

**BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI**

(By Video Conferencing)

Original Application No. 300/2022

In re: News item published in News 18 dated 26.04.2022 titled **“Delhi: Massive Fire at Bhalswa Dump Yard, Fourth This Year; 13 Fire Tenders on Spot”**

WITH

Original Application No. 288/2022

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

Date of hearing: 11.10.2022

**CORAM: HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON'BLE MR. JUSTICE SUDHIR AGARWAL, JUDICIAL MEMBER
HON'BLE PROF. A. SENTHIL VEL, EXPERT MEMBER
HON'BLE DR. AFROZ AHMAD, EXPERT MEMBER**

Respondent(s): Mr. Naresh Kumar, Chief Secretary of Delhi
Mr. Ashwani Kumar, Special Officer, MCD
Mr. Gyanesh Bharti, Commissioner, MCD
Mr. A.K. Singh, Principal Secretary (Environment)
Mr. Sanjay Goel, Secretary (UD)
Dr. K.S. Jayachadaran, Member Secretary, DPCC
With Mr. Narender Pal Singh, Advocate for DPCC

ORDER

The Issue

1. This order will deal with Original Application No. 300/2022 and Original Application No. 288/2022 as both the matters relate to violation of Solid Waste Management Rules, 2016 in handling of legacy waste sites

in Delhi. O.A No. 288/2022 relates to site at 'Ghazipur' landfill site while O.A No. 300/2022 relates to site at 'Bhalswa' dump site.

2. In O.A No. 288/2022, the Tribunal initiated proceedings in the light of media report that serious hazard to public health and environment was caused by fire of the garbage dump site at Ghazipur in Delhi. It was emitting toxic smoke with potential for airborne diseases in the densely populated area. The dump sites in Delhi are like Time Bombs because they constantly generate explosive gases like methane which may escape through vertical and lateral ways posing constant threat of explosion. In O.A No. 300/2022 proceedings were initiated in the light of the media report that serious hazard to environment and public safety was caused by fire of the garbage dump site at Bhalswa Dump Yard in Delhi.

3. Vide order dated 22.04.2022 in O.A No. 288/2022, the Tribunal considered the background of the matter in the light of earlier orders of this Tribunal in OA No. 519/2019 titled "*In re: News item published in "The Times of India" Authored by Jasjeev Gandhiok & Paras Singh Titled "Below mountains of trash lie poison lakes"*" and found it necessary to constitute multi-department Committee of concerned Departments to ascertain facts and suggest way forward. Accordingly, 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, District Magistrate and DCP, East Delhi was constituted to 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.

4. In O.A No. 300/2022, vide order dated 27.4.2022, the Tribunal asked the Committee already constituted in O.A No. 288/2022 with modification

of replacement of EDMC with NDMC and jurisdictional District Magistrates and DCPs for District Magistrates and DCPs of East Delhi to ascertain factual situation in respect of present incident also and suggest further course of action after interaction with the concerned stakeholders.

Earlier orders of Hon'ble Supreme Court and this Tribunal on the issue of solid waste management

5. The issue of solid waste management was dealt with by the Hon'ble Supreme Court in Writ Petition No. 888/1996, *Almitra H. Patel vs. Union of India & Ors.* for about 18 years and finally vide order dated 02.09.2014, the same was transferred to this Tribunal with the observation that **“handling of solid municipal waste is a perennial challenge and would require constant efforts and monitoring with a view to making the municipal authorities concerned accountable, taking note of dereliction, if any, issuing suitable directions consistent with the said Rules and direction incidental to the purpose underlying the Rules such as upgradation of technology wherever possible. All these matters can, in our opinion, be best left to be handled by the National Green Tribunal established under the National Green Tribunal Act, 2010. The Tribunal, it is common ground, is not only equipped with the necessary expertise to examine and deal with the environment related issues but is also competent to issue in appropriate cases directions considered necessary for enforcing the statutory provisions.”**

6. Vide order dated 22.12.2016, (2016) SCC Online NGT 2981, in *Almitra Patel* case, the issue was disposed of by the Tribunal requiring strict compliance of Solid Waste Management Rules, 2016 by all the States/UTs. It was made clear that if violations continue, the States will be liable to pay compensation. Later, the matter was again taken up to

ascertain compliance status and finding that all the States/UTs were still non-compliant in the matter, further directions were issued. Vide order dated 16.01.2019, the Tribunal directed personal presence of Chief Secretaries of all States and UTs for interaction to ensure compliance. Chief Secretary Delhi appeared on 11.3.2019. On appearance of the Chief Secretary directions were issued for monitoring by the Chief Secretaries at the State level and by the District Magistrates at the District level to ensure timely compliance of norms as per earlier directions and to take action for non-compliance by recovery of compensation and recording adverse ACRs against erring officers. The Tribunal also directed filing of quarterly reports by the Chief Secretaries. Based on such reports, CPCB was to file consolidated status reports. The Chief Secretaries were to appear again with updated status of compliance.

7. The matter was then reviewed on 12.09.2019 in the light of report of the CPCB dated 09.09.2019 showing wide gaps in compliance of solid waste, plastic waste, bio-medical waste management, rejuvenation of identified polluted river stretches, polluted industrial clusters and non-attainment cities. A fresh schedule for appearance of the Chief Secretaries was issued. Vide order dated 07.01.2020, the Tribunal directed CPCB to ascertain Compliance of Solid Waste Management Rules, 2016 in terms of MSW generated, segregated and treated, gaps in the waste processing, enforcement of statutory timelines and orders of this Tribunal, number of sites remediated, and quantity of legacy waste therein and timelines for completing remediation. the Chief Secretaries of 18 States/UTs appeared and filed updated status reports. Since there still existed huge gaps in compliance, further directions were issued by way of different orders. Further review is being undertaken and matter being dealt with in OA 606/2018.

8. Statutory timelines under the MSW Rules are :

“22. Time frame for implementation:- Necessary infrastructure for implementation of these rules shall be created by the local bodies and other concerned authorities, as the case may be, on their own, by directly or engaging agencies within the time frame specified below:

Sl. No.	Activity	Time limit from the date of notification of rules
(1)	(2)	(3)
1.	Identification of suitable sites for setting up solid waste processing facilities.	1 year
2.	Identification of suitable sites for setting up common regional sanitary landfill facilities for suitable clusters of local authorities under 0.5 million population and for setting up common regional sanitary landfill facilities or stand alone sanitary landfill facilities by all local authorities having a population of 0.5 million or more.	1 year
3.	Procurement of suitable sites for setting up solid waste processing facility and sanitary landfill facilities.	2 years
4.	Enforcing waste generators to practice segregation of bio degradable, recyclable, combustible, sanitary waste domestic hazardous and inert solid wastes at source.	2 years
5.	Ensure door to door collection of segregated waste and its transportation in covered vehicles to processing or disposal facilities.	2 years
6.	ensure separate storage, collection and transportation of construction and demolition wastes.	2 years
7.	setting up solid waste processing facilities by all Local Bodies having 100000 or more population.	2 years
8.	Setting up solid waste processing facilities by Local Bodies and census towns below 100000 population.	3 years
9.	setting up common or stand alone sanitary landfills by or for all Local Bodies having 0.5 million or more population for the disposal of only such residual wastes from the processing facilities as well as untreatable inert wastes as permitted under the Rules.	3 years
10.	setting up common or regional sanitary landfills by 3 years all Local Bodies and census towns under 0.5 million population for the disposal of permitted waste under the rules.	3 years
11.	bio-remediation or capping of old and abandoned dump sites.	5 years

9. Vide order dated 30.11.2021, the Tribunal considered the report of CPCB dated 25.10.2020 giving compliance status in 32 States/UTs as in March, 2021 as follows:-

“Solid Waste Management

4.0 SUMMARY & CONCLUSIONS

- a. *Total No. of ULBs in 29 States/UTs is 4186.*
- b. ***As per information provided by 29 States/UTs - total waste generated is 150858.951 TPD of which 94435.318 TPD is processed, which is 62.6% of the total waste generated in these States/UT. 11772.4538 TPD (7.8%) of the waste is landfilled and the gap in Solid waste management in 29 States is 45071.771 TPD which is 29.8% of the waste generated in these States/UTs.***
- c. *Information on MRF has been provided for 28 States/UTs covering 77% of ULBs in these States/UTs.*
- d. *Information on Recycling facilities have been provided for 22 States/UTs covering 39% of ULBs in these States/UTs*
- e. *Information on Composting facilities has been provided for all 29 States/UTs covering 70% of ULBs in these States/UTs*
- f. *Information on WtE has been provided for 25 out of 29 States/UTs covering 1.9% of ULBs in these States/UTs.*
- g. *Information on RDF has been provided for 24 out of 29 States/UTs covering 12.4% of ULBs in these States/UTs.*
- h. *Information on Bio-methanation has been provided for 27 out of 29 States/UTs covering 7.1% of ULBs in these States/UTs.*
- i. ***Information on Landfills has been provided in 24 out of 29 States/UTs covering 18.9% of ULBs in the States.***
- j. *498 of 2111 (23%) dumpsites in 25 States/UTs have been cleared and Remediation has been initiated in 23% (496) of the dumpsites.*
- k. *Model Town/Cities have been identified in 25 States/UTs.*
- l. *16 States /UTs have established environmental cells.*
- m. ***15 States /UTs have standardised rates for procurement of services/equipment required for solid waste management.***
- n. *In view of above, States/UTs need to develop of ULB wise action plan for collection, segregation, transportation and*

processing of waste and lay down an appropriate governance framework at state and district levels.”

10. On consideration of above, it was observed:-

“1to17....xxxx.....xxx.....xxx

18. We are of the view that hence forthwith proceedings in this matter need to cover Solid Waste Management and Sewage Management, these issues being crucial and required to be monitored by this Tribunal by the Hon’ble Supreme Court. Absence of management of waste results in adding to air and water pollution in a big way. All the legacy waste dump sites in the country need to be remediated to reduce methane gas, foul smell and leachate and also to release valuable land occupied by such sites which can be used for waste management/plantation or raising funds. Waste collected must be scientifically processed and disposed at the earliest in the interest of hygiene and public health. It needs to be ensured that instead of remediating the legacy waste sites, the garbage is not shifted to new sites which is not a solution to the problem. It only results in shifting the problem from one place to the other without any advancement of environment protection. What is necessary is that the garbage must be finally disposed of and land reclaimed. The authorities must move towards zero garbage at the end of the day by ensuring that instead of garbage being collected and dumped, it is taken to destination where it is finally processed scientifically and appropriately, except for reused/recycling of such residues as is possible. This is also the mandate of Swachh Bharat Mission, initiated by the Central Government. Similarly, sewage has to be scientifically treated to give effect to the mandate of Water (Prevention and Control of Pollution) Act, 1974 in the interest of availability of clean water in rivers and other waterbodies. Central Governments programmes also provide for initiatives on these subjects. On both aspects, compensation regime has been laid down which is necessary to enforce the rule of law and for protection of environment and public health. The compensation laid down has to be duly collected and utilized for restoration of environment, by being kept in a separate account. Accountability for the failures needs to be fixed by way of ACRs and departmental action as such failures result in crimes under the law of land and damage to public health. Such failure is also breach of Constitutional obligation to uphold the Right to Life. The country is committed to Sustainable Development Goals of providing clean air and safe drinking water.

19. In view of above, continued failure of Rule of Law must be remedied in terms of mandate of orders of the Hon’ble Supreme Court in Writ Petition No. 888/1996, Almitra H. Patel Vs. Union of India & Ors. and Paryavaran Suraksha vs. Union of India,¹ followed by orders of this Tribunal. It is necessary that Chief

¹ (2017) 5 SCC 326

Secretaries continue the monitoring and interact with this Tribunal periodically by video conferencing. Accordingly, we lay down following further schedule for personal appearance of the Chief Secretaries, by Video Conferencing, with the status of compliance in respect of each of the States/UTs on the subject of Solid Waste Management and Sewage Management. The data to be furnished should cover all categories of areas in the State – big cities, towns and villages.

20. The hearing on each of above dates will commence at 10:30 a.m. sharp. The Chief Secretaries may not delegate the responsibility. As far as possible, they may adjust other work for which long advance notice is being given. In case adjustment is found difficult for any unforeseen reason, request for change of date may be mailed by e-mail at judicial-ngt@gov.in.

21. All the States/CPCB may undertake process of verification of data after having interaction on video conferencing with the concerned States/UTs within one month. The Secretaries, Environment, Urban Development Department and Irrigation Department may also coordinate with the Member Secretaries of State Legal Services Authorities in all State/UTs in the light of background mentioned in paras 3 and 4 above for the awareness programmes on the subject.”

Separate consideration of issue of legacy waste of Delhi

11. The issue of legacy waste in Delhi was also considered in OA No. 519/2019 In Re: news item published in “The Times of India” authored by Mr. Jasjeev Gandhiok & Paras Singh and titled “Below Mountains of Trash lies Poison Lakes” to the effect that the said dumpsites were resulting in huge water contamination. The same were not being scientifically managed. The leachate was getting discharged into soil and also slipping to the River Yamuna, affecting its water quality. Accumulation of huge waste at the said sites posed a serious danger to the environment, life and public health in the area.

