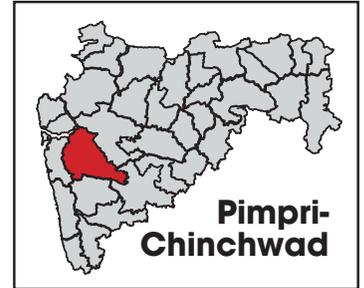


C&D WASTE MANAGEMENT SERIES

CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT

Pimpri-Chinchwad



| | |
|--|---------------------------------|
| Location | 150 km from Mumbai ¹ |
| Area (sq. km) | 181 ² |
| Number of wards | 32 ³ |
| Population (Census 2011) | 1.7 million ⁴ |
| Population (2021, estimated) | 2 million ⁵ |
| Population density | 11,050 per sq. km |
| C&D waste generated | 3,710 MT/year |
| C&D plant capacity | 200 TPD |
| Has the city notified bye-laws? | Yes |
| Number of vehicles for transportation of solid waste (including C&D waste) | 11 (RFID tagged vehicles) |
| Number of intermediate storage-collection points | 8 |

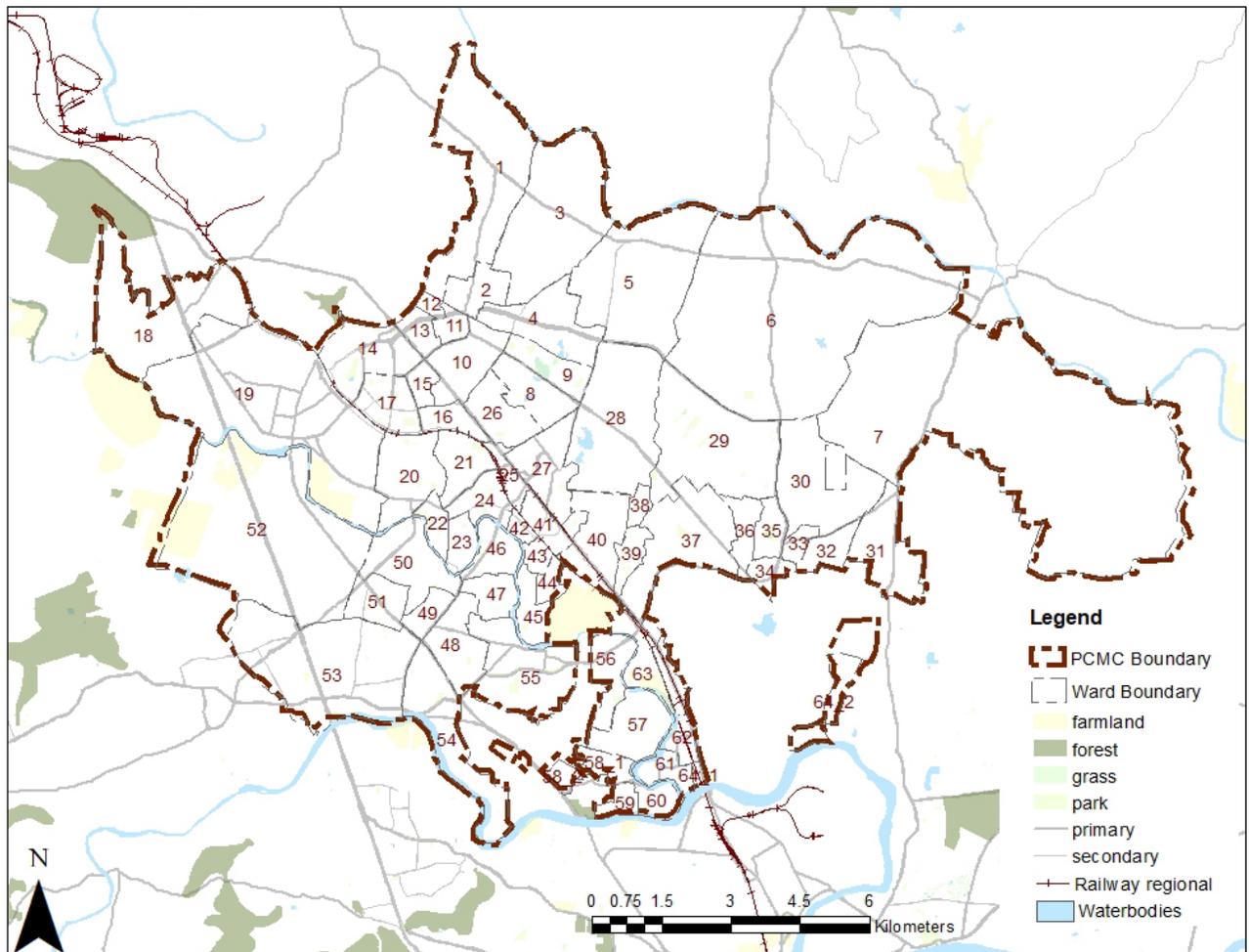
Source: Compiled from multiple sources



The city of Pimpri-Chinchwad, governed by the Pimpri-Chinchwad Municipal Corporation (PCMC), is located 15 km north-west from the Pune city centre. It is the fifth-most populous