

INTERIM PROGRESS REPORT OF THE JOINT COMMITTEE

**constituted by the Hon'ble National Green Tribunal
vide Order Dated 22/04/2022 in O. A. No. 288/2022 in
the matter of News Item Published in The Times of
India dated 22nd April, 2022 titled “Delhi: Another long
drawn effort to douse fire at Ghazipur landfill”**

**Justice (Retd.) S. P. Garg
Chairman
Joint Committee**

Dated 31st July 2022

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI**

Original Application No. 288/2022

In the matter of:

News item published in The Times of India dated 22nd April, 2022
titled "Delhi: Another long-drawn effort to douse fire at Ghazipur landfill"

INTERIM PROGRESS REPORT REGARDING GHAZIPUR LANDFILL

Most respectfully showeth:

1. The instant Interim Progress Report is being filed in pursuance of the Order dated 22.04.2022 of Hon'ble National Green Tribunal in the captioned matter. Para No. 4 and 5 of Order dated 22.04.2022 read:

"4. Situation in Delhi may be more serious having regard to the size of the garbage dump and its location in densely populated area. This requires constitution of a multi-departmental Committee of the concerned departments and responsible prompt action at higher levels of the administration.

5. Accordingly, we constitute a joint Committee headed by Justice S.P. Garg, former judge, Delhi High Court, with members from CPCB, DPCC, Department of Urban Development, Delhi, EDMC, Delhi Disaster Management Authority and District Magistrate and DCP, East Delhi. DPCC will be the Nodal Agency for coordination and complaince. The Committee may hold its first meeting within one week, undertake visit to the site, interact with the stakeholders, ascertain the factual situation and suggest further course of action after interaction with the concerned stakeholders. It may consider the landfill dump as isolated and vulnerable site which requires On-site and Off-site fire and other disaster management plans..."

2. After the constitution of the Joint Committee, six meetings have been held till date. First meeting was held on 28.04.2022 to deliberate upon the issues with

the members of the Committee. DM (East), DCP (East), Ms. Divya Sinha, Addl. Director, CPCB, Mr. Sandeep Kumar Sharma, Chief Engineer (EDMC), Mr. K. C. Surender, Addl. Secretary, Urban Development, Department of GNCTD, Sh. D.K. Singh, Sr. Environmental Engineer (DPCC) and Sh. Vinod Kumar Singh, Executive Magistrate (Mayur Vihar) participated in the meeting.

3. The participants were apprised about the directions of the Hon'ble NGT in the order dated 22.04.2022 in O.A. No. 288/2022. It was emphasized that the main object of the Committee was to suggest measures to be taken for prevention and control of fire incidents at the Ghazipur dumpsite. Mr. Sandeep Sharma, Chief Engineer (EDMC) was requested to brief about the dumpsite and the fire incidents there. Mr. Sharma informed that Ghazipur landfill area was one of the biggest and oldest landfills. It is not an Engineered Sanitary Landfill (SLF). It is an unscientific dumpsite, not designed as per Schedule III of Municipal Solid Waste (Management and Handling) Rules, 2000 and Schedule I of the Solid Waste Management Rules, 2016. It is used for indiscriminately dumping of Municipal Solid Waste (MSW) generated in the Trans-Yamuna area under the jurisdiction of EDMC. It is in operation since 1984 and is spread in an area of about 70 acres. It has already crossed permissible height of 20 meters long back and had attained height of 65 meters with 140 lac tonnes of MSW in July, 2019. The dumpsite receives about 2300 tonnes per day (TPD) of fresh MSW out of the total 2600 TPD of MSW generated from the areas under the jurisdiction of EDMC. Rest of the MSW (about 300 TPD) is processed/disposed through the decentralized facilities (Material Recovery Facilities), (MRF)/Bio-methanation plants/composters/composte pits etc. Fresh Municipal Solid Waste received at the dumpsite is layered alternatively with Municipal Solid Waste and C&D waste to deal with the high moisture content in the waste.

4. Mr. Sharma further informed that vide order dated 17.07.2019 in O.A.No. 519/2019 with O.A. No. 386/2019, Hon'ble NGT had directed the Municipal Corporations in Delhi to go for bio-mining using trommels instead of capping the dumpsites including Ghazipur dumpsite. Earlier bio-mining of Legacy Waste (Old MSW) was being carried out using two types of trommels (30 mm and 6 mm screen size). Presently, 25 trommerls have been installed for bio-mining of Legacy Waste. Also, 4 pair of high capacity machines have been installed for increasing the bio-mining of Legacy Waste. Since October, 2019, about 9.5 lac MT of Legacy Waste has been bio-mined. Main fractions obtained from the bio-mining of the Legacy Waste are (i) Inert (ii) C&D Waste and (iii) Combustible Material (RDF) (Refused Derived Fuel). RDF is used in Waste to Energy Plant (WTE) at Ghazipur. C&D Waste is used at the site itself to construct approach roads etc. Inert which is about 60-70% of the total bio-mined waste, is being used in the low lying areas of EDMC and also by NHAI in its projects. NHAI has sent requirement of soil like material (Inert) for filling up of embakenments/road shoulders for 50 lac MT. EDMC has also called Request for Proposal (RPF) for bio-mining of 50 lac MT of Legacy Waste on output basis along with construction of 150 KLD Leachate Treatment Plant and an Engineered Sanitary Landfill (SFL). The bids are under evaluation. RDF can only be disposed of in the Waste to Energy Plant, Cement Industries or Klins. It was also informed that Waste to Energy Plant was established at Ghazipur in agreement with IL&FS with processing capacity of 1300 TPD of Municipal Solid Waste. Presently, it has been shut down for the last more than 6 months for refurbishment/revamping; it is scheduled to be recommissioned by 10.05.2022.

5. Mr. Sharma further informed that Integrated Solid Waste Management Facility of 2000 TPD capacity was proposed to be developed by EDMC in joint venture with NTPC at Ghonda Gujran, however, the Principal Committee constituted

by the Hon'ble NGT in O.A. No. 6/2012 has rejected the project in its meeting held on 14.01.2022 as the said facility was falling under the flood plain of river Yamuna. EDMC was pursuing with DDA for allotment of alternative land.

6. Mr. Sharma was asked about the measures taken by EDMC to prevent fire incidents at Ghazipur dumpsite. He informed that methane generation and high temperature, particularly in summer, were the main causes of fire incidents at the Ghazipur dumpsite including fire incidents on 28.03.2022, 09.04.2022 and 20.04.2022. These fire incidents occurred at places where Municipal Solid Waste was dumped about one or two years back. 24 CCTV cameras have been installed and a control room has been established in the office of EDMC at dumpsite. It had already prepared an action plan in the year 2017 to minimise the fire incidents and for that reason, the fire incidents have minimized after 2017. When enquired if there is any boundary wall or fencing around the site to prevent unauthorized entry, he informed that Rs.25 crore were required to construct the boundary wall. Due to financial constraints and non availability of funds, proper boundary/fencing could not be provided. EDMC has, however, provided guards and there is one police picket in front side of the site. In the absence of proper boundary/fencing, unauthorized entry of ragpickers cannot be ruled out. Rag pickers generally make their entries from Live Stock market behind the Ghazipur dumpsite. FIRs have been lodged and letters have been written to DCP for police picket at the Live Stock market site to provide protection to EDMC officials who are threatened by the ragpickers. DCP (East) was requested to assess the requirement of police pickets at the Ghazipur dumpsite and to provide police officials round the clock to have surveillance along with the EDMC officials. DCP (East) assured the assistance of Delhi Police in this regard.

7. The Committee was surprised to know that dumping of fresh MSW at the Ghazipur dumpsite was more than the processed/disposed one. Under these circumstances, there was least possibility of the total elimination of the garbage mountain in the near future. There was urgent requirement to provide alternative site to EDMC to dump fresh MSW. EDMC was asked to identify land and have correspondence with DDA and Delhi Government for its availability. Mr. Sharma further informed that they had requested Delhi Fire Service to station one fire tender at the site to reduce the response time. It generally takes 30-40 minutes for a fire tender to reach the site.

8. DCP (East) informed that they have lodged 13 FIRs regarding the fire incidents at site. During the investigation of a case, CFSL team was called for a spot inspection and report. CFSL opined the cause of fire as 'position of place of occurrence of fire and other environmental conditions indicates that the fire could not be started due to external ignition but it could start due to spontaneous combustion'. Investigation of the cases revealed that the fire erupts due to methane gas and other natural processes and no foul play or mischievous act has been revealed till date. In future, the role of human intervention in aggravating or initiating fire eruption could not be ruled out. Therefore, to thwart human intervention, contact numbers of SHO; beat and Division Officer have been exchanged with the officers of Mandawali Fire Station so that immediate response can be given in case of any fire incident. Staff of local PS Ghazipur has been briefed to initiate prompt legal action against unauthorized entry/attempt to entry in respect of SLF site. A temporary police booth has been set up at the approach road of the landfill site. The DCP (East) further informed that the FIRs have been treated 'untraced'.

9. Mr. D.K. Singh, Senior Environmental Engineer (DPCC) informed that a meeting was taken by the Hon'ble Environment Minister, Government of NCT

of Delhi with experts from IIT-Delhi, GAIL, Centre for Science and Environment, Indian Agriculture and Research Institute, three Municipal Corporations and Environment Department (DPCC) on 21.04.2022 regarding discussion on the probable measures to control fire at the dumpsites in Delhi. Minutes of the said meetings were awaited. It was decided that a team comprising of officers from DPCC, EDMC and North DMC shall visit the Gorai dumpsite in Greater Mumbai to know about the existing Methane capturing system and other details.

10. The Committee was of the unanimous view that 100% bio-mining of Legacy Waste at the dumpsite as per the orders of the Hon'ble NGT was the solution to the problems associated with dumpsites in Delhi. However, bio-mining of Legacy Waste at the Ghazipur dumpsite is very slow. Only about 7% of the total Legacy Waste has been processed since July, 2019. Dumping of fresh unsegregated/partially segregated municipal solid of 2200-2300 TPD was aggravating the problems. It was enquired from Mr. Sharma if there was possibility for extraction of methane gas from the dumpsite by inserting pipes etc. He informed that a pilot project for extraction of methane gas was undertaken by GAIL in 2016. However, the project was stopped as it was not found commercially viable. He further informed that EDMC has again requested GAIL to study the possibility of methane extraction.

11. Additional Director (CPCB) informed that CPCB and DPCC had issued directions to Municipal Corporations including EDMC from time to time for proper management of MSW as per the Solid Waste Management Rules, 2016 including segregation of MSW at source, Legacy Waste Management and bio-mining of Legacy Waste, prevention of fire incidents at the site. However, there is non-compliance of the directions issued. It was suggested that there should be assessment of entire area of Ghazipur dumpsite and On-site Emergency

Disaster Management Plan should be prepared. It was also suggested to isolate the slaughterhouse waste from being dumped at Ghazipur dumpsite. The Committee requested CPCB representative to focus mainly on the dumpsites in Delhi while issuing the directions.

12. After detailed discussions and deliberations, it was decided:

- Delhi Fire Services and DDA be requested to send their representatives to attend the next meeting of the Committee to get inputs from them.
- DCP (East) shall assess the requirement of police picket at site in consultation with EDMC and take necessary action.
- EDMC shall provide list of land parcels identified for processing of MSW and response (if any) received from DDA regarding their allotment.
- EDMC shall prepare short term and long terms management plans for combating fire incidents at the site. EDMC shall make assessment of the entire area of Ghazipur dumpsite and prepare On-site Emergency Disaster Management Plan.
- DDMA to assess the entire site and to develop Emergency Disaster Management Plan.
- Joint Committee to visit Ghazipur dumpsite on 02.05.2022.

VISIT TO GHAZIPUR DUMP SITE

13. On 02.05.2022 at around 11:00AM, the Joint Committee visited the Ghazipur dumpsite to ascertain the prevailing situation. The Committee visited peak site of the dumpsite and surveyed the surrounding areas minutely. The landfill is situated in a congested area. The South-Westren boundary of the landfill is

bound by a WTE plant. Adjacent to the site, on the North-West side is a densely populated area that includes a market and dairy farm. Fresh MSW was being dumped and earlier dumped waste was being covered with Inert using machinery. It was observed that mixed MSW was being dumped indicating lack of segregation at site/source. Site/location of fire incidents on 28.03.2022, 09.04.2022 and 20.04.2022 were also shown to the Committee. The trommel machines were in operation. It was informed that ragpickers usually visit from the residential colony. No fire was noticed at dumpsite at that time.

SECOND MEETING

14. Subsequent to that, the Joint Committee visited Headquarter of EDMC at Udyog Sadan, Patparganj Industrial Area, Delhi – 110092. A Power Point Presentation was made by Consultant (EDMC) before the Committee and various issues related to the dumpsite were discussed. DM (East), DCP (East), K. C. Surender, Addl Secrearty, UD Department, ADM (East) as representative of DDMA (East), Ms. Divya Sinha, Addl. Director, CPCB, Sh. Dilip Ramani, Engineer in Chief, EDMC, Sh. Sandeep Kumar Sharma, CE, EDMC and Sh. D. K. Singh, Sr. Environment Engineer, DPCC were present during the visit at dumpsite and in the meeting at Udyog Sadan.
15. During discussion, it was informed that presently 25 trommels were in operation for bio-mining of Legacy Waste. Average processing capacity was 2100 TPD. It is expected to be increased to 6000 TPD by May, 2022. Legacy Waste bio-mined/processed was 9.60 lacs tonne (6.68% of the total Legacy Waste). 10 additional high capacity trommels were expected to be in operation by May, 2022 to increase bio-mining capacity. There were 21 CCTV camera and out of that, 17 were working. 4 water tankers with capacity of 9000 litres each were there at the site.

16. It was further informed that there were steep slopes at the dumpsite which made it very difficult for dousing the fire, particularly at slopes. Fire generally occurs at the MSW dumped 1-2 years back. The EDMC has deployed number of excavators, bulldozers, JCBs and other machinery for extinguishing/dousing fire in case of any fire incident. C&D and Inert is spread to douse the fire. They have also provided 4 water tankers of 9000 litres each at the site which are used for extinguishing fire in case of any fire incident and also for sprinkling of water for control of road dust generated from the movements of trucks and other vehicles. Treated water from the nearby slaughter house is used by the tankers. One anti-smog gun has been installed at the dumpsite for suppression of dust. It was however, found not in use.

17. The Committee saw the screens installed at the office of EDMC at the dumpsite showing live footage received from the CCTV cameras installed at various sites/locations. EDMC has installed a board in the office at the site mentioning various directions for duty officers. They check unauthorized entry, fire incidents and smoking at the dumpsite by taking rounds. Copy of the Power Point Presentation given by the Consultant is annexed as **Annexure A**.

18. It was urged that there was imminent need for processing/removing Legacy Waste and setting up process facilities for fresh waste. On 28.03.2022, a major fire incident had occurred and it could be doused with great difficulty. Following other issues were discussed:

Waste to Energy Plant at Ghazipur

19. It was established as per the Agreement dated 21.05.2008 between MCD and East Delhi Waste Processing Company Private Limited (EDWPC) who was responsible for its operation and maintenance. It has processing capacity of 1300TPD of MSW. Presently, it is under refurbishment/revamping since September, 2021. Due to its non-operation, EDMC has faced difficulty in

disposal of RDF generated from bio-mining of the Legacy Waste. The Committee enquired as to why it had taken so long to revamp or refurbish the WTE and if there was any clause for imposition of penalty upon the concessionaire in case of default. It was informed that penalty clause was there, but it has not been resorted to so far. It was decided that a report be called from the concessionaire as to why WTE plant was lying shut for so long. EDMC was asked to inform if any show cause notice has been issued to the concessionaire.

20. Non-availability of land for setting up of additional processing facility for remaining MSW – Grievance of the EDMC was that no alternative space has been made available by DDA after the proposal to set up Integrated Solid Waste Management Facility of 2000 TPD at Ghonda Gurjan was rejected by the Principal Committee on 14.01.2022. Mr. Ramani informed that EDMC was in the process to file appeal against the said order before the Hon'ble NGT. EDMC was asked by the Committee to identify the land and have correspondence with DDA for its allotment or make request before Hon'ble NGT.

21. Disposal of Inert – It was informed that since October, 2019, about 9.6 lac MT Legacy Waste has been bio-mined. Height of the dumpsite has been reduced by 12-16 meters at certain stretches (16 acre area). The time-line for 50% remediation is April, 2023 and for 100% remediation is December, 2024. Inert generated from bio-mining is disposed at NHAI sites Methapur, Singhola and Alipur, NTPC Eco Park, Noida private land and low lying areas. Presently, 2500-3000 TPD of Inert is being disposed of. It will be increased to 5000-6000 TPD by deploying more number of trucks. The Committee was not satisfied with the disposal of Inert at NHAI. The officer was unable to justify as to why more trucks could not be deployed to increase the disposal of Inert with NHAI. It was informed that the problem of entry of trucks particularly in day time was one of the reasons for less number of deployment of trucks. Moreover, Green

Cess has to be paid for crossing the border in Haryana. The Committee informed that these two issues were not serious at all. They should take up the matter with the Traffic Police for entry of trucks during day-time. Payment of Green Cess is not a big issue to prevent disposal of Inert.

22. Disposal of RDF – It was disclosed that huge quantity of RDF has accumulated over the period and EDMC is facing difficulty in its disposal. Accumulated RDF kept at the dumpsite has risk of catching fire due to high temperature in summer. Cement manufacturing industries are located at a distance of 400 kilometers and it is not commercially viable to dispose the RDF there due to high transportation cost. NTPC Dadri has provision for use of both coal and RDF based power generation, however, they require RDF in powder form only. The Committee impressed EDMC to explore possibility of the Inert to be converted into powder form for its use in NTPC at Dadri.

23. Slide of small part of Ghazipur dumpsite in 2017 – There was a slide of small part of Ghazipur dumpsite towards Hindon Cut Canal in 2017 causing two deaths. The Committee enquired from DCP (East) about the status of matter related to death of two persons. It was informed that FIR was lodged in December, 2017. During survey by Delhi Police and EDMC in 2017, the reasons of the waste slides were found to be low density and high moisture that created fault-lines in the dumped waste leading to loosening of the waste. EDMC officials also informed that dumpsite was developing fissures and was at the verge of another incident due to accumulation of waste and steep slopes. Mr. D.K. Singh informed that as per newspaper clipping, the Civil Court has granted Rs.15 lacs compensation for each death.

