

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL,  
CENTRAL ZONE, BHOPAL**

**Original Application No. 239 of 2024**

**IN THE MATTER OF:**

**Applicant**

Nitin Saxena

**Versus**

**Respondents**

State of Madhya Pradesh & Ors.

**I N D E X**

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<b>3.</b>	Copy of letter dated 18.12.2024	<b>R5/1</b>	
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<b>5.</b>	Details of online consent application	<b>R5/3</b>	

**Place: Bhopal**

**Date: 06.01.2025**

**MPPCB**



**FILED BY**

**PARUL BHADORIA**

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**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL,  
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**IN THE MATTER OF:**

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**REPLY ON BEHALF OF RESPONDENT NO. 5,  
MADHYA PRADESH POLLUTION CONTROL BOARD**

IT IS MOST RESPECTFULLY SUBMITTED HEREINUNDER :

1. That, the answering respondent, Madhya Pradesh Pollution Control Board (hereinafter referred as “**MPPCB**”) is the authority constituted by the State Government of Madhya Pradesh, vested with the power under Section 4 of the Water (Prevention and Control of pollution) act, 1974 and Section 4 of the Air (Prevention and Control of pollution) Act, 1981, conferred with the powers and functions mentioned in the respective Acts.
2. That, the present Original Application was registered on the basis of the letter petition sent by the Applicant before the Hon'ble National Green Tribunal, Principal Bench, New Delhi, alleging grievance relating to violation of the

Solid Waste Management Rules, 2016 by the Municipal Corporation, Bhopal. The complaint of the Applicant is that there is unauthorized dumping of solid waste in various locations across the city of Bhopal, with a particular focus on green belts and burning the waste and causing air pollution.

3. Further, the Hon'ble NGT, Delhi observed that the matter relates to the Central Zonal Bench, Bhopal and, thus, listed the present matter before this Hon'ble Tribunal for appropriate further action.
4. That, in compliance with the directions issued by the Hon'ble National Green Tribunal, Principal Bench, the answering respondent, through its communication dated 18.12.2024, sought detailed information from the Bhopal Municipal Corporation pertaining to solid waste management. This included, but was not limited to, the current status and operational details of garbage dumps, transfer stations, and related infrastructure. A copy of letter dated 18.12.2024 is marked and annexed herewith as **Annexure R5/1**.

5. That, Bhopal Municipal Corporation, vide letter dated 03.01.2025 provided the following information :

a. In reference to door-to-door waste collection system :

- i. Door-to-door solid waste collection is implemented on daily basis ward wise in Bhopal.
- ii. Source segregation of waste is done.
- iii. The waste is transported to the processing facility on daily basis through Ultra-Modern Garbage Transfer Station.
- iv. All vehicles used in the collection have separate compartment bin for wet and dry waste as well as compartments for e-waste and biomedical waste. Also, the transportation systems are monitored by a GPS enabled tracking system.
- v. The collected door to door solid waste of the ward is then transported to the garbage transfer station located in that ward.

b. In reference to the transfer stations :

- i. 15 ultra-modern transfer stations are located throughout Bhopal having capacity of 80-120 TPD.
- ii. After door-to-door collection of the solid waste, the vehicles reach the transfer station where the

collected solid waste is transferred from smaller collection vehicles (tippers) to larger hook loaders.

- iii. The transfer stations are having well ventilated shed with a pucca RCC flooring where the solid waste is transferred into covered air tight capsules in order to prevent the release of dust, odors, and harmful emissions into the atmosphere. The transfer stations are surrounded by a green belt.
- iv. In case of any leachate, it is stored in a leak-proof tank and is lifted using high-efficiency suction machines, in order to ensure its safe and controlled removal from the collection tank.
- v. Once collected, the leachate is transported to a nearby Sewage Treatment Plant (STP) for comprehensive treatment.
- vi. The transfer station zones and allotted ward details are mentioned on page no. 29 of Annexure

II.

- c. Furthermore, a total of 379 challans of amount Rs. 221150/- were imposed as spot fines on waste burning from November 2023 to 16 December 2024 in Bhopal.

Regular watch on the waste burning is carried out by Bhopal Municipal Corporation.

A copy of letter dated 03.01.2025 issued by Bhopal Municipal Corporation along with report is marked and annexed herewith as **Annexure R5/2**.

6. It is further submitted that, to ensure compliance with the statutory requirements under the Water (Prevention and Control of Pollution) Act, 1974, and the Air (Prevention and Control of Pollution) Act, 1981, the Bhopal Municipal Corporation has submitted online applications for the requisite consent concerning its transfer stations. These applications have been duly filed through the Madhya Pradesh Pollution Control Board (MPPCB) online portal, as mandated by the regulatory framework. The details of online consent application is marked and annexed herewith as **Annexure R5/3**.
7. That, the answering respondent is not filing Para-wise reply to the instant case and reserve the right to file the detail para-wise reply to the original application by the leave of this Hon'ble Tribunal if occasion so arises.

8. An affidavit in support is filed herewith.

**Place: Bhopal**  
**Date: 06.01.2025**

**MPPCB**

A handwritten signature in black ink, appearing to read 'Parul', with a vertical line extending downwards from the end of the signature.

**FILED BY**  
**PARUL BHADORIA**  
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**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL  
CENTRAL ZONE BENCH, BHOPAL**

**ORIGINAL APPLICATION No. 239/2024**

**IN THE MATTER OF:**

**NITIN SAXENA**

.....**APPLICANT:**

**VERSUS**

**STATE OF MP.**

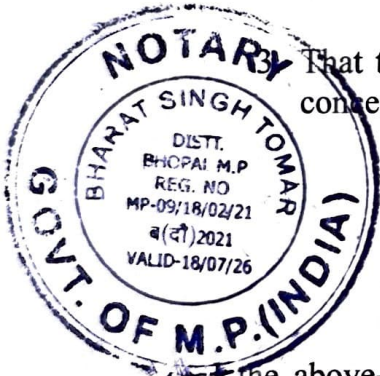
.....**RESPONDENT**

**AFFIDAVIT**

I, Brijesh Sharma , S/o Shri. K.C. Sharma Regional Officer, MPPCB Regional Office Bhopal, and Officer-in-Charge, Age:        Years, office at E-5 Arera Colony, Paryawaran Parisar, Regional Office, , Madhya Pradesh Pollution Control Board, , Bhopal do hereby solemnly affirm on oath as under:

1. That I am Officer in Charge for Madhya Pradesh Pollution Control Board in the present matter, and am fully conversant with the facts of the case and hence competent to swear on this affidavit.
2. That I am filing a Reply in the aforementioned matter before the Hon'ble Tribunal the contents of which are true and correct and no material fact.

That the contents of the Reply are true and correct and no material fact is concealed or suppressed.



*[Handwritten signature]*

**DEPONENT**  
Regional Officer  
M.P. Pollution Control Board  
BHOPAL

**VERIFICATION**

The above-named deponent do hereby verify that the contents of the affidavit above are true and correct.