city in Maharashtra and has long been famous for being one of the most prominent industrial destinations in the state outside Mumbai. The municipality was established in 1982 and its boundaries have been expanding over time. Currently, PCMC governs an area of 181 km² with a population of 1.72 million^{6,7} (see *Map 1: PCMC and its ward boundaries*).

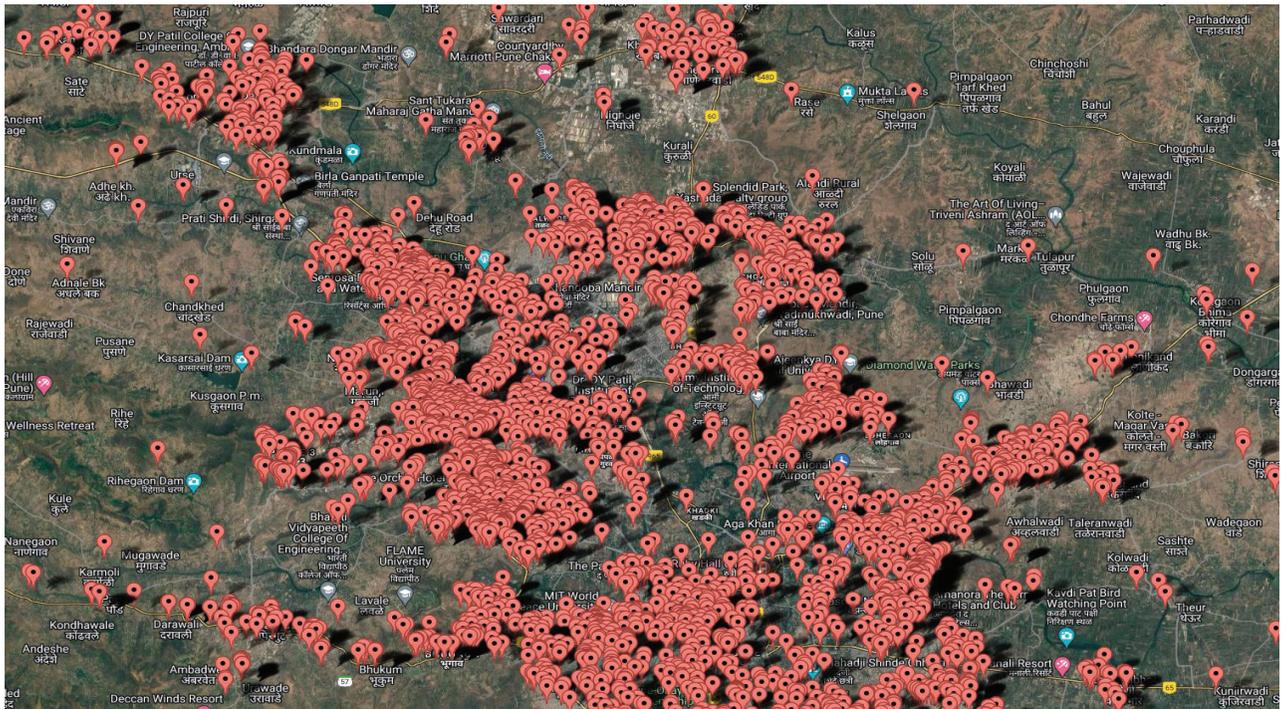
Since the formation of Maharashtra Industrial Development Corporation (MIDC) in 1962, which resulted in large-scale and continuous industrial land acquisition and consequently the demand for required support infrastructure, there has been a massive influx of several national and international automobile companies who continue to be keen on setting up manufacturing facilities and showrooms in Pimpri-Chinchwad and Pune. They form a continuous urban stretch and contain a thriving industrial belt that primarily consists of engineering and automobile industries. In