24. After discussion and deliberations, following decisions were taken;

- District Disaster Management Authority (EDMC) will conduct Fire Mock Drill at the dumpsite to check the preparedness and response time of ESFs.

- DCP (East) will depute two constables 24x7 hours in two shifts for patrolling with EDMC officials to prevent unauthorized entry at the site. He shall also assess the requirement of police pickets in consultation with EDMC and take necessary action. He will also take up the matter with Traffic Police regarding entry of trucks/vehicle carrying Inert during day-time.
- EDMC to inform Delhi Police about the patrolling areas in and around the dumpsite; make a roster of the officials for patrolling with Delhi Police. Shed to be provided by EDMC for the patrolling team. EDMC may call PCR whenever they encounter any person threatening and making unauthorized entry into the dumpsite.
- EDMC to pursue with DDA for allotment of alternative suitable land for setting up of Municipal Solid Waste Processing Facilities. EDMC may also approach the Hon'ble NGT regarding allotment of alternative land in place of land allotted at Ghonda Gujran.
- Possibility of construction of RCC boundary wall of adequate height with proper wire fencing along the periphery of dumpsite be explored. EDMC to enhance the water sprinkling particularly at vulnerable hotspots of methane generation and fire incidents. It shall assess the requirement of additional CCTV cameras in consultation with Delhi Police and DDMA and provide the same at the earliest at suitable locations. Temperature Sensors should be installed for early detection of fire at suitable places.
- EDMC to continue making efforts for utilization of RDF at the facilities at Delhi and in the neighbouring states i.e. UP and Haryana. It must increase its disposal of Inert with NHAI and deploy more number of trucks.

THIRD MEETING

25.The 3rd meeting of the Joint Committee was held on 07.05.2022 at 01:00PM. Sh. Puneet Kumar Patel (ADM, East), representative from DDMA, Sh. Achin Garg, Addl. DCP (East), Sh. Sandeep Kumar Sharma, Chief Engineer (EDMC), Sh. D.K. Singh, SEE (DPCC), Sh. Ramesh Chand, SE, (DDA), Mohd. Shah Nawaz Alam, Ex. En, (DDA), Sh. Mukesh Verma, Divisional Officer, Delhi Fire Services attended the meeting.

26.It was emphasized that the main object of the Committee was to suggest measures to be taken for prevention and control of fire incidents at the Ghazipur dumpsite. Mr. D.K. Singh, Senior environmental engineer (DPCC) briefed about the observations made by a team of officers from DPCC, North DMC and EDMC during the visit of Gorai and Deonar dumpsites in Mumbai on 5th - 6th May, 2022. Mr. Singh was asked to submit the report of the visit and also suggest if the measures taken by the Municipal Corporation of Greater Mumbai can be replicated/adopted at the Ghazipur dumpsite, and if yes, to what extent.

27.Addl. DCP (East), briefed about the following:

- Police force shall be provided as and when required at dumpsite. Police constables (shift wise) shall be provided in coordination with EDMC for regular surveillance at the dumpsite. EDMC may contact concerned SHO in case of any emergency including fire incidents.
- Contact number of Mr. Dheeraj (8750870625) Nodal Officer from Delhi Police was shared with EDMC representatives present in the meeting.

28.When enquired about the progress made by EDMC since the last meeting and to provide updates, Mr. Sandeep Sharma, Chief Engineer informed that 20 more CCTV cameras were required at the site. Main entry gate is already manned, however, security is required towards residential and slaughter house

site. EDMC was cordoning of the dumpsite area towards residential colony by making a boundary wall. Heavy machinery including bulldozers, excavators, JCB etc. have been deployed for dumping of fresh MSW and are also used in case of extinguishing fire. Jetting machine has also been deployed at the site. EDMC has prepared SOP for prevention and control of fire at the site.

29. Mr. Sharma further informed that EDMC was using two trucks to send Inert to NHAI and each truck has the capacity of 10 tonnes. Due to financial crunch, they were unable to increase the number of trucks for transportation of Inert to NHAI. The Committee asked Mr. Sharma to increase the disposal of Inert by involving more trucks and also to provide figures regarding quantity of Inert disposed to NHAI so far. It was also informed that WTE plant at Ghazipur site had started taking waste from 6th May, 2022. Boiler of the plant will start functioning with effect from 15.05.2022 and about 500 TPD of RDF generated from the bio-mining will be used at the said plant.

30. Mr. Sharma informed that EDMC was pursuing with DDA for allotment of alternate land. The Committee asked him to provide details of the correspondence exchanged with DDA for allotment of land and response by the DDA. The Committee expressed displeasure over attending of the meeting by officers from DDA who were not aware of the issues despite letter by DPCC on 04.05.2022 clearly mentioning that concerned senior officer (dealing with the matter related to allotment of land to Municipal Corporations particulars to EDMC for the Municipal Solid Waste Processing Facilities and Inert disposal) should attend the meeting. It was directed that the concerned senior officer from DDA dealing with the matter relating to land allotment be requested to attend the meetings.

31. Divisional Officer, Delhi Fire Services gave valuable suggestions for preventing/remedial measures to avoid fire incidents at the dumpsite as:

- Entry of unauthorized persons/ragpickers should be prohibited. Persons entering the premises should not carry any inflammable material.
- Dump sites should be strictly 'Match Box Free' and 'No Smoking Zone' area.
- Spark Arresters should be provided with the exhaust system of the vehicles/trucks entering the premises to prevent fire incidents due to sparks from vehicles. It was informed that cost of the spark arrester is Rs.2000-3000.
- Water storage tank of 5 lac litre capacity should be installed along with at least 3 pumps at the dumpsite. For suppression/mitigation of dust, water tankers available at the site should be used.

32.The Divisional Officer stated that there was no need of stationing dedicated fire tender at the dumpsite for all the times as fire station was within a radius of one kilometer from the dumpsite. Permanent placing of fire tender is not possible due to several calls (approximately 2500) being received by the Fire Department. It is difficult for fire tenders of 9-10 KL capacity to reach at the top of the dumpsite. Contact number of Nodal Officers Mr. A.K. Jaiswal, Divisional Officer (9868812990) and Mr. M.K. Sharma, Asst. Divisional Officer (9350214530) were given and they may be contacted as and when required.

33.Representative from DDMA informed that the Fire Mock Drill at Ghazipur dumpsite was proposed, however, yet to be conducted. 11 departments are to be coordinated and at least 10 days time was required for conducting the mock drill.

34. Representative from UD Department, GNCTD informed that they were ready to help the municipal corporations including EDMC financially in the disposal of the Inert from the dumpsites in Delhi.
35. EDMC officers were directed to take up the matter regarding entry of trucks during day time with Traffic Police. The concerned officer from the Traffic Police be called in the next meeting of the Committee.

FOURTH MEETING

36. To ascertain the progress at various levels, 4th meeting of the Joint Committee was held on 20.05.2022 at 02:00PM. It was attended by DM(East), DCP (East), Sh. K.C. Surender, Addl. Secretary, UD Department, Mr. Ritesh Prasad Gurung, CPCB, ADM (East) as representative of DDMA(East), Sandeep Kumar Sharma, CE, EDMC and Mr. B.K. Singh, DPCC. The officers were asked to brief about the measures taken by them regarding prevention and control of fire incidents at Ghazipur dumpsite.
37. Addl. Secretary, UD Department informed that they have written letters to DDA regarding for allotment of land to Municipal Corporations in Delhi for waste processing facilities, Inert disposal etc. He also suggested that M/s Trash Con, a Bengaluru based company works with the objective of Zero Waste Concept and having machinery for segregation of MSW into Bio-degradable, Non Bio-degradable and metal fractions. The said Company also produces recycled products from Non Bio-degradable waste. Municipal Corporations can consult and take help of the said Company particularly for segregation of MSW and achieving the goal of Zero Waste in their areas. Mr. K. C. Surender was requested to furnish copies of the letters sent to DDA along with updated list of land required for DMCs particularly in respect of EDMC at various locations in Delhi. He was further requested to provide booklet/brochure/other

material available from M/s Trash Con to EDMC who shall explore the possibility of having assistance from M/s Trash Con.

38. Mr. Sandeep Sharma, Chief Engineer (EDMC) informed that there is an initiative proposed in joint venture with Bisleri and IPCA to recycle plastic waste into products like tables and bags for school children. He further informed that barricading of the dumpsite has started at the point from where unauthorized entry used to be made by ragpickers. One police picket already exists at the front gate of the site. Police department informed that another police picket at the back side of the dumpsite was not required. EDMC was coordinating with SHO and beat constables of the area and night patrolling of the dumpsite has started on access roads.

39. The Committee enquired about the operational status of WTE plant at Ghazipur. Mr. Sharma disclosed that the plant had started taking MSW at the facility with effect from 06.05.2022, however, it could not be made functional due to fault in conveyer belt. Now it was expected to start within 4 weeks by 15.06.2022. The Committee expressed displeasure about the non-functioning of WTE despite being shut for around 6 months for revamping. The Concessionaire from WTE was directed to be called in the next meeting to find out the exact reasons for closure of WTE for so long period.

40. On enquiry regarding the disposal of Inert at site, Mr. Sharma informed that they were arranging more trucks to increase the disposal of Inert to the construction site of NHAI. Mr. Sharma disclosed that they were disposing 2500-3000 TPD of Inert and it would be increased to 5000-6000 TPD by deploying more number of trucks. The Committee expressed anguish with the slow pace of disposal of Inert and there was no progress since the previous meeting. No valid reasons existed for EDMC not to hire/engage more

trucks/vehicles for disposal of Inert to NHAI. Mr. Sharma assured that necessary steps would be taken and the disposal would be increased.

41. Mr. Sharma further informed that they have provided water sprinklers at vulnerable points, Jetting Machine and fire extinguishers at the site. They are also exploring possibility of insertion of perforated HDPE pipes for release of methane generated from the site; providing Temperature Sensors, Fire Alarms and Spark Arresters on the vehicles entering into/operating at the dumpsite.

42. DM (East) and ADM (East) informed that Fire Mock Drill was conducted at Ghazipur dumpsite on 18.05.2022. Copy of the report of the said Mock Drill was provided and is annexed as **Annexure B**. It was also informed that such mock drill has been conducted for the first time at any landfill in Delhi. Representative of DDMA (East) was asked to prepare Standard Operating Procedure (SOP) for managing and taking necessary action in case of fire incident at the dumpsite. Common SOP may be prepared by the concerned DDMA's for all the three dumpsites in Delhi. Representative of CPCB informed that guidelines for prevention and control of fire incidents are being prepared and it shall be submitted soon to the Committee. DCP (East) informed that Police Department will provide police assistance to EDMC as and when required and has already deployed beat constables for regular surveillance at the dumpsite.

43. After detailed discussions and deliberations, following decisions were taken:

- DM (East), DCP (East), DDMA (East), Department of UD, shall submit progress reports and suggestions for prevention and control of fire incidents at the dumpsite. CPCB shall also submit report including its guidelines along with suggestions/recommendations. EDMC shall submit report including present scenario, steps taken/efforts made by the corporation after the constitution of Joint Committee, difficulties faced by it, future plans

along with SOP, suggestions etc., for prevention and control of the fire incidents.

- Commissioner (Land Pooling), DDA, concerned officers of Delhi Fire Services, Delhi Traffic Police and operator of WTE at Ghazipur based processing company be requested to attend the next meeting of the Committee.
- EDMC to explore the possibility of authorizing some agency at the dumpsite for segregation of fresh MSW being dumped at the site to prevent unauthorized entry of ragpickers.
- EDMC was asked to work out on the following;
 1. Provide sufficient number of Watch Towers at adequate height at various locations for surveillance to prevent unauthorized entry/activity. Increase the number of CCTV cameras in consultation with Delhi Police and DDMA (East) and install them at suitable/proper locations. Provide dedicated surveillance with adequate manpower and vehicles to have strict vigil over the activities going on at the dumpsite. Such surveillance team may comprise of EDMC staff, civil defense and police staff and should frequently take rounds of the site.
 2. Upgrade the existing water tankers with sufficient capacity and pumps to have adequate required pressure for extinguishing the fire. More number of water tankers with pumps be provided at the site.
 3. Installation of Spark Arresters with exhaust system of the vehicles/trucks entering/other machinery at the dumpsite premises to prevent fire incidents be expedited.

4. Provide Temperature Sensors, Fire Alarms, Infra-Red Thermal Imaging cameras for early detection and control of the fire at dumpsite at suitable locations.
5. To explore the possibility of insertion/laying down of perforated HDPE pipes at various locations of the dumpsite at certain distances to release methane into the atmosphere.
6. To explore the possibility of dumping of fresh MSW at other dumpsite(s) i.e. Okhla/other location to lessen the burden on Ghazipur dumpsite, since all the three DMCs have now been unified.
7. Possibility of involving NGO like 'Chintan' to regulate the services of ragpickers be seriously explored.
8. More vehicles/trucks be deployed for transportation of Inert from dumpsite to the construction site of NHAI.
9. Action plan with time-lines be prepared by EDMC to reduce the height of the dumpsite within the prescribed/targeted period.

FIFTH MEETING

44. To ascertain the progress since the last meeting, 5th meeting of the Joint Committee was held on 02.07.2022 at 01:00PM. DM (East), ACP (Traffic) (East), Addl. DCP (East), Mr. K. C. Surender, Addl. Secretary (UD Department), Sh. Puneet Kumar Patel (DDMA), ADM (East), Sh. Mukesh Verma, DO (DFS), Sh. D. K. Singh, Sr. Environmental Engineer (DPCC), Sh. R. P. Gurung (CPCB), Sh. Deepak Kumar, SE (MCD), Sh. Mula Singh, Ex. En., SLF Ghazipur, Vice President, EDWPCL, Sr. Executive (Environment), EDWPCL, Sh. Amit Chaudhary, AD (IL), Sh. Kamal Gupta, DD (IL) and Sh. Nirav Patel (ACP, Madhu Vihar). Mr. Deepak Kumar, SE joined in place of Sh. Sandeep Kumar sharma, Nodal Officer (EDMC) on transfer.

45. Enquiries were made from EDWPCL officials about the present status of the WTE plant. They informed that the plant has started functioning with effect from 15.06.2022, it is running at 70% capacity with processing of 2 sets of material i.e. fresh MSW and remediated plastic. Within 10-12 days, it will be wrapped up to its full capacity. MCD officials complained about the less quantity (100TPD to 150TPD) of waste lifted by WTE plant. WTE officials informed that since sufficient stocks were available with WTE plant for processing, less quantity of waste was being picked up. The Committee expressed displeasure over less quantity of waste being picked up by WTE plant. It was also pointed out that revamping of the plant for about 6 months period was a long duration. MCD officials were asked to inform as to what action has been taken against WTE Concessionaire for violation of the terms and conditions of the contract and produce the relevant documents including Show Cause Notice (if any) issued. WTE officials informed that delay in revamping was due to damage caused to the equipment as the quality of the waste processed was very poor. The Committee asked WTE officials to submit detailed report of the works carried out during revamping and also to take maximum amount of waste from Ghazipur dumpsite for processing.

46. Status of new WTE plants and about the case related to WTE plant at Ghonda Gujran was enquired. MCD officials informed that there was no land with EDMC for new WTE plants and it has written letters for reconsideration of use of land in Ghonda Gujran. DDA officials informed that a meeting was held on 30.06.2022 with Commissioner (MCD), VC (DDA) and Horticulture Department. In the said meeting, VC (DDA) informed that the least affected land will be provided to MCD. DDA officials were asked to submit the Minutes of Meetings to DPCC.

47. Addl. DCP (East) informed that there has been reduction in the entry of unauthorized ragpickers as a result of joint patrolling. MCD officials informed

that barricading has been done instead of boundary wall due to budget constraints. File regarding budget has already been put up. The Committee asked to submit the budgeting issue in writing. MCD officials informed that 1000 TPD RDF processing facility work has been awarded to a private agency (copy of which is submitted to DPCC). RDF processed will be sent to cement industries by the agency. It was further informed that presently 2000 TPD of Inert was being set to NHAI. The Committee expressed displeasure over less quantity of Inert disposal. EDMC officials were directed to deploy more vehicles to increase the quantity of Inert disposal to NHAI. Earlier Mr. Sharma, Nodal Officer had informed that 2500 TDP of Inert was being sent to NHAI and it was expected to be increased to 5000. Apparently, the information provided to the Committee by Mr. Sharma was not correct. EDMC is directed to produce the relevant record to show as to how much Inert was transported to NHAI during the last three months. A report in this regard be also called from NHAI. If any incorrect statement has been given to the Committee by Mr. Sharma, action be taken as per rules against him.

48. On being enquired about day time entry of trucks for transportation of Inert to NHAI, Traffic officials informed that it was quiet possible for entry of trucks during day time, however, a written formal request along with number of vehicles and their registration number was required to be sent to Delhi Traffic Police by MCD. The Committee asked MCD officials to coordinate with Traffic Police and do the needful. On receipt of request for day time entry, Traffic Police will consider it favourably.

49. The Committee advised MCD officials to take precautionary steps and measures as per study conducted by IIT Delhi for prevention of land slides in the dumpsite and to explore more points about slope stability and submit the compliance report. When equired about the installation of spark arresters in the vehicles, it was informed that no spark arrester has been fitted yet. The MCD

officials were directed to install spark arresters in vehicles to prevent fire in dumpsite. When enquired about the measures taken towards prevention of fire, it was informed that two water tankers, one for each shift, has been provided; Temperature Sensors have also been installed. The MCD officials were requested to study the minutes of previous meetings and implement the steps discussed therein.

50.DM (East) informed that Fire Mock Drill was successfully conducted and the shortcomings were forwarded to the concerned departments. SOPs were also defined for each department. The Committee asked DM (East) to circulate shortcomings and SOPs of mock drill to all concerned departments and seek compliance report.