Signed and verified on 03.01.2025 at Bhopal (MP)

*[Handwritten signature]*

**DEPONENT**

IDENTIFIED BY  
NAME- Shivam Dwivedi  
ADDRESS- C-210 Dagar green hills  
SIGNATURE- *[Signature]*

**SWORN BEFORE ME THE  
WITHIN NAMED  
*[Signature]*  
3/1/25  
BHARAT SINGH TOMAR  
NOTARY & ADVOCATE  
BHOPAL M.P. INDIA**

Regional Officer  
M.P. Pollution Control Board  
BHOPAL



क्षेत्रीय कार्यालय

मध्य प्रदेश प्रदूषण नियंत्रण बोर्ड

पर्यावरण परिसर, ई-5, अरेरा कॉलोनी, भोपाल

Telephone:- 0755-2466392 Email:-romppcb\_bpl@rediffmail.com



Annexure I

क्रमांक 2854 /क्षेका/प्रनिबो/2024  
प्रति,

भोपाल, दिनांक 18/12 /2024

आयुक्त,  
नगर निगम,  
कुशाभाऊ ठाकरे,  
आई.एस.बी.टी. केम्पस,  
भोपाल, (म.प्र.)-462023

विषय:- माननीय एनजीटी भोपाल बैंच में प्रकरण क्रमांक ओ.ए. 239/2024 (नितिन सक्सेना विरुद्ध म.प्र शासन व अन्य) के संबंध में।

—0—

उपरोक्त विषयांतर्गत लेख है कि माननीय एनजीटी भोपाल बैंच में प्रकरण क्रमांक ओ.ए. 239/2024 (नितिन सक्सेना विरुद्ध म.प्र शासन व अन्य) दर्ज हुआ है, प्रकरण में पारित आदेश इस पत्र के साथ संलग्न है। जिसके संबंध में निम्नानुसार जानकारी प्रदान करें :-

1. भोपाल शहर में सोलिड वेस्ट मेनेजमेंट की वर्तमान व्यवस्था।
2. भोपाल शहर में खुले में कचरा जलाने के विरुद्ध कार्यवाही की जानकारी (विगत एक वर्ष)।
3. भोपाल शहर में ट्रांसफर स्टेशन की जानकारी :-
  - I. कुल ट्रांसफर स्टेशन की संख्या
  - II. प्रत्येक ट्रांसफर स्टेशन से संबंधित वार्डवार विवरण
  - III. ट्रांसफर स्टेशन की क्षमता
  - IV. ट्रांसफर स्टेशन की कार्य प्रणाली के संबंध में टीप
  - V. ट्रांसफर स्टेशन में प्रदूषण नियंत्रण की व्यवस्था
  - VI. ट्रांसफर स्टेशन की बोर्ड से सम्मति की स्थिति

उपरोक्तानुसार जानकारी 3 दिवस में प्रदान करें, ताकि जानकारी माननीय एनजीटी के समक्ष प्रस्तुत की जा सके। लेख है कि प्रकरण की आगामी सुनवाई 07.01.2025 को की जानी है।

संलग्न :- उपरोक्तानुसार।

9/2

क्षेत्रीय अधिकारी



## कार्यालय नगर पालिक निगम, भोपाल

स्वच्छ भारत मिशन

ए-बिग, द्वितीय तल, कुशाभाऊ ठाकरे इन्टरस्टेट बस टर्मिनल (आईएसबीटी)  
परिसर, चेतक ब्रिज के पास, भोपाल (म.प्र.) -462024



क्रमांक 542/BMC/SBM/2025 /

भोपाल, दिनांक 3/1/24

प्रति,

✓ क्षेत्रीय अधिकारी,  
मध्य प्रदेश प्रदूषण नियंत्रण बोर्ड,  
पर्यावरण परिसर, ई-5, अरेरा कॉलोनी,  
भोपाल (म.प्र.)-462023

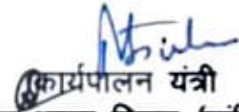
विषय:- माननीय एन.जी.टी भोपाल बेंच में प्रकरण क्रमांक ओ.ए. 239/2024 नितिन सक्सेना विरुद्ध म.प्र. शासन व अन्य के संबंध में।

संदर्भ:- आपका पत्र कं. 2854/क्षेका/प्रनिबो/2024 दिनांक 18/12/2024

उपरोक्त विषयान्तर्गत आपके द्वारा संदर्भित पत्र के माध्यम से माननीय एन.जी.टी भोपाल बेंच के प्रकरण क्रमांक ओ.ए. 239/2024 नितिन सक्सेना विरुद्ध म.प्र. शासन व अन्य से संबंधित बिन्दु कं. 1 से 03 तक जानकारी चाही गई है।

उपरोक्त के संबंध में चाही गई जानकारी संलग्न कर आपकी ओर प्रेषित है।

संलग्न:- उपरोक्तानुसार

  
कार्यपालन यंत्री  
स्वच्छ भारत मिशन (यांत्रिक)  
नगर पालिक निगम, भोपाल

## 1. Municipal solid waste management

Municipal solid waste management is an important part of the urban infrastructure that ensures protection of environment and human health. The accelerated growth of urban population, increasing economic activities and lack of training in modern solid waste management practices have complicated the efforts to improve this service sector. The most prevalent way of disposing MSW in India had been open dumping which is the easiest and was considered to be the cheapest method of removing waste from the immediate environment.

The decomposition of biodegradable wastes in open dumpsites has resulted in the production of leachate and gas. This continues for a long period after the site has stopped receiving wastes. The increasing awareness on public health and environmental quality concerns are expected to provide the impetus that is needed to develop and implement a sustainable approach to manage solid wastes and rehabilitation of the existing open dumps.

About three-quarters of the countries and territories around the world use 'open dumping' method of disposal of MSW (Rushbrook, 2001). It is a primitive stage of landfill development at which solid wastes are disposed of in a manner that does not protect the environment, susceptible to open burning, and exposed to disease vectors and scavengers. Lack of adequate waste treatment and disposal infrastructure, large volumes of waste involved in cities, proximity of disposal sites to the water bodies and ever-burgeoning residential areas even in the proximity of waste disposal sites has given rise to significant environmental deterioration and health impairment in most of the cities.

It thrives because of the false belief that it is the easiest and cheapest disposal method. Each municipality operates one or more open dumpsites situated close to the towns and are widely regarded as uncontrolled and unsafe operations. The dumpsites are often poorly sited and operated by inexperienced or disinterested staff.

Considering the difficulty in acquiring lands for the new waste disposal sites and obtaining consent from the neighbouring communities for their operation, the municipalities are increasingly going in for reclamation/use of the existing disposal sites. This is carried out by best possible management of the waste already stored at site, waste processing and scientific land-filling within the existing sites for management of incoming MSW stream. This would help to some extent overcome the environmental impact of such improper disposal practices and may provide a solution to the crisis in solid waste management due to exhaustion of available space for land-filling. Sound examples of scientific management of the disposal site coupled with rehabilitation of existing dumps will go a long way in alleviating the apprehensions among the neighbourhoods of negative impact on health and environment.

## 2. Background of the Project

Swachh Bharat Mission (SBM) was launched on 2<sup>nd</sup> of October, 2014 with a vision to achieve a clean India as a tribute to the father of the nation, Mahatma Gandhi, on his 150<sup>th</sup> birth anniversary, in 2019. This Mission has achieved significant levels of success against the objectives of Mission, with massive engagement of citizens across all categories of society. Mission is now being extended for a period of 5 (five) years, from 1<sup>st</sup> October 2021 to 1<sup>st</sup> October 2026, as **Swachh Bharat Mission (Urban) 2.0 (SBM-U 2.0)**, for completing the work remaining, institutionalizing 'swachh' behavior and making it sustainable. The Government of India in partnership with States/ UTs and ULBs is committed to make all cities 'Garbage Free' under SBM-Urban 2.0 in order to contribute to the achievement of the Sustainable Development Goals (SDG) 2030, which will ultimately improve the quality of life and ease of living of urban populations, thus leading to urban transformation. SBM-U 2.0 will be implemented by MoHUA through States/ UTs in all statutory towns (as per Census 2011, and statutory towns added subsequent to that), in accordance with these guidelines.

The Government of Madhya Pradesh proposes to strengthen the entire SWM system in all the Urban Local Bodies (ULBs) in the State, so as to comply with the Solid Waste Management Rules 2016, Service Level Benchmarks of the Government of India (GoI) & achieve the objectives of Swachh Bharat Mission.