MAP 1: PCMC AND ITS WARD BOUNDARIES



Source: CSE

MAP 2: REGISTERED CONSTRUCTION PROJECTS IN PIMPRI-CHINCHWAD MUNICIPAL AREA



Source: <https://maharera1it.mahaonline.gov.in/GIS/default.aspx>

fact, PCMC and Pune, when viewed as a unified geographical unit, make up one of India's largest industrial areas.⁸

CONSTRUCTION ACTIVITY IN THE CITY

Pimpri-Chinchwad has been growing exponentially in recent years and industrializing rapidly. Since it is part of the larger industrial belt, there is a continuous influx of investments on urban development projects (recently software and IT industries as well, along with the existing automobile industry) contributing to the city's economic growth and ultimately a rise in the housing demand in the region (see *Map 2: Registered construction projects in Pimpri-Chinchwad Municipal Area*). As of December 2022, there were 9,746 registered projects (majority in Pune and Pimpri-Chinchwad⁹) in

Pune District, according to the Maharashtra RERA portal.¹⁰

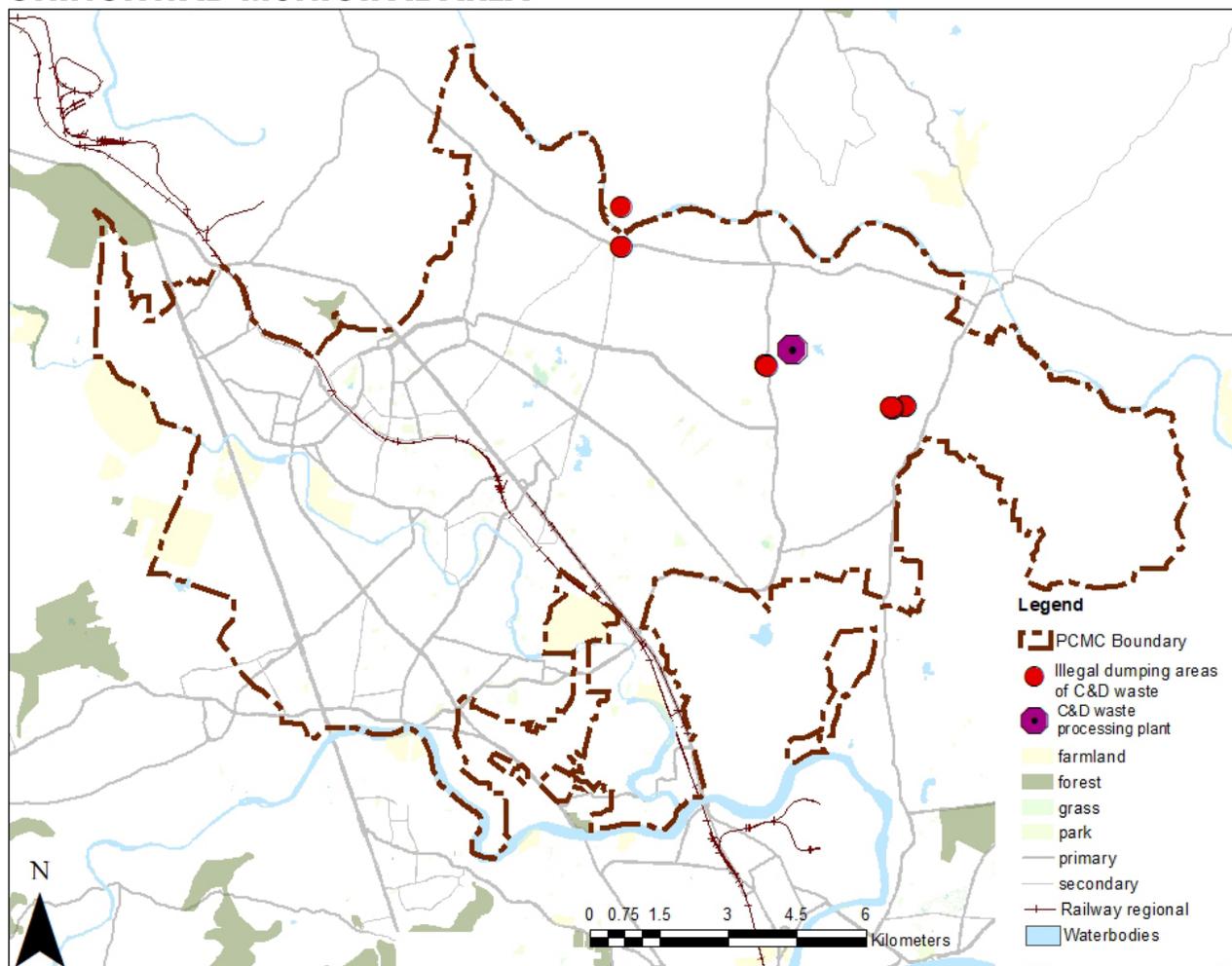
CSE's ground investigation has also revealed that even though there is a C&D waste recycling plant and notified collection points, illegal dumping is an issue in the city at large (see *Map 3: C&D plant and illegal dumping points observed in Pimpri-Chinchwad Municipal Area*). Majority of the waste is dumped on vacant plots in fringes of the city, near waterbodies and in artificial drains which leads to frequent flooding in the city as well.