51.CPCB officers informed that they have issued directions under Section 5 of the Environment (Prevention) Act which have been communicated to MCD by DPCC and have asked for the compliance of the said directions which has not yet been received from the DPCC. The Committee asked about the fine imposed by DPCC upon MCD. It was informed that the fine has not been deposited. The Committee asked the MCD officials either to deposit the fine or to challenge the orders.

52.UD department informed that under Swaccha Bharat Mission, Government of India has allotted 436 crore for all the 3 dumpsites in Delhi. Fire Department officer suggested that they could provide training to MCD staff for handling emergency situation arisen due to fire incident. The Committee asked MCD officials to explore possibility of deputing their officials for getting required training from the Fire Department and coordinate with them.

SIXTH MEETING

53.To review the progress, 6th meeting of the Joint Committee was held on 29.07.2022 at 01:00PM. All the members of the Joint Committee along with

Sh. Mulla Singh, Ex.En. (SLF Ghazipur), Sh. Vikas Ahlawat, Director (IL) along with Sh. Kamal Gupta (DD) (IL) and Mr. Alam EE (EMD – 5) from DDA attended the meeting.

54. The Committee enquired about the present status of WTE plant and the action taken by MCD against the Concessionaire for delay in revamping and restarting the operation. Mr. Deepak Kumar informed that very less quantity of RDF is being taken by WTE. Only about 2 days back, it has started taking 900TPD of waste. Show Cause Notice was issued to M/s Ever Enviro Resource Management Private Limited on 13.05.2022 for imposition of penalty for violation of the terms and conditions of the agreement. MCD is seeking legal opinion for taking further action in this regard. DPCC official informed that vide letter dated 14.07.2022, the Concessionaire has informed that the WTE plant had undergone a recent revamp whereafter the boiler was lighted up only on 15.06.2022 and it is yet to get stablized. It also informed that the plant had stopped due to technical fault in the Vibro Feeder on 09.07.2022 and it has been non-operational since then. While they were taking all measures to get the problems of Vibro Feeder sorted out at the earliest, the stablization of the boiler would take at least 15 days to complete. Vide letter dated 29.07.2022, the Concessionaire further informed that the plant was badly damaged and many of its parts were to be replaced. Detail of the jobs carried out during the shut down period was also given in the email. Many of the parts were procured from various parts of India and abroad. Delay was majorly due to non-supply of materials by the vendors and the logistic challenges faced by the Country due to Covid 19.
55. The Committee was not satisfied with the sorry state of affairs at WTE. MCD was asked to inform as to what action has been taken against the Concessionaire after the issuance of Show Cause Notice dated 13.05.2022. The

Concessionaire was directed to provide information regarding data-wise waste received and processed at the plant since its re-start after revamp.

56. Mr. Deepak Kumar informed that Drone survey of the dumpsite has been done and its report will be submitted to the Committee soon. 15 more CCTV cameras were required to be installed at various positions and the necessary work order has been issued. It was also informed that though waste from slaughter house is not being dumped at present, MSW from Poultry Market, APMC, Flower Market is being dumped. DPCC representative informed that waste from Azadpur Sabzi Mandi in North Delhi is being disposed through the Integrated MSW Management Facility at Bhawana having compost plant. The Committee asked the MCD officials to direct APMC, Poultry Market, Flower Market and other such bulk waste generators in East Delhi area to dispose their MSW through compost plant or bio-methanation plant instead of dumping at the site and install such MSW facilities for disposal of their waste. Director, APMC be requested to attend the next meeting of the Committee.
57. When enquires were made about the status of new proposed WTE plants and about allotment of alternative land, if any, by DDA in place of earlier proposed WTE plant at Ghonda Gujran, MCD official informed that no such alternative land in place of Ghonda Gujran has been allotted by DDA so far. DDA representatives informed that there was a meeting on 03.06.2022 with Commissioner, MCD regarding allotment of land to MCD for processing facilities. DDA has identified two land parcels of 4 hectares and 2 hectares near Ghazipur (Truck Parking area and Paper Market). The Minutes of the said Meeting are yet to be finalized. The Committee asked the DDA officials to submit the Minutes of the Meeting to the Committee after its issuance.
58. Mr. Deepak Kumar informed that the work has been already been awarded to a private agency (M/s Recycling Solutions Pvt. Ltd.) for processing of 1000TPD

RDF. (The copy of the work order has been provided to the Joint Committee). The said plant is expected to be operational within 6 months. It was also informed that WTE plant of 2000 TPD capacity at Tehkhand was under construction and expected to be commissioned by September, 2022. It is proposed to divert 1000 TPD of fresh MSW to the said upcoming WTE after its commissioning.

59.Regarding construction of the boundary wall along with the periphery of the dumpsite, MCD official informed that though boundary along the periphery has not been constructed due to budget constraints (required estimate of Rs.24 crore has been sent to UD Department), however, barricading of about 550 meters at the periphery of dumpsite has been done. Regarding disposal of Inert, it was informed that more number of trucks have been deployed and at present, no stock of Inert exists at the spot. After having consultation with Traffic Police, the issue of entry of trucks during day time has been resolved and the necessary permission was granted by the Traffic Police. The Committee appreciated the efforts made by the Corporation to clear the Inert lying in huge quantity at the spot and its transportation to NHAI as per the directions of the Committee. It is informed that presently whatever Inert is processed, the same is transported to NHAI immediately.

60.The Committee reiterated the MCD to take precautionary steps and measures as suggested in the study conducted by IIT Delhi for prevention of landslides and to ensure that no landslides occur in future and submit compliance report with respect to measures suggested by IIT.

61.On being asked about installation of Spark Arresters, Mr. Deepak Kumar informed that Spark Arresters have not yet been installed, however, they have issued instructions to the departments/officers in the MCD for taking necessary action in this regard. The Committee asked the MCD officials to pursue the

matter with the concerned officers for early installation of Spark Arresters on the vehicles entering or operating at the site.

62.Regarding perforated HDPE Pipes for release of methane, it was informed that estimate for insertion of perforated HDPE Pipes has been prepared and is being processed.

63.Regarding training of the staff with Delhi Fire Service, it was informed that there was a three day training program and training was given by NDRF to the MCD staff (1 batch per day). The meeting with Delhi Fire Service for training is yet to be held. The MCD officials were impressed to hold a meeting with DFS for training of MCD staff immediately and submit minutes of the meeting to the Joint Committee.

64.Regarding authorization of ragpickers for entry at the dumpsite, Mr. Deepak Kumar informed that though no such authorization has been given to the ragpickers, however, they will discuss the matter with DM (East) and involve some NGO in this regard. He was informed that DM (North) has already taken initiative in this regard and has involved 'Chintan', an NGO. It was impressed that issue of authorization/regularization of ragpickers be discussed with DM (north) and 'Chintan' or any other similar NGO.

65.DM (East) informed that Fire Mock Drill was successfully conducted on 18.05.2022 and its shortcomings will be sent to the concerned departments after vetting by Delhi Fire Service.

66. Add. Secretary (UD Department) informed that Rs.174 crore have been released to MCD for remediation of 3 dump sites in Delhi under Swachh Bharat Mission out of Rs.776 crore. He further informed that Rs.124 crore were released to the erstwhile East MCD out of Escrow Account and Rs.40 crore could be utilized by it. Mr. Deepak Kumar informed that the entire amount has been exhausted and they have submitted the utilization certificate

and have requested the UD department vide letter dated 22.07.2022 to release the remaining amount. The UD representative assured to expedite it.

67.DCP (East) informed that there was no report of unauthorized entry of ragpickers at the landfill. A police picket existed near the entry gate and joint patrolling by police and MCD staff was being done. DCP (East) informed that there was a Cample dumpsite in Panjim (Goa) which was about 20 meters in height and has been successfully bio-mined and flattened. The Committee asked Mr. D.K. Singh, Nodal Officer to send a letter to the Corporation of the city of Panaji (Goa) and Goa State Pollution Control Board requesting to provide information regarding successful bio-mining of the Legacy Waste from Cample dumpsite.

68.After detailed discussions and deliberations, following decisions were taken:

- MCD shall submit action taken and updated progress report with respect to the decisions taken in the previous meetings. It shall provide report on Drone survey of the landfill site. It shall also inform action taken against operator of WTE plant with respect to Show Cause Notice dated 13.05.2022. It shall direct APMC, Poultry Market, Flower Market and other such bulk waste generators to dispose their MSW through compost plants or bio-methanation plants instead of dumping at the dumpsite and install MSW facilities for disposal of their waste. It shall take precautionary steps and measures in terms of the study conducted by IIT Delhi for prevention of landslides. It should hold a meeting with the fire services for training of its staff.
- DDA shall submit copy of the minutes of meetings with Commissioner, MCD held on 30.06.2022 and response of DDA with respect to letters/communication from MCD and UD department received in the past for allotment of land for waste processing facilities.

- DM (East) and MCD to discuss the issue of authorization/regularization of ragpickers at site and they may consult DM (North) and Chintan (NGO) in this regard.
- DDMA/DM (East) to send shortcoming observed during Mock Drill on 18.05.2022 to the concerned departments after vetting by Delhi Fire Services.
- Operator was WTE plant be asked to provide information regarding date-wise waste received and processed since its restart.
- Corporation of the City of Panaji, Goa and Goa State Pollution Control Board be requested to provide information/report regarding successful bio-mining of the Legacy Waste from Campsite dumpsite in Panjim, Goa.
- Director, APMC be requested to attend the next meeting of the Joint Committee.

OTHER SUGGESTIONS

69. Waste to Energy Plant – Only one WTE plant has been established at Ghazipur as per the Concession Agreement dated 21.05.2008 between MCD and East Delhi Waste Processing Company Private Limited. Its processing capacity is 1300TPD of Municipal Solid Waste. The plant was lying shut for the last around 6 months at the time of constitution of the Joint Committee. It became operational on 06.05.2022 and started taking MSW at the facility from dumpsite; it did not run at its full capacity. It again became non-functional due to fault in the conveyer belt. WTE plant has started functioning with effect from 15.06.2022. Even at present, it is running at 70% of its capacity. The Committee took serious note of it as due to non-operationalization of WTE plant, the MSW being dumped at site could not be processed and has accumulated in large quantity. The Committee is of the view that closure of

WTE plant for long 6 months for revamping/refurbishment is not appreciable. It has not been disclosed as to why so long period of more than 6 months was taken for revamp of the WTE plant; what exact works have been carried out during this period and how much expenses have been incurred. Even after revamping, it did not function, and again fault occurred in its the conveyer belt and it was shut. The Committee called the representative of the Concessionaire and directed him to furnish detailed report leading to abrupt closure of vital facility for more than 6 months. As per report received on 29.07.2022, very less quantity of waste material is being taken for processing. The boiler has not yet stabilized. As per report, in May, 2022, no fresh waste was taken or processed. In June, 2022 only 46.75MT fresh waste and 2156.41RDF was taken and 2778MT was processed. In July 2022, fresh waste and RDF taken is 4375.305MT and 7568.607MT respectively. It processed only 20164 tonnes. It is really a sorry state of affairs and cannot countenanced. The WTE was visited by DPCC on 15.07.2022 and its report is annexed as **Annexure C**. The MCD officials have been directed to produce the Contract/Agreement to ascertain if it contains provision for shutting down of WTE plant for so long period and if there is penalty clause for any omission on the part of the Concessionaire. The Committee is of the view that detailed enquiry is required to be conducted as to under what circumstances the WTE plant remained shut for more than 7 months and who was responsible for its closure.

70. The Committee is of the firm view that more WTE plants are required to be established within the jurisdiction of MCD to process the huge MSW dumped at the site. Presently, around 2300TPD of fresh MSW is dumped at the site. The capacity of the WTE plant at Ghazipur if run at full capacity is around 1300TPD. Apparently, the WTE plant is inadequate to meet the requirements. Immediate steps are required to set up additional WTE plants at proper locations.

71. For an Integrated Solid Waste Management Facility of 2000TPD in Joint Venture with NTPC at Ghonda Gujran, land was allotted by DDA. However, the Principal Committee constituted by Hon'ble NGT in O.A. No. 06/2012 has rejected the project in its meeting held on 14.01.2022 as the said facility was falling under the flood plain of river Yamuna. After rejection of the project, no alternative site has been provided to EDMC. Several correspondences have taken place with DDA for allotment of alternative land but no concrete action has yet been taken. It is recommended that on urgent basis, DDA/Delhi Government should provide alternative land to Municipal Corporation to set up the Solid Waste Management Facility. The Corporation was directed to identify suitable land where MSW processing facility can be set up and coordinate with DDA for its allotment.

72. Recently, the Hon'ble LG has visited Okhla Waste to Energy Plant. Direction has been given to civic officials to take steps immediately to increase its pending capacity to fully utilize legacy waste and free the city of the garbage menace on a long term basis. The plant at Okhla consumes 1950MT solid waste. Directions have also been given to complete the Tehkhand plant in South Delhi by August, 2022. The plant will use nearly 2000MT of Residual Derives Fuel (RDF), in addition to 500MT Construction and Demolition waste. The Committee noted that the space/facility at Okhla can be utilized to dump MSW generated within the EDMC area to lessen the load at Ghazipur dumpsite. After the unification of all the Corporations, there should not be any difficulty in exploring the utilization of Okhla land fill site/facility to dump MSW temporarily.

Inert disposal

73. At Ghazipur site, at the time of visit of the Committee on 02.05.2022, 58,000 tonnes of RDF was lying at the site. It was informed that about 60% - 70% of

the Inert was used by EDMC in low lying areas. NHAI has sent requirement of Inert for filling up of embankments/road shoulders for 50 lacs MT. Around 2500-3000TPD of Inert was being transported at the construction site of NHAI. The Committee took exception to it and enquired as to why less quantity of Inert was being transported to NHAI when EDMC had the contract to send 50 lacs MT. There was no valid reasons for EDMC officials not to deploy more vehicles/trucks for transportation of Inert. A lame excuse was given that due to prohibition of entry of vehicles/trucks during day time, it was difficult to transport the required Inert to NHAI. The Committee enquired if there was any request by EDMC to Traffic Police for exemption/permission to carry Inert during day time. The answer was in the negative. The traffic police officials, on being requested to attend the meeting, informed that there was no issue of entry of trucks during day time. For that purpose, EDMC will have to make a request to Traffic Police in writing along with the registration number of vehicles to be used for transportation of Inert. The EDMC has been directed to take up the matter with the Traffic Police immediately and increase the deployment of more vehicle for transportation of Inert to NHAI to complete the contract at the earliest. In the 6th meeting held on 29.07.2022, it was informed that huge Inert lying at the site has since been transported to NHAI completely. It is an appreciable development.

74. Another issue that has cropped up during the meetings is that no proper record has been maintained at site by EDMC as to how much quantity of Inert has been transported to NHAI. The previous Nodal Officer Mr. Sandeep Sharma had informed that 2500-3000TPD of Inert was being transported to NHAI and it was expected to be increased to 5000-6000TPD by May, 2022. However, Mr. Deepak Kumar, Nodal Officer, who replaced Mr. Sharma attended the meeting on 02.07.2022, informed that transportation of Inert to NHAI was around 1000TPD. The Committee took serious note of it. Record has been called from

EDMC and NHAI to ascertain the exact transportation of Inert during the last three months. The Committee suggests that proper record must be maintained as to how much quantity of Inert has been transported on daily basis to NHAI; how many trucks/vehicles have been deployed for the said purpose and how much expenses have been incurred on it. The mismatch of the quantity of transportation of Inert to NHAI by two different Nodal Officers is a cause of concern and requires investigation by the Commissioner of MCD.

75. The Joint Committee has appreciated the efforts made by Municipal Corporation of Delhi to supply Inert free to cost to the public at large. In this regard, an appeal has been made and published in the Newspapers by the Commissioner (MCD) to optimally use the C&D waste and Inert material for their construction activities. It is suggested that the Government agencies/Departments/RWAs be involved and mandatorily they be asked to utilize Inert in their projects to the extent it is feasible.

BIOMINING OF LEGACY WASTE

76. The dumpsite at Ghazipur is spread in around 70 acres. It is used for dumping MSW since 1984. It has crossed its carrying capacity long back. In July, 2019, its height was around 65 meters. The Legacy Waste dumped at site was 140 lakh tonnes. Around 2300 fresh MSW is dumped daily at site. The average processing capacity is only 2100TPD. The Legacy Waste bio-mined till date is only 9.60 lakh tonne (6.86%) of the total Legacy Waste. Apparently, the progress of bio-mining is very slow and tardy. No effective steps seem to have been taken for bio-mining the waste. Under this scenario, it is highly unlikely that EDMC would achieve its target of flattening the garbage mountain by December, 2024. The situation becomes more serious and aggravated when fresh MSW is dumped at site and its quantity is more than the processed one. It would take years together to process the Legacy Waste at the current pace. No

effective plans to reduce the height of the garbage mountain have been made. It should have proposed a long time ago that future dumping of garbage in them would pollute the groundwater systems. The Joint Committee is of the view that segregation of waste at source is the urgent need of the hour. Directions have been issued under Section 5 of the Environment (Protection) Act, 1986 read along with Solid Waste Management Rules, 2016 by CPCB vide letter dated 26.05.2022. DPCC has also issued directions vide letter dated 10.06.2022 to the Municipal Corporations. Some interim measures have been suggested to be implemented on priority by the Corporations till the time Onsite/Offsite Emergency Plans were prepared and implemented. One of such direction is that fresh waste be not disposed at the dumpsite. Organic waste from slaughter house, fish market etc., industrial waste be not disposed of at the dumpsite. It be ensured that no industrial waste/e-waste/lithium battery is dumped at the site.

77.EDMC must comply with the directions issued by CPCB and DPCC. Instead of sending plastic waste to dumpsite/WTE, the focus should be on minimization, segregation, recycling and reuse of materials. Slaughter house, APMC, Flower Market around Ghazipur dumpsite must be encouraged to segregate the Municipal Solid Waste at source and have in house arrangement for their use/recycling. To discourage such big units to dump indiscriminately, Municipal Corporation can explore possibility of levying charges/penalty for dumping unsegregated MSW at site. RWAs be involved and it should be ensured that minimum waste reaches the landfill site. They be encouraged to segregate at home and compost at the colony level. The Solid Waste Management Byelaws for Delhi notified in 2018 place the onus of waste segregation – into wet waste (bio-degradable), dry waste (non bio-degradeable) and domestic hazards waste, directly on those who generate it including households. Violaters are liable to pay a fine of Rs.200/-. DDA/Delhi

Government must allocate space for the corporations to handle fresh waste. Waste processing infrastructure needs to be strengthened so that no organic waste reaches the landfill site.