12. Vide order dated 30.05.2019, this Tribunal directed North, East and South Delhi Municipal Corporations to furnish their respective action taken reports. The Commissioners of the said Municipal Corporations were required to remain present in person.

13. The matter was then considered vide order dated 17.07.2019. It was observed:-

“.....5. The action taken report of the North Delhi Municipal Corporation (North MCD) is that detailed project report (DPR) has been prepared on 08.03.2019 which has three options. One of the options is “leaving the site as it is”, which is completely out of question. Second option, bio-mining for 8.8 million cubic meter waste which is said to require a period of 15 years and cost of Rs. 1178 crores. The third option is of capping. Clause-J of Schedule-I of the SWM Rules provides for reduction of waste by bio-mining and waste processing followed by placement of residues in new landfills or capping with appropriate measures. According to the Commissioner of North MCD, closure and capping of the dumpsites, without bio-mining/bio-remediation is a better option to save money and to protect environment. The report relies upon a review of the DPR by a professor from the IIT, Delhi with regard to Bhalswa landfill.

6. According to the report dated 09.07.2017 of East Delhi Municipal Corporation (EDMC), it is stated that there was a proposal to utilize the inert material as filling material in the widening of national highways. Some of the dumpsite gas has been extracted and flared in association with GAIL. A pilot project was conducted for bioremediation of 100 TPD for both fresh and legacy waste. Experts were consulted in regard to slope stabilization and treatment of leachate. EDMC has started decentralized waste management processes with the help of urban development fund from the Govt. of India to the tune of Rs. 70 Crores.

7. The Counsel appearing for South Delhi Municipal Corporation (SDMC) has handed over, during the hearing, their copy of action taken report. According to the action taken report furnished by the SDMC, it consulted experts and executed some work of sterilizing the legacy waste at Okhla Phase-I.

8. In O.A. No. 386/2019, the grievance raised was that unscientific capping process of the Bhalswa legacy waste dumpsites was against the SWM Rules and not conducive to the environment. This Tribunal, vide order dated 04.04.2019, sought opinion from a Committee comprising CPCB and Dr. G.K. Pandey, former Expert Member of this Tribunal, who is known to have expertise in the subject. Report dated 31.05.2019 has been submitted by the said Committee after visit to the Bhalswa site, visit to Bawana Waste Processing Plant and meeting with the North Delhi MC officers. Presentation was made before the said Committee by concerned officers of the North MCD as well as experts hired by the said Corporation. Some of the observations of the said Committee are as follows:

“3.5 The Cost indicated in the DPR for bioremediation is Rs.1178 Crores. However, as per CPCB Guidelines for Disposal of Legacy Waste, the cost of bioremediation and bio-mining of dumpsite is in the range of Rs.400- 700/Cum which works out in the range of Rs.440 - 560 Crore. The actual cost shall be further reduced, if cost of land recovered by means of bio-mining/bioremediation is factored in.

Hence the cost indicated by NDMC seems to be very much on the higher side.

Similarly, the other issues raised by NDMC need detailed assessment.

3.6 As per CPCB Guidelines, capping of dumpsites is not advisable as it would lead to generation of more leachates and methane/landfill gas generation which would further contaminate the already heavily contaminated Groundwater (Ground/surface water reports at Annexure VIII to X). Further as per CPCB Guidelines, gas extraction is very difficult and inefficient when attempts are made to insert suction pipes into dumped waste instead of before dumping begins. **Poor success at Gorai capping led to the forced refund by Mumbai city of Rs.15 crore advance carbon credits. Taking into consideration the present height (65 m) of the landfill, extraction of leachate & gas will be even more difficult.**

3.7 In addition, in the present tender documents, there is no provision for onsite treatment of leachates and utilization of gas generated as also decontamination of ground water/bio-remediation have not been envisaged in spite of the fact that ground and surface water are heavily polluted as reflected by analysis of ground water and surface water reports given in the DPR. The details of analysis reports are given below:

- (a) Table-I (Annexure-VIII) pertains to ground water sampling report of hand pumps which has indicated that average levels of BOD (2.4 mg/1), COD (28.0 mg/1), TDS (2783 mg/1) are more than the prescribed acceptable limit of zero for BOD, zero for COD and 500 mg/1 for TDS. Besides, the average high level of Residual Free Chlorine of 208.7 mg/1 (limit 0.2mg/l), Chlorides 769.7 mg/1 (limit 250 mg/1), Sulphate 228.2 mg/1 (limit 200mg/l), Alkalinity 508.7 mg/1 (limit 200 mg/1), Lead 0.2 mg/1 (limit 0.01 mg/1) and Nickel 0.1 mg/1 (limit 0.02mg/l) indicates that drinking water from the hand pumps has been significantly polluted and is not drinkable.
- (b) Table-2 (Annexure-IX) reflects ground water analysis report pertaining to 18 boreholes. The average levels of BOD (93.11 mg/1), COD (783.72 mg/1) and TDS (6841.83 mg/1) were found more as against the acceptable limit of zero for BOD, zero for COD and 500 mg/1 for TDS indicating that ground water has been significantly contaminated due to percolation of leachates from the landfill.
- (c) Table-3 (Annexure-X) pertains to analysis of surface water taken from Bhalsawa drain and Bhalsawa lake. The analysis report indicates that the average levels of BOD (68.40 mg/1), COD (547.51 mg/l) and TDS (4465.23 mg/l) were found higher as against the permissible limit for drinking water for BOD (0), COD (0) and TDS (500 mg/l) respectively indicating that surface water is significantly polluted due to discharge of untreated leachates. Besides, the average levels of residual free

chlorine (179.60 mg/ l, limit 0.2 mg/ l), Iron (0.53 mg/ l, limit 0.3), Chlorides (13119.04 mg/ l, limit 250), Calcium (188.99 mg/ l, limit 75), Alkalinity (1285.96 mg/ l, limit 200), phenolic compound (0.07 mg/ l, limit 0.001), Lead (0.15 mg/ l, limit 0.01), Mercury (3.75 mg/ l, limit 0.001) and Nickel (0.15 mg/ l, limit 0.02) were found high indicating that surface water is very polluted and Bhalswa lake is not meeting the criteria for drinking water as toxic elements like phenolic compounds including heavy metals are present in the lake water. It is quite possible that the animals (buffalos, cows etc.) may be drinking lake water and as such the possibility of toxic chemicals and heavy metals entering the food chain cannot be over ruled. Therefore, lake water should not be used for drinking purposes by the human beings and the animals.

- (d) Table-4(Annexure-XI) leachate emanating from the BLF indicates that BOD (500 mg/ l), COD (2279 mg/ l) & TDS (19000 mg/ l) levels are higher in comparison to leachate standards of BOD (30 mg/ l), COD (250 mg/ l) & TDS (2100 mg/ l) as prescribed in SWM Rules,2016.

3.8 There are various technologies available for treatment of MSW such as composting, bio-methanation, incineration coupled with power generation, gasification, pyrolysis, plasma arc gasification, molten salt oxidation (non-flame thermal process for destroying organic materials) etc.

4.0 Recommendations

- i. NDMC should do a detailed assessment of the alternative technological options including Bio-mining / Bio-remediation for Bhalswa dumpsite.
- ii. Niti Aayog has constituted a Committee to identify the technologies in Solid Waste Management for Cleaning up of Delhi (Annexure XII). NDMC may consider the outcome of this committee's report in assessing options for Remediation of Bhalswa dumpsite.
- iii. In case, capping of Bhalswa Dumpsite (which is not advisable as per CPCB Guidelines as mentioned at point 3.6 above) is proposed as the only option due to time and space constraints as also technoeconomic reasons, the DPR should be revisited especially to look into the following conditions:
 - (a) Bio-mining should be undertaken to the maximum extent possible without having significant adverse environmental impacts on the adjoining population.
 - (b) Bio-remediation/decontamination of surface, ground water and soil should also be undertaken in the affected areas.
 - (c) No dumping of MSW/Garbage (about 2000 tons/day) shall be done at Bhalswa dumpsite and alternate

arrangements for disposal of this waste to be made by NDMC on priority in accordance with S WM Rules, 2016.”

9. We may note that as per information furnished during the hearing, the extent of legacy waste and the land covered by the three dump sites are as follow:

East Delhi	Ghazipur dumpsite- 1.4 crore metric tonne approx. on 70 acres of land
North Delhi	Bhalswa dumpsite - 80 lakh metric tonne approx. on 36 acres of land
South Delhi	Okhla dumpsite - 55-60 lakh metric tonne approx. on 46 acres of land

10. Information made available from Indore Municipal Corporation is as follows:

*“For screening purposes, trommels of 30 MT per hour capacities, are available in the market on rental basis. Necessary vehicles and equipments (like excavators, back-hoe loaders, dumpers, vibratory screens for dust removals and bundling machines for Refused Derived Fuel) are required for bio-mining and bio-remediation purposes. **Normally, 20 trommels along with necessary machines and tools can process 5000 MT of legacy waste on daily basis in two shifts operation. Recently, Indore has successfully completed bio-mining/bio-remediation of 15 lakh MT legacy waste in 1 year. Rent for trommels paid by Indore to various machine manufacturers were in tune of Rs. 7.25 Lakh per trommel per month and bio-mining/bio-remediation process was followed as mentioned in the latest guidelines issued by the CPCB. Normally, the per metric ton cost of bio-remediation process of legacy waste will range between Rs. 300- 450 depending upon area to area.***

In legacy waste sites where local bodies have space constraints can initially start the bio-mining/ bio-remediation options through mobile trommels.

Similarly, Ahmedabad Municipal Corporation has started the bio-mining/bio-remediation at Pirana dumping site and they are paying Rs. 6.40 Lakh per trommel per month.

The trommel machines are very simple in fabrication and can be fabricated as per the design mentioned in CPCB guidelines by local fabricators.

Instead of having multiple machines, it is advisable to have a single trommel of 16-20 MM bore size screen and reject conveyer should have blower. This will reduce the cost due to multiple trommeling. Also, to utilise the Refused Derived Fuel ('RDF') recovered from this process should be made free from dust. Thereafter RDF can be bundled and sent to waste-to-energy plant and cement industries for further utilisation.

The recovered soil from the bio-mining/bio-remediation process can be used in filling the dead mines so as afforestation in the area can take place. Secondly, it can be used by National Highway Authorities/ State Road construction agencies and local bodies in sub-base filling.

Local bodies can install number of trommels at bio-remediation site based on availability of land and with time they can increase the number so as to complete the process as soon as possible.

Once the bio-mining and bio-remediation process starts, dumping of fresh garbage should be stopped at the legacy waste dumpsites, local bodies may identify a separate piece of land to process the fresh garbage through various processes mentioned in Municipal Solid Waste Management Rules, 2016 and guidelines issued by the CPCB."

11. *In-Charge, Member Secretary, CPCB has similar view. Chief Secretary, Delhi suggests that a functional model may be preferred to any other option which has not been experienced on the ground.*

12. *We find merit in the model followed by Indore Municipal Corporation, the views of Member Secretary, CPCB and the Chief Secretary, Delhi. This opinion is also in consonance with the SWM Rules as well as the CPCB Guideline on Legacy Waste² and recent orders of this Tribunal. A conjoint reading of Rule 15 (zj), Rule 15(zk) and Clause J of Schedule I of the SWM Rules leaves room for capping of old dump sites, only in cases where there is "absolute absence of potential of bio-mining and bio-remediation" and not in cases of present nature where bio-mining and bio-remediation is possible. **In cases of present nature, both ex-situ and in-situ bio-mining options can be exercised according to Indore Municipal Corporation, which is not only environmentally safe but cost effective.** Though plea for capping legacy waste dumpsites is being raised frequently as a convenient mode, there may be hardly any situation when bio-remediation is not possible. **The option of capping of legacy wastes, which has huge environmental and health consequences, in practical terms is no option at all, except for inert waste, which again is to be disposed in a scientific secured landfill.** According to Indore Municipal Corporation, bio-mining as a treatment option is environmentally safe and does not require recurrent costs on account of leachate treatment in Effluent Treatment Plant (ETP). Furthermore, only peripheral*

² Guidelines for Disposal of Legacy Waste (Old Municipal Solid Waste), Central Pollution Control Board, February 2019

leachate can be taken to the ETP and leachate percolating underneath the dumpsite contaminates ground water and water in subterranean space. Bio-mining as a treatment option in comparison to engineering capping of legacy wastes, is not only environmentally safe and holistic but also meets the yardstick of fiscal prudence and propriety.”

14. The matter was thereafter considered on 19.11.2019 in the light of report dated 13.11.2019 filed by NCT of Delhi as follows:

“6. As per the statistics furnished during the hearing, about 1500 tonnes per day (TPD) of garbage is being bio-mined as against addition of more than 5000 TPD in NCT Delhi. Since the problem is continuing, there is need to increase the capacity suitably so that the garbage is cleared and land becomes available for a public purpose.