CURRENT SCENARIO OF C&D WASTE MANAGEMENT

Bye-laws and mandates

PCMC has mandated all generators to submit the C&D Waste Management Plan along

MAP 3: C&D PLANT AND ILLEGAL DUMPING POINTS OBSERVED IN PIMPRI-CHINCHWAD MUNICIPAL AREA



Source: CSE

with the plan for approval of construction/demolition/renovation as per the order dated 20.11.2019. Bulk generators are required to register construction activities with the Building Permission and Unauthorised Construction Control Department at PCMC. They must contact the C&D waste recycling plant when 25 per cent of the proposed construction is complete and are advised to process 50 per cent of C&D waste generated on the site itself.

PCMC issued an order dated 02.12.2019 outlining details of the on-call waste pickup

system, regulations for bulk generators, monitoring systems, and C&D processing fees and penalties. It outlines the steps to be followed by the generators for payment of fees; issue of challans; procurement of other certificates such as NOC from Building Permission and Unauthorised Construction Control Department for permitting the work to continue; payment certificate from Solid Waste Management department; and completion certificate after receiving the report of the C&D waste transferred to the Waste Processing

Plant and the certificate of use of at least 20 per cent recycled construction materials from this process.

User charges and penalties

PCMC issued an order dated 22.02.2022, stipulating charges for lifting and processing of C&D waste and the details are as follows:

Fees

- The generator must pay PCMC an amount of Rs 15 per km per tonne for transferring C&D waste to the C&D waste processing centre and Rs 250 per tonne for processing the same.
- PCMC pays the C&D plant an amount of Rs 13.5 per km per tonne for transferring C&D waste to the C&D waste processing centre and Rs 245.75 per tonne for processing the same. The waste can be brought to the plant by the developer as well, thus avoiding the transportation fees.¹¹