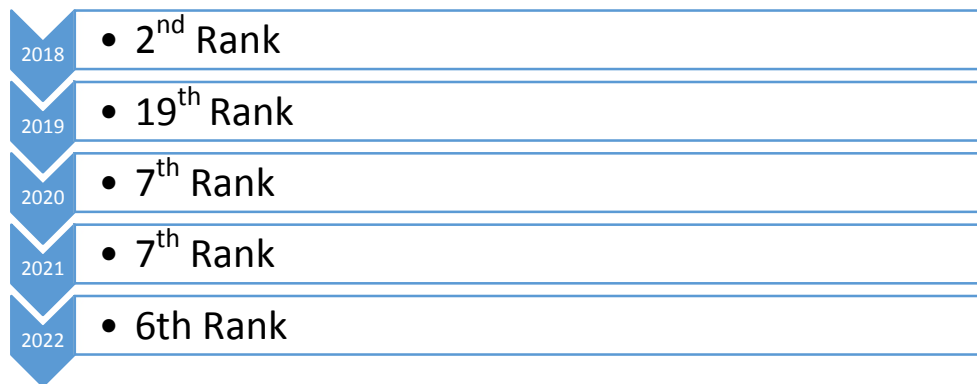
Extensive work in the field of solid waste management waste done during last Five years. Bhopal has been declared the 2nd cleanest city in India among 434 cities surveyed for the government cleanliness ranking by the Quality Council of India during Swachh Survekshan 2017. Union Urban Development Minister Venkaiah Naidu released the Swachh Survekshan 2017 report which had the Swachh Bharat rankings of 434 cities based on their level of cleanliness.

Swachh Survekshan-2017 aimed at capturing the outcomes on ground of the ongoing efforts to make urban areas Open Defecation Free and to improve door- to-door collection, processing and disposal of Municipal Solid Waste.

Bhopal Municipal Corporation has held the 7th position in Swachh Survekshan 2020 and retained the rank in the Year 2021 by securing 4783.53 points out of 6000.

Bhopal Municipal Corporation has held the 7th position in Swachh Survekshan 2020 and retained the rank in the Year 2021 by securing 4783.53 points out of 6000.

Bhopal Municipal Corporation has held the 6th position in swachh Survekshan 2022 with tag of 5 star city and water plus city



Since the launch of the Swachh Bharat mission, Bhopal Municipal Corporation have covered all of its wards with door-to-door solid waste collection, instituted waste segregation, and installed tracking devices for garbage trucks. Though BMC has performed best in the country, still there is a need to enhance the existing MSWM system of Bhopal city. The purpose of this project is to identify the existing MSWM practices of town, recognize deficiencies/gaps in the present system and propose a comprehensive plan for MSWM including segregation, collection, transportation and approach for

processing & scientific disposal in Integrated Municipal Solid Waste Management Facility in compliance with the SWM Rules 2016 and to achieve SBM-U 2.0 mission. In addition, analyses different options for waste processing for effective and scientific management of MSW generated. In short, the objective of the project is to introduce appropriate technologies for management of MSW so as to prevent the waste from causing pollution and health hazards.

### 3. Self-Sustainable Capital



The city has received Self Sustainable Capital Special Category Award, which has made the residents proud. It took hard work and innovative approaches by elected representatives, municipal officials and employees to achieve the feat. Bhopal Municipal Corporation conducted new experiments to improve city's sanitary conditions. Many new methods were adopted for dry waste along with wet waste. The use of plastic in the city also decreased.

Online monitoring of door-to-door garbage collection played a key role in maintaining cleanliness in the city. Route charts were made so that vehicle could reach every household on fixed time. New vehicles were purchased as needed. In addition to installing GPS, a team was deployed by assistant commissioner level officer in the control room from 6 am for online monitoring.



The state capital is ranked at number 3 Safai Mitra Suraksha challenge which was a major component based on sewer cleaning and manual scavenging.

#### 4. Aim for 7-star

Bhopal municipal corporation has aim of 7-star tag, The Ministry of Housing and Urban Affairs (MOHUA) has launched the Protocol for Star Rating of Garbage Free cities. The star rating conditions have been designed in a way as to enable cities to gradually evolve into a model (7-star) city, with progressive improvements in their overall cleanliness. The protocol, with increasing levels of stringency with increasing star rating, will also be inspirational in nature, feeding cities' ambitions and dreams of becoming an ideal city for its residents, and a role model for other cities to follow. In star Rating Protocol BMC achieved 5-star city tag.



#### 5. Waste Collection and Transportation

Waste collection services are divided into primary and secondary collection. Primary collection refers to the process of collecting, lifting and removal of segregated solid waste from source of its generation including households, shops, offices, markets, hotels, institutions and other residential or non-residential premises and taking the transfer station or directly to the disposal site, depending on the size of the city and the waste management system prevalent in the city. Primary collection must ensure separate collection of certain waste streams or fractions depending on the separation and reuse

system applied by the respective town or city.

## 6. Bin-Free City and Cleanest City.

Bhopal was declared as a Bin Free City. BMC has been working religiously to achieve the no. 1 status of city in 2023 also focusing on 100% environmentally safe collection, transportation and processing of various streams of waste generated in city using innovative technologies.

BMC presently generates about 800 Ton waste per day. BMC has developed the capacity to Collect transport and treat this 800 ton waste on daily basis. With efforts of BMC and support from citizens and stakeholders, Bhopal has achieved the following

- Source segregation of waste.
- Door-to-door waste collection from all residential and commercial establishments
- Transportation of waste to processing facility on daily basis through Ultra Modern Garbage Transfer Station.
- Treatment of wet by composting or Bio methanation.
- Treatment of wet waste generated by bulk generators at source.
- Recycling of Dry waste in material recovery facility on Decentralized Model.
- Utilization of all rag pickers in the city in material recovery facility
- 100% vehicles equipped with GPS with geo tagging and real time monitoring through control room
- 100% workers registration with biometric system and wages directly to their accounts.

## 7. Primary Collection

Bhopal Municipal Corporation has implemented an exceptionally efficient door-to-door garbage collection system, dedicated to collecting waste from a vast number of households within the city. The corporation's efforts are supported by an impressive fleet of 719 DTDC vehicles of which 250 vehicles are powered by green fuel (CNG) with six types of segregation facility in it i.e., biodegradable, non-biodegradable, hazardous, sanitary, plastic, and e-waste and 202 tipper vehicles dedicatedly deployed for work of road sweeping. and a dedicated team of 8,116 sanitation personnel. The meticulously designed door-to-door garbage collection system ensures that no household is left

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behind, and waste is collected promptly and efficiently. With the fleet of 719 DTDC vehicles at their disposal, the corporation covers a wide area, ensuring that waste collection reaches even the farthest corners of the city. These vehicles are equipped with state-of-the-art technology, enabling seamless waste management and disposal. Furthermore, the dedicated team of 8,116 sanitation personnel plays a crucial role in ensuring the smooth operation of the garbage collection system. These highly trained individuals work tirelessly to maintain cleanliness and hygiene standards throughout the city. Their expertise and commitment make a significant impact in keeping Bhopal clean and free from waste-related issues. The Bhopal Municipal Corporation's emphasis on efficient door-to-door garbage collection, supported by the extensive fleet of DTDC vehicles and a substantial workforce of 8,116 sanitation personnel, demonstrates their unwavering dedication to maintaining the cleanliness and sanitation of the city. Their efforts serve as a shining example of effective waste management practices, benefitting both the residents and the environment. These tippers carry the waste from households to the transfer station, from where the waste is transported to the processing site in hook loaders. All vehicles used in the collection and transportation system are monitored by a GPS enabled tracking system. The GPS system is constantly monitored by the monitoring cell. Any route deviations by particular drivers are penalized and multiple deviations is also grounds for termination.



The wet waste from the domestic generators is collected through the Door-to-Door Collection System. The door-to-door collection system has been deployed by BMC to collect the waste from domestic generators and commercial areas in Bhopal. The waste

is collected through partitioned vehicles known as 'Tippers' and transported to the Garbage Transfer Stations for secondary collection.