*7. Since we are informed that at Bhalswa, capacity will be shortly increased to 3300 TPD. The capacity at Okhla and Ghazipur dumpsites also needs to be enhanced, the capacity for bio-mining may be further enhanced, at all the three sites. An action plan be prepared and implemented so as to clear the legacy waste in an expedited timeline but within one year as earlier directed. It needs to be ensured bio-remediation is carried out rather than mere mechanical separation. The CPCB may verify that waste clearance is as per norms and give a report. **The implementation of action plan be monitored by the Chief Secretary, Delhi. The Chief Secretary, NCT Delhi may undertake monthly monitoring of the progress and take action if there is default in terms of speed of progress. Failure to comply may result in coercive action, including stoppage of salaries and entries in ACRs of the concerned erring officers.***

8. The administrative difficulties need to be resolved at the administrative level by coordination with the concerned authorities. The urgency in the matter is also with a view to prevent air pollution and adverse health impact.

The status as on 15.01.2020 may be placed on record by 20.01.2020. A copy of this order be sent to the CPCB by email.

List for further consideration on 05.02.2020.”

15. The matter was thereafter considered on 23.03.2020 in the light of status report filed by the CPCB dated 31.01.2020, compliance report filed by the Department of Urban Development dated 20.01.2020, status report filed by the South Delhi Municipal Corporation (SDMC) dated 21.01.2020, status report of North Delhi Municipal Corporation (NDMC) dated

30.01.2020 and affidavit on behalf of the North DMC dated 13.03.2020. It was observed:-

“

- 9. The report of CPCB clearly shows the work being executed is inadequate in terms of quantity as well as compliance of the environmental norms. Several untenable excuses are sought to be given which can hardly be taken as justification for failure of the constitutional mandate under Article 243 W read with Schedule XII and directions of the Hon'ble Supreme Court and this Tribunal, which have been dealt with in O.A. No. 606/2018, to which Delhi Government is a party.**
10. *In view of the above, stand of the Municipal Corporations and Delhi Government is found to be wholly unacceptable. Coercive steps appear to be necessary for upholding the rule of law and the concern for public health.*
11. *We may note that the matter was earlier considered by the Hon'ble Supreme Court inter-alia vide judgments reported in (2000) 2 SCC 678 and (2004) 13 SCC 538 directing scientific disposal of waste by setting up of compost plants, preventing water percolation through heaps of garbage, creating focused 'solid waste management cells' in all States and complying with the Municipal Solid Waste Management Rules, 2016 (SWM Rules, 2016) on urgent basis. **It was observed that the local authorities constituted for providing services to the citizens are lethargic and insufficient in their functioning which is impermissible. Non-accountability has led to lack of effort on the part of the employees.** Domestic garbage and sewage along with poor drainage system in an unplanned manner contribute heavily to the problem of solid waste. The number of slums have multiplied significantly occupying large areas of public land. Promise of free land attracts more land grabbers. **Instead of "slum clearance" there is "slum creation" in cities which is further aggravating the problem of domestic waste being strewn in the open.** Accordingly, the Court directed that provisions pertaining to sanitation and public health be complied with, streets and public premises be cleaned daily, **statutory authorities levy and recover charges from any person violating laws and ensure scientific disposal of waste,** landfill sites be identified keeping in mind requirement of the city for next 20 years and environmental considerations, sites be identified for setting up of compost plants, steps be taken to prevent fresh encroachments and compliance report be submitted within eight weeks.*
12. *Further observations in the judgment of the Hon'ble Supreme Court are:*
"3. The petitioner has handed over a note in the Court showing the progress that has been made in some of the States and also setting out some of the suggestions, including the suggestion for creation of solid waste management cell, so as to put a focus on the issue

and also to provide incentives to those who perform well as was tried in some of the States. The said note states as under:

- “1. As a result of the Hon’ble Supreme Court’s orders on 26-7-2004, in Maharashtra the number of authorisations granted for solid waste management (SWM) has increased from 32% to 98%, in Gujarat from 58% to 92% and in M.P. from NIL to 34%. No affidavits at all have been received from the 24 other States/UTs for which CPCB reported NIL or less than 3% authorisations in February 2004. All these States and their SPCBs can study and learn from Karnataka, Maharashtra and Gujarat’s successes.
2. **All States/UTs and their SPCBs/PCCs have totally ignored the improvement of existing open dumps, due by 31-12-2001**, let alone identifying and monitoring the existing sites. Simple steps can be taken immediately at almost no cost by every single ULB to prevent monsoon water percolation through the heaps, which produces highly polluting black run-off (leachate). Waste heaps can be made convex to eliminate standing water, upslope diversion drains can prevent water inflow, downslope diversion drains can capture leachate for recirculation onto the heaps, and disused heaps can be given soil cover for vegetative healing.
3. **Lack of funds is no excuse for inaction. Smaller towns in every State should go and learn from Suryapet in A.P. (population 103,000) and Namakkal in T.N. (population 53,000) which have both seen dustbin-free ‘zero garbage towns’ complying with the MSW Rules since 2003 with no financial input from the State or the Centre, just good management and a sense of commitment.**
4. **States seem to use the Rules as an excuse to milk funds from the Centre, by making that a precondition for action and inflating waste processing costs 2-3 fold. The Supreme Court Committee recommended 1/3 contribution each from the city, State and Centre. Before seeking 70-80% Centre’s contribution, every State should first ensure that each city first spends its own share to immediately make its wastes non-polluting by simple sanitising/stabilising, which is always the first step in composting viz. inoculate the waste with cow dung solution or bio culture and placing it in windrows (long heaps) which are turned at least once or twice over a period of 45 to 60 days.**
5. Unless each State creates a focussed **‘solid waste management cell’** and rewards its cities for good performance, both of which Maharashtra has done, compliance with the MSW Rules seems to be an illusion.
6. **The admitted position is that the MSW Rules have not been complied with even after four years. None of the**

*functionaries have bothered or discharged their duties to ensure compliance. **Even existing dumps have not been improved.** Thus, deeper thought and urgent and immediate action is necessary to ensure compliance in future.”*

13. *In this regard, reference may also be made to orders of Hon’ble Supreme Court in Municipal Council, Ratlam vs. ArchiCAD³ and B.L. Wadhwa v. Union of India and Ors.⁴ laying down that **clean environment is fundamental right of citizens under Article 21** and it is for the local bodies as well as the State to ensure that public health is preserved by taking all possible steps. **For doing so, financial inability cannot be pleaded.***
14. *The matter has also been considered by this Tribunal in pursuance of orders of the Hon’ble Supreme Court. This Tribunal considered the matter of solid waste management after notifying all the concerned States/Regulatory Bodies and finally disposed of the same on 22.12.2016⁵ requiring all the States/UTs to follow the SWM Rules, 2016 after preparing requisite action plans in a time bound manner with further direction that **any State/UT which failed to comply with the Rules shall be liable to be proceeded against under Section 15 of the Environment (Protection) Act, 1986 (EP Act), apart from being required to pay environmental compensation and senior most officers of the States/Local Bodies being personally liable.** The directions also include requirement for segregation of waste, providing buffer zone around plants and landfill sites and due monitoring. The States/Local Bodies were also to create market for consumption of RDF. Tipping fee was to include the efficient and regular monitoring of waste processing plant, segregation of inert and C&D material and its transportation. Landfill sites were required to be bio-stabilized preventing leachate and generation of Methane, enforcement of Extended Producer Responsibility, rights and liabilities under contracts being made consistent with the Rules, creating public awareness about the facilities available at regular intervals. **Copy of the judgment was circulated to all the Chief Secretaries/ Advisors of States/UTs.***

16. Finally, the matter was dealt with vide order dated 28.1.2021.

Relevant extracts from the said order are:-

“18. We may observe that non-compliance of rules relating to waste disposal results in damage to the environment and public health. Any failure needs to be visited with assessment and recovery of compensation for such damage from the persons responsible for such failure. A study was recently got conducted by CPCB, under orders of this Tribunal requiring such a study by a joint Committee comprising CPCB, NEERI and IIT, Delhi about the monetary cost of damage caused to the environment

³ (1980) 4 SCC 162

⁴ (1996) 2 SCC 594

⁵ O.A. No. 199/2014 (2016) SCC Online NGT 2981

on account of existence of legacy waste dump site at Gurgaon (Bandhewadi) vide order dated 05.03.2019 in O.A. No. 514/2018. **The report of the CPCB filed on 13.02.2020 is that damage on account of the said legacy waste dump site was Rs. 148.46 crore, on account of damage to the air quality, soil and water quality, climate change and disamenity (aesthetic).** The damage has been assessed in terms of impact on health due to release of pollutants in air atmosphere, release of leachate into ground / surface water and soil, due to pollution from the landfill site, damage cost associated with climate change due to carbon di-oxide and methane, damage caused due to aesthetics loss, price depreciation due to disamenity cost etc.

19. Thus, monetary cost of every legacy dump site is expected to be huge depending upon the location, quantity and quality of waste and area covered, its proximity to water body/ stream and human habitation etc. Needless to say that there is huge cost for non-compliance of provisions relating to waste management – Solid as well as Liquid. Loss to the environment and public health is taking place not only on account of delay in clearing legacy waste but also for not complying with other provisions of the Rules resulting in huge gap in generation and processing of waste. It may be necessary to determine such cost for delay in clearing legacy waste at every dump site as well as for delay in complying with other rules and failure to treat sewage and recover the same from the persons responsible for action in the matter. **Let the Committee comprising CPCB, NEERI & IIT Delhi carry out similar study as mentioned in Para 18 above to assess the amount of damage to environment on account of dump sites in Delhi within two months.**

20. In view of above, we expect steps for effective implementation of the Rules failing which this Tribunal may have no option except to direct coercive action personally against the entire administrative chain in each Municipal Corporation of Delhi and NCT of Delhi who are responsible for management and supervision of municipal waste in NCT of Delhi.

21. Without prejudice to existing work being continued and expedited, taking into account the deficiencies pointed out by the CPCB, the **Government of NCT Delhi may set up of an integrated Special Purpose Vehicle (SPV) for scientific management, processing and disposal of legacy waste dump sites at Ghazipur (East Delhi), Bhalswa (North Delhi) and Okhla (South Delhi) headed by Chief Secretary, NCT of Delhi with a nominee of Lt. Governor and Commissioners of concerned Corporations, Secretary Urban Development, Delhi Govt., Shri Manish Singh, IAS (now Director Swachh Bharat, M.P., Bhopal) and Shri Vijay Nehra, IAS, Commissioner, Municipal Corporation, Ahmedabad as members with in specific time lines. The**

Integrated SPV may coopt other technical and administrative members as deemed necessary.

22. Let further action taken report be filed before the next date by e-mail at judicial-ngt@gov.in. by the Chief Secretary, Delhi.”

xxx.....xxx.....xxx

10. Accordingly, we direct the NCT Delhi and the Municipal Corporations concerned to coordinate and execute the work of remediating the legacy waste dump sites for enforcing the rule of law and protection of environment and public health, expeditiously in terms of earlier orders of this Tribunal. Due care has to be taken for preventing fire accidents on the landfill sites and maintaining stability of the dumps. **The Chief Secretary, Delhi, may continue to hold meetings for coordination with all the stake-holders, atleast once in a month, as earlier directed to device ways and means to expedite the pending work, including coercive measures against those responsible for delay. The CPCB is at liberty to recover the compensation already assessed, with further compensation for continuing damage till compliance of law, following due process of law. The amount of recovered compensation be spent on restoration of environment in Delhi.”**

Consideration of the issue now raised

17. In above background, the issue surfaced again as noted in opening part of this order on account of media reports of fires in the two dumpsites showing continuing hazards and failure to take remedial action by the concerned authorities in terms of the statutory Rules, orders of Hon’ble Supreme Court and orders of this Tribunal in the light thereof.

Reports of the joint Committees headed by Justice SP Garg (retd) dated 31.07.2022 and 21.09.2022 about current compliance status and way forward in pursuance of orders of the Tribunal

18. As already mentioned in the opening part of the order, reports were sought vide orders dated 22.4.2022 and 27.4.2022 in the two matters pertaining to two of the three legacy dump sites in Delhi. In pursuance thereof, reports dated 31.07.2022 and 21.09.2022 have been filed.

19. Report dated 31.07.2022 in O.A No. 288/2022 gives the particulars and status of the site and suggestions for further course of action as follows:-

“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/compost pits etc. Fresh Municipal Solid Waste received at the dumpsite is layered alternatively with Municipal Solid Waste and C&D was 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 trommels 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 embankments/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 Kilns. 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 minimize 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 rag pickers 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, Indial 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."

20. The report shows that the above issues were further deliberated upon in 2nd, 3rd, 4th, 5th and 6th meetings of the Committee. The report mentions the decisions taken and further suggestions in the 6th meeting as follows:-

“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 rag pickers 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 Cample 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-degradable) and domestic hazards waste, directly on those who generate it including households. Violators 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 possibility of its implementation. To prevent fire incidents, 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 development.”