Penalties

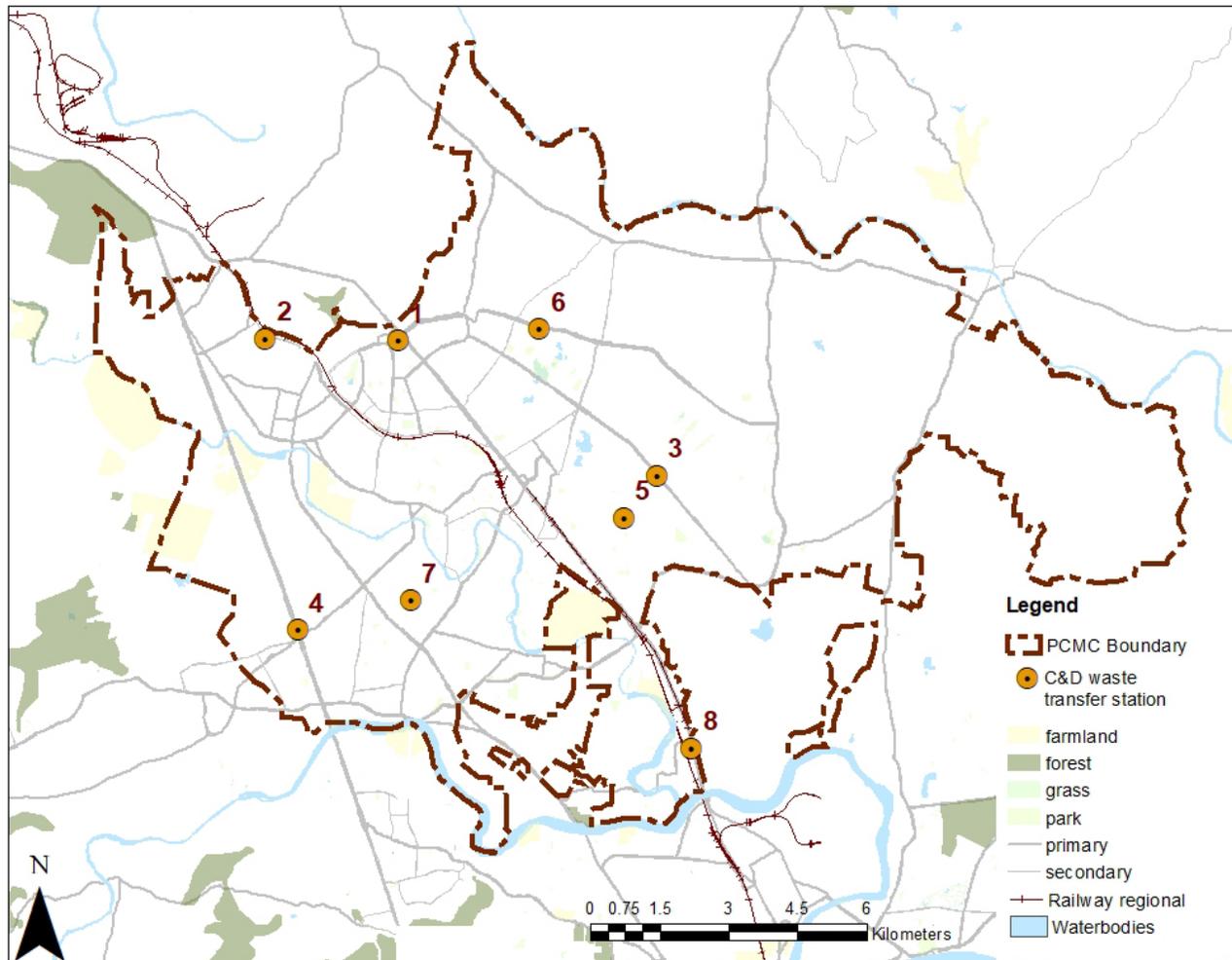
- A penalty up to 10 times the cost of C&D waste transport and processing fee can be charged against offenders by the Asst. Health officer if found to be illegally dumping C&D waste in or nearby natural water bodies like rivers, streams, streams, ponds, etc. or on roads, footpaths, and private/government open spaces in the city. There is also a provision to file a criminal case against the violators on behalf of the municipality.
- A penalty of 3 times the C&D waste processing fee could be fined for bulk generators who are not following the existing mandates.

Current system of collection, transportation and disposal of C&D waste

PCMC has different types of collection systems in place:

- **Call-based pickup:** Vehicle fleets are sent through different strategic routes each day which target multiple registered C&D sites to take waste to transfer stations. The process is the same for bulk generators and other requests for removal of C&D through the toll-free number.
- **Pickup from transfer stations:** Periodic pickups are carried out by the vehicle fleet from the designated transfer stations. PCMC has identified and allocated eight locations as transfer stations and is seeking more locations within the corporation for the same (see *Map 3: Designated C&D waste transfer stations*).
- C&D waste generated in municipal works is to be transported to the processing plant directly by the contractor or developer.
- **Pickup from illegal dumping points:** A flying squad for surveillance and monitoring of illegal C&D waste dumping has been created and is conducting patrols for the same. An online group was created for communication, management and supervision; it is overseen by assigned officers. Illegally dumped C&D waste is photographed and uploaded to the group via GPS mobile camera, along with detailed information about its quantity and location by the officers who are on patrol duty or in the monitoring squad. After getting an online approval, the assessment and validation of the same is done by the assigned officers followed by prioritization and listing for

MAP 4: DESIGNATED C&D WASTE TRANSFER STATIONS



Designated transfer stations are located near the following landmarks:

1. Nigdi police station
2. Mhaske Wasti, Ravet
3. Garbage collection centre, Gavli Matha
4. Vision mall, Wakad Highway
5. Charholi near the cemetery
6. Chowk in Spine road, near Yamuna nagar
7. Thairgaon, near cemetery
8. Dapodi, near railway station