FIRE MOCK DRILL

78. The causes of eruption of fire at the landfill site has been detailed by the Fire Service Department in its report annexed as **Annexure D**. In pursuance of directions of the Joint Committee, a surprise Fire Mock Drill was organized by DDMA (East) to check the preparedness and response time of Emergency Support Functionaries (ESFs) on 18.05.2022 at 11:26AM at Ghazipur landfill. The detailed report was submitted by DM (East) along with photographs. SOP prepared is annexed as **Annexure E**.
79. Some deficiencies/shortcomings were noted at the time of Fire Mock Drill. There was no display of emergency numbers anywhere at the site; no presence of siren; evacuation plan or map at the site; and no disaster management plan. There was no Standard Operating Procedure at the site on how to deal with any kind of disaster. The trucks were moving in and out of the dumping site during the drill as stopping them around would have caused traffic jam due to only one gate for entry and exit. The staff was not aware of the workers and vehicles working at the spot at any point of time. There was no formal record about the people going to the dumping site. The staff was not even aware of the details of the vehicles like which area they belonged to. There was lack of trained staff for dealing with disaster. Directions were issued to remove/rectify the deficiencies.
80. Several recommendations made for prevention of fire incidents were circulated to various stakeholders for implementation/compliance as:

- The entry and exit gates should be separate and proper record should be maintained of the entry/exit of persons/vehicles. Also, if two gates are there, the movements of ESFs can be better during any disaster.
- Regular awareness and training needs to be given to the staff at the dumping site. Delhi Fire Service has already offered to provide training to the officials. EDMC shall depute sufficient number of officials for getting training to deal with fire incidents in coordination with Delhi Fire Service.
- EDMC shall establish an emergency control room; it shall be operational on 24x7 basis. EDMC shall prepare SOPs, Disaster Management Plan and Evacuation Plan and keep it at site.
- The area where the fire is reoccurring needs to be identified and observed in order to avoid any disaster.
- Regular internal mock drills shall be conducted on regular basis.

81.The Joint Committee appreciated the efforts of DM (East) to organize the fire mock drill which has been conducted for the first time in any landfill site.

82.Mr. D.K.Singh, one of the members in the team who had visited the Gorai and Deonar dumpsites in Mumbai on 05.05.2022 and 06.05.2022 submitted the comprehensive report which is annexed as **Annexure F**. The Committee has examined the report minutely and is of the view that various steps taken at the Gorai and Deonar dumpsites are very useful and can be replicated at land fill sites at Delhi. The stakeholders have been directed to examine the report and explore the possibility of its implementation. To prevent fire incidents, the following suggestions can be considered:

- For release of methane generated from dumpsite, perforated HDPE pipes or of any other suitable material may be provided at the dumpsite at suitable locations with proper spacing as per the site requirement.
- Declare the entire dumpsite as 'No Smoking Zone' and 'Match-Box Free Zone'.
- Increase the number of tankers for sprinkling of water for control of dust and fire. Adequate water storage capacity at the dumpsite for control of fire be ensured. Upgrade the existing water tankers with sufficient capacity and pumps to have adequate required pressure for extinguishing the fire.
- Deployment of adequate heavy machinery for dousing of fire (bulldozer, excavator, back-hoe loaders etc.)
- Construction of roads at periphery around the dumpsite to facilitate movement of vehicles, patrolling teams and fire tenders.
- Adequate number of CCTV cameras should be installed in consultation with Delhi Police and DDMA at suitable locations covering vulnerable spots for fire. Proper control room with screens and adequate staff should be provided to monitor the activities through CCTV cameras.
- Spark Arresters should be installed with the exhaust system of the vehicles/trucks entering at the dumpsite to prevent fire incidents due to sparks from vehicles.
- Security Watch Towers be installed at suitable locations to have proper watch and ward of the dumpsite.
- Proper training on regular intervals should be given to the staff deployed at the dumpsite.

- CO Monitors, Methane Detectors, Temperature Sensors, Fire Alarm be installed in consultation with expert agencies like IIT Delhi, NEERI etc.
- Mobile lightening system be installed at the places where regular light is not available.
- Regular plantation activities be undertaken over the capped area.
- Unauthorized entry of persons and ragpickers be stopped. Dedicated police pickets can be provided at the dumpsite for prevention of unauthorized entry. There should be frequent patrolling of the security personnel, Delhi Police and MCD Staff to prevent unauthorized entry/activities. Dedicated surveillance squad with adequate manpower and vehicles be provided to have strict vigil over the activities going at the site. They should frequently take round of the dumpsite.
- The ragpickers are frequent visitors to the land fill site and are stated to be helpful also. It has been suggested that NGO like 'Chintan' can be involved to regulate the entry of ragpickers. The said agency can deploy specific number of ragpickers for the purpose of segregation and recycling at the dumpsite. The ragpickers can be given identity cards. Civil Defense volunteers can be made available by DM (East).
- The number of surface fires can be substantially reduced by covering the free land fill surface by a layer of non combustible material like earth/waste building construction materials.
- Limiting the footfall and through frisking the persons likely to operate in the area be prevented to carry materials capable of igniting the combustible materials.

- In order to keep the vulnerable areas wet/damp, jetting machines can be deployed for spraying of water as per requirement.
- In case of any fire incident, DDMA along with Delhi Fire Services be immediately intimated.
- UD Department to explore possibility of fulfilling the land requirement of the Corporation through Revenue Department also.
- Boundary wall with adequate height with barbed wire be constructed around the landfill site. The number of entry/exit be decreased at the site.

83. It is heartening to note that several steps have been taken recently to mitigate the huge problem. MCD has planned to deploy Drones to survey the height of the landfills in every three months, to ascertain the exact extent of steps that need to be taken to shorten it. MCD has also given subsidy on property tax to colonies engaged in waste segregation to encourage the residents. As per newspaper report in The Times of India dated 29.07.2022, there was 100% door to door collection of Municipal Solid Waste in 297 wards out of the total 302 wards across the three municipal areas – MCD, NDMC and Cantonment Board. It also mentioned that there was 100% source segregation of waste in 295 wards which is nearly 97.7% of all the municipal wards. It was also informed that 90% of the Municipal Solid Waste generated daily in the city is processed. Another report published in the same newspaper on 29.07.2022 states that to prevent fresh waste being dumped at the landfills in future, MCD is establishing two more Waste to Energy (WTE) plants by 2024-25 taking the total to five, with a total processing capacity of 11800 tonnes a day. It also reports that MCD is also working on small projects, such as bio-CNG plants to ensure 100% processing of municipal waste. These are good and appreciable developments.

84.The Joint Committee has identified several bottlenecks. It has suggested various measures to combat the menace of garbage after consultation with experts. Some success has been achieved, more is to be done.

Submitted please.

Dated: 31.07.2022

Justice (Retd.) S. P. Garg



East Delhi Municipal Corporation

Bio-Mining of Legacy Waste at Sanitary Landfill Ghazipur

Preview



- **Background**
- **Current Situation**
- **Biomining Progress and Timelines**
- **Key Challenges**
- **Cooperation Solicited & Long term measures**

Background



- Ghazipur SLF operational since 1984 over 70 acres with 140 MT of Legacy Waste.
- In EDMC area, approx. 2600 TPD of Municipal Solid Waste (MSW) is generated.
- The WtE Plant (1350 TPD) under refurbishment since Sept., 2021. Plant is likely to be operationalized from mid-May, 2022.
- No land available with EDMC for setting up additional processing facility for remaining MSW.
- Accidental slide of small part of Ghazipur SLF in 2017 claimed two lives.
- Post-accident, on the direction of



Current Situation



- **Proposed solid waste management facilities in 42.5 acres land at Ghonda Gujran allotted by DDA rejected by Pr. Committee of NGT.**
- **The current dumpsite at Ghazipur is filled to the brim and is vulnerable.**
- **No option but to continue using it for dumping of fresh waste.**
- **SLF developing fissures and is at the verge of another accident.**
- **Imminent need for processing/ removing legacy waste and setting up processing facilities for fresh waste.**
- **On 28.03.2022 had a major fire incident and with a great difficulty, it**



Bio-mining Progress and Timelines



Two-pronged approach of EDMC for legacy waste processing/removal at Ghazipur Dumpsite:

- A. Deployment of Trommels in line with NGT Orders. Over 9 Lac tons of legacy waste has been bio-mined so far out of total 140 lacs metric ton and the processing capacity is being further increased with high capacity trommel machines.**
- B. RFP issued for “Bio-mining of 50 Lakhs Tons Legacy Waste and disposal of excavated material, reclamation of Land and construction of Sanitary Landfill (SLF) and setting up 150 KLD Leachate Treatment Plant (LTP) at Ghazipur Dumpsite”. Bids received on 3rd March, 2022 under examination. Likely to be awarded next month i.e. May, 2022.**



Bio-mining Progress and Timelines

EDMC started bio-mining/remediation of legacy waste at Ghazipur on Indore Model through trommels 30mm & 6mm sieve size w.e.f.

December 2019

Target is to clear 140 lacs MT legacy waste by 2024

SLF Site	Quantity	Timeline for 25% remediation	Timeline for 50% remediation	Timeline for 100% remediation
Ghazipur	140 Lakhs MT	*October 2022	April 2023	#December 2024

***Progress suffered due to lockdowns on account of COVID19 and ban on construction/demolition activities by CAQM for pollution mitigation and non availability of land.**

#Subject to allotment of alternate land by DDA for processing

Bio-mining Progress and Timelines- Contd...

- **Presently 25 Trommels are in operation.**
- **Processing capacity of Average 2100 TPD to be increased to 6000 TPD by end of the May 2022.**
- **10 nos. of additional High capacity Trommels to be operationalized by end of May, 2022.**
- **9.60 Lakh Ton of legacy waste processed.**
- **Height reduced by 12-16 metres at certain stretches (16 Acres area).**
- **Inert disposal at - NHAI sites Meethapur, Singhola, Alipur, NTPC Eco Park, Noida Pvt. Land and low lying areas.**

Bio-mining Progress and Timelines- Contd



EDMC INSTALLS 20 SMART MACHINES AT LANDFILL

New Delhi: The East Delhi Municipal Corporation (EDMC) has installed 20 advanced machines at the Ghazipur landfill site to speed up the biomining process of the dumpsite. According to officials, each set of which will process 1000 Tonne per day, eight of which have already started working and remaining 12 machines are likely to be functional by mid May 2022.

Key Challenges



- 1. Disposal of excavated material because of limited avenues.**
- 2. Financial Constraints - proposal sent for funding under SBM 2.0.**
- 3. Limited waste processing facilities resulting in dumping of fresh garbage at Ghazipur landfill.**
- 4. EDMC is continuously pursuing with DDA, DMRC, PWD to utilize the inert (soil like material) in their low-lying areas but not getting any response.**
- 5. Dumping of fresh garbage at the same site continues to affect the progress of bio-remediation/bio-mining:**
 - On account of space constraint**
 - Movement of vehicles is restricted in day time.**
- 6. At present animal waste from slaughter house is also being dumped at Ghazipur dumpsite, due to which there is a bird menace (kites and vultures) they gather in large**

Cooperation Solicited & Long term Measures

- 1. Expeditious allotment of alternate sites by DDA for waste processing.**
- 2. NHAI to obligate contractors to lift and utilize minus 30 mm fraction in their projects and bear transportation cost.**
- 3. MoEF&CC to exempt Green Cess on vehicles carrying excavated material from dumpsites.**
- 4. Request MoHUA to look into the possibility of setting up a centralized RDF processing facility for all DMCs.**
- 5. Above is critical in achieving PM's vision for removal of garbage mountains of Delhi**



Thank
you



FIRE MOCK DRILL

AT

GAZIPUR LANDFILL

ON

18TH MAY, 2022





DISTRICT DISASTER MANAGEMENT AUTHORITY (EAST)
GOVERNMENT OF NATIONAL CAPITAL TERRITORY OF DELHI
OFFICE OF THE DISTRICT MAGISTRATE, EAST
L.M. BANDH, SHASTRI NAGAR, DELHI-31



INTRODUCTION:

As per the direction received from Joint Committee constituted by Hon`ble National Green Tribunal headed by Hon`ble Justice (Retd.) Sh. S.P. Garg.

A Surprise Fire Mock Drill was organized by District Disaster Management Authority (DDMA) East to check the preparedness and response time of ESFs on **18.05.2022 at 11:26 A.M.** The Mock exercise was conducted at Gazipur Landfill. The scenario was of Fire

OBJECTIVES OF THE MOCK DRILL:

- To review the alertness and response time of different emergency support functionaries (ESF's) in the East Delhi district for any disaster and to identify areas for further improvement.
- To assess the vulnerability of the proposed area to proposed disaster/incidents and to formulate recovery /mitigation plans for the district.
- Capacity building of ESF's and practice of standard operating procedures.
- Networking knowledge on best practices and tools for effective risk management.
- Damage minimization.

SCENARIO OF THE DRILL AT, GAZIPUR LANDFILL.

The mock drill was planned on the scenario of fire as Gazipur Landfill is vulnerable to fire.

- In the month of May, it's quite hot during the summer days, on 18th May, 2022 sun is blazing and the temperature has soared to 45^oC. at Gazipur landfill area the temperature remains 2-3^o higher than rest of Delhi.
- There are the chances of formation of methane and other gases at the landfill site due to heat and various chemical reactions.
- This methane and other combustible gases formed in the landfill sites sometimes caused fire and which may grow big depending on the amount of gases formation.
- On May 18th due to excessive gas formation, huge fire was reported from Gazipur landfill site, which was spreading rapidly in the landfill area.

STAGING AREA:

- In said Mock Exercise the Office of EDMC office at Gazipur Dumping Site was selected as the staging area for mock drill. Staging Area is generally a place identified for gathering of different ESFs during the time of any emergency or disaster. In this mock drill, Sh. Puneet Kumar Patel, ADM (E)/ CEO, DDMA was the Staging Area Manager, he had looked after all the ESFs as well as the equipments required during the time of mock drill.

EMERGENCY SUPPORT FUNCTION PREPAREDNESS THROUGH SOP'S:

Each team leader was requested to interact with their team members to test the preparedness and the links with the District EOC. **SOP prepared for following departments.**

ESF -1 Communication

Nodal agency at District level: Mahanagar Telephone Nigam Ltd. (MTNL)

The communication ESF is primarily responsible for restoration of communication facilities. The ESF on Communication should ensure the smooth flow of information that can cater to the outreach in a time-sensitive manner at District level in response efforts.

ESF-2 Evacuation

Nodal agency at District level: Office of the District Magistrate/Deputy Commissioner,

The ESF on evacuation is primarily responsible for establishing evacuation plans, identification of fastest evacuation routes and alternate routes and coordinating evacuation logistics during field operations.

ESF-3 Search and Rescue

Nodal agency at District level: Delhi Fire Service.

Search and Rescue operations are one of the primary activities taken up in a post disaster situation. The promptness in these operations can make a remarkable difference in the amount of loss of life and property.

ESF - 4 Law and Order

Nodal agency at District level: DCP, SW, Delhi Police Service.

The ESF on Law and Order maintains the law and protects the property and valuable commodities. It is mainly responsible to control crowd and avoid riots situations.

ESF -5 Medical Responses and Trauma Counseling

Nodal agency at District level: CDMO Office, Department of Health Services

The ESF on Medical Response and Trauma Counseling will look after emergency treatment for the injured people immediate after the disaster take place.

ESF- 6 Water Supply

District Nodal agency: Delhi Jal Board

The ESF on drinking water and water supply will ensure provision of basic quantity of clean drinking water and water for other purposes in a manner that does not allow the spread of diseases through the contamination of water.



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ESF - 7 Reliefs (Food and Shelter)

Nodal agency at District level: Department of Food and Civil Supplies

In the event of a disaster there would be a need of disbursing relief materials due to massive destruction of life and property taken place. The ESF on Relief should ensure coordination of activities involving with the emergency provisions of temporary shelters, emergency mass feeding and bulk distribution of relief supplies to the disaster victims as also the disaster managers and relief workers.

ESF- 8 Equipment support, Debris and Road clearance

Nodal agency at District level: Municipal Corporation of Delhi,

The importance of this ESF emanates from the fact that most large scale hazards such as earthquakes, cyclones, floods primarily affect the building structures.

ESF - 10 Electricity

Nodal agency at District level: BSES

The ESF on electricity will facilitate restoration of electricity distribution systems after a disaster. In the event of a disaster there would be major electricity failure and many power stations damaged. At some places in order to carry out search and rescue, even electricity is required to cut off, which can be easily managed with the help of this Agency.

ESF -11 Transport

Nodal agency at District level: Transport Department

The ESF on Transport should ensure smooth transportation links at state and district level. Within the disaster context, quick and safe movement of material and humans are a priority. It should coordinate the use of transportation resources to support the needs of emergency support forces requiring transport capacity to perform their emergency response, recovery and assistance missions.

MAJOR HOSPITAL IDENTIFIED.

- Lal Bahadur Hospital
- Max Balaji Hospital
- Chacha Nehru Bal Chikitshale Hospital

RELIEF CENTERS

A Relief Center was setup at Vinod Nagar Metro Depot in the District. All the affected persons were sent to Relief Centers, where the minor injured and other affected persons were sent for initial first aid and care. It is also pertinent to mention here that facility of Food, Drinking Water & Medical etc. was provided to all the persons reached at

Relief Camp by Revenue Department. The local transportation was used for taking them to the relief centers from the incident sites.

GAZIPUR LANDFILL (DUMPING YARD)

As per IMD forecast, the weather will remain likely to rise. In the month of May, it's quite hot during the summer days, on 18th May, 2022 sun is blazing and the temperature has soared to 45°C., at Gazipur landfill area the temperature remains 2-3° higher than rest of Delhi.