## 8. Secondary Collection

The Ultra-Modern Garbage Transfer Stations (GTS) initiative represents a transformative step in urban waste management for Bhopal. Designed to enhance the efficiency and effectiveness of waste collection, transportation, and processing, this network of transfer stations addresses key challenges in waste management by improving logistics and reducing transportation costs. The project aims to streamline the waste management process, ensuring that waste is efficiently segregated, transported, and processed in an environmentally responsible manner.

### A. Network of Transfer Stations

The initiative includes the development of 15 ultra-modern transfer stations strategically located throughout Bhopal. These transfer stations are designed to facilitate the efficient transfer of waste from smaller collection vehicles (tippers) to larger hook loaders. The strategic placement of these stations within the city reduces the distance waste needs to travel, addressing the inefficiencies of the previous system where waste was transported approximately 30-40 kilometers to a centralized processing plant.

Waste Segregation and Processing Each transfer station is equipped with facilities to handle all six type of waste. The waste collected from doorto-door garbage tippers is initially segregated at the transfer stations into two categories: wet waste and dry waste.

### B. List of Ultra Modern Garbage Transfer Station :-

1. Arif Nagar
2. Shahjaani Park
3. Transport Nagar
4. Daana Paani
5. Baba Nagar
6. Kajlikheda
7. Near IIFM, Bhadbhada

8. Bairagarh
9. Rajendra Nagar
10. Govindpura
11. Idgaah Hills
12. Jat Khedi
13. Anna nagar
14. Jinsi Chauraha
15. Gondipura

### **C. Wet Waste Handling**

Wet waste, such as organic material, is offloaded into a green hopper. From there, it is transported to a centralized aerobic mechanical composting plant for processing. This process converts the organic waste into compost, which can be used as a soil amendment.

### **D. Dry Waste Handling**

Dry waste, including recyclables and nonbiodegradable materials, is offloaded into a blue hopper. The waste is then weighed at a weighbridge and sent to a Material Recovery Facility (MRF) for further processing and material recovery. The MRF extracts valuable materials from the dry waste for recycling and repurposing.

The ultra-modern garbage transfer stations are equipped with advanced infrastructure to ensure efficient operations:

### **E. Automated Boom Barrier**

An automated boom barrier controls vehicle entry, ensuring smooth and secure access to the transfer station. Weighbridges: Three weighbridges at each transfer station facilitate the accurate measurement of waste volume for both wet and dry waste. This measurement is crucial for effective processing and management. Static Compactor Machines: Static compactor machines compress wet and dry waste into compacted forms, optimizing storage and transportation efficiency. Hoppers:\* Each station features two hoppers—one blue for dry waste and one green for wet waste. The hoppers are connected to respective containers, allowing for the efficient transfer of waste from

vehicles to storage containers.



The collected waste is transported by the garbage tippers deployed in all 85 wards to the designated Garbage transfer station (GTS). Previously, the waste was being transported to the centralized processing plant which is approximately 30-40 kms from the city. To strengthen and reduce the cost of the Secondary Collection and Transportation System, BMC has constructed 15 ultra-modern transfer stations within the city. All of the above TS have provision of segregated waste collection and transportation through Hook loaders to the disposal site. There are two hoppers one for the collection of dry waste (Blue colour) and second for the collection of wet waste (Green colour). The MSW from door to door garbage tippers is collected in two steps. At first the dry waste is off loaded in blue hopper and there after the wet waste is off loaded into the green hopper. These hoppers are connected to blue and green containers respectively. The segregated MSW is compressed into respective containers. When the containers are filled to capacity,

they are lifted by dedicated hook loader and sent to disposal site in a segregated manner. The Hook loader carrying wet waste off load their waste directly to the Centralized Composting Unit whereas dry waste is off loaded to the Material Recovery Facility.

The bucket for the sanitary waste and domestic hazardous waste is off loaded into dedicated drums and is transported to Common Biomedical Waste Facility (CBWTF) and Hazardous waste processing facility as per the rules.



## 9. Methodology

In large cities where disposal sites are more than 15 km away from the collection area, it is economical to set up transfer stations as tertiary storage depots to save transportation time and fuel. The transfer station or tertiary storage depot can also be equipped with a material recovery facility, where recyclables are sorted and sent for further processing or to recyclable markets. Transfer stations usually consist of large containers of about 15–25 m<sup>3</sup>. A Hopper can be provided to facilitate unloading of vehicles or directly into large vehicles or containers kept at a lower level and then with the help of a static compactor,

waste can be pushed into the large hauling vehicle or container.

## 10. Objectives of Garbage Transfers Station

- To comply with Solid Waste Management Rules, 2016.
- To improve the existing standards of public health and environmental quality by establishing efficient mechanism for collection and transportation of Municipal Solid Waste.
- Ensure clean and hygienic collection and transportation system of Municipal Solid Waste.
- Improve productivity of man, materials and equipment
- Less requirement of space as compared to conventional static transfer stations

## 11. Benefits of GTS

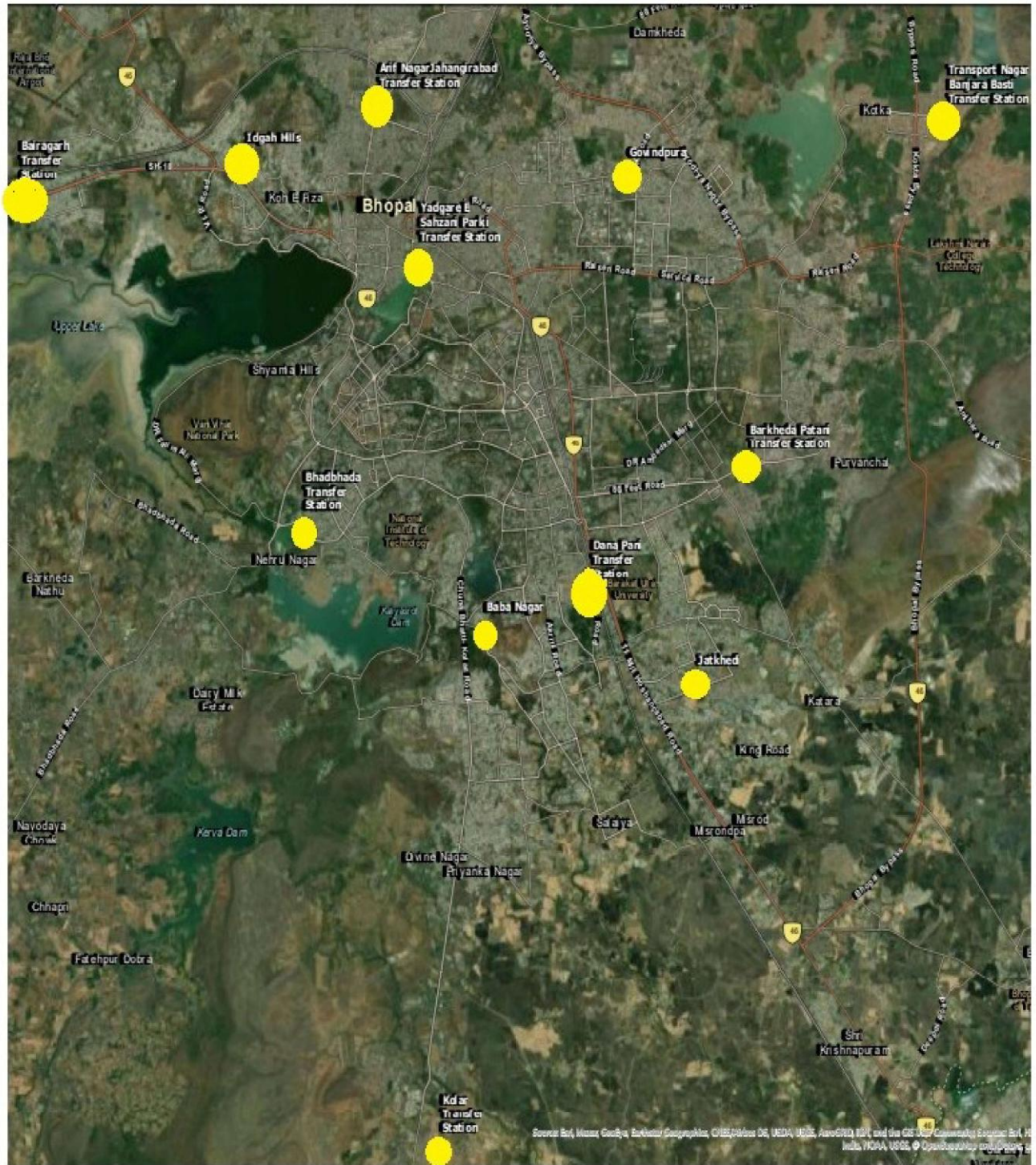
- 100% of coverage of SWM services in city and collection of waste from the households.
- Timely collection of waste from every household/ shop on daily basis.
- Effective and timely redressal of complaints by the ward supervisors for non-delivery of service.
- Installation of GPS systems on all the vehicles in order to track and improve the collection and transportation efficiency of the vehicles.
- Overall environmental improvement and aesthetic value of the city.
- Municipal waste will be transported in closed containers that minimise odour and spilling of garbage.
- Open dumping and burning of waste at the secondary collection points can be stopped.