Source: CSE

C&D WASTE MANAGEMENT—CURRENT STATUS IN PIMPRI-CHINDWAD

◆ Yes/exists ◆ In process



| Mandate | | |
|-----------------------------------|---------------------------------------|------------------------------------|
| Penalty order for illegal dumping | | |
| ◆ | Order to segregate C&D waste from MSW | ◆ |
| | | Notification of C&D waste bye-laws |



| Steps to curb illegal dumping | | |
|-------------------------------------|---|--|
| Recognize illegal C&D dumping sites | | |
| | Surveillance system for illegal dumping | ◆ |
| | | Third-party monitoring and enforcement |



| Collection system | | | | | | |
|-----------------------------------|---|---|-----------------------------|----------------------|----------------------------|---|
| Helpline for C&D waste management | Notification of dumping points for generators | Door-to-door C&D waste collection service | Vehicle fleet for C&D waste | Fleet is GPS enabled | Issuing demolition permits | Waste assessment with building permission |
| ◆ | ◆ | | ◆ | ◆ | ◆ | ◆ |



| User charges | | |
|---|--|-----------------------|
| Malba fee integrated with buildings permits | | |
| ◆ | Fee for collection, transportation and/or processing | ◆ |
| | | Online payment system |
| | | ◆ |



| Processing and disposal | | | | |
|---------------------------------|---|---|---|---|
| C&D waste ends up in a landfill | Detailed project report for C&D waste recycled plant prepared | Floating of tender for C&D waste recycled plant | C&D waste recycled plant under-construction | C&D waste recycled plant is operational |
| | | | | ◆ |



| Recycle and reuse | | | | |
|--|--|------------------------------------|--|---|
| Recycling plant only produces aggregates | Plant produces recycled products for building construction | Mandatory use of recycled products | Incentives for C&D waste recycled product usage (tax rebate, etc.) | Inclusion of recycled products in Schedule of Rates (SoR) |
| ◆ | ◆ | ◆ | ◆ | |



C&D waste recycling plant at Moshi



collection which is then carried out by the vehicle fleet from the C&D plant at Moshi.

RECYCLING FACILITY

PCMC has a C&D waste recycling plant at Moshi covering an area of 3,600 sqm. It uses both dry and wet processing technologies. Phase 1 (1,600 sqm) of this plant has been constructed and has a wet processing technology established since 2021. Phase 2 has also been proposed by PCMC. Dry processing at the plant started in 2020. Total installed capacity of the plant is 200 TPD (8-hour shifts) as of date. Collection of C&D waste, installation of weighbridges along with the necessary software for weight

calculations and geotagging of transfer vehicles has been in place since 2019.

The plant works with a fleet of 11 vehicles including tippers, tractors, hook loaders, backhoe loader, dumpers and other locally hired vehicles on basis of need. The plant also has transportation municipal magistrates appointed for taking penal action for non-compliance with C&D Rules 2016.¹² The vehicles are RFID tagged and the information directly goes to the cloud storage system. The drivers are using an app developed specifically for tracking and monitoring.

Once assorted, C&D debris comprising of cement plaster, iron, etc. is brought in with GPS



3. Weigh bridge; 4. Conveyor belt



5. Wet processing technology; 6. Different materials collected separately after processing

powered trucks and is weighed at the weighing bridges. The waste is then dumped in the yard and an initial round of segregation is done before further processing.

The processing produces recycled products such as bricks and manufactured sand of four different grades (+20mm, 20–8 mm, 8–3 mm, 3–0.075 mm), and granular sub-base (a mix of sand, gravel, crushed stone and broken rock).

The plant is equipped with good dust control practices such as covered conveyor belts, gravel paths for vehicles, water sprinklers for dust suppression and segregated storage of materials. However, the plant needs to work towards covering of material stockpiles and vehicles while hauling C&D waste and materials. The plant has been reported as operational in the MPCB final audit 2020–21.¹³



7. Processed aggregate stored on site; 8. Different types of processed re-usable aggregates



9. Partial plantation belt around the site's edge; 10. Vehicle fleet parking

LESSONS LEARNT

Pimpri-Chinchwad offers citizens and waste generators a user-friendly and easily accessible interface for placing collection requests for C&D waste and making fee payments online. Not only this, incentivization of the rate of recycled C&D products by 20 per cent from the market rate and a mandate to replace at least 20 per cent of the construction materials with recycled products in municipal works has

helped build an ecosystem for reutilization of C&D waste. The recycling plant demonstrates good environmental practices and compliances such as green belt along the site boundary, covering of the conveyor belts, gravel for circulation paths and sprinkling systems for dust suppression. The plant is also equipped with software-based weighing system, RFID-tagged vehicles fleet, material testing lab, engineering store, etc.

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