There are the chances of formation of methane and other gases at the landfill site due to heat and various chemical reactions. This methane and other combustible gases formed in the landfill sites sometimes caused fire and which may grow big depending on the amount of gases formation.

On May 18th due to excessive gas formation, huge fire was reported from Gazipur landfill site, which was spreading rapidly in the landfill area

• COURSE OF ACTION

Mock Drill at Gazipur Landfill started at 11:26 A.M.

- ✓ **11:16 a.m.**-Fire broke at Gazipur Landfill.
- ✓ **11:26 a.m.** - The Caller (local public) called 1077 that disaster has struck and thus the start of mock drill.
- ✓ **11:27 a.m.**-District Emergency Control Room received call from 1077.
- ✓ **11:29 a.m.** - Quick Response Vehicle (QRT) was moved from District for Incident Site.
- ✓ **11:31 a.m.** - **DPO (East)** instructed EOC, East, to inform all the ESFs to respond
- ✓ **11:30 a.m.** - DM (E) received the Message from District Emergency Control Room and DM (E) instructed **CEO, DDMA(E)/ADM, East**, to direct the **SDM (Mayur Vihar) & DPO** to coordinate the Operation
- ✓ **11:37 a.m.** - **DPO (East)** & Quick Response Vehicle (QRT) reach at Incident site along with team reached to the Site.
- ✓ **11:40 a.m.** - Incident Command Post was Established where record of casualty was kept, mobilization and demobilization of men and material at the Incident base was also taken care of.
- ✓ **11:33 a.m.** - **CEO, DDMA (E)/ADM, East**, directs the **SDM (Mayur Vihar) & DPO (East)** to coordinate the Operation along with the Task Force Unit which was stationed at Staging Area.
- ✓ **11:44 a.m.** - **CEO, DDMA (E)/ADM, East**, reach at Incident site
Venue Incident Commander / In-charge from Revenue Department:
Sh. Rajeev Kr. Tyagi, SDM (Mayur Vihar)
- ✓ **11:50 a.m.**- **Incident Commander** reach at Incident site along.
- ✓ **11:53 a.m.** - Quick assessment of area started and order for Search & Rescue work.
- ✓ **11:45 a.m.** - **Relief Centre:-** Open Space at West Vinod Nagar Metro Depot.
- ✓ **12:10 p.m.** - Call Ended.



DISTRICT DISASTER MANAGEMENT AUTHORITY (EAST)
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OFFICE OF THE DISTRICT MAGISTRATE, EAST
L.M. BANDH, SHASTRI NAGAR, DELHI-31



**TIME LOG OF EMERGENCY SUPPORT FUNCTIONARIES ESFS
 DETAILS**

CALL TO ESF'S	CALL TIME	Response Time
CALLER	11:26AM	
DDMA EAST QRT	11:27AM	11:37AM
101	11:28AM	11:38AM
102	11:29AM	11:39AM
112	11:30 AM	11:41 AM
DPO (EAST)	11:31AM	11:37AM
DM (EAST)	11:30AM	
ADM (EAST)	11:33AM	11:45 AM
SDM (MV)	11:34 AM	11:50 AM
P S GAZIPUR	11:34 AM	11:38AM
EDMC	11:39AM	11:42AM
SR. CHIEF WARDEN (CIVIL DEFENCE)	11:39AM	11:49AM
SH. DEENANATH YADAV, ICD (EAST)	11:41 AM	
DJB	11:42AM	11:40 AM
DJB(JE)	11:43AM	11:40 AM
CDMO	11:45	
DUMPING YARD INCHARGE		
1.SALAUDDIN	11:45AM	
2.RAVI	11:46AM	
DIVISION WARDEN GHAZIPUR 259	11:48AM	11:48AM
QRT UPDATE	11:50AM	11:54AM
P.S. GHAZIPUR	11:32AM	11:50AM
I.O.	11:52AM	11:39 AM
DJB	11:57AM	11:57AM

DETAILS OF ESFS MANPOWER & EQUIPMENT

Department	Nodal Officer	Contact Number	Number of Manpower	Equipment Details	Response Time
QRT (EAST)	D.P.O.(EAST)MAM	8447276408	ALL DDMA QRT STAFF	FULLY EQUIPMENS	11:37AM
DELHI POLICE	SH. YUNIS JAVED SHO-GHAZIPUR	8750870685	20 STAFF WITH SHO	-	11:38 AM
DELHI POLICE	IO, ASI SH. RAM VEER	8010767510	-	-	11:39 AM
DELHI POLICE	SI. SH. KRANTI VEER (SUPERVISOR)	9415078008	-	-	11:39 AM
DJB	SH. KISHAN PAL	9911116390	1+2	-	11:40 AM
DFS QRT	SH. M.K. SHARMA (ADO)	9350214530	2	-	11:41 AM
EDMC	SH. TARUN AARYA(AE)	9958479283	17	4 WATAR TANK 4 JCB	11:42 AM
SR. CHIEF WARDEN	SH. IQBAL SINGH JAGDEVA	9810011757	1+1	-	11:42 AM
EDMC	SH. MD. SLAUDDIN(JE)	9958434243	30	02 BULDOZER 06 FIRE EXTINGUISHER 01 NT SMOK GUN 06 EXCAVATOR 01 WATER TANK	11:43 AM
ADM(EAST)	SH. PUNEET KUMAR PATEL	9497703331	3	-	11:44 AM
D W 205	SH. JAMSHED KHAN	8800610162	50 CDV	-	11:46 AM
D W 259	SH. V.P.SINGH	9211900506	50 CDV	-	11:46 AM
CATS	VIRENDER SINGH (ECHO 24) VINITA (BITA 11) SANJAY KUMAR (BITA 15) BHOOR SING (ECHO 1)	9982424027 7500759007 9411375104 9587221016	4	Equipped	11:44 AM 11:45 AM 11:48 AM 11:57 AM
TRAFFIC D.P.	ASI SH. SURESH CHAND	9953148344	-	-	11:45 AM
EDMC	1.SH. NAVNEET TOMAR(JE) 2.SH. RATNESH SINGH(JE)	8920329214 8588892862	02	-	11:47 AM
PCR(1+1)	TIWARI JI (ALFA13+1)	8368617919	2+2	-	11:47 AM
PCR(1+1)	C.T. SURYA (ROMIO ALFA 58+1)	8505889899	2+2	-	11:48 AM
D.P. EMERGANCY	112		2	-	11:48 AM
SDM (MV)	SH. RAJEEV JUMAR TYAGI	9810558904	1+2	-	11:50 AM
DFS DALLU PURA	SH. SURENDRA SHARMA(S.O.)	9899181365	6	2 fire tender	11:54 AM
ACP MADHU VIHAR	SH. RANDHEER SINGH	9818164767	1+2	-	11:51 AM
DFS (Kalayan Vas)	SH. AMIT KUMAR(S.O.)	9671844732	1+3	1 fire tender	11:56 AM
DFS (Tahir Pur)	Sh. Manoj Tyagi (S.O.)	9868146767	1+4	1 fire tender	11:59 AM
DFS (CBD Shahdara)			1+2	1 fire tender	



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PHOTOGRAPHS



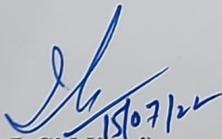


Report on Inspection of Waste to Energy Plant of M/s East Delhi Waste Processing Company Limited at Ghazipur, Delhi on 15.07.2022

An inspection of Waste to Energy Plant (WTE Plant) of M/s East Delhi Waste Processing Company Limited near Veterinary Hospital, Ghazipur, Delhi-110096 was carried out by DPCC Officials on 15.07.2022. Representatives of Waste to Energy Plant, Sh. Iype George (Vice President), Sh. Munendra Choudhury (Manager E&I), and Sh. Gautam Sondhi (Senior Executive Environmental) were present during inspection.

Following is the brief of observations made and information gathered during the Inspection:

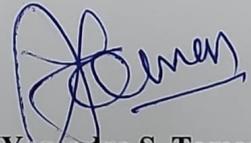
1. It was informed that the WTE Plant received fresh Municipal Solid Waste (MSW) of 226 Tons and 443 Tons of Refused Derived Fuel (RDF) from Ghazipur Dumpsite on 14.07.2022. 1800 Tons of RDF was stacked in the plant.
2. Plant was not fully operational. As informed, Boiler was lighted up on 15th June, 2022. However on 9th July, 2022 due to fault in Ash Extractor Vibratory Feeder Motor and Steam Coil Air Preheater (Attached with intake air to the boiler) the plant was shut down and yet to be stabilized. It was also informed that new Ash Extractor Vibratory Feeder Motor was expected to arrive by 16.07.2022.
3. During inspection boiler was not in operation. As informed by WTE plant Officials due to fault in Ash Extractor Vibratory Feeder Motor it was not possible to empty the previously fed fuel. As high moisture was present in the previously fed fuel, water vapour plume was coming out of the stack.
4. Leachate was being collected in the pits and once a certain level of leachate in the pit is reached, it is pumped for treatment in Leachate Treatment plant (LTP). It was informed that Leachate Treatment Plant was functional but not operational.
5. Radioactive Sensor was installed at entrance gate of the WTE Plant.
6. Continuous Ambient Air Quality Monitoring Station (CAAQMS) found installed and operational.
7. One water tanker of 150 litre has been provided at the site for dust mitigation measures.
8. Occupational Health Centre has been upgraded with new infrastructure including an ambulance available 24 X 7 on site.
9. It was informed that records of MSW being received, processed, disposed and electricity generated etc. are being maintained, however could not be produced during the inspection.
10. Photographs taken during the inspection are enclosed.



(M. I. Siddiqui)
Asstt. Env. Engineer
WMC-II, DPCC



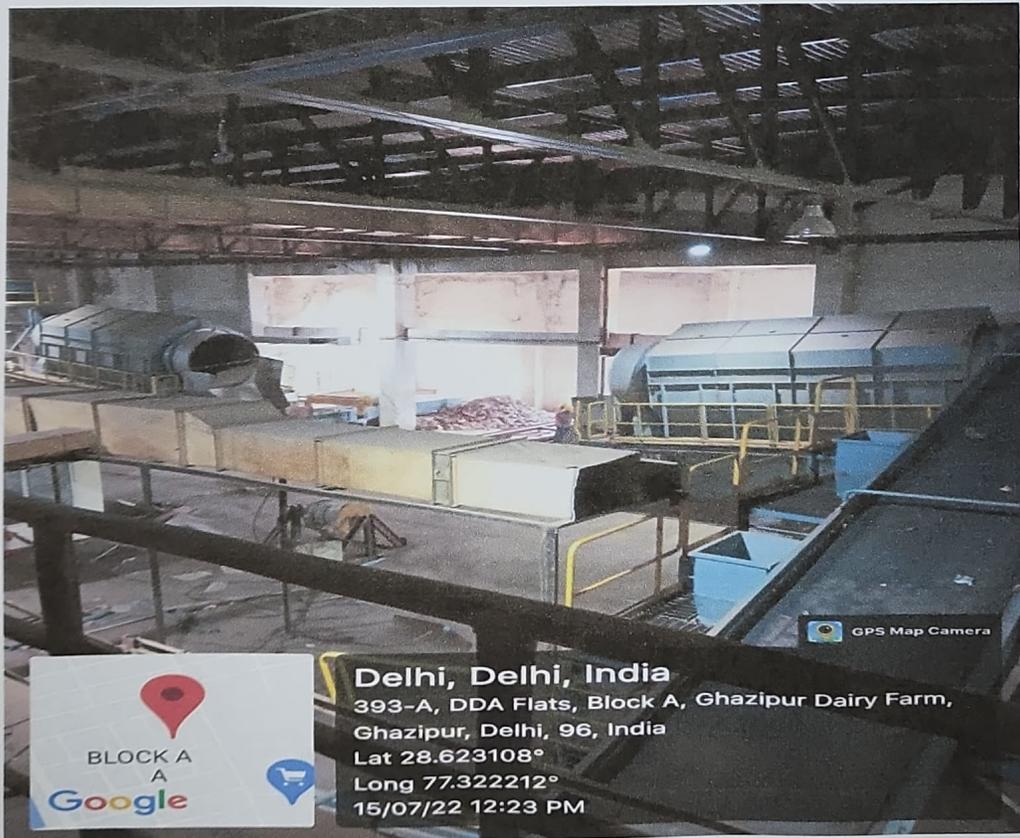
(Balesh Prajesh)
Jr. Env. Engineer
WMC-II, DPCC



(Yogendra S. Tomar)
Trainee Engineer
WMC-II, DPCC

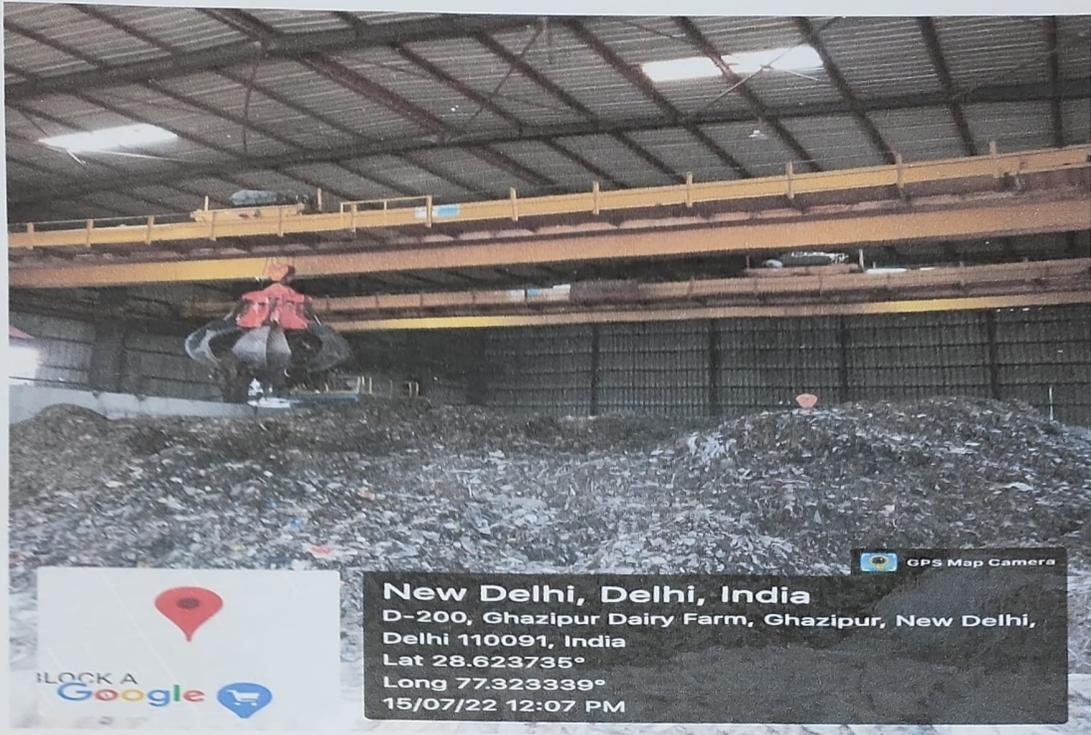


(Waste to Energy Plant)



(Trommel Section)

Photographs Taken during the Inspection of Waste to Energy Plant at Ghazipur on 15.07.2022



(Waste Pit Section)



(Control Room)

Photographs Taken during the Inspection of Waste to Energy Plant at Ghazipur on 15.07.2022

GOVERNMENT OF NATIONAL CAPITAL TERRITORY OF DELHI
HEADQUARTERS: DELHI FIRE SERVICE: NEW DELHI-110001

No. F.6/DFS/MS/2022/ misc) 1113

Dated: 18/05/2022

To,

Sh. D. K. Singh,
Sr. Env. Engineer, DPCC &
Member Convener, Joint Committee,
4th & 5th Floor, ISBT Building,
Kashmere Gate, Delhi - 110006.

Sub: Regarding meeting of Joint Committees constituted by Hon'ble NGT vide Order dated 22.04.2022 in OA No. 288/2022 regarding fire incidences at Ghazipur Dumpsite & Order dated 27.04.2022 in OA No. 300/2022 regarding fire incidences at Bhalaswa Dumpsite on 07.05.2022.

Sir,

Please refer your letter No. F. No. DPCC/WMC-II/Ghazipur Dumpsite/OA 288/2022/9614-9619 dated 02.05.2022 on the subject cited above to above. In this connection, it is to inform you that the meeting was attended by Divisional Officer Sh. Mukesh Verma and it was apprised that the landfill fires can pose unique challenges to the fire service. Surface fires involve recently buried or un-compacted refuse, situated on or close to the landfill surface in the aerobic decomposition layer, generally 0.3 meters to 1.2 meters in depth. Gases are emitted from the landfills and approximately 50 percent of gas emitted from landfills is methane; 45% carbon dioxide and the remainder 5% is composed of nitrogen, oxygen, hydrogen, and other gases. The fires involving landfill gas (methane), generally cause fire to spread throughout the landfill.

Surface fire generally burn at a relatively low temperatures and are characterized by the emission of dense white smoke and the products of incomplete combustion. The smoke includes irritating agents, such as organic acids and other compounds. When surface fires burn materials such as tires or plastics, the temperature in the burning zone is quite high. Higher temperature fires can cause the breakdown of volatile compounds, which emit dense black smoke. Surface fires are classified as either accidental or deliberate. The probable causes include:-

1. Dumping of undetected smoldering materials into the landfill.
2. Fire associated with landfill gas control or venting systems.
3. Fires caused by human error on the part of the landfill operators or users.
4. Fires caused by construction or maintenance work. Fire can occur while construction and maintenance take place, including fires caused by sparks from vehicles used in the landfill (dump trucks, bulldozers, backhoes, etc.). A surface fire could also be ignited when drilling or while driving metal pipes through layers of buried waste if a hard object buried in the landfill is struck. Usage of welding or electrical equipment on site poses a fire hazard, due especially to the increased presence of methane gas.
5. Spontaneous combustion of materials in the landfill. The mixing of certain materials in a landfill can result in spontaneous combustion. Even in small quantities, some chemicals can ignite if exposed to one another. Also, some materials, such as oily rags, can spontaneously combust under certain conditions. Spontaneous combustion can also result from bacterial decomposition.
6. Deliberate fires, which are used by the landfill operator to reduce the volume of waste.
7. Deliberate arson fires, which are set with malicious intent.