21. **Report dated 21.09.2022 in O.A No. 300/2022 is also on the same pattern.** The status of the landfill site and suggestions for further action are mentioned as follows:-

“5. Mr. Raja informed that Bhalswa dump-site is not an Engineered Sanitary Landfill (SLF). It is spread over 70 acres of land and is in use since 1994. It was having about 80 lakh metric tonnes of legacy waste (Old MSW) in July, 2019. Total generation of Municipal Solid Waste (MSW) in the area under the jurisdiction of North DMC is 4500TPD out of which 2300TPD is processed at Integrated MSW Facility at Bhawana (having WTE Plant, Compost Plant and Engineered SLF) and rest of 2200TPD is dumped at Bhalswa site as no other feasible land is available with North DMC. He further informed that earlier the height of the dump-site was 60 meters which has now been reduced to 54 meters. Presently, Bio-remediation is being carried out through 40 trommels and 4 kleeman machines. Bio-mining operation has generated huge quantities of Refused Derived Fuel (RDF) which is not of good quality. RDF generated is approximately 2000TPD out of which 800-900TPD is processed at Waste To Energy (WTE) plant at Bhawana. It was also informed that NHAI has agreed to take 14 lakh MT of Inert. About 1 lakh MT Inert has already been given to NHAI for use in its projects (UER).

6. The Committee enquired from Mr. Raja about the cause of fire incident which took place on 26.04.2022. He informed that the reason for fire incident on 26.04.2022 was methane generated from decomposition of organic matter present in the fresh MSW dumped at the site. Formation of methane gas is a natural phenomenon specifically in fresh waste. On 26.04.2022 fire was caused due to extreme heat and emission of uncontrolled methane and it spread due to strong winds. Fire incidents are more prominent during elevated temperature levels in the months of April to June. When enquired as to what steps have been taken to douse the fire, he informed that 4 water tankers of capacity 9000 litres (2 Nos.) and 3000 litres (2 Nos.) have been deployed at site besides Jetting Machines, Bulldozers, Excavators, JCBs etc. For prevention of fire, round the clock patrolling is done by the staff including JEs, 3 AEs and 70 Beldars. He further informed that there was no boundary wall along the periphery of dump-site. Proposal of boundary wall has been given; fencing is cut by rag-pickers. Due to measures taken by North DMC, fire incidents have reduced from 98 in 2016-17 to 2 in 2021-22 and further to 1 in 2022-23. He informed that routine activities carried out to prevent and control fire were as:

- Use of C&D for stabilization of waste and construction of kachha paths.***
- Step cutting of fresh waste mound by excavators.***
- Round the clock patrolling around the site to check unauthorized entry.***

- **Bio-mining/remediation of legacy waste.**
- **Dust mitigation by spraying water by water tankers and anti-smog guns.**

7. The grievance of the officer was that fresh waste was being dumped at Bhalswa despite its reaching saturation. Only 6-7 acres of land was available for dumping of fresh waste. He further informed that the local police has been requested to depute police personnel for preventing unauthorized entry of waste pickers inside the dump-site.

8. The Committee was surprised to know that still fresh MSW was being dumped at site on regular basis. It asked the representative of North DMC as to what efforts have been made to get land for MSW processing facility/Engineered SLF. Mr. Raja informed that DDA had allotted land at Rani Khera (about 50 acres) in 2017. It is, however, lying vacant and has not been utilized being close to habitation and there is no buffer zone of 200 meters; there is strong public resistance too. He further informed that land has also been allotted at Bhawana but the same has not been utilized due to presence of High Tension Line. There is a 49 acre of land in Sultanpur Dabas which was allotted in 2018. North DMC is planning for development of the Engineered SLF there. Representative of DMC and UD Department informed that they have written letters to DDA regarding requirement of land for waste processing facilities including land required for North DMC. The Committee asked them to provide correspondence with DDA regarding requests for allotment of land for MSW processing facilities.

9. Regarding the issue of rag-pickers, the Committee asked the representative of North DMC about authorization of rag-pickers for their entry at the dump-site. He was also asked to inform about requirement of number of CCTV camera along with the location of each camera. The Committee also suggested to use water tankers to mitigate dust pollution and sprinkling of water on the susceptible areas for methane generation.

10. ACP (Swaroop Nagar) who attended the meeting on behalf of DCP (Outer North) was directed to provide all support and security required by North DMC for prevention of unauthorized entry at the dump-site. It was directed that the police department will deploy adequate number of beat constables and explore possibility of providing police picket at the site. North DMC will assess the requirement of CCTV cameras along with locations in consultation with the police department.

11. Divisional Officer, Delhi Fire Service informed that the fire station was situated within a radius of 1km and there was no need of stationing a dedicated fire tender at dump-site. He informed that it is difficult for fire tenders of 9-10kl capacity to reach the top of the dump-site. He suggested some preventive/remedial measures to avoid fire incidents as under:

- *Entry of unauthorized persons/rag-pickers should be prohibited.*
- *Dump-site should be strictly 'match-box free' area.*
- *Persons entering the premises of dump-site should not carry any inflammable material.*
- *For suppression/mitigation of dust, water tankers available at the site should be used.*
- *Spark Arresters be provided with the exhaust system of the vehicles/trucks entering the dump-site to prevent fire due to spark on vehicles. The cost of the Spark Arrester is about Rs.2000-3000.*
- *Water storage tank of 5 lakh liters capacity be set up along with at least 3 pumps at the dump-site.*

12. The Committee asked Mr. Singh from DPCC about the visit of team of officials from North DMC, EDMC and DPCC to landfill sites in Mumbai. The observations made by the said team were briefed to the Joint Committee and it was informed that the report of the team would be submitted soon. Mr. Singh was requested to share the report regarding their visit at Mumbai.

13. DM (North) suggested that North DMC should authorize some NGO for regulating the entry of rag-pickers at the site. She offered to explore possibility of deploying Civil Defense Volunteers at the dump-site for preventing unauthorized entry. ADM (North) representative of DDMA informed that DDMA should be immediately informed about any fire incident at the site so as to coordinate with concerned departments for immediate action for dousing of fire and to avoid damage to the nearby habitants/property. It was also suggested to have Standard Operating Procedure (SOP) for controlling fire in case of fire incidents and Mock Drill should be conducted in this regard. Emergency Response Plan be prepared at the concerned Municipal Corporation in consultation with DDMA.

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

- *North DMC to suggest measures for utilization of RDF accumulated at the site.*
- *It shall immediately inform DDMA and DM (North) regarding any fire incident at the site. It shall prepare short term and long term plans for prevention of fire incidents at site. It shall also make assessment of the entire area of the dump-site and prepare on site Emergency Disaster Management Plan.*
- *In consultation with DM (North), it will explore possibility of authorizing some NGO/agencies for regulating the entry of rag-pickers at the site.*
- *It shall assess the requirement of CCTV cameras along with locations in consultation with Delhi Police.*
- *It shall implement the suggestions given by Delhi Fire Services for prevention of fire.*
- *DDMA in consultation with DM (North) shall conduct Mock Drill at the Bhalswa dump-site. DDMA shall also*

prepare Standard Operating Procedure (SOP) to be followed in case of fire incident.

- **Police Department will deploy adequate number of beat constables and explore possibility of providing police picket at the site.**
- **Joint Committee to visit Bhalswa dump-site on 11.05.2022.**

VISIT TO BHALSWA DUMP-SITE

15. On 11.05.2022 at around 11:00AM, the Joint Committee visited the Bhalswa dump-site to ascertain the prevailing situation. DM (North), Ms. Harleen Kaur, Addl. Commissioner (North DMC), Addl. DCP (Outer North District), ADM (North) as representative of DDMA (North), Sh. Rajesh Kumar, Dy. Secretary, UD Department, Sh. C.K. Dikshit, Scientist "C", CPCB, Sh. V.K.Gupta, Director in Chief (North DMC) along with Sh. M.P. Gupta, CE (North DMC) and Sh. P K Raja, SE (C) (North DMC), Sh. Roop Chand, SE (E&M) (North DMC), Sh. A S Yadav, EE, SLF and Sh. D.K.Singh SEE, DPCC were present at the site.

16. The Committee visited peak site of the dump-site and surveyed the surrounding areas minutely. The landfill is adjacent to NH-1 and Bhalswa Diary. It is accessible through the internal roads adjacent to the Delhi-Chandigarh section of NH-1. Addl. Commissioner, Director-in-Chief (North MCD) briefed the Joint Committee about the site as:

Area of dump-site	: 70 Acres
Year of start of use of the dump-site	: 1994
Legacy Waste Dumped	: 80 Lakh Tons (As in July, 2019)
Height of dump-site	: 65 meters (As in July, 2019)
Municipal Solid Waste (MSW) Generation in North DMC Area	: 4500 TPD
Fresh MSW being dumped at the dump-site	: 2200 TPD (49% of Total MSW Generated)
MSW being processed at Integrated MSW Management Facility at Bawana	: 2300 TPD (51% of Total MSW Generated)
Legacy Waste Bio-mined/Processed (till 11.05.2022)	: 14 Lakh Ton (17.5% of Total Legacy Waste)
CCTV Camera	: 29 CCTV Cameras were operational out of 31 CCTV Cameras installed
Status of Bio-mining of Legacy Waste	: 4 Trommels (30mm & 6mm Screen Size) 4 Kleeman Machines
Water Tankers	: 4 (2 of 9000l capacity+2 of 3000l capacity)
Jetting Machines	: 6
Excavators	: 3 operational out of 6 deployed
Backhoe Loaders	: 2
Bulldozers	: 5

<i>Boundary Wall around the periphery of the dump-site</i>	<i>Yet to be constructed</i>
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17. It was informed that as per orders of the Hon'ble NGT dated 17.07.2019 in O.A. No. 519/2019 and O.A. No. 386/2019, legacy waste dumped at the 3 dump-sites including Bhalswa is to be disposed of by bio-mining using trommels instead of capping the site. Bio-mining of legacy waste started in October, 2019. It was further informed that the fire incidents occur only in fresh waste dumped 1-2 years before. The legacy waste is dumped in an area of 60 out of 70 acres and the fresh waste is dumped in 6-7 acres of the area. Due to space constraints, the mound of fresh waste is being piled up over and over.

18. Addl. Commissioner (North DMC) stated that water tankers (with treated waste water from Rithala STP) and mounds of Inert have been maintained at the fire prone area so that in case of fire, the fire affected waste can be excavated out and fire could be doused by cutting off oxygen.

19. It was informed that bio-mining of legacy waste was being carried out using 2 types of trommels (30mm & 6mm screen size) and Kleeman machines. 40 trommels and 4 keleeman machines have been installed for this purpose. C&D Waste is used at the site itself to construct approach roads etc. MoU of 14 lakh MT of Inert has been signed with NHAI. The disposal rate of Inert to NHAI is 2000 TPD for its UER-II project. Till date, 1.5 lakh ton of Inert has been sent to NHAI.

20. The Committee viewed the LED screens installed at the office of North (DMC) at site showing live footage received from CCTV cameras installed at various sites/locations at the dump-site. The Committee also visited crucial points of the site where fresh MSW was being dumped and previously dumped waste was being covered with Inert using machinery. The Committee also observed that mixed MSW was being dumped indicating lack of segregation at source. Site/location of fire incident on 26.04.2022 was also shown to the Joint Committee. It also saw the trommels installed at the site for bio-mining of legacy waste and RDF and Inert accumulated at site. Many rag-pickers were seen at the dump-site; animals were also seen roaming.

21. North DMC has installed a board in the office at site mentioning roster duty of officers and status of machinery deployed at site. Power Point Presentation was given to the Joint Committee during the visit.

22. Other issues mentioned in the presentation and discussed with the officers of North DMC were:

- **Unauthorized entry of rag-pickers** – it was observed that there was no boundary wall constructed at the periphery of dump-site due to which there was infiltration of unauthorized rag-pickers. DM (North) informed that around 200-300 people work at the site and they are in the process of mainstreaming the rag-pickers and preliminary work has already started.

- **Absence of police picket** – There was no police picket at the site due to which it was difficult to prevent unauthorized entry of rag-pickers. JJ Colonies/ clusters were observed by the Joint Committee near the dump-site. Addl. Commissioner (North DMC) informed that people living in those clusters tend to enter the dump-site to take recyclables out of the waste dumped at the site.
- **Disposal of RDF** – Addl. Commissioner (North DMC) informed that disposal of RDF was the main issue and for that North DMC has received technical bids from 3 agencies for RDF Pellets Manufacturing Plants at the site only and they would start operation within 4 months. RDF generation is 3000 TPD when the trommels and Kleeman machines are operated at full capacity. It was further informed that 11 waste management agencies have been empaneled with North DMC and 5 were working with them but their scale was very low due to low ERP. As the EPR is around 70% now, they were ready to work with North DMC.