## 12. About Garbage Transfer Station at Bhopal

To improve the collection efficiency and transportation system for high volumes of waste generated in densely populated areas in Bhopal City, BMC has started the use of compactors for secondary waste collection under the SBM-1.0. The compactors, when coupled with hook loaders, provide high transport efficiency for waste.

<b>Detail of Existing Garbage Transfer Station at BMC</b>			
<b>S.no</b>	<b>Locations of Garbage Transfer Station</b>	<b>Distance of GTS from Processing site (Km)</b>	<b>Capacity</b>
1	Arif Nagar	23 km	80 -120 TPD
2	Bairagarh	28 km	80 -120 TPD
3	Bhadbhada	23 km	80 -120 TPD
4	Dana Pani	19 km	80 -120 TPD
5	Transport Nagar	08 km	80-120 TPD
6	Yaad Gar–E–Shahjahani	18 km	80-120 TPD
7	Jaatkheddi	24 km	80-120 TPD
8	Govindpura Area	15 km	80-120 TPD
9	Baba Nagar	22 km	80-120 TPD
10	Idgaah hills	24 km	80-120 TPD
11	Thua Kheda	32 km	80-120 TPD
12	Rajendra Nagar	25 Km	80- 120 TPD
13	Gondipura	25 km	80- 120 TPD
14	Anna Nagar	17 km	80- 120 TPD
15	Jinsi	20 km	80- 120 TPD

GARBAGE TRANSFER STATION ,BHOPAL





<b>Table 5.3: Detail of Under Construction Transfer Station at BMC</b>		
<b>S.no</b>	<b>Locations of Garbage Transfer Station</b>	<b>Distance of GTS from Processing site (Km)</b>
1	Gondipura	25 km
2	Anna Nagar	17 km
3	Jinsi	20 km
4	12 Daftar	30 km
5	Gopal Nagar	15 km

### 13. Technical Specification of Transfer station Equipment's

#### 1) Container: - General Specification

**Static Horizontal Compaction Machine with Tip Cart Mechanism**  
**Static Compactor machine along with complete Electricals and Hydraulic system consist of**

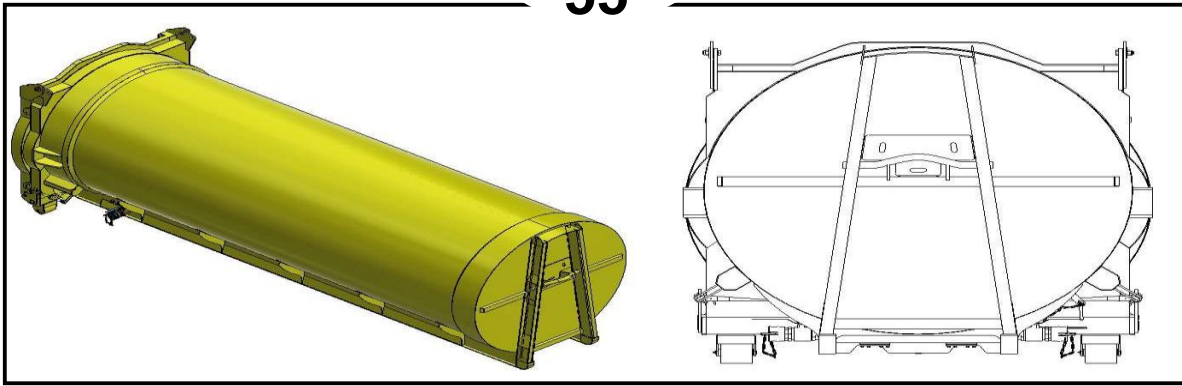
- Horizontal Compaction Machine with Tip Cart mechanism
- Hopper
- Guillotine system
- Hydraulic Clamping Claw
- Drainage System for leachate
- Hydraulic Power Pack
- PLC based Electronic Controls.
- Container change over system (Two Containers)

#### Container

Container Volumetric Capacity 20 Cu.M.

- Cylindrical Shell with Guillotine door.
- Leachate collection Tray
- Ratchet Mechanism for closing and opening of container Doors.
- Drain Valves
- Set of metallic Rollers.
- Sub frame

Painting of your choice

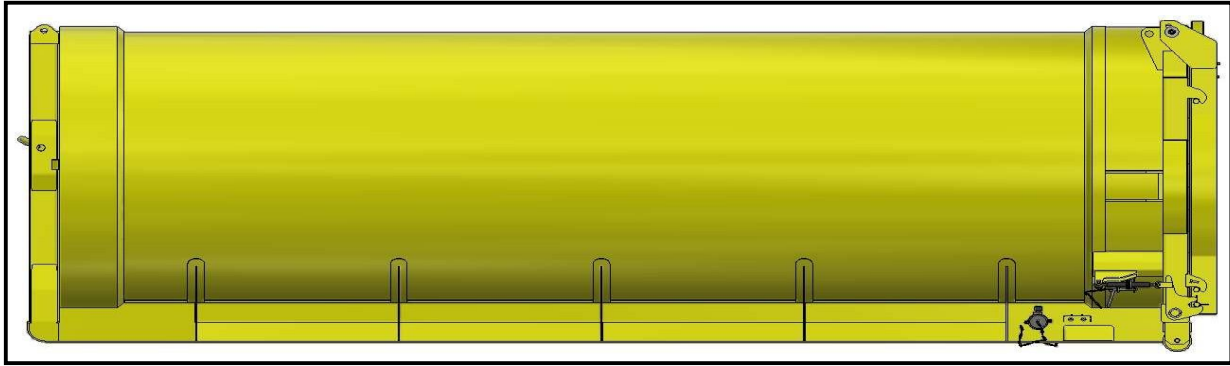


## 2) Container: -

### General Specification,

#### 24 m<sup>3</sup> Container

Round shaped container ensure that the discharge will be smoother at lower tipping angle and no residue will remain in the container, after discharge. Front of the container has a V-shaped structure with a hook eye made of special steel, which bears the forces during on-n-off rolling of the container.



### Heavy Duty Container Roller

At the rear side two heavy duty rollers are attached for easy movement of the container on the ground during on-n-off rolling.



### **Guillotine**

This System closes and opens the guillotine plate inside the container door. Guillotine plate cuts off the garbage and acts as a rear door. Guillotine's position is controlled by proximity sensors and intelligent control system.

Crusher block runs a couple of cycles with high post compaction force to remove the elastic property of waste and separates the waste between the compaction chamber and the container with the help of guillotine plate. Works with Optimized hydraulic system to balance the stroke of both cylinders at same time.



