. In order to save from this grave situation and to protect our next generation we must act now. We cannot sit idle watching the disaster happen. Coastline of Mumbai can go under water for 1 Km. towards Landward side if we don't take measures to control the rise in average temperature globally by reducing Green emission and come up with alternative for petrol and diesel in near future.

ii) Wherever there is low lying or water logging area, MCGM shall come with filling of ground level at least by 2.0 – 3.0 Mt to resolve the issue. It will take 50 Years to complete this project.

iii) Fix the AMSL of all the plots including Road level and run this programme till we achieve the levels as per recommendations. We can start this programme with internal roads/big chunk of plots so that in the due course of time this can be achieved.

By Architect Dilip W. Deshmukh

iv) Very important point last not but the least we need to promote awareness programme to start at least 100 processing plants for C&D waste.

So that we can achieve reduction, Recycle, Reuse and Refill of C&D waste with 100% success rate.

Thank you

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