23. After detailed discussion and deliberation, following decisions were taken:

- DDMA (North) will conduct Mock Drill at site.
- North DMC will explore possibility of utilization of high capacity fire extinguishers to douse fire.
- Police department will deploy adequate number of beat constables and provide a dedicated police picket at site.
- Concerned officer from DDA be requested to attend the next meeting to inform about allotment of land to North DMC.
- North DMC to explore use of perforated pipes to release methane into the atmosphere.
- It shall patrol the fire prone area of 6-7 acres where fresh waste is being dumped. It shall explore possibility to construct boundary wall of adequate height along with proper wire fencing all around the periphery of the site to prevent unauthorized entry.
- North DMC will submit suggestions for various issues being faced by it in disposal of RDF and prevention and control of fire at site.”

22. The report also mentions the deliberations in 2nd, 3rd and 4th.

Extracts from the report are as follows:-

“xxxxxx.....xxx

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

- MCD shall submit Action Taken and Updated Status/Progress Report with respect to the decisions taken in the earlier meetings along with reasons for not lifting of RDF by WTE plant at Bawana, present scenario/status of bio-mining of legacy waste including number of operational

trommels, reason for reduction of trommels and orders issued in this regard, disposal of RDF and Inert generated from bio-mining of legacy waste by 24th August, 2022.

- DM (North) to submit updated Progress Report along with suggestions for prevention and control of fire incidents at dump-sites and also inform about the measures taken by the concerned departments with respect to the deficiencies observed during the Mock Drill on 08.06.2022.
- Police Department shall deploy adequate number of beat constables and provide one police picket at dump-site to prevent unauthorized entry.
- DDA will submit report on further progress regarding allotment of land for Solid Waste Processing/Disposal Facilities. Copy of the allotment letter in respect of E-Waste Management Facility will also be submitted to the Joint Committee.

ACTION TAKEN REPORT

54. Pursuant to the directions in the meeting held on 20.08.2022, MCD furnished a comprehensive Action Taken Report dated 23.08.2022 regarding the steps taken for implementation of the decisions taken during the previous meetings of the Joint Committee.

55. About the reasons for WTE plant at Bawana not receiving RDF since 29th July 2022, it was informed that erstwhile North DMC had empaneled and engaged 5 agencies for disposal of plastic waste, incinerable waste recovered from bio-mining process at dump-site @ 1746/- per MT on 03.12.2021 for a period of 12 months. The empaneled/engaged agencies were M/s DMSWSL (ii) M/s Pragati Builders (iii) M/s Dayacharan & Co. (iv) M/s RR Enterprises and (v) M/s Rekart Innovations Pvt. Ltd. These agencies could not lift the entire incinerable waste resulting in accumulation at site hindering with normal functioning of bio-mining process. Therefore, following five trommeling agencies were also engaged at the same time, after obtaining their consent with the approval of the Competent Authority.

- Thapar Engineering Works
- Greentech Environ Management Private Limited
- Enviro Zone Instruments & Equipments
- Sakhya Enviro Private Limited
- United Facilities & Logistics Pvt. Ltd.

56. The work of bio-mining was started at Bhalswa in October, 2019. Since then, 25 lakh MT of legacy waste has been processed. In spite of all efforts, the desired progress has not been achieved due to various reasons i.e. lack of stacking space of recovered material within landfill; shortage of disposal sites of recovered material especially RDF; multiplicity of trommeling and transportation agencies etc. The contribution of 10 agencies towards RDF lifting was miniscule. As a result, recovered material had accumulated at landfill site itself which was creating issues in operation of already installed trommels and it was difficult to increase the capacity in line with action plan prepared by MCD for completion of bio-mining process at the dump-site. For that reason, all the 10 agencies including M/s Delhi Municipal Waste Solution (WTE at Bawana) engaged for

disposal of plastic waste/incinerable waste have been disengaged. It was further informed that MCD was in process of calling fresh tenders to undertake the integrated work of bio-mining of 30 lakh MT of legacy waste including disposal of all the fractions recovered through bio-mining process i.e. Inert, RDF and C&D waste. It is further informed that as the work of bio-mining is presently hampered due to rainy season, the generation of RDF is very less. Tenders have been invited and the pre-bid meeting was conducted on 16.08.2022. The bid opening date is 02.09.2022.

57. About the present status of bio-mining of legacy waste at dump-site including number of trommels operational, disposal of RDF and Inert, it was informed that out of 51 trommels, 23 were installed at lower level on a land area of approximately 5 acres. These machines were installed at a very close distance to each other causing lack of stacking space. As the offtake of RDF fraction was less than its generation, huge quantity of RDF had stacked near trommels as a result the trommels were not able to function at full capacity. For that reason, the department has disengaged 23 machines installed at the lower level for effective work management, to enhance efficiency and better regulatory checks. It was further informed that at present, 14 trommels, 4 kleeman machines and 1 rotor were functional at the site. The details of the disposal of RDF, Inert, C&D was as under:

S. No.	Detail	Cumulative qty. (MT)	Month of August (MT)
1.	Inert	369600	9391
2.	C&D	66000	5022
3.	RDF	227300	114

58. It was further informed that there was a proposal of signing of an MoU between MCD and JK Cement for disposal of RDF. Every month, JK Cement will dispose of RDF minimum 3000MT per month from 3 landfill sites including Bhalswa. There is a comprehensive tender of "Disposal of 30MT of legacy waste by bio-remediation and bio-mining at Bhalswa dump-site, Delhi." and it is under process. The last opening date of the tender is 2nd September, 2022.

59. In the report, it was informed that 6 number of HDPE pipes have been provided at various vulnerable locations in fresh waste dumping site for release of methane. In future, it will be provided as and when required.

60. Regarding status of MRF facility, it was informed that an MoU has been signed with M/s 21 Century Polymers (WME) for setting up of 150TPD capacity MRF plant at Bhalswa diary. Land measuring 2000 sq meter was handed over to the agency on 25.05.2022. Since the land was marshy, Inert generated at dump-site was dumped there. Further, the agency was in the process of filling C&D waste so as to make firm base for the facility. Plant is likely to be made operational within 3 months.

61. Regarding disposal of RDF accumulated at site, it was informed that tenders for "Design, Finance, Build, Own, Operate and Maintain Processing facility to process minimum 1000TPD of incinerable waste

fraction recovered from processing of legacy waste into RDF and its subsequent transportation and disposal on daily basis” were invited. The agencies were asked to provide GPS tracking system. The agency, however, declined to provide it being not part of tender condition. One of the agencies requested for much more land from 1.5 to 2 acre as per bid of RDF which was not available with the department. Hence, the work was foreclosed.

62. Regarding installation of Spark Arresters, it was informed that the concessionaire namely Metro Waste Handling Private Limited engaged for Karol Bagh Zone for door to door collection of MSW has given list of vehicles deployed for the work where it was mentioned that all the vehicles were equipped with catalytic converters and hence, there was no need to install Spark Arresters. They also enclosed the exemption list of vehicles and exemption certificate of Spark Arrester. Similarly, M/s IPMSW Solutions Private Limited for Narela Zone and M/s AG Enviro furnished the list of vehicles exempted from installation of Spark Arresters.

63. Regarding construction of boundary wall, it was informed that an estimate amounting to Rs.23,03,11,300/- has been prepared to cover the probable cost of construction of RCC boundary wall of 4 meter height along with concertina coil fencing and the same has been sent to Addl. Secretary, UD Department for releasing adequate budget.

64.Regarding upgrading the existing water tankers with sufficient capacity and pumps, it was informed that two water tankers of 9000 liters and two water tankers of 3000 liters capacity remain deployed around the clock and sprinkle water regularly over the dry waste to maintain 5-25% moisture content. Jetting machines from zones were also deployed from time to time.

65.About treatment of leachate generated from the dump-site, it was informed that the proposal was being initiated as per directions of DPCC.

66.About status of 49 acres of land at Sultanpur Dabas village, 35 acres of land at Narela Bawana and 55 acres of land at Ranikhera, it was informed that in order to ensure scientific disposal of unprocessed MSW, MCD was in the process of setting up another waste plant processing facility (WTE) at Narela-Bawana which would cater to about 3000 MT of Solid Waste per day. Tenders have been invited and the plant is likely to be made operational by June, 2025. As per this tender, WTE plant will be set up at Narela Bawana and Engineered Landfill will be set up at 49 acres available land at Sultanpur Dabas. Request for cutting of trees will be sent to the forest department for grant of permission in due course of time. 55 acres land at Rani Khera is close to human habitation and not suitable as per the MSW manual for construction of Solid Waste Management Facilities.

67. Regarding watch towers, it was informed that once the estimate for construction of boundary wall was approved, there won't be any need to provide watch towers. About Temperature Sensors, Fire Alarms, Infrared/Thermal Imaging Cameras for early detection and control of fire at the dump-site, it was informed that the proposal was

being initiated. Regarding 50KLD capacity water reservoir at the spot for emergency purposes including dousing of fire and control of dust solution, it was informed that submersible pump was available and was being utilized for refilling of water tankers/sprinklers deployed for mitigating dust and air pollution. The proposal for underground reservoir will be taken up as per the availability of space and budget.

68. It was further informed that Drone Survey of the dump-site has been carried out for the assessment of entire area of Bhalswa dump-site. During emergency, the DDMA, DM (North), Delhi Fire Services will be informed and necessary steps to handle the disaster will be taken by the MCD in coordination with the other departments. It was also informed that number of CCTV cameras have been increased from 21 to 31.

69. The MCD in the Action Taken Report also informed about constraints in managing dump-site; additional measures taken after the fire and long terms measures being taken to prevent fire incidents. The detailed Action Taken Report is annexed as **Annexure D**.

DRONE SURVEY

70. Drone Survey was conducted at Bhalswa landfill site in June, 2022. The MCD engaged Caritas Eco System Private Limited as consultant to conduct a drone based survey to monitor the progress of the process at Bhalswa landfill site. As per survey report, the actual site area of landfill site was about 78.5 acres (about 31.71 hectare). The MCD officials had earlier reported the total area of the landfill to be 70 acres. The site area has thus increased by 12%. It was also seen that the waste has reached a height of 62 meter from the ground. The highest point being more than 274m. The consultant has estimated the waste volume as per the table below as on 15.06.2022:

SLF site area	78.47 Acre	31.76 Ha.
SLF site area considered for volumetric assessment	76.87 Acre	31.11 Ha.
Waste Volume @ 212 m baseline level	73 Lakh Cubic Meter	
Waste volume @ 215 m baseline level	65 Lakh Cubic Meter	

71. As per the information given in the report about 25 lakh tons of legacy waste has been processed till date. Presently, MCD has 24 trommels operating at Bhalswa landfill site with 2200 tons waste being removed everyday. Presence of rag-pickers, including children atop the landfill busy with their work was also noticed during survey. The detailed drone survey report is annexed as **Annexure E**.

FIRE MOCK DRILL

72. The causes of eruption of fire at the landfill site have been detailed by the Fire Service Department in its report. To review the alertness and response time of different Emergency Support Functionaries (ESFs) in the North Delhi district for any disaster and to identify areas for further improvement, a surprise Fire Mock Drill was organized by DDMA (North) on 08.06.2022 at 11:57AM at Bhalswa landfill pursuant to the directions of the Joint Committee.

The scenario was of fire. The report was shared with all the concerned departments. They were directed to rectify the deficiencies mentioned in the Mock Drill Report.

73. 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. MCD shall depute sufficient number of officials for getting training to deal with fire incidents in coordination with Delhi Fire Service.
- MCD shall establish an emergency control room; it shall be operational on 24x7 basis. MCD shall prepare SOPs, Disaster Management Plan and Evacuation Plan and keep it at site.
- The area where the fire is recurring needs to be identified and observed in order to avoid any disaster.
- Internal mock drills be conducted on regular basis.

74. The Joint Committee appreciated the efforts of DM (North) to organize the Fire Mock Drill. The detailed report of Fire Mock Drill is annexed as **Annexure F**.

ADDITIONAL SUGGESTIONS

75. When the Joint Committee was constituted, there were three different Municipal Corporations. Mr. P.K. Raja, Superintendent Engineer had represented the erstwhile North MCD in various meetings till 3rd meeting held on 22.07.2022. After unification of the three corporations, there was change of the Nodal Officer and in the 4th meeting held on 20.08.2022 Mr. K. Kannan, SE (MCD) participated as Nodal Officer for Bhalswa landfill site. Action Taken Report was filed by him pursuant to the directions of the Committee on 23.08.2022. Lot of discrepancies in the functioning of the erstwhile MCD have been noted by the Committee:

- **Total area of landfill site** – From the very inception, the Committee was informed that the total area of the Bhalswa landfill site was around 70 acres. It is unclear as to on what basis and documents/evidence the area of the dump-site to be 70 acre was ascertained/assessed. In the Drone Survey Report, the land area of the dump site has been estimated to be 78.47 acres (31.76 Ha). This material inconsistency has remained unexplained. The Committee suggests that Commissioner, MCD should collect relevant documents to find out the exact area of the landfill site to make proper future plans for removal of the garbage at the dump-site.
- **Number of trommel machines** – Mr. P.K. Raja, SE had informed the Committee that the total number of functional trommel machines were 40 (30mm and 6mm screen size)

besides 4 kleeman machines. The Drone Survey Report conducted in June, 2022 noted that presently, 24 trommels were being operated at Bhalswa landfill site. In the Action Taken Report dated 23.08.2022, Mr. K. Kannan, SE informed that the total number of trommel machines deployed at the site were 51. Presently 14 trommel machines were working at site and 23 trommels have been disengaged/closed. The reason for disengagement of 23 trommels were that they were installed at a very close distance to each other causing lack of stacking space. Apparently, different officers of MCD have given inconsistent and contradictory figures of trommel machines functioning at the spot. It is suggested that the Commissioner, MCD should conduct a through investigation as to how many trommel machines were in operation at the time of constitution of the Committee at landfill site; how many were in operation at the time of conduct of Drone Survey in June, 2022 and how many trommel machines were in operation in the last week of July, 2022 when 23 trommel machines were disengaged. He should also enquire as to how many trommel machines are functional at present at the landfill site. It should be ascertained with certainty as to how many trommel machines are required at the landfill site to achieve the object of flattening of garbage mounds.