### 3) Container Change Over System

A two-container change over system is provided to move the filled container from the compactor and replace it with an empty container already placed on the tracks for replacement. This system is driven by hydraulic cylinder.

### 4) Drainage and sealing system

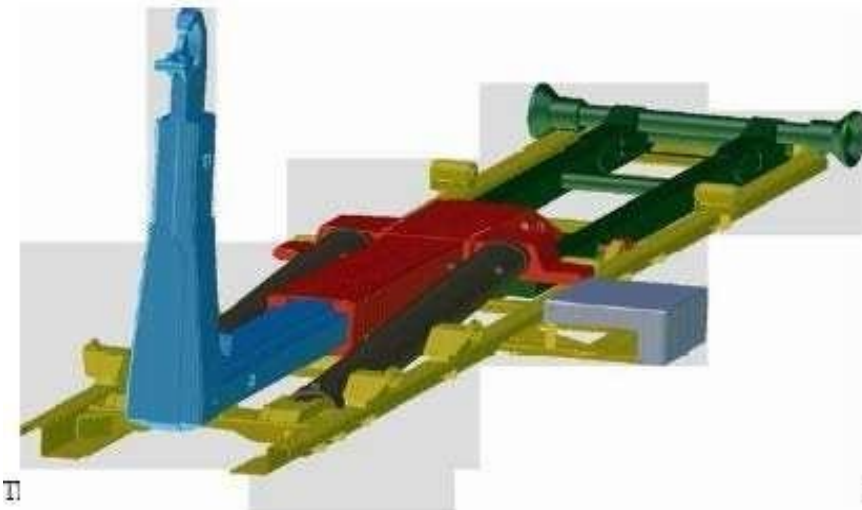
- Collection chamber inside the container which functions as sewage storage tank.
- Sewage collection tray installed on the compactor to collect and guide the sewage to the disposal.
- A demountable Omega rubber seal installed between container and compactor to avoid any leakages during compaction.
- A demountable Omega rubber seal installed between container rear door to seal during compaction and transportation.



### HOOK LOADER:

#### General Specification:

Hook Loaders are fabricated in accordance to the CE machine regulations and ensures the safety of its operator and its environment.



### **Hook Loader**

The bottom frame (yellow part in picture ) comprises two longitudinal main runners and cross reinforcement. To the rear of the system the pivot point of the tipping frame is attached. The pivot point is situated as low as possible into the bottom frame. The bottom frame has several container rollers divided over the full length, which supports the container's lower main frame. As well at the front of the bottom frame high tensile steel slide supports are placed to support the container over a big surface.

At the front of the frame the cylinder bridge construction is located, providing a strong and solid attachment for the main cylinders. The tipping frame automatically locks onto the bottom frame during the unloading procedure.

#### **Tipping Frame:**

The tipping frame (red part in picture "Hyva Hook Loader") enables the system to tip the containers. The tipping frame rotates at the rear of the system's bottom frame and has its high tensile anti-wear rollers on which the container is supported. At the tipping frame a steel locking device is constructed in order to lock to the main off-loading frame. These two components are locked together for tipping the container

#### **Off – loading frame:**

The off-loading frame has the hook mast, which slides front and backwards. The off-loading frame enables the system to roll off the container. The off-loading frame rotates in the middle of the main frame at the front of the tipping frame. During the operation the hook masts moves backwards and unlocks the off-loading frame from the tipping frame. After this the two double acting main cylinders will rotate the off-loading frame and enables the system to roll-off the container.

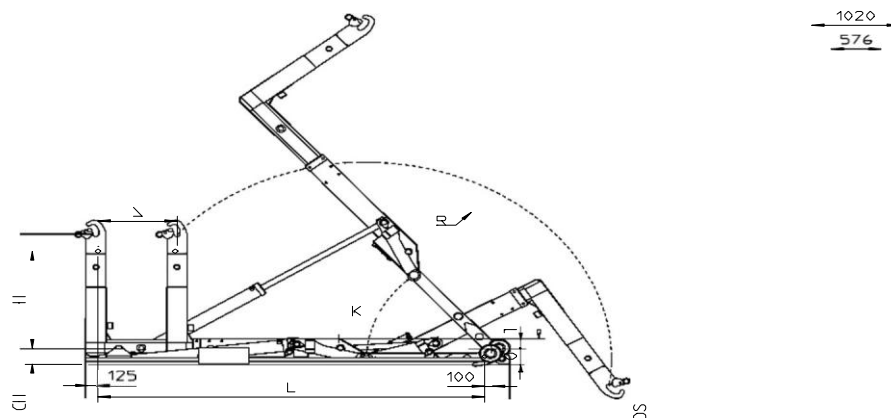
### **Hook Mast**

The hook mast (blue part in picture “Hyva Hook Loader”) can move front – and backwards inside the off-loading frame. By this the system is able to transport different various length of container. The hook mast will also unlock the off-loading frame from the tipping frame, which enables the system to roll – off the container. Further the system has synthetic bearing to have the maintenance free bearing of the sliding. The high tensile wear resistance steel hook mounted into the hook mast is been placed at a height of 1570 mm. a special designed lock ensures that the hook eye of the container will be secured during tipping, on and off rolling and thus cannot be dropped out.

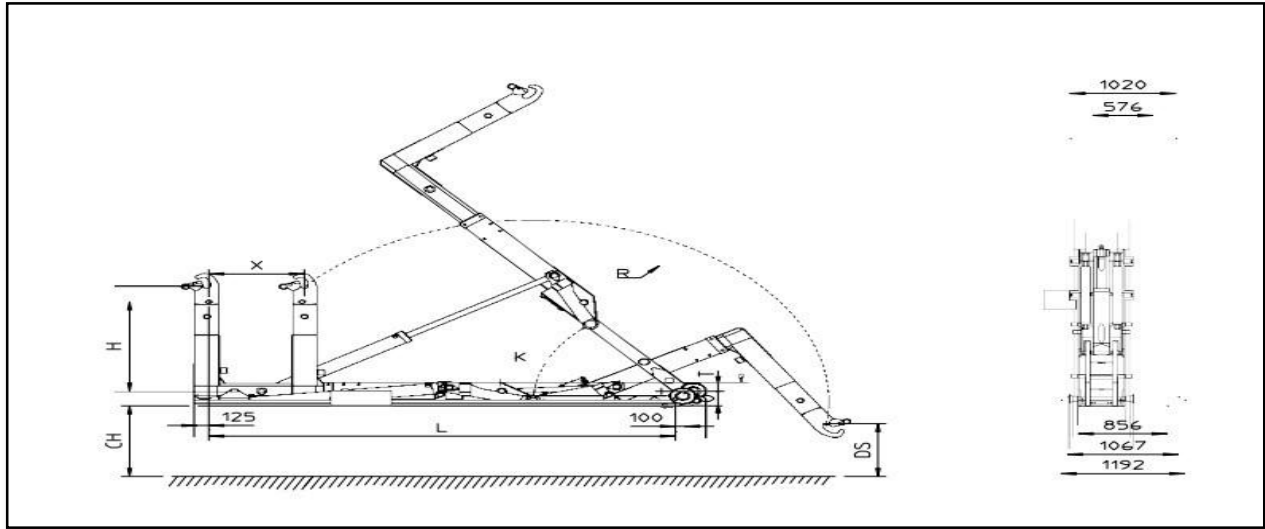


### **Technical Specification**

The follow detailed specifications of the hook lift of a system with a capacity of 200 kN, HookHeight of 1570 mm and be mounted on a chassis height of 1050 mm



Driver Cabin fitted with PTO and Hydraulic Pump. It should have Kerb weight Not less than 6200 kg and wheel base Not less than 4800 mm



### 5) Technical specification of truck chassis

The hook loader should be mounted on Truck Chassis of 25 T GVW (6X2) of TATA/Ashok Leyland/Eicher or equivalent. The Chassis should be with Non-Sleeper Driver Cabin fitted with PTO and Hydraulic Pump. It should have Kerb weight Not less than 6200 kg and wheel base Not less than 4800 mm

### 6) Manpower Deployed

Minimum Manpower to run, operate and maintain the GTS in a single shift (each shift)

S. No.	Category	Nos	Purpose	Remark
01	Supervisor	01	Supervision of GTS	Skilled
02	Operator	02	1 for wet 1 for dry GTS machine	Skilled
03	Driver	02	Hook loader	Skilled
04	Helper	02	Hook loader	Semi-skilled
05	Security	01	For GTS	Semi-skilled

## 14. Pollution Control Mechanism at Garbage Transfer Station

### 1) Air Pollution Control Arrangements at Ultra-Modern Garbage Transfer Station

Garbage transfer station for municipal solid waste prioritizes environmental sustainability and public health through advanced air pollution control measures. Below are the key arrangements in place to ensure a cleaner and healthier environment:

- **Ventilated Shed Design**

The transfer station is equipped with a well-ventilated shed that facilitates optimal air circulation. This design minimizes the accumulation of odorous gases and airborne particulates, enhancing air quality in and around the facility.