Deep Seated Fires occur deep below the landfill surface and involve materials that are months or years old. These fires are generally more difficult to extinguish than surface fires. Underground fires also have the potential to create large void in the landfill, which can cause cave-ins of the landfill surface. Further, they produce flammable and toxic gases (such as carbon monoxide).

The most common cause of underground landfill fires is an increase in the oxygen content of the landfill, which increases bacterial activity and raises temperatures. Ascertaining the cause of fire is further a matter of thorough investigation and it is done by Delhi Police.

These so-called "hot spots" can come into contact with pockets of methane gas and result in a fire. Of particular concern with these long-smoldering, underground fires is the fact they tend to smolder for week to months at a time. This can cause a build-up of the byproducts of combustion in confined areas.

Underground fires are often detected by smoke emanating from some part of the landfill site or by the presence of carbon monoxide (CO) in landfill gas. In the event of an under-ground fire, CO may be present at toxic levels near the landfill's surface.

Landfill fires are common incidents during summer months. The fire calls received in the preceding years are as under.

Landfill Site Fire Calls Data

Site	2019	2020	2021	2022 (upto 30.04.2022)
Bhalswa Landfill	6	1	12	3
Gazipur Landfill	6	8	4	3
Tughlakabad Landfill	25	6	0	2

It may be appreciated that landfill gas production is a natural phenomenon that is largely impacted by the weather conditions. The higher ambient temperature and lower humidity leads the worst. Also, the moisture contents accelerates biological and chemical self-heating leading to spontaneous combustion.

Subsurface spontaneous fires are the most dangerous and difficult to detect and extinguish among landfills fires.

"Excavation and covering with soil" is normally relied upon method for extinguishing subsurface fires.

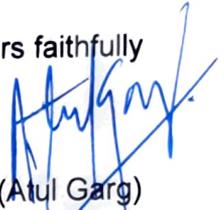
Recommendations:

1. The number of surface fires can be substantially reduced by covering the free landfill surface by a layer of non-combustible materials like earth/waste building construction materials.
2. The production of landfill gases is a naturally occurring phenomenon impacted by weather conditions, in particular, the temperature and humidity. Higher the temperature and lower the humidity provide most conducive conditions for outbreak of fire-both the surface fires and deep seated fires and thus, demand efficient gas recovery system.
3. The rise in temperature show upward trend in outbreak of fires and expected to fall sharply with fall in temperature in coming winter months.
4. All the automotive units expected to operate at the landfill sites must have Petroleum & Explosive Safety Organization (PESO) approved "spark arrestor" a pre-requisite to operate in hazardous areas.
5. Limiting the footfall and thorough frisking the persons likely to operate in the area to prevent carrying of materials capable of igniting the combustible materials.
6. One fire station at Jahnagirpuri, Dallupura, Okhla-I within 01 km, are already functioning to cater the need of emergency response to the Bhalswa, Ghazipur and Tughlakabad respectively. However, an arrangement of underground fire water tank of capacity 05 lakh liters alongwith suitable boosting arrangements

such as 1620 LPM pump and a water ring mains having hydrant outlets at least 01 on either side of each rising level of each landfill site may be provided, so that the same can be used for first aid firefighting by the persons working there, as well as by the firefighting teams of DFS when called for firefighting operation.

7. Personnel deputed to work at these sites must be sensitised and aware towards the fire prevention and protection, so as to mitigate the effects of fire incidents.

Yours faithfully



(Atul Garg)
Director

011- 23414000



GOVERNMENT OF NATIONAL CAPITAL TERRITORY OF DELHI
HEADQUARTERS: DELHI FIRE SERVICE: NEW DELHI-110001

No. F.6/DFS/HQ/ 2022

/misc/ 1114

Dated:

18/05/2022

To,

The Executive Engineer (SLF)
East Delhi Municipal Corporation
Adjacent to MC Primary School
Lalita Park, Laxmi Nagar-110092

Subject: Dousing of fire at Sanitary Land Fill sites

Sir,

Please refer your letter No. EE(SLF)/EDMC/2022-23/D-51 dated 27.04.2022 on the subject cited above. In this connection it is to inform you that in compliance of the directions of Hon'ble Tribunal, this department has already made arrangements for dedicated fire vehicle (Since 2019) at Jahangirpuri, Dallupura and Okhla Phase-I Fire Stations. These fire stations are located at a stone throw distance from these sites. Any call received at 101 is promptly responded by this department.

Sh. A.K. Jaiswal, Divisional Officer (9868812990) and Sh. M.K. Sharma, Asstt. Divisional Officer (9350214530) are deputed as Nodal Officer. They may be contacted as and when required.

Yours faithfully

(Atul Garg)
Director

011 2341 4000

Copy to:

1. Sh. A.K. Jaiswal, Divisional Officer: for compliance
2. Nodal officers SDMC, North DMC
2. CFO/Dy. C.F.O's for information
3. ADO (M)

STANDARD OPERATING PROCEDURES (SOPs) FOR GAZIPUR LANDFILL

ANNEXURE 'B'

District East is vulnerable to many disasters and one of them is fire especially in summers. Some of the Fire incidents take shape of long term and widespread fires, which causes short term and long term misery among the general populations around the area. One of most vulnerable area in East Delhi having such incidents is Gazipur Landfill, where some times the fire keeps on burning for months and some times the intensity is so high and widespread that they are classified as disasters. Disaster related to fire can be prevented in first few minutes of incidents after it generally become out of control of common man and coordinated effort of all the ESF is required in that case.

Most of such incidents are caused by the higher accumulation of waste, which causes higher production of methane and other flammable gases. Sometime such fire causes blast and formation of pollutants and poisonous gases, which becomes threat for the people working in these areas and residing around.

One of the notable feature for the waste landfills are that they are not equipped with any fire fighting facilities, moreover not many people live around and thus the immediate damages due to fire are not much, however the damage to the people working in these sites and the damages caused to environment. As per guidelines the height of any such landfill should not be more than 25 mtr from ground level, however no body takes cognizance of this fact and the height of gazipur landfill is much higher than the stipulated height

The EDMC staff and other employees present in the landfill sites shall be vigilant and should do continuous surveillance of the area to ensure that even a small fire should be timely dozed.

District East DDMA proposes few SOPs for the landfill sites especially applicable for the Ghazipur landfill during the time of any disaster.

1. As soon as staff comes to know about any disaster like fire, they need to blow the siren, to ensure that people around and working in the area are aware that some disaster has struck and the area needs to be vacated. All the trucks also needs to be evacuated
2. The designated staff shall inform about the disaster to the emergency support function (1077, 112, 101 & 102)
3. The staff present shall try to douse the fire with the fire fighting equipment present site till the time emergency support function arrives at the site.
4. The officer incharge shall ensure to keep a count of truck and manpower present or stuck at the disaster area.
5. As soon as the emergency support functions arrive at the site of disaster, the Fire SOPs shall be followed.

MANAGEMENT OF FIRE AND ROLE OF ESF'S:

STANDARD OPERATING PROCEDURES (SOPs) FOR GAZIPUR LANDFILL

When operating at emergency incident condition may develop that would necessitate an immediate evacuation of the fire area along with stopping the fire with the support of police department. The detail roles of all the ESF involved in management of fire are as follow:

Stopping fire:

This will be primarily done by Fire department and most important for fire management.

STANDARD OPERATING PROCEDURES (SOPs) FOR FIRE

Immediate actions by major ESFs during Fire are provided in the following table:

ESFs	Function	Responsible Person	Support Agency	Immediate actions to be taken by ESFs	Contact Persons
ESF 1	FIRE CONTROLLING Search & Rescue	Sub-Divisional Fire Officer of the affected area	Police, Civil Defense, NCC, NDRF, local representative.	<ul style="list-style-type: none"> • Managing fire situation • Evacuate the persons from the debris. • The Civil Defense Volunteers will assist the Delhi Fire Service Personnel in Search and Rescue Operations. 	<ul style="list-style-type: none"> • Delhi Fire Service Control Room- 101 • Divisional Fire Officer- • ICD, Delhi Civil Defense- Sr. Chief Warden, DCD & Chief Warden, DCD
ESF 2	Law & Order	DCP (Delhi Police) of the affected district	Delhi Civil Defense Volunteers and Home Guards	<ul style="list-style-type: none"> • Cordon off the affected area to facilitate the Search and Rescue Operations. • Mob management. • Traffic management for facilitating the free 	<ul style="list-style-type: none"> • Police Control Room- 112 • DCP (DP)- • ICD, Delhi Civil Defense- Sr. Chief Warden, DCD & Chief

STANDARD OPERATING PROCEDURES (SOPs) FOR GAZIPUR LANDFILL

				<p>movement of vehicles to the affected are. (Especially Emergency Vehicles).</p> <ul style="list-style-type: none"> • Maintenance of law and order in the site. • Important warning dissemination. • The Volunteers will also assist the Delhi Police in maintenance of law and order at the site. 	Warden, DCD
ESF 3	Medical Response/Trauma	CDMO of the District and concerned Medial Superintendent	NDMC, MCDs, CATS, Civil Defense, St. John Ambulance Brigade, Hospitals, NGO representatives.	<ul style="list-style-type: none"> • Set up an emergency first aid & triage centre on the site. • Transport the casualties to the hospital. • Hospital management as per the SOP of hospital. • Medical support to Response Personnel's. • Medial Support at Temporary shelters. • C.D. assists the Medical team in providing first aid and transportation 	<ul style="list-style-type: none"> • Control Room- 011-22051234 • CATS Ambulance- 102 • CDMO-

STANDARD OPERATING PROCEDURES (SOPs) FOR GAZIPUR LANDFILL

				causalities.	
ESF 4	Electricity	Concerned area operational manager of BSES/TPD DL		<ul style="list-style-type: none"> • Disconnect the power supply from the local station. • Restore supply after complete operation/necessary instruction. • Will establish temporary power supply to the incident site. 	<ul style="list-style-type: none"> • Control Room- • DGM (BSES)-
ESF 5	Equipment Support & Debris Clearance	Zonal Dy. Commissioner of MCDs	PWD, DJB, DDA, NDMC, DMRC, Private Builders	<ul style="list-style-type: none"> • Provide immediate equipments support for debris clearance. • Manpower for debris clearance. • Coordinate with supporting agencies for required machineries. 	<ul style="list-style-type: none"> • MCD Control Room No. • DC (MCD)- • SE-I (MCD)- • EE(M)- I/DISASTER NODAL OFFICER- • EE(BLDG) - • DJB Control Room
ESF 6	Relief & Rehabilitation, Help Lines, information Dissemination	Concerned Dy. Commissioner (Revenue) of the district	NGO Representatives, Community representatives, Food & Supplies Department	<ul style="list-style-type: none"> • The incident command post will be set up at the incident site. • Accommodation arrangements will be made for the various ESF functions. • If required temporary shelter 	<ul style="list-style-type: none"> • Control Room- 011-22051234 • SDM (Mayur Vihar) • In case of major incident District Magistrate (E) will

STANDARD OPERATING PROCEDURES (SOPs) FOR GAZIPUR LANDFILL

				<p>arrangements will be made.</p> <ul style="list-style-type: none"> • Damage assessment will be conducted along with the officials & local representative. • Coordination of food relief activities as per need. • Overall coordination with all the ESF and update report to state level officers. • Media management. 	<p>be the incident commander.</p>
ESF 7	NDRF			<ul style="list-style-type: none"> • If situation is not under control 	<ul style="list-style-type: none"> • NDRF -011-26107953, 011-26105912 & NDRF(HQ) Control Room-0120-2766618
ESF 8	QRT			<ul style="list-style-type: none"> • Reach at the site and coordinate with other line departments. Collect incident report. QRT to use Water mist and fire extinguisher at the site. 	<ul style="list-style-type: none"> • Control Room-011-22051234 • Call sign-QRT (EAST)

STANDARD OPERATING PROCEDURES (SOPs) FOR GAZIPUR LANDFILL

Report of the Joint Team of DPCC, EDMC and North DMC Officials on the Visit to Gorai and Deonar Dumpsites in Mumbai on 05.05.2022 & 06.05.2022.

1. Background

Ghazipur & Bhalaswa Dumpsites in Delhi are not an Engineered Sanitary Landfill and used for dumping of Municipal Solid Waste (MSW) since 1984 & 1994 respectively. Fire incidents have occurred at Ghazipur dumpsite on 28.03.2022, 09.04.2022, 20.04.2022 & at Bhalaswa Dumpsite on 26.04.2022. The Hon'ble Environment Minister, Govt. of NCT of Delhi took a meeting with Experts from IIT Delhi, Centre for Science & Environment, GAIL, IGL, TERI, ICAR- IARI etc. on 21.04.2022 regarding measures to control fires at MSW Dumpsites in Delhi. Officials from EDMC, North DMC, DPCC and Environment Department, Govt. of NCT of Delhi were also present during the meeting.

In the said meeting, Professor Manoj Dutta from IIT Delhi pointed out that Methane Gas is being emitted from all the 3 Dumpsites in Delhi (Ghazipur, Bhalaswa & Okhla) and suggested to establish Gas Wells at the Dumpsites with gas flaring system along with covering of dumping site with fine soil for controlling sudden fires. The slope of the dumpsite specifically at Ghazipur needs to be flattened. He further emphasized that even the short term solution will take at least one year to implement. Dr. Bhupinder Singh, Head of Environment Division, IARI, emphasized on the need of waste segregation at source in order to resolve the issue of fire incidents at dumpsites in Delhi on a long term basis. Reclaiming the dumpsites will take about 1-2 years at least and segregation of material is the prime need to ensure no waste decomposition takes place at the dumpsite.

After detailed discussions and deliberations on the various issues, Hon'ble Environment Minister, GNCTD, directed that a team of officers from Environment Department, DPCC and Municipal Corporations (EDMC & North DMC) to visit Mumbai to explore adoption of techniques on controlling fires, as opted at dumpsite of Mumbai.

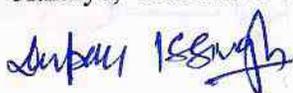
Hon'ble Environment Minister, GNCTD, after the fire incident at Bhalaswa Dumpsite on 26.04.2022 again called a meeting on 28.04.2022 and directed for the visit of Gorai Dumpsite in Greater Mumbai to know about the existing Methane Capturing System and other details related to management of Dumpsite.

In view of the above, a team comprising of following officers visited the Gorai & Deonar Dumpsites in Mumbai on 05.05.2022 & 06.05.2022 respectively :

1. Sh. D. K. Singh, Sr. Env. Engr., DPCC
2. Sh. Rajeev Kumar Sharma, Env. Engr., DPCC
3. Sh. Roop Chand, SE (E&M), North DMC
4. Sh. Tarun Shankar Arya, AE, EDMC

2. Gorai Dumpsite

The team visited the Gorai Dumpsite in Mumbai on 05.05.2022. Concerned officials from Municipal Corporation of Greater Mumbai (MCGM) [Sh. Minesh Pimple, Chief Engineer, (SWM Project), Ms. Varsha Athalye, Executive Engineer (Gorai), Sh. Kamble, Asst. Engineer (Deonar Dumpsite)],



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Maharashtra Pollution Control Board (MPCB) [Dr. J.B. Sangewar, RO (Head Quarters), Sh. S.R. Bhosale, RO (Mumbai), Sh. S.S. Dholam, SRO, Sh. A.S. Nandvate, SRO, Ms. Smita Vanave, Field Officer] and UPL Limited (United Phosphorus Limited) [Sh. Kamlesh Parikh and Sh. Debarish Mukharjee) were present during the visit.

The team interacted with aforementioned officials and a presentation was also given by MCGM on the Scientific Closure of Gorai Dumping Ground & its Subsequent Maintenance. Various issues related to Dumpsites including Fire Incidents, Management of MSW, Methane Generation & Preventive Measures were also discussed with the officials of MCGM, MPCB & UPL Ltd.

It was informed that about 6800 TPD of MSW is generated in Mumbai, out of which 84% is processed and rest is dumped. There are four sites for Disposal of MSW in Mumbai out of which two are closed, i.e., Gorai and Mulund Dumpsites and MSW is being disposed at operational sites at Kanjur (Processing Facility) and Deonar (Dumpsite). It was informed that Bio-mining is being carried out at Mulund Dumpsite. Maximum Temperature in Mumbai is about 42°C this year however Maximum Temperature usually is 37 - 38°C.

The team visited the Gorai Dumpsite along with the officials of MCGM, MPCB & UPL Ltd. and following information was gathered from the officials and observation made during the visit:-

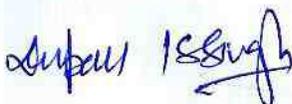
The Gorai site is located at Borival in the Western Suburbs of Mumbai. It spreads over an area of 19.6 hectare (ha) & was operational since 1972. The dumpsite is very close to Gorai Creek & habitation. 1200 TPD of MSW from Western Suburbs of Mumbai was received at the dumpsite till 31 December, 2007 after which MCGM had stopped dumping fresh waste at Gorai. About 2.34 Million of MSW was lying at the dumpsite. Average height of the Dumpsite was 26 meters. Before closure, Gorai Dumpsite was operated in an open manner causing emission of Green House gases. There were agitations by the local public against the Dumpsite due to its adverse effects on the health of nearby residents and surrounding environment. As the Gorai dumpsite was located close to Gorai Creek, the growth of the mangroves in the Creek was affected due to continuous flow of leachate generated from the Dumpsite. Gorai Dumpsite had frequent fire incidents, odour nuisance complaints etc.

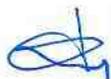
To avoid further detrimental effects on the environment due to the waste dumped at the Gorai Dumpsite and as per the orders of the Hon'ble Supreme Court, MCGM decided to close the Gorai Dumpsite scientifically as per the then applicable MSW Rules, 2000. During closure no major challenges were faced except some small incidences of road accidents as the site involved constructional activities.