➤ **Legacy waste bio-mined/processed** – Mr. P.K. Raja had informed the Committee that in July, 2019 the total quantity of legacy waste dumped was around 80 lakhs tons. 14 lakh tons (17.5%) of the total legacy waste had been bio-mined/processed till 11.05.2022. In the Drone Survey Report, it is stated that about 25 lakh metric tons of legacy waste has been processed till June, 2022. In the Action Taken Report dated 23.08.2022 filed by Mr. K. Kannan, again the total quantity of legacy waste processed till date has been stated to be 25 lakh metric tons. Apparently, there is mismatch between the two quantities i.e. 14 lakh tons till 11.05.2022 and 25 lakh tons till June, 2022. Commissioner, MCD must enquire as to how much legacy waste has been processed till date. It should also be ascertained if proper record has been maintained at the landfill site regarding processing of the legacy waste and how the different figures have been arrived at. The target for the MCD for Bhalswa landfill is October, 2023. As per Drone Survey Report, waste volume @ 212 meter base line level is 73 lakh cubic meter. It is 65 lakh cubic meter @ 215 meter base line level. Fresh MSW is dumped at the landfill site which is around 2200TPD (49% of the total MSW generated). As observed above, the number of trommel machines operating at landfill site have been drastically reduced to 14 trommel machines, 4 Kleeman and 1 rotor as disclosed in the Action Taken Report. The Committee is of the view that the Commissioner, MCD should assess the total requirement of trommel machines to be installed/operated at landfill site so that the huge quantity of legacy waste lying at the landfill site along with fresh MSW is bio-mined or processed by the target date. Apparently,

the process 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 MCD would achieve its target of flattening the garbage mountain by October, 2023. The situation becomes more serious and aggravated when fresh MSW is dumped at the site and its quantity is almost equal to the processed one. It will take years together to process the legacy waste at the current rate. No effective plans to reduce the height of the garbage mounds have been made. The Committee is of the view that segregation of the 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 On-site/ Off-site Emergency Plans were prepared and implemented. One of such direction is that fresh waste be not disposed at the dump-site. Organic waste from APMC and industrial waste be not disposed of at the dump-site. It be ensured that no industrial waste/e-waste/lithium battery is dumped at the site.

- **Disposal of RDF** – The Committee was informed that generation of RDF is 3000TPD when the trommels and Kleeman machines are operated at full capacity. It was further informed that currently, 1000-1200TPD of RDF was being disposed through WTE plant at Bawana. About 40000 MT RDF has accumulated at the dump-site which poses danger of catching fire. This situation was before the change of Nodal Officer at Bhalsawa landfill site. Mr. K. Kannan, the newly designated Nodal Officer for MCD informed in the 4th meeting held on 20.08.2022 that current agencies engaged in RDF disposal including Waste to Energy Plant at Bawana have been disengaged and there was no lifting of RDF by M/s MSW Solutions Ltd. from the dump-site since 29.07.2022 and presently, it was being stored at the dumpsite. The Committee was taken by surprise. Mr. K. Kannan was unable to disclose the specific reasons for disengagement of current agencies engaged in RDF disposal including WTE plant at Bawana. He was asked to furnish a detailed Status Report/Action Taken Report. In the Action Taken Report dated 23.08.2022, it was informed that erstwhile North DMC had empaneled and engaged 5 agencies for disposal of plastic waste, incinerable waste recovered from bio-mining process @ 1746 per MT on 13.12.2021 for a period of 12 months. These agencies, however, could not lift the entire incinerable waste resulting in accumulation at site hindering with normal functioning of bio-mining process. Therefore, all these agencies were disengaged. It was further informed that MCD was in the process of calling fresh tenders to undertake the integrated work of bio-mining of 30 lakh MT of legacy waste including disposal of all the fractions

recovered through bio-mining process i.e. Inert, RDF and C&D. Tenders have been invited and bid opening date is 2nd September, 2022.

- *The Committee is of the view that the matter needs to be thoroughly enquired as to why these agencies who were engaged in the disposal of RDF have been suddenly disengaged without making alternative arrangements for disposal of RDF which is being accumulated at the dump-site. Responsibility should be fixed for the lapses of the officers concerned and the agencies involved in the disposal of RDF including WTE at Bawana for irregularities, if any. The Committee is of the view that alternative arrangement must be ensured at the earliest to avoid accumulation of RDF at landfill site. It would prevent the possibility of catching of fire. As per Action Taken Report dated 23.08.2022, as on 22.08.2022, total quantity of RDF at the landfill was 37000 MT which is quite huge and is expected to increase in the absence of alternative arrangement.*
- *Earlier it was informed that North DMC was in the process of awarding the work of installation of 3 RDF Pellete Manufacturing Plants at the site which was expected to be made operational within 2-3 months. In the Action Taken Report dated 23.08.2022, it has been informed that the tenders for 'Design, Finance, Build, Own, Operate and Maintain processing facility to process minimum 1000TPD of incinerable waste fraction recovered from processing of legacy waste into RDF and its subsequent transportation and disposal on daily basis, has been foreclosed. Mr. K. Kannan was unable to furnish any valid reasons for foreclosing the said tender. It reveals that the problem to dispose RDF is not being taken seriously. The Committee is of the view that whole hearted approach is required to be adopted while making any proposal for disposal of RDF etc.*
- *MCD must comply with the directions issued by CPCB and DPCC. Instead of sending plastic waste to dump-site/ WTE, the focus should be on minimization, segregation, recycling and reuse of materials. APMC 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 onus of waste segregation – into wet waste (bio-degradable), dry waste (non bio-degradable) and domestic hazards waste, directly on those who generate it including households. Violators are liable to pay a fine of Rs.200/-. Waste processing infrastructure needs to be strengthened so that no organic waste reaches the landfill site.*

- **Lands available with MCD for Bhalswa landfill** – The erstwhile North DMC was allotted 55 acres of land at Ranikhhera in 2017. 49 acres of land in Sultanpur Dabas was allotted in 2018. Land measuring 35 acres at Narela, Bawana has been allotted. Recently, DDA has allotted 8.5 hectares land in Narela for E-waste Eco-park in July, 2022. The lands made available to erstwhile North DMC have remained un-utilized till date for various reasons. It is stated that the land at Ranikhhera is lying vacant and can't be utilized being close to habitation and lack of buffer zone of 200 meters. Public resistance is also one of the factors. Again, the land at Bawana has remained un-utilized due to presence of high tension line. Land at Sultanpur Dabas has also not been used being in the forest protected area. The Committee noted with concern about the un-utilization of lands allotted to the MCD since long. There was no occasion for the MCD to have got allotted the land if these were not suitable. The Committee is of the view that the lands available with MCD should be utilized properly and impediments, if any, should be removed at the earliest. DDA has already informed that it was not possible to substitute/exchange the land at Sultanpur Dabas with any other land.

- **Waste to Energy Plant** – 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 2200TPD of fresh MSW is dumped at the site. The capacity of the WTE plant at Bawana if run at full capacity is around 2500TPD but it is processing RDF only in the range of 1000-1200TPD. Apparently, the WTE plant is inadequate to meet the requirements. Immediate steps are required to set up additional WTE plants at proper locations.

- 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 existing 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 to lessen the load at Bhalswa dump-site. 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.

SOLID WASTE MANAGEMENT FACILITY AT SALIGAO (2016-2021)

76. DM (North) used her good office to get report from Saligao regarding the landfill site where appreciable work was done. The report is

annexed as **Annexure G**. This report was shared with all concerned departments. They were asked to examine the report and implement the same to the extent it is feasible in Delhi.

BIO-MINING OF LEGACY WASTE IN GOA

77. Goa Waste Management Corporation was requested to furnish the information/report regarding successful bio-mining of the legacy waste and solid waste management/processing facilities in Goa. The detailed report dated 07/08.09.2022 is annexed as **Annexure H**. This report was also shared among all the departments. They were requested to examine the report in detail and implement the best practices adopted by them which can be replicated in Delhi.

GORAI AND DEONAR DUMP-SITES REPORT

78. Mr. D.K.Singh, one of the members in the team who had visited the Gorai and Deonar dump-sites in Mumbai on 05.05.2022 and 06.05.2022 submitted the comprehensive report which is annexed as Annexure B. The Committee has examined the report minutely and is of the view that various steps taken at the Gorai and Deonar dump-sites 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 dump-site, perforated HDPE pipes or of any other suitable material may be provided at the dump-site at suitable locations with proper spacing as per the site requirement.
- Declare the entire dump-site 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 dump-site 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 dump-site 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 dump-site 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 dump-site.
- Proper training on regular intervals should be given to the staff deployed at the dump-site.

- 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 rag-pickers be stopped. Dedicated police pickets can be provided at the dump-site 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 dump-site.
- The rag-pickers 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 rag-pickers. The said agency can deploy specific number of rag-pickers for the purpose of segregation and recycling at the dump-site. The rag-pickers can be given identity cards. DM(North) has already taken initiative in this regard.
- 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 (if any) 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.

RECENT INITIATIVES

79. It is heartening to note that several steps have been taken recently to mitigate the huge problem. MCD has deployed 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. First such survey has been conducted at Bhalswa landfill site in June, 2022. MCD has also given 5% 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.

80.As per report in the newspaper 'The Times of India' dated 02.07.2022, the Hon'ble LG has invited suggestions from Delhites to get rid of the 'unseemingly mountains of garbage'.

81.The Joint Committee has appreciated the efforts made by Municipal Corporation of Delhi to supply Inert free of 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 be asked to utilize Inert in their projects to the extent it is feasible.

82.As per report in newspaper 'The Times of India' dated 26.08.2022, the Municipal Corporation of Delhi's appeal to people to use inert and construction & demolition waste from the three landfill sites has started yielding good response. According to officials, in less than a month, orders for more than 10,000 metric tonnes of inert and C&D have been received from private entities of which 8421.75 metric tonnes had already been lifted. Hon'ble LG had asked government agencies involved in building and road construction like DDA, PWD, NDMC, CPWD to start using waste for their activities. DDA and PWD have already decided to use the same. The Committee noted that this was appreciable beginning.

83.PWD is likely to start using inert material generated at the landfill sites in its various projects. One of the major PWD projects, wherein inert material is to be used is Barapula Phase - III work, which requires construction of elevated road segments over the Yamuna.

84.As per report in newspaper 'The Times of India' dated 03.09.2022, Hon'ble LG facilitated 56 Residents Welfare Associations (RWAs) and Group Housing Societies that had achieved the 'zero-waste' target and were contributing in minimizing the amount of waste getting dumped at landfills.

85.As per report in the newspaper 'The Times of India' dated 16.09.2022, it has been reported by MCD that 28 colonies had become zero waste areas and 30 more have become "Harit-Mitra". Many more colonies have joined the efforts to become zero-waste localities. The MCD has taken a slew of measures to reduce the height of landfills by deploying trommel machines, offering inert and C&D waste free of cost, sale of Refused Driven Fuel (RDF) to industry, coaxing the public to segregate waste at source and discouraging use of single-use plastic.

86. Times of India dated 30.08.2022 reported that Municipal Corporation of Delhi has signed a Memorandum of Understanding (MoU) with J.K. Cement for lifting the RDF lying at the 3 landfills. 5 trucks carrying approximately 100MT of RDF from Okhla landfill site was flagged off by the Hon'ble LG. It is further informed that J.K. Cement will be lifting 50,000 metric tons of RDF annually and MCD will be saving Rs.6.73 crore annually in the process.

87. 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. War scale efforts are required to be undertaken by all the concerned agencies. The government must make sound policies to deal with the mammoth problem. As per report in the newspaper 'The Times of India' dated 19.09.2022, MCD is unlikely to meet its deadline for five waste plants. MCD's proposal to expand the daily incineration capacity of the Okhla plant from 1950 tons to 2950 tons has been rejected by an expert appraisal Committee constituted by the Union Environment Ministry. The Corporation has also shifted the deadline for completing the Tehkhand Project by a month to October end. Sincere and earnest efforts are required to deal with the mammoth problem which seems unresolved at present. Some plans made earlier have been foreclosed/abandoned and no effective alternative arrangements have been made. Possibility of aggravating the problem at Bhalswa landfill site cannot be ruled out. Steps taken so far are not adequate."