- **Covered Capsules for Waste Storage**

Waste is stored and transported in specially designed covered capsules that prevent the release of dust, odors, and harmful emissions into the atmosphere. This arrangement reduces the risk of air pollution during waste handling and transfer operations.

- **Green Belt Development**

A robust green belt surrounds the transfer station, acting as a natural barrier against dust and pollutants. The vegetation not only absorbs carbon dioxide but also filters particulate matter, contributing to improved ambient air quality.

- **Specially Designed Hoppers**

Our hoppers are engineered to minimize the spillage and scattering of waste during transfer processes. This design significantly reduces the generation of dust and airborne particles, ensuring cleaner operations.

Through these comprehensive measures, BMC are committed to reducing the environmental impact of our operations and maintaining high air quality standards, ensuring sustainable and eco-friendly waste management practices.

### 2) Water Pollution Control Arrangements at Ultra-Modern Garbage Transfer Station

Garbage transfer station incorporates advanced measures to effectively manage and mitigate water pollution risks associated with municipal solid waste handling. The

following key systems and practices ensure environmentally responsible operations:

- **Underground Drainage System for Leachate Collection**

An efficient underground drainage system is in place to channel all leachate generated from waste handling areas. This system is designed to prevent the seepage of leachate into the surrounding soil or groundwater, ensuring the protection of natural water resources.

- **Dedicated Leachate Collection Tank\***

Collected leachate is stored in a specially designed, leak-proof tank that adheres to environmental safety standards. This tank ensures temporary storage of leachate while eliminating the risk of spills or contamination of nearby land or water bodies.

- **Suction Machine for Leachate Management**

The leachate is lifted using high-efficiency suction machines, ensuring its safe and controlled removal from the collection tank. This mechanized process minimizes manual handling, reducing the risk of accidental spillage.

- **Transportation to Sewage Treatment Plant (STP)**

Once collected, the leachate is transported to a nearby Sewage Treatment Plant (STP) for comprehensive treatment. At the STP, the leachate undergoes multiple treatment processes, including sedimentation, biological treatment, and chemical neutralization, to meet discharge standards.

- **Preventive Measures and Regular Maintenance**

Routine inspections and maintenance of the drainage system and leachate collection tank prevent blockages and ensure optimal functionality.

- **Compliance with Environmental Regulations**

All leachate management practices comply with applicable environmental norms and guidelines to prevent water pollution and safeguard public health.

These robust water pollution control arrangements reflect our commitment to sustainable waste management and the preservation of water resources, ensuring a cleaner and safer environment for the community.

## 15. ICT Monitoring

ICT monitoring refers to the process of observing and analyzing the performance of Door-to-Door Waste Collection Vehicles and the \*\*Ultra Modern Garbage Transfer Station using advanced technology systems. This involves the continuous tracking of various operational metrics—such as vehicle location, system performance, and transfer station activity—to detect potential issues and improve efficiency. By leveraging ICT monitoring, organizations can ensure optimal service delivery, address operational challenges promptly, and enhance the sustainability of waste management operations.



### 1. Key Components of ICT Monitoring in Waste Management:

- **Vehicle Tracking and Monitoring**

**Real-Time GPS Tracking-** ICT systems provide live tracking of waste collection vehicles, ensuring they are on schedule and following their designated routes. This allows fleet managers to monitor vehicle locations in real-time and optimize routes for efficiency.

**Vehicle Performance Monitoring :** The health of the waste collection vehicles is continuously monitored through the ICT system. Metrics such as engine performance, fuel consumption, and maintenance status are tracked to ensure that vehicles are operating optimally and are ready for the next service.

## 2. Ultra Modern Garbage Transfer Station Monitoring :

**System Performance and Activity Monitoring :** The ICT system tracks the operational status of the garbage transfer station, including equipment performance, waste handling processes, and transfer operations. This helps ensure smooth transportation processes.



## 3. Importance of ICT Monitoring for Waste Collection and Transfer:

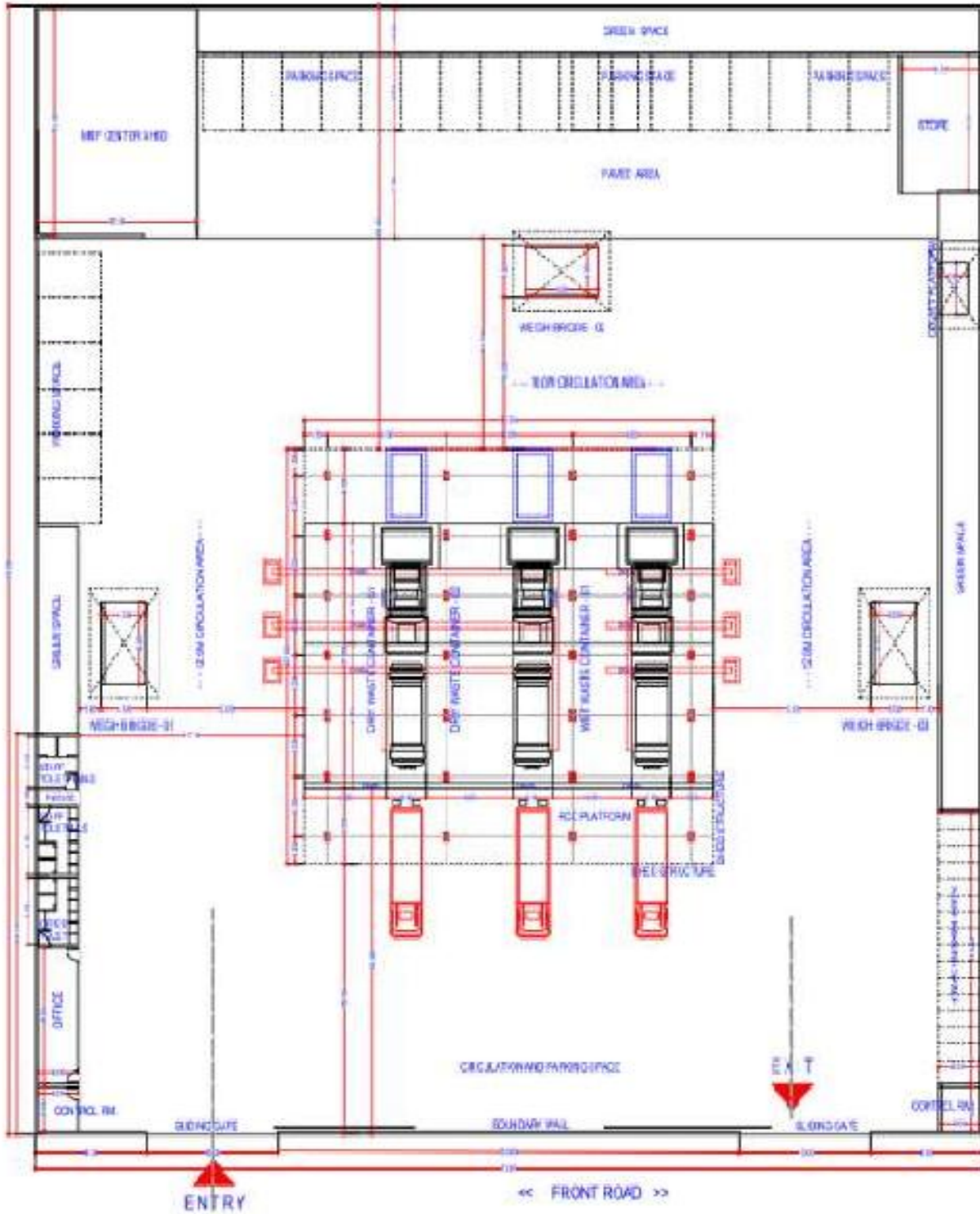
**Efficient Service Delivery :** By continuously monitoring waste collection vehicles and transfer stations, organizations can optimize collection routes, prevent delays, and ensure timely waste management services.