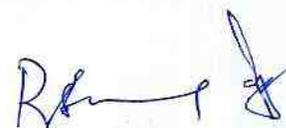
The Scientific Closure Plan of the Gorai Dumpsite envisaged scientific closure and converting about 19.6 ha of land into green landscaped space. The contract for scientific closure was awarded to M/s. United Phosphorus Limited along with Joint Venture partners M/s. Van Der Weil Strotgas B.V. of Netherlands in 2007. The work of closure of Dumpsite started in March, 2008 and completed in July, 2009 (16 Months). Operation and Maintenance of the closed Dumpsite started in July, 2009 for a period of 15 years. The cost of the project was Rs.62 Crores including post closure maintenance for 15 years..

The Scientific Closure Plan included the following components:-

- Relocation & Reformation of existing waste - Haphazardly dumped waste was shifted within the footprint area and it was compacted & reformed creating waste profiles as per design.
- Covering of reformed slopes & plain area with liner system & then with the soil cover.
- Liner system was comprised of the following layers.







- i. Layer of Geo-Textile liner on the crushed earth material i.e., C & D material for providing cushioning layer. Geo-Textile liner prevented damage or puncturing caused due to the crushed earth material to the next layer of Geo-membrane i.e., HDPE (High Density Poly Ethylene) liner.
 - ii. Layer of Geo-membrane i.e., HDPE (High-Density Poly Ethylene) liner to prevent air, water and gases to enter or escape from the MSW.
 - iii. Layer of Geo-Composite liner which is a sandwich material of Geo-Textile liners with Geo-Net in between the two Geo-Textile liners. Geo- Composite liner is used as a drainage layer which allows the water to percolate and slide down through its surface without further interference.
- Landscaping - Greenery was developed over the capped area.
 - Surface water drainage for channeling the storm water.
 - Construction of compound wall, Sheet piling on the creek side to prevent leachate from entering the creek water.
 - Installation of Landfill Gas (LFG) collection & leachate collection system Installation of flaring system.
- ❖ Station for Landfill Gas (LFG) capture & flaring has been installed so that methane content in the LFG is not directly emitted to the environment. This is a reliable and environmentally safe process to incinerate the LFG. The flare system consists of flare burner along with chimney of around 12 meter height.
 - ❖ **Provided 19 leachates wells and 30 gas collection wells.** Leachates collected through leachate manifold system to leachate collection tanks provided capacity of 5000 liters and sent to Versova WWTP for further treatment and disposal. The treated waste water is disposed on land for gardening on Gorai dump site soil cover.
 - ❖ Provided 30 gas collection wells. The gas collection system consists of manifold system with a common header of loop-1 and loop-2. Methane comes to gas flaring station via blower, moisture trapping, fume arrestor and through flow meter along with partial gas analyzer system connected after blower for measuring methane percentage. Depend upon availability of gas the flair system will running continuously with monitoring of sanction and discharge, temperature and pressure and flow as well. Capacity of flaring system is 1500 nm³/ hrs.). They have planted indigenous species and grasses in land scraping area for maintaining the site.

Methane collection system at the Gorai Dumpsite comprises of network of perforated Pipes (HDPE) laid down horizontally and vertically for collection of methane generated from the dumpsite. Gas Wells at various locations were provided for collection of methane and leachate from the wells. HDPE Pipes were provided from the wells to the Gas Flaring Station constructed near the Dumpsite for flaring methane gas. Leachate generated from the Dumpsite was being recirculated within the dumpsite using the pumps.

For flaring of methane gas, a stack of 12 meter height above ground has been provided. It was informed that the flaring system was commissioned in July, 2009 and approx. 1.6 Crore m³ of methane has already been flared (burnt). It was informed that faring of methane is done with automatic system having pumps and methane flow meter. It was informed that in the beginning the methane concentration was 35-40%, now it is 20-25% and the H₂S concentration is less than 1%.

Subal Singh

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A study has been awarded by MCGM to IIT Mumbai to assess the quality of compost in the closed Gorai Dumpsite for its proposed Bio-mining in future.

❖ The operation and maintenance of the closed Dumpsite is being carried out by M/s. United Phosphorous Ltd & Vanderwell JVS (UPL), Madhuvan Park, Khar (W), Mumbai-52.

❖ **Benefits of Gorai Dump Site Closure:**

- Quality of life of people of Gorai improved.
- Quality of marine life improved.
- Market value of property in the area increased resulting in increases in property tax collection to MCGM.
- Fishermen's income increased because of better marine environment.
- Mangroves got rejuvenated resulting in healthy biodiversity.
- 19 Hectare of green lung added to the City of Mumbai.
- Green House Gases (GHG) emission stopped resulting in reducing carbon footprints in the city.
- Prevention in occurrence of problem like foul odour, fire, health hazards & breeding of flies & rodents.

Awards

- For Gorai Project, Maharashtra State won 1st prize for "All India Winner of "9th CONSTRU Excellence Award 2010" in Urban Infrastructure Development sector for case study received from several State Govt. from all over India on "Successful Registration of CDM project for Earning Carbon Credits-Gorai Closure Project.
- Gorai Scientific Landfill Closure Project was nominated as one of the top 10 Public Private Partnership (PPP) Projects in the East Asia, Pacific and South Asia region by the International Finance Corporation (IFC) in 2013.
- Gorai Project was awarded City to City Barcelona FAD Award 2014.

3. Deonar Dumpsite

It was informed by the officers of MCGM & MPCB that Deonar Dumpsite is active Dumpsite where 500-700 TPD MSW is being dumped. Area of the Dumpsite is about 300 Acre (120 Hectare) and the Dumpsite is in use since 1927. About 90 Million Tons of legacy waste is dumped at the Dumpsite. Height of the Dumpsite is about 30 meter above the ground and average height is about 18 meter. The team took a round of the dumpsite alongwith officials of MCGM & MPCB and observed that fresh waste was being dumped.

Following are the other salient information provided to the team during the visit :

- Construction of RCC Boundary wall of about 4 meter height at the periphery of the Dumpsite.
- 11 Nos. of Watch Towers for surveillance of the dumpsite.
- 40 Nos of CCTV Cameras at periphery.
- 15 Nos. of CCTV Cameras at weighbridges and other locations.
- No. of Perforated HDPE Vent Pipes of 6 meter length, (4 meter below dump & 2 meter above dump) at distance of 50-60 meter between the two pipes , provided at the old dumpsite area.
- Gas Wells of 4ft x 4ft size with height of 6-7 ft. provided at various locations in the dumpsite
- 12 Nos. of FRP Cabin at various locations inside Dumpsite.

Ankur Singh

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- 04 Nos of operational Bore wells.
- 310 Nos. of Vent Pipes erected at various locations in the Dumpsites.
- 05 Nos. of FIREX Water tankers (Fire Engine cum Water Tanker) of 10000 Liters Capacity each along with Sprinkler System
- 106 Nos. of Maharashtra State Security Corporation Staff deployed at the Dumpsite for regular surveillance of the Dumpsite.
- 3 No. of 4x4 Patrolling vehicles for surveillance and other works.
- 40 Nos. of Rechargeable LED Flashlight
- 12 Nos. Mobile High Mast
- Solar operated Peripheral Lighting Arrangement at the dumpsite.
- The Database Management System Software is operational for online data entries of daily surveillance and fire observation report.
- Following machinery has been deployed at the dumpsite :
 - Bulldozer - 7
 - Excavator - 2
 - Backhoe Loader - 2
 - Poclain - 7
 - Hyva / Truck - 3
 - Sheep Foot Roller - 1 (for compaction of Waste)
 - Tractor - 2
 - Sprayer - 2

MPCB Representative informed that Ambient Air Quality in respect of PM, SO₂ & NO_x is being monitored at the dumpsite on quarterly basis. Herbal Deodorant is sprayed for odour control at the dumpsite.

106 Security Personnel have been deployed along with patrolling vehicle in 3 shifts to prevent unauthorized entry into the premises of Dumpsite. The surveillance team takes round of the dumpsite every 2 hours for checking the unauthorized entry/ activities.

There are separate Standard Operating Procedures (SOPs) for dousing of Fire/ Smoke and also for security workforce at Deonar Dumpsite.

Parishar Bhagini Vikas Sangh an NGO has been authorized by the MCGM for Segregation / Recycling of the MSW at the dumpsite. It was informed that the said Agency has deployed about 50 Ragpickers for the purpose of segregation & recycling at the dumpsite. These Ragpickers have been authorized and provided Identity Cards. It was also informed that security personnel were deployed by Maharashtra State Security Council which is under the control of Mumbai Police.

It was informed that reforming of the dumpsite towards Thane creek has been done and average slope maintained is 1:3. NEERI has been appointed for Bio-remediation of Legacy Waste and other Environmental issues like leachate treatment, methane control etc.

A Monitoring Committee has been constituted by Maharashtra High Court w.r.t. major Fire Incidents at the Deonar Dumpsite in February, 2016. The Monitoring Committee is headed by Retd. IAS officer and having members (Retd. IPS officer, Prof IIT Mumbai, NEERI, Retd. Env. Expert, Petitioner (Raj Kumar Sharma) & Deputy Commissioner (MCGM).

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4. Causes for Fire Incidents at Dumpsites

- Dumping of Unsegregated / Mixed Municipal Solid Waste containing organic Bio-degradable MSW.
- Landfilling of MSW in Unscientific manner at the Dumpsites.
- Generation of Methane Gas due to decomposition of the Bio-degradable organic waste in anaerobic condition releasing heat. Methane is explosive when its concentration varies from 5.3 to 13.9 % in the air. Heat gets accumulated in the voids created due to shrinkage caused by loss of moisture resulting into smouldering. Reduced moisture content is related to high thermal conductivity leading to spread of fire.
- Presence of combustible material in the dumped waste like Paper, Plastic, Cotton Rags, Rubber, Tyres, Dry Leaves, E-waste, etc.
- Hot Weather, Dry Atmospheric Conditions and high wind speed cause fire incidents and its spread over large area.
- Absence of Vent Pipes & Gas Collection Systems for safe release of Methane Generated from the Dumpsite.
- Sparks from Machinery, Equipment or Vehicles deployed at the Dump site.
- Failure to prevent Unauthorised entry of Persons & Ragpickers at the Dumpsite.

5. Comparative Table : Salient information about Deonar Dumpsite in Mumbai and Ghazipur & Bhalaswa Dumpsites in Delhi:

S. No.	Particular	Deonar Dumpsite	Ghazipur Dumpsite	Bhalawa Dumpsite
1.	Area of Dumpsite	300 Acres	70 Acres	70 Acres
2.	Year of start of use of the Dumpsite	1927	1984	1994
3.	Legacy Waste Dumped	191 Lakh Tons	140 Lakh Tons (As in July,2019)	80 Lakh Tons (As in July,2019)
4.	Height	30 meters (Appx.)	65 meters (Appx.) (July, 2019)	65 meters (Appx.) (July, 2019)
5.	Municipal Solid Waste Generation	6800 TPD (Mumbai)	2600 TPD (EDMC)	4800 TPD (North DMC)
6.	Fresh MSW being dumped at the Dumpsite	500-700TPD	2300 TPD	2500 TPD
7.	Legacy Waste Bio-mined / Processed	Proposed (Study given to NEERI)	About 10 Lakh Ton (As on 30.04.2022)	About 25 Lakh Ton (As on 30.04.2022)
8.	CCTV Cameras installed	55	21	31
9.	Water Tankers	5 Nos (10000 Liters each)	4 Nos (9000 Litres each)	4 (2 No - 9000 Litres each 2 No - 3000 Litres each)
10.	Boundary Wall with Fencing	Constructed	Yet to be constructed	Yet to be constructed

6. Recommendations

Based on the visit of closed Gorai Dumpsite & Active Deonar Dumpsite in Mumbai and Discussions held with the officers of MCGM, MPCB & UPL Ltd and also considering the present situation of Ghazipur and Bhalaswa Dumpsite following are the Short Term and Long Term measures recommended by the team :

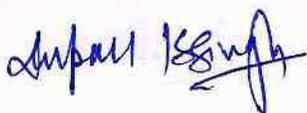
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Short Term Measures

- i. Site specific detailed separate SOP should be prepared for prevention of fire incident and also for control of fire in case of fire incident.
- ii. On-site Emergency Plan should be prepared for controlling fire in consultation with DDMA.
- iii. Authorize some Agency (ies) at the Dumpsite for segregation of fresh MSW being dumped at the site to prevent unauthorized entry of ragpickers.
- iv. For release of methane generated from the Dumpsite, perforated HDPE pipes or of any other suitable material may be provided at the Dumpsite at suitable locations with proper spacing (say 30m) as per the site requirement. Pipes should be of at least 6 meter height (4 meter below the dump and 2 meter above the dump).
- v. Declaring and maintaining the entire Dumpsite areas as "No Smoking Zone" & "Match Box Free Zone".
- vi. Covering of fresh MSW with inert / soil of at least 10 cm as per the SWM Rules, 2016. Top surface of the open dumpsite should be properly covered with soil/ inert to cut off the oxygen supply, prevent foul odour, stop the escape of methane from pores, enhance the decomposition of waste & control bird menace.
- vii. Dedicated Police Pickets at the Dumpsite for prevention of unauthorized entry.
- viii. Provide dedicated Surveillance Squad with adequate man power and vehicle to have strict vigil over the activities going on at the Dumpsite. Such Surveillance Squad may be constituted comprising of Municipal Staff, Civil Defense & Delhi Police Staff and should frequently take round of the Dumpsite (at least every two hours).
- ix. Frequent patrolling of the team of security Personnel, Delhi Police & MCD Staff to prevent unauthorized entry / activities.
- x. Increase the number of tankers for sprinkling of water for control of dust & fire.
- xi. Deployment of adequate heavy machinery for dousing of fire (Bulldozer, Excavator, Back Hoe Loaders etc.).
- xii. Adequate water storage capacity at the dumpsite for control of fugitive dust & fire (at least 50 KL capacity).
- xiii. Upgrade the existing Water Tankers with sufficient capacity and Pumps to have adequate required pressure for extinguishing/ dousing the fire. More No of Water Tankers with Pumps are required at the Dumpsites.
- xiv. Construction of roads at periphery around the Dumpsite in order to facilitate movement of vehicles, Patrolling teams and Fire Tenders.
- xv. Stepping & cutting of slope of garbage mound at regular intervals to avoid any slippage of garbage & formation of methane gas.
- xvi. MSW Dumped at the site should be properly and regularly compacted by using Sheep Foot Roller etc.
- xvii. Adequate no. of CCTV cameras should be installed in consultation with Delhi Police and DDMA at suitable locations particularly covering vulnerable spots for fire and entire area of the Dumpsite should be covered.
- xviii. Proper Control Room with screens & adequate staff should be provided to monitor the activities through CCTV Cameras.
- xix. Trained Operators should be deployed for handling and management of MSW and operation of related plant & machinery.



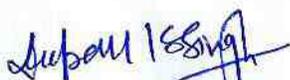


- xx. Proper training on regular intervals should be given to all the staff deployed at the Dumpsite for management of MSW and adherence to the SOPs for prevention and control of fire incidents.
- xxi. Odour suppressing agents (e.g. herbal deodorant) should be sprayed for control of odour at the Dumpsite.
- xxii. Spark Arrester should be installed with the Exhaust System of the Vehicles / Trucks entering / Other Machinery at the Dumpsite premises to prevent fire incidents due to spark from vehicles.
- xxiii. Security Watch Towers should be installed around the dumpsite at the suitable locations to have proper watch and ward of the Dumpsite for prevention of unauthorized entry.
- xxiv. Strengthening of Staff at the Dumpsite.

Long Term Measures

- i. RCC Boundary Wall of at least 4 meter height with proper barbed wire fencing should be provided at the periphery of the dumpsite to prevent unauthorized entry in the dumpsite.
- ii. Ensure complete (100%) bio-mining of the legacy waste dumped at the Dumpsite within the time frame submitted by Local Bodies.
- iii. Proper Segregation of MSW at the source and composting / bio-methanation/ vermi composting etc. of the biodegradable organic / wet waste to avoid dumping of biodegradable organic matter at the Dumpsite.
- iv. Recyclable materials should be segregated at Material Recovery Facilities (MRFs) and sent to Authorized Recyclers.
- v. MSW Processing Facilities with adequate capacity should be provided for managing the MSW as per the SWM Rules, 2016 and there should not be any gap in processing capacity and waste generation in Delhi.
- vi. Engineered Sanitary Landfill of adequate capacity should be provided particularly in EDMC area for disposal of rejects generated from the Waste Processing Facilities.
- vii. Stoppage of dumping of fresh waste at the Dumpsite.
- viii. Inert generated from the Bio-mining of Legacy Waste at the Dumpsite should be properly managed at the Dumpsite and disposed through the Construction Agencies (NHAI, PWD etc).
- ix. RDF generated from the Bio-mining of Legacy Waste at the Dumpsite should be properly managed at the Dumpsite and disposed through the RDF Manufacturing Plants / Waste to Energy Plants , Cement Kilns etc..
- x. Installation of CO Monitors, Methane Detectors, Temperature Sensors, Fire Alarm may be explored by Local Bodies in consultation with Expert Agencies like IIT Delhi, NEERI etc.

Photographs taken during the visit of Gorai and Deonar Dumpsites are enclosed.