Response of Delhi Government to the observations in the reports

23. The Delhi Government has filed its response to the two reports with reference to the observations in the report and also mentions prospective action plan. Relevant extracts from the said response are as follows:-

"5. That the major issues mentioned in the said Interim Progress Report of Joint Committee, and the plan of action to address the issues are briefed below:

(i) Bio-mining of Legacy Waste:

Bio-mining of Legacy Waste is being carried out by MCD at the three Dumpsites including Bhalswa Dumpsite since 01.10.2019 in compliance of the Orders of Hon'ble National Green Tribunal dated 17.07.2019 in OA No. 519 / 2019 and OA No. 386/2019.

Quantity of segregated materials expected to be generated after complete Bio-mining of Legacy Waste at the three Dumpsites in Delhi are given in the following Table:

Present Legacy Waste and Fractions based on Volumetric Assessment:

S. No	Particular	Ghazipur Dumpsite (Lakh Ton)	Bhalswa Dumpsite (Lakh Ton)	Okhla Dumpsite (Lakh Ton)	Total (Lakh Ton)
1	Total Legacy Waste Dumped	85	73	45	203
2	Inert (less than 30 mm sieve size) (70 %)	59.50	51.10	31.50	142.10
3	Refuse Derived Fuel (RDF) (15 %)	12.75	10.95	6.75	30.45
4	Construction & Demolition Wastes (15 %)	12.75	10.95	6.75	30.45

The total quantity of legacy waste bio-mined till 29.09.2022 at Bhalswa Dumpsite was about 26.18 Lakh Ton (32.73 %). The quantity of Bio-mining of legacy waste at three Dumpsites is given as below:

S. No.	Name of the Dumpsite	Quantity of Legacy Waste Dumped (As in July, 2019)	Total Quantity of Legacy Waste Processed (As on 29.09.2022)	No. of Trommel Operational
1	Ghazipur	140 Lakh Ton	13.21 Lakh Ton (9.44%)	12
2	Okhla	60 Lakh Ton	19.64 Lakh Ton (32.73%)	11
3	Bhalswa	80 Lakh Ton	26.18 Lakh Ton (32.73 %)	18
Total		280 Lakh Ton	59.03 Lakh Ton (21.08 %)	41

- a) Bio-mining will be continued by MCD using 14 Trommels, 4 Kleeman machines at the Dumpsite having processing capacity of 3800 TPD during dry season.
- b) MOU has been signed on 21.12.2021, 27.12.2021 & 26.07.2022 with NHAI for disposal of about 21.5 Lakh Tons of inert at their road projects. About 3.90 Lakh Tons of inert has been disposed at the sites of NHAI. NHAI has also requested to provide about 1 Lakh cum of the inert Bio-mining material to their other project in section of NH-44 (Old NH-1).
- c) Tenders have been invited by MCD on 03.08.2022 for "Disposal of 30 Lakh MT of legacy waste by bio-remediation and bio-mining at Bhalswa Dumpsite, Delhi" and the technical bid opening date for the tender was on 23.09.2022. Evaluation of technical bid has been done. The time for completion for the work is 18 months. The scope of work includes bioremediation of legacy waste

and disposal / transportation of segregated material by the agency

- d) 100 % Bio-mining of Legacy Waste at the Bhalswa Dumpsite is likely to be completed by December, 2023 as per report of MCD. MCD will make its best endeavors to achieve the timeline of December, 2023 subject to availability of land and processing facilities for disposal of bio-mined material and budget.

(ii) Disposal of RDF

Month wise details of RDF disposed off in the last four months are as under:

S. No.	Month	Quantity of RDF Disposed off (in MT)
1	August, 2022	114.150
2	Sept, 2022 (Till 29.09.2022)	1771.680

MoU between MCD and J K Cement Ltd. for disposal of RDF recovered through bioremediation of legacy waste at Ghazipur, Bhalswa and Okhla Dumpsites has been signed on 25.08.2022 for lifting of 3000 Tons per month from all the three Dumpsites (1000 Tons per month from each Dumpsite).

(iii) Status of Waste to Energy Plant

Integrated MSW Facility at Bawana of 2000 TPD having Waste to Energy Plant, Compost Plant and Engineered Sanitary Landfill (SLF) is operational.

The said facility including Waste to Energy Plant at Bawana is being operated by M/s Delhi MSW Solutions Ltd. The WtE Plant was earlier lifting RDF from bio-mining of legacy waste at Bhalswa Dumpsite however M/s Delhi MSW Solutions Ltd has stopped lifting RDF from Bhalswa Dumpsite from 23.07.2022 as per the instructions from MCD.

A new Waste to Energy Plant of 3000 TPD is proposed at Narela -Bawana for which bid opening is due on 14.10.2022. A new Waste to Energy Plant of 2000 TPD capacity at Tehkhand is likely to be operational by November, 2022.

(iv) Disposal of Inert

The inert material generated from the Bio-mining of Legacy Waste at the Bhalswa Dumpsite is disposed of by MCD at NHA sites (Holambi Kalan, Helipot, DDA Site in front of Kalimata Mandir land, Madanpur Dabas, Ghogha Dairy, Bhalswa Dairy) and other low-lying areas.

Month wise details of Inert disposed of in the last two months are as under: -

S. No.	Month	Quantity of Inert material Disposed off (In MT)
1	August, 2022	17524.335
2	September, 2022 (till 29.09.2022)	22429.345

Record is being maintained at the site regarding the quantity of material disposed of to NHAI & other sites. The progress of work was hampered in July and August, 2022 due to rainy season.

An appeal has been made by MCD and published in the Newspapers for utilization of Inert Material generated from the Bio-mining of Legacy Waste. And so far, around 18000 MT of inert and C&D waste has been lifted by Private Agencies/individuals at their own cost.

The bio-mined inert material will continue to be disposed of at NHAI sites Holambi Kalan, Helipot, DDA site: In front of Kalimata Mandir land and other low-lying areas.

Disposal of Construction & Demolition Waste Generated from Bio-mining of Legacy Waste

Construction and Demolition Waste which is 10-15% of the total Bio-mined Legacy Waste is utilised at the Dumpsite in making roads for the movement of vehicles.

(v) Prevention of Fire Incidents

a RCC Boundary Wall

Presently there is no boundary wall around the periphery of the Dumpsite. An estimate amounting to about Rs. 23 Crores has been prepared for construction of RCC Boundary Wall of 04 meter height along with concertina coil fencing and the same has been sent to Urban Development Department, GNCTD for releasing requisite budget.

b Installation of Spark Arrestors.

- (i) The concessioner namely M/s Metro Waste Handling Pvt. Ltd., engaged for Karol Bagh Zone for door to door collection of MSW has given the list of vehicles deployed for the work where it is mentioned that all the vehicles are equipped with catalytic convertor, hence no need to install spark arrestor and has provided the exempt list of spark arrestor vehicles alongwith exemption certificate.

- (ii) *The concessioner namely M/s IPMSW Solutions Pvt. Ltd. for Narela Zone informed that all their vehicles are BSVI model and are equipped with catalytic convertor which prevent fire incident. Therefore, there is no need to install spark arrestor. The list of exempted vehicles has been provided by MCD.*
- (iii) *The concessioner namely M/s AG Enviro informed that their vehicles are equipped with catalytic convertor, hence no need to install spark arrestor. The list of exempted vehicles has been provided by MCD.*

c Perforated Pipes for Release of Methane

06 No. of HDPE pipes have been provided at various vulnerable locations in fresh waste dumping site. In future it will be provided as and when required.

d. CO Monitors, Methane Detectors, Temperature Sensors & Fire Alarm

For checking the temperature of the inner surface of the Dumpsite at vulnerable locations, 03 No. temperature sensors are being procured.

e. CCTV Cameras

The number of CCTV Cameras installed have been increased from 21 to 31 and dedicated Control Room has also been provided at the Dumpsite.

f. Drone Survey of Bhalswa Dumpsite

Drone Survey of the Bhalswa Dumpsite has been carried out and the report has been submitted by the surveyor on June 2022. SLF site area is 78.47 Acres (31.76 Hectares) as per the survey report. SLF site area considered for volumetric assessment is 76.87 acres (31.11 Hectares). The contours of the landfill along with slopes analysis details have been given in the report. At 212 meter baseline level, waste volume is 73.0 Lakh Cubic meters as on 15.06.2022. Maximum Height is 62 meters from the ground.

g. Slope Stability to Prevent Landslide:

MCD is stabilizing the garbage dump by doing step cutting and maintaining slopes at regular interval of height. The garbage is regularly dressed and compacted by laying a layer of C&D waste / debris on the garbage with helps of Heavy Earth moving machine.

a. Mock Drill at the Bhalswa Dumpsite

To sensitize the site staff at Bhalswa Dump site, a fire mock drill was conducted on 08.06.2022 by Delhi Disaster Management Authority and the instructions

during the mock drill are being complied with by the field officers.

b. Authorization of Ragpickers:

Office of District Magistrate (North District) has engaged NGO (M/s Chintan Environmental Research and Action Group) for understanding the issues related to rag pickers community (dependent on Bhalswa Dumpsite) and thereby to integrate these informal waste pickers in the formal waste management system. A draft proposal in this regard has been prepared wherein the complete exercise has been broadly divided into three 3 phases i) survey of waste pickers at Bhalswa to understand their status and primary concerns ii) Training & other measures in consultation with stakeholder iii) integration & mainstreaming of waste pickers. First phase has already been completed.

c. Construction of Peripheral Road

Peripheral Road is already available around Bhalswa Dumpsite.

d. Surveillance Squad/ Patrolling Team

- Patrolling team has been formed by MCD to have strict vigil over the activities going on at the Bhalswa Dumpsite. 30 Civil Defense Volunteers have also been engaged for the surveillance of Dumpsite.
- Beat Constables have been deployed by Delhi Police for taking rounds of the Dumpsite.

e. Lack of Land Availability for MSW Processing Facilities Alternative

- 55 Acres Land at Ranikhera had been allotted by DDA to North DMC in 2017 however the said land is close to human habitation and not suitable as per the MSW manual for construction of Solid Waste Management Facilities (Buffer zone of about 200 meter is required which is difficult to provide).
- About 33 Acres land at Narela -Bawana is available near the existing Waste to Energy Plant at Bawana however there is issue of High Tension Line passing above the land. This land is proposed to be used for 3000 TPD Waste to Energy Plant.
- 49 Acres land at Sultanpur Dabas Village was allotted by DDA in 2018. However the said land is a protected forest land and having a large number of grown up trees, bushes etc. This land is proposed to be used for developing Engineered Sanitary Landfill (SLF).

f. Training of MCD Staff

A three day's training programme was organised by NDRF to the MCD Staff (One Batch per day). NDRF has provided training to 250 MCD staff till date. Further request has also been made to Delhi Fire Service for training programs.

On other issues mentioned in the Interim Progress Report of Joint Committee, Action Taken by MCD and Prospective Action Plan is briefed in following table:

Sl. No.	Issues w.r.t Bhalswa Dump site mentioned in Interim Progress Report of Joint Committee	Action taken / Remarks	Prospective Action Plan
Waste to Energy Plant			
1	Detailed enquiry is required to be conducted as why Waste to Energy Plant at Bawana has been disengaged and there is no lifting of RDF From Bhalswa Dumpsite.	Under terms and conditions of the concession agreement agencies engaged to lift RDF were not doing their jobs up to the mark. Huge quantity of RDF — accumulated around — processing machines/ trommels and no working space left available for their functioning.	Efforts are made by engaging various waste management agencies (WMA) for disposal of RDF and recently approx. 200 Tonnes RDF is being transported daily to WtE plant Tehkhand. Apart from this, an integrated tender of Bio-mining has been called to process and dispose the legacy waste from the Dumpsite.
2	More WtE Plants are required, WtE plant at Bawana is inadequate to meet the requirements	MCD has already invited tender for setting up WtE plant at Narela-Bawana of 3000 TPD capacity. Bid due date is 14.10.2022	MCD has - already invited tender for setting up WtE plant at Narela-Bawana of 3000 TPD capacity. Bid due date is on 14.10.2022.
3	The Committee took notice that problem related to dispose of RDF is not being taken seriously.	Bhalswa Dumpsite is a unique Dumpsite where RDF generation after processing of legacy waste is quite huge.	In this regard efforts are made by engaging various waste management agencies (WMA) for disposal of RDF. Recently approx. 200 Tonnes RDF is being transported daily to WtE plant Tehkhand.
4	Reason for Disengagement of agencies who were involved in disposal of RDF without making alternative arrangements	Under terms & conditions of the concession agreement agencies engaged to lift RDF were not doing their jobs up to the	Efforts are made by engaging various waste management agencies (WMA) for disposal of RDF.

		mark. Huge quantity of RDF — accumulated around processing machines/ trommels and no working space was available.	Recently approx. 200 Tonnes RDF is being transported daily to WtE plant Tehkhand. Apart from this, an integrated tender of Bio-mining has been called to process and dispose the legacy waste from the Dumpsite.
Discrepancies regarding functioning of the erstwhile North DMC			
1	<p>Total area of landfill site:</p> <p>The Commissioner MCD should collect relevant documents to find out the exact area of the landfill site to make proper future plans for removal of the garbage at the Dumpsite.</p>	Drone Survey of the Bhalswa Dumpsite has been carried out and the report has been submitted by the surveyor on June 2022. SLF site area is 78.47Acres (31.76 Hectares) as per the survey report.	----
2	<p>Number of Trommel machines:</p> <p>Apparently, different officers of MCD have given inconsistent and contradictory figures of trommel machines functioning at the spot. Detailed investigation is required to how many trommel machines were in operation at the time of constitution of the Committee at landfill site; how many were in operation at the time of conduct of Drone Survey in June, 2022 and how many trommels machines were in operation in the last week of July, 2022 when 23 trommels machines were disengaged. It should also be enquired as to how many trommel machines are functional at present at the landfill site.</p>	Initially there were 51 trommels/ legacy waste processing machines installed and operational at Bhalswa landfill. In the month of July, 2022 competent authority accorded to disengage 23 No trommel machines installed at lower level/ ground level at Bhalswa Dumpsite due to which trommels machines were curtailed to 28. Further 10 trommels machines in Aug 2022 were disengaged after approval of the competent authority due to low performance of Bio-mining. At present 18 trommel machines/ processing machines are installed and operational at site.	Integrated tender has been called for Biomining and disposal of 30 Lakh MT of legacy waste from Bhalswa Dumpsite. The Bid has been opened on 23.09.2022 & evaluation of Technical Bid is in progress. The time of completion of the work is 18 months. In this the scope of work includes Bio-remediation of Legacy waste and disposal/ transportation of segregated material by same agency.