**Preventive Maintenance:** Continuous tracking of vehicle and system performance allows for proactive maintenance, minimizing breakdowns and unexpected downtime of both vehicles and transfer station equipment.

**Reduced Operational Costs :** By tracking fuel consumption, optimizing routes, and improving operational efficiency, ICT monitoring helps reduce costs associated with vehicle operation and waste transfer processes.

**Real-Time Alerts and Reporting :** The ICT system can send real-time alerts for any operational anomalies—such as a malfunctioning vehicle, overfilled transfer station, allowing for quick corrective actions. Detailed reports can also be generated for analysis and continuous improvement.

Annexure -1  
Layout of GTS



## Annexure -2

## Transfer Station Zone/Ward allotted Detail

S.no	GTS	Zone	Allotted Zones	Allotted Wards
1.	Arif Nagar	4	3, 4, 5, 16, 17	9, 11, 12, 13, 14, 15, 16, 17, 18, 20, 72, 73, 75, 76, 77, 78, 79
2.	Bairagarh	1	1, 20	1, 2, 3, 4, 5
3.	Idgah Hills	2	2, 5, 20	6, 7, 8, 10, 21
4.	Kajlikheda	19	18, 19	80, 81 ,82 , 84, 85
5.	Govindpura	16	11, 12, 14, 15, 16, 17	70, 71, 44 ,66, 67, 68, 65, 74
6.	Bhadhbhadha	8	6, 7, 8, 21	24, 25, 26, 27, 28, 29, 30, 31, 32, 46, 47
7.	Jatkhedhi	13	13, 14, 19	52, 53, 54, 55, 56, 57, 60, 84, 85
8.	Danapani	10	6, 7, 8, 10, 12, 13, 18, 19, 21	43, 45, 48, 49, 50, 51, 52, 54, 58, 59
9.	Rajendra Nagar	9	9, 11, 16	36, 37, 38, 69, 74
10.	Baba Nagar / Shahpura	6	6, 8, 18	30, 46, 51, 80, 82, 83
11.	Shahjani Park	7	5, 7, 10, 11, 21	19, 22, 23, 24, 33, 34, 35, 39, 40, 41, 42, 70
12.	Transport Nagar	15	14, 15	60, 61, 62, 63, 64

## Transfer Station Machine Equipments Details

S.no	GTS Name	Zone of GTS	No. of Machines Installed at GTS
1.	Arif Nagar	4	3
2.	Bairagarh	1	2
3.	Idgah Hills	2	2
4.	Kajlikheda	19	3
5.	Govindpura	16	3
6.	Bhadhbhadha	8	2
7.	Jatkhedhi	13	3
8.	Danapani	10	3
9.	Rajendra Nagar	9	3
10.	Baba Nagar / Shahpura	6	2
11.	Shahjani Park	7	2
12.	Transport Nagar	15	3
13.	Anna Nagar	14	3
14.	Gondipura	17	2
15.	Jinsi	8	2

## Annexure -4

## Spot Fine on Waste Burning

<b>Burning Waste Challan details from BMC</b>			
<b>SR</b>	<b>Month Name</b>	<b>No of Challan for Burning Waste</b>	<b>Amount</b>
1	November 2023	83	38900
2	December 2023	33	16600
3	January 2024	32	7300
4	February 2024	26	15900
5	March 2024	17	13000
6	April 2024	23	11000
7	May 2024	17	13800
8	June 2024	19	22200
9	July 2024	9	4500
10	August 2024	7	9550
11	September 2024	5	2200
12	Oct 2024	32	19900
13	Nov 2024	45	31900
14	December 2024 (01 To 16)	31	14400
<b>TOTAL</b>		<b>379</b>	<b>221150</b>

Annexure -5

Photographs of GTS







Samsung Quad Camera  
Shot with my Galaxy A21s





## List of Transfer Stations and their Consent

No.	Industry Name	Address	Applied for Air/Water Consent (Yes/No)
1-	Anna Nagar Garbage Transfer Station	46, S-Anna nagar near carrier college in front anna nagar BHEL, Huzur, Bhopal	Yes
2-	Baba Nagar Garbage Transfer Station	KHASRA NO.-Z717-Near Hote Shree Vilas ChunaBhatti Square Baba Nagar , Kolar ,HUI-Bhopal	Yes
3-	Bairagarh Garbage Transfer Station	Khasra no.- 3/1,3/2,2/1-Near Bairagarh BCLL Bus Depot, HUI-Bhopal	Yes
4-	Bhadbhada Garbage Transfer Station	KHASRA NO.-264,307-Near Taj Hotel, Bhadbhada Road, Bhadbhada Square ,HUI-Bhopal	Yes
5-	Gondipura Garbage Transfer Station	Khasra no. 538/1, 538/2, 538/3-Near Afghan hotel Bandra cafe new jail road bypass Asaram sq,HUI-Bhopal	Yes
6-	Govindpura Garbage Transfer Station	khasra no 46,47,132,133 - Govindpura industrial area near J.K. road minal shopping com,HUI-Narela	Yes
7-	Idgahills Garbage Transfer Station	16S-Cancer hospital road in front T.B. Hospital Idgahills ,HUI-Bhopal	Yes
8-	Jaatkhedhi Garbage Transfer Station	Khasra no.401-Near Ashima mall Square,Kendriya Vidhyalaya no.03 Bagmugaliy,HUI-Bhopal	Yes
9-	Jiinsi Garbage Transfer Station	Khasra no.938 S -Jinsi square In front CI hyundai near jinsi slaughter house m,HUI-Bhopal	Yes
10-	Rajendra Nagar Garbage Transfer Station	Khasra no.- 240,241,242,243,244,245,246-Rajendera Nagar, Chandbarh, Near Coach Factory Road, Khuship,HUI-Bhopal	Yes
11-	Thuakheda, Kajlikheda Garbage Transfer Station	Kh. No.297/296-Thuakheda, Kolar Road ,HUI-Bhopal	Yes
12-	Transport Nagar Garbage Transfer Station	Kh. No. 6/1,690,691,693-RTO office Kokta bypass road, Transport Nagar. ,HUI-Bhopal	Yes

## List of Transfer Stations and their Consent

13-	Yaadgar-E-Shahjhani Garbage Transfer Station	KHASRA NO.-1668/1243- Near Sultaniya Hospital, Shahjhani Park, Kali Mandir Jhangir,HUJ-Bhopal	Yes
14-	Municipal Corporation Bhopal, Danapani Garbage Transfer Station- DANAPANI NEAR HABIBGANJ, UNDER BRIDGE ,Town:Bhopal	Dhanpani Garbage Transport Station, Bhopal	Obtained consent
15-	Municipal corporation, Bhopal,Arif Nagar Garbage Transfer Station	Arif Nagar Garbage Transfer Station, Bhopal, Huzur, Bhopal	Obtained Consent