(D. K. Singh)
Sr. Env. Engr., DPCC

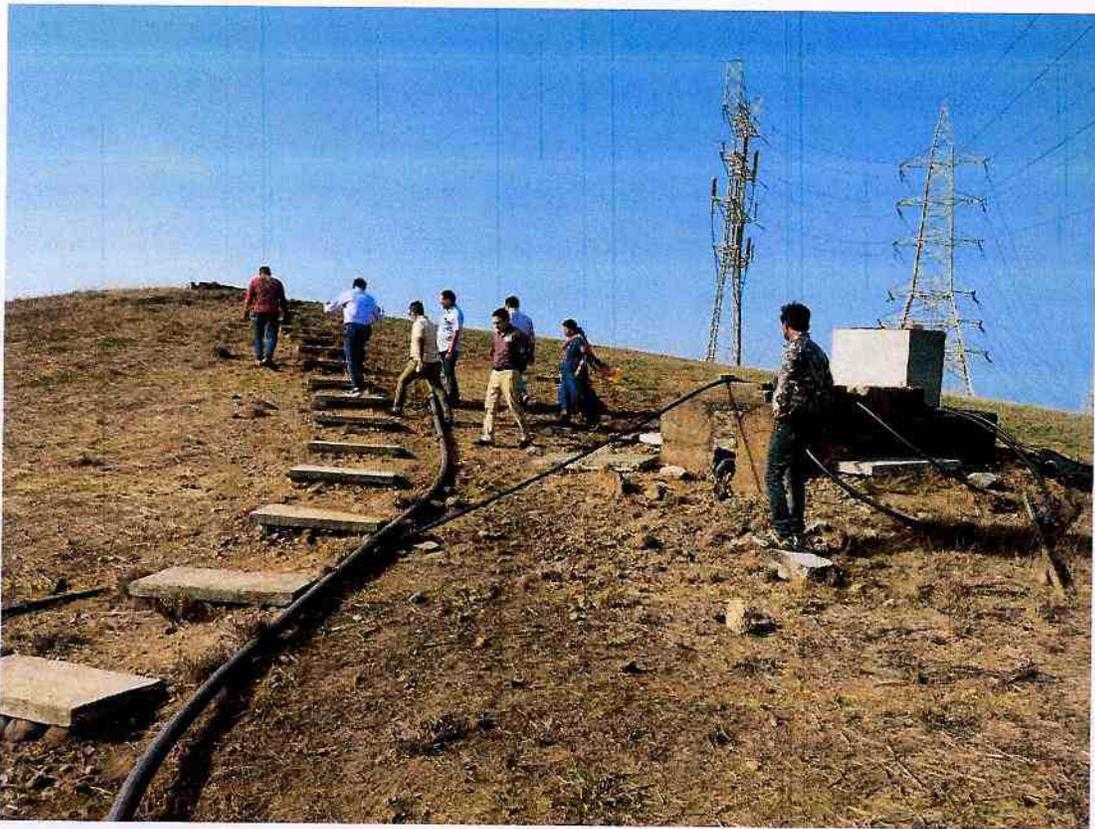
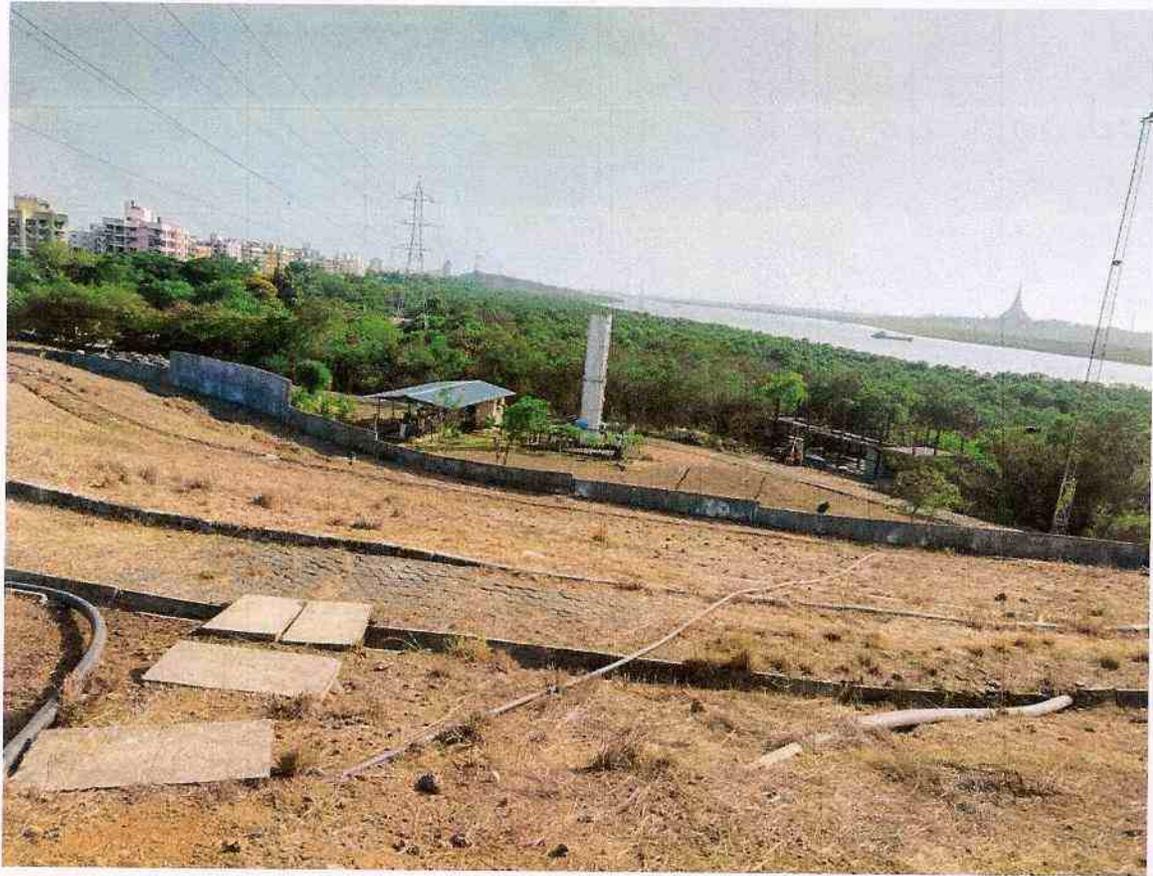

(Rajeev Kumar Sharma)
Env. Engr., DPCC


(Roop Chand)
SE (E&M) North DMC


(Tarun Shankar Arya)
AE, EDMC



Discussions with the officers of MCGM, MPCB & M/s UPL Ltd. at Gorai Dumpsite



Methane Flaring Station at Gorai Dumpsite



Gas Well for Methane and Leachate Collection



Control Panel for Methane Flaring

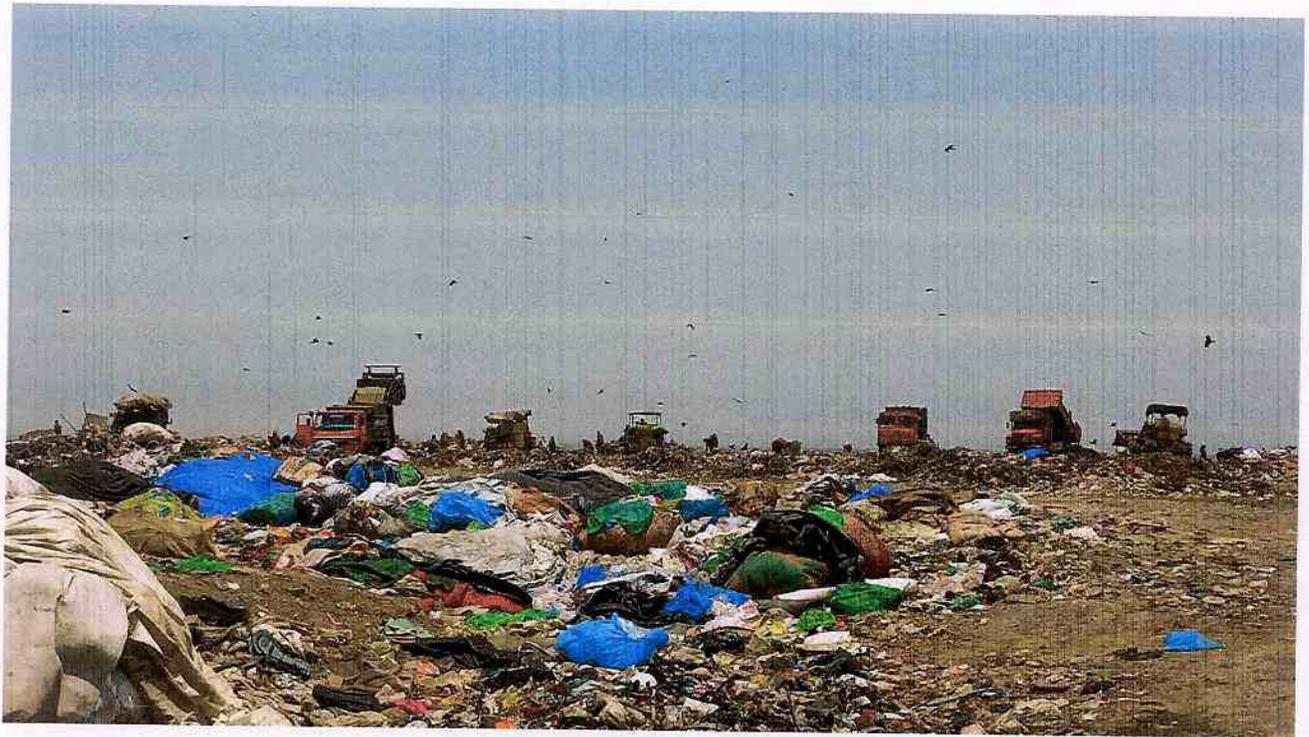


Methane Pumping System at Flaring Station



Methane Flow measurement

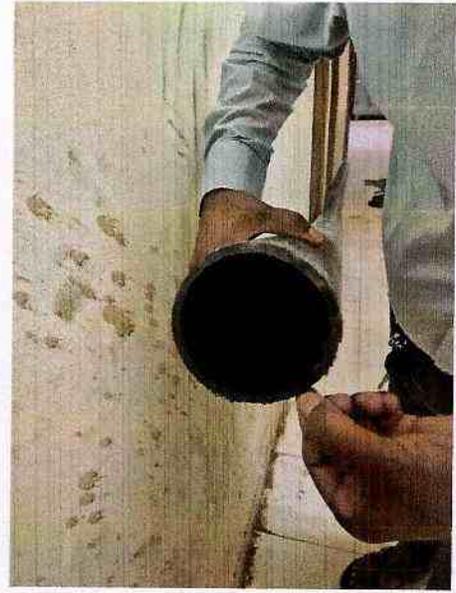
Methane Collection and Flaring System at Gorai Dumpsite



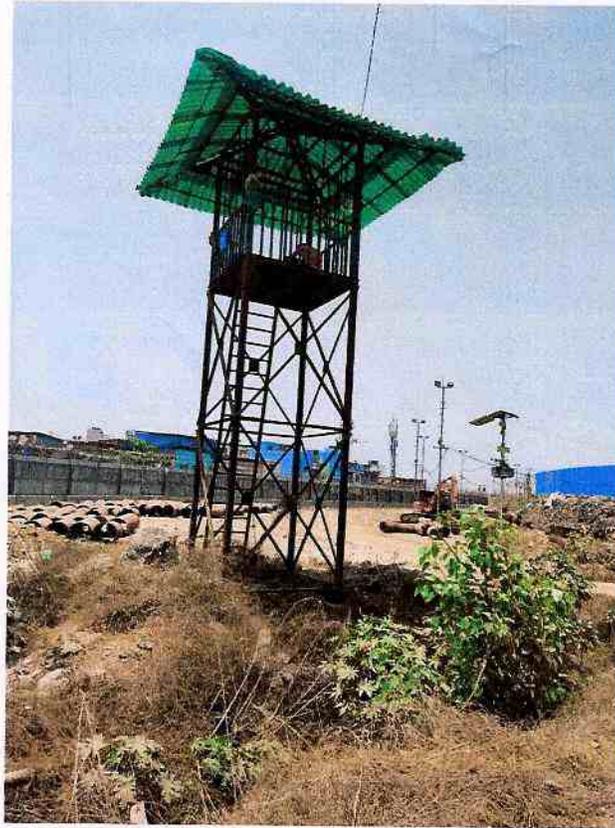
Team with officials of MCGM at the Dumping area at Deonar Dumpsite



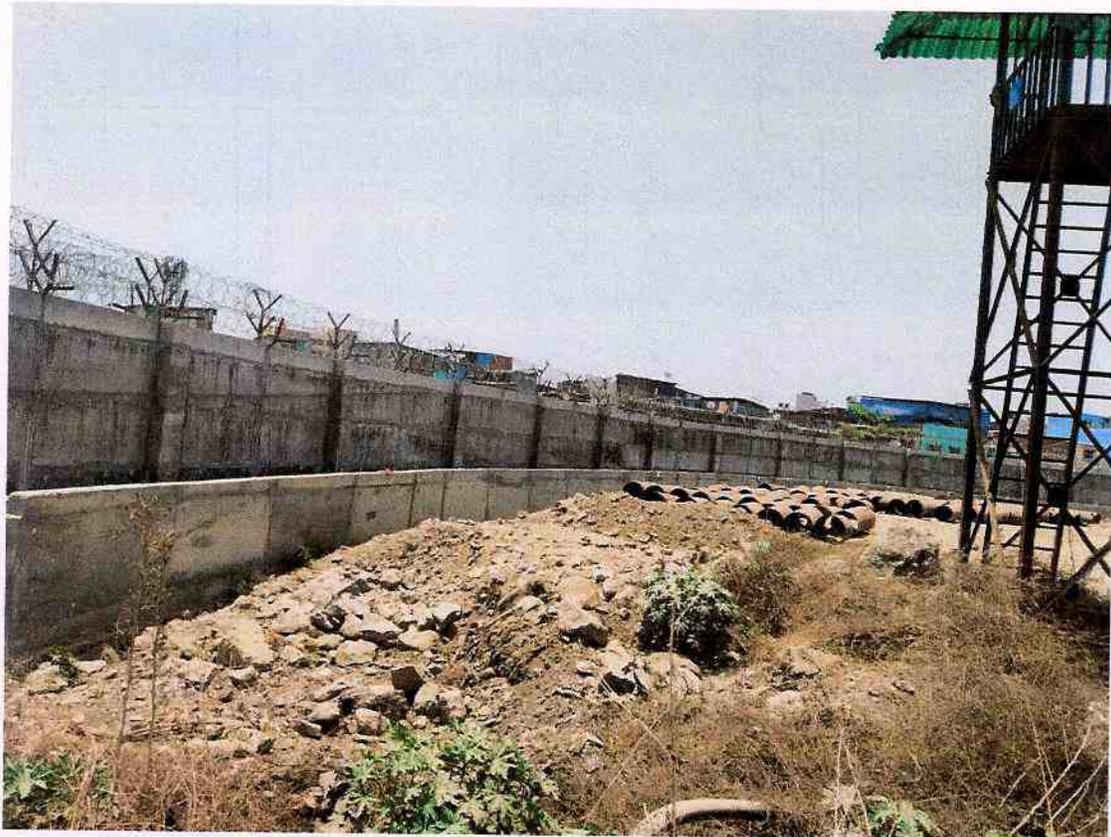
Workers of Authorized Agency M/s Parishar Bhagini Vikas Sangh and Security personnel at Dumping area of Deonar Dumpsite



Perforated HDPE Pipes of 6 meter length inserted at Deonar Dumpsite



Watch tower at Deonar Dumpsite



**RCC Boundary Wall with Barbed Wire Fencing towards residential area
at Deonar Dumpsite**



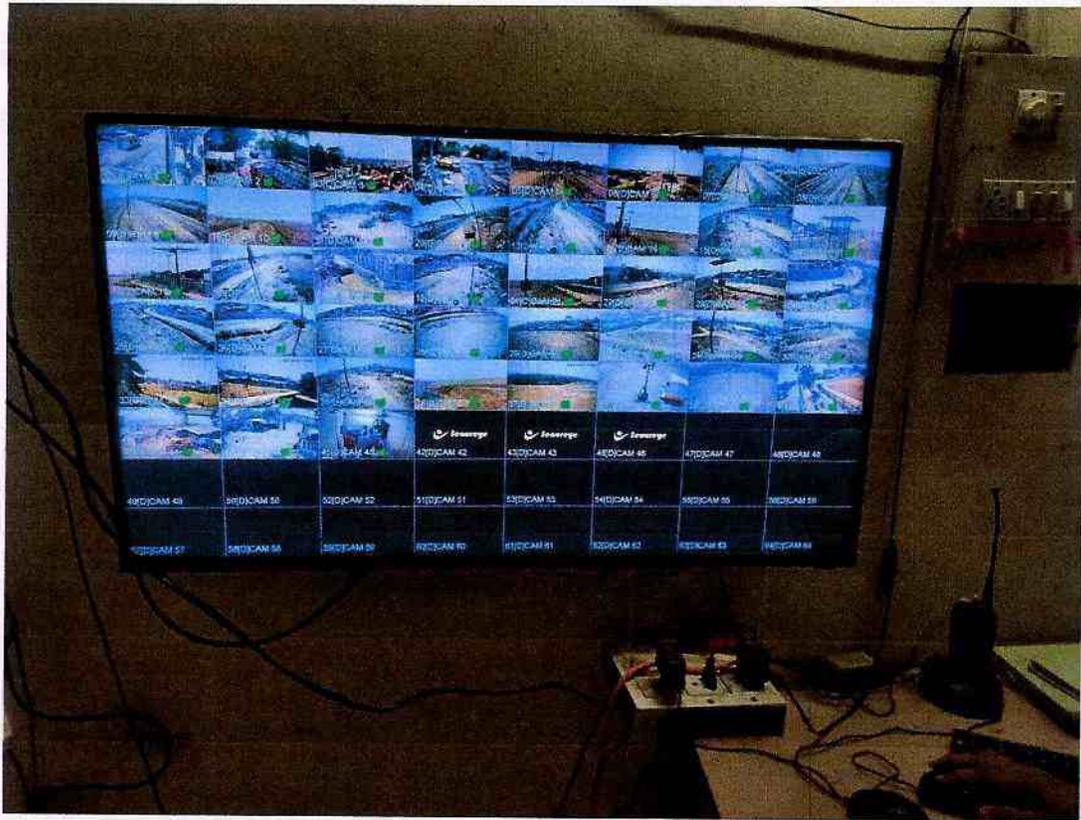
Mobile Lighting System at Deonar Dumpsite



Tractor mounted with spraying system for Spray of Herbal Deodorant at the Deonar Dumpsite



FIREX Water tankers (Fire Engine cum Water Tanker) of 10000 Liters Capacity each along with Sprinkler System



Control Room with Screens for CCTV Cameras at Deonar Dumpsite



Security Personnel at entry gate of the Deonar Dumpsite