3	<p>Disposal of RDF</p> <ul style="list-style-type: none"> Agencies who were engaged in the disposal of RDF have been suddenly disengaged without making alternative arrangements for disposal of RDF which is being accumulated at the Dumpsite. Responsibility should be fixed for the lapses of the officers concerned. The agencies involved in the disposal of RDF including WTE at Bawana for irregularities, if any. The Committee is of the view that alternative arrangement must be ensured at the earliest to avoid accumulation of RDF at landfill site. The Committee is of the view that whole hearted approach is required to be adopted while making any proposal for disposal of RDF etc. 	<p>As required under terms and conditions of the concession agreement agencies engaged to lift RDF were not doing their jobs up to the mark. Huge quantity of RDF accumulated around processing machines/ tromeles and no working space left available for their functioning. Efforts are being made by engaging various waste management agencies (WMA) for disposal of RDF and recently approx. 200 Tonnes RDF is being transported daily to WtE Plant Tehkhand.</p>	<p>MCD has already invited tender for Setting up WtE plant at Narela-Bawana of 3000 TPD capacity. Bid due date is 14.10.2022. Further, Integrated tender has been called for Bio-mining and disposal of 30 Lakh MT of legacy waste from Bhalswa Dumpsite. The Bid has been opened on 23.09.2022 evaluation of Technical Bid is in progress.</p>
4	<p>Reason for not utilizing land allotted by DDA at various locations.</p>	<p>Inert is being disposed off at DDA site in front of Kalimata Mandir land and behind St. Xavior School near Shahbad Dairy Rohini.</p>	<p>Furthermore low lying areas / DDA sites are being identified for disposal of inert / C&D.</p>
5	<p>Lands available with MCD for Bhalswa landfill: Lands available with MCD should be utilized properly and impediments, if any, should be removed at the earliest. DDA has already informed that it was not possible to substitute/exchange the land at Sultanpur Dabas with any other land.</p>	<p>No alternate land is available for Bhalswa Dumpsite so MCD is stabilizing the garbage dump by doing step cutting and maintaining slopes at regular interval of height, so that the available land could be optimally utilized.</p>	<p>---</p>
6	<p>The Committee noted that the space/facility at Okhla can be utilized to dump MSW to lessen the load at Bhalswa dumpsite. After the unification of all the Corporations,</p>	<p>The Dumpsite at Okhla is over saturated and outlived its life, thus no MSW/Waste can be shifted from Bhalswa Dumpsite to Okhla Dumpsite.</p>	<p>---</p>

	<i>there should not be any difficulty in exploring the utilization of Okhla land fill site/facility to dump MSW temporarily.</i>		
Bio-mining of Legacy Waste			
1	<i>Commissioner, MCD must enquire as to how much legacy waste has been processed till date. It should' also be ascertained if proper record has been maintained at the landfill site regarding: processing of the legacy waste and how the different figures have been arrived at.</i>	<i>Proper record is maintained of processed legacy waste. The segregated quantities of RDF, Inert and C&D waste are measured by the weigh bridge at site. Till 29.09.2022, 26.22 Lakh MT _ Legacy waste has been processed.</i>	
2	<i>Segregation of Waste at source and compost at the colony level.</i>	<i>IEC activities are being carried out among the residents/generators to segregate the MSW at source. Sanitary Inspectors of the area impose penalty against the violators as per Solid Waste Management Rules 2016.</i>	----
3	<i>Commissioner, MCD should assess the total requirement of trommel machines to be installed/operated at landfill site so that the huge quantity of legacy waste lying at the landfill site along with fresh MSW is bio-mined or processed by the target date.</i>	<i>Presently 18 trommels machines are processing legacy waste at Bhalswa landfill site. Till 29.09.2022 26,22 Lakh MT of legacy waste has been processed.</i>	<i>Integrated tender has been called for Biomining and disposal of 30 Lakh MT of legacy waste from Bhalswa Dumpsite. The Bid has been opened on 23.09. 2022 & evaluation of Technical Bid is in progress. In this the scope of includes Bioremediation of work Legacy waste and disposal/ transportation of segregated material by same agency.</i>
4	<i>No effective plans to reduce the height of the garbage mounds have been made. The Committee is of the view that segregation of the waste at source is the urgent need of the hour.</i>	<i>IEC activities are being carried out among the residents/generators to segregate the MSW at source. Sanitary Inspectors of the area impose penalty against the violators as per Solid Waste Management Rules 2016.</i>	<i>IEC activities are being regularly carried out.</i>

5	<i>MCD must comply with directions issued by CPCB on 26.05.2022 & DPCC on 10.06.202 that fresh waste be not disposed at the dumpsite. Organic waste from APMC and — industrial waste be not disposed of at the dumpsite. It is ensured that no industrial waste/e-waste/lithium battery is dumped at the site</i>	<i>The area of 6 Zones of MCD namely Rohini, Civil Line, Karol Bagh, S.P. City, Keshavpuram and Narela generates about 4800 TPD of MSW out of which 2300 TPD is being processed in Narela — Bawana and the remaining approx. 2500 TPD is being dumped at Bhalswa dump site. As there is no alternative land MCD has continued to use this landfill site for dumping of fresh garbage. Industrial and hazardous waste are not being dumped at Bhalswa Dumpsite.</i>	<i>As soon as proposed WtE plant at Narela — Bawana start to function fresh MSW and APMC _ waste will be stopped from dumping at Bhalswa Dumpsite.</i>
6	<i>Prevention of dumping of fresh Municipal Solid Waste at Bhalswa Dumpsite.</i>	<i>The area of 6 Zones of MCD namely Rohini, Civil Line, Karol Bagh, S.P. City, Keshavpuram and Narela generates about 4800 TPD of MSW out of which 2300 TPD is being processed in Narela — Bawana and the remaining approx. 2500 TPD is being dumped at Bhalswa Dumpsite. As there is no alternative land MCD has continued to use this landfill site for dumping of fresh garbage.</i>	<i>As soon as proposed WtE plant at Narela — Bawana start to function fresh MSW will be stopped from dumping at Bhalswa Dumpsite.</i>
7	<i>Prevention of dumping of industrial waste E-Waste/ Lithium Battery at Bhalswa Dumpsite.</i>	<i>Dumping of Industrial waste, E waste/ Lithium battery are already prevented</i>	----
8	<i>Minimization, segregation, recycling and reuse of materials.</i>	<i>Segregation of waste is being ensured and 3R (Reduce, Reuse, Recycle) initiatives are also being ensured.</i>	<i>IEC activities among the generators/ residents will be continued.</i>
9	<i>Levying of charges/ Penalty for dumping Unsegregated MSW at Dumpsite.</i>	<i>Work of collection and transportation of MSW has been awarded and levy of penalty is ensured at zonal office.</i>	----
10	<i>Bye-laws notified in 2018 for Delhi placing the onus on those who generate it including households.</i>	<i>Generators are being made aware to ensure segregation of waste through IEC activities. As mandated in Bye-laws.</i>	<i>IEC activities among the generators/ residents will be continued.</i>

11	<p>The process of biomining is very slow and tardy. No effective steps seem to have been taken for biomining the waste. Steps planned by MCD that would ensure achievement of target of flattening the garbage mound by December 2023.</p>	<p>Bio-mining of Legacy Waste is being carried out Bhalswa Dumpsite since Oct 2019 in compliance of the Orders of Hon/’ble NGT. The total quantity of legacy waste bio-mined _ till 29.09.2022 is about 26.22 Lakh Ton (32.78 %). Also an appeal has been made by MCD to general public, Govt agencies, Department, RWAs, Pvt. Agencies and published in the Newspapers for utilization of Inert and C&D material generated from _ the Bio-mining of Legacy Waste. Around 19000 MT of inert and C&D waste has been lifted by Private Agencies/ individuals at their own cost.</p>	<p>Integrated tender has been called for Biomining and disposal of 30 Lakh MT of legacy waste from Bhalswa Dumpsite. The Bid has been opened on 23.09.2022 & evaluation of Technical Bid is in progress.. In this the scope of work includes Bioremediation of Legacy waste and at same time disposal of all recovered materials ie RDF, INERT, C&D in 18 months’ time by same agency and reducing the quantity and height of garbage in all in time bound manner.</p>
12	<p>Relevant document to find exact area of landfill to make proper future plans for removal of legacy waste at Dumpsite</p>	<p>Drone Survey of the Bhalswa Dumpsite has been carried out and the report has been submitted by the surveyor on June 2022. SLF site area is 78.47Acres (31.76 Hectares) as per the survey report..</p>	<p>---</p>
13	<p>How many trommel machines are required at the landfill site to achieve the object of flattening of garbage mounds.</p>	<p>Presently 18 trommel machines are processing legacy waste at Bhalswa landfill site. Till 29.09.2022, 26.22 Lakh MT of legacy waste has been processed.</p>	<p>Integrated tender has been called for Biomining and disposal of 30 Lakh MT of legacy waste from Bhalswa Dumpsite. The Bid has been opened on 23.09.2022 & evaluation of Technical Bid is in progress. In this the scope of work includes Bioremediation of Legacy waste and disposal/ transportation of segregated material by same agency and reducing the quantity and height</p>

			of garbage in all in time bound manner.
Inert from Bio-Mining of legacy waste			
1	It is suggested that the Government agencies/ Departments/RWAs be involved and mandatorily be asked to utilize Inert in their projects to the extent it is feasible	MOU has __ been signed with NHAI for disposal of inert at their various road projects and presently inert is being disposed off at DDA site in front of Kalimata Mandir Land and behind St. Xavior School Near Shahbad Dairy Rohini. Further an appeal has been made by MCD and published in the Newspapers for utilization of Inert Material generated from the Bio-mining of Legacy Waste. And so far, around 19000 MT of inert and C&D waste has been lifted by Private Agencies/individuals at their own cost.	Publishing appeal in Newspaper to all the general public, govt. & public agencies to utilize segregated material in their projects will be continued. More low lying areas / DDA sites are being identified. Further MCD is planning to increase the processing of legacy waste and supplying of inert to NHAI and other sites for which integrated tenders have been invited.
Prevention of Fire Incidents			
1	Deficiencies shortcomings noted at the time of fire mock drill	Emergency No. have been displayed. CCTV cameras are installed and working 24x7. Staff is deputed in shifts 24x7. The patrolling tem is deployed to detect fire if any. There are separate entry and exit gates. SOPs for SLF is prepared and displayed.	To sensitize the staff at SLF Bhalswa. Plan prepared to install CCTV cameras all around the landfill to avoid unauthorized access.
2	Separate Entry and exist gates	Separate Entry and exit gates are available at site	---
3	Establishment of an emergency control room Which would be operational on 24x7.	Site office exist which is operational 24x7 equipped with CCTV cameras.	-----
4	Preparation of SOPs disaster management plan and excavation plan and keep it at site.	SOP for SLF have been prepared and displayed at site.	SOP for SLF have been prepared and displayed at site.
5	Recurring spots needs to be identified.	Fire generally occurs where fresh garbage is	Area is earmarked where fresh garbage is dumped.

		<i>dumped, which have been identified.</i>	
6	<i>Increasing number of tankers for sprinkling of water.</i>	<i>04 Tankers for sprinkling of water are deployed in all shifts.</i>	<i>Action already taken</i>
7	<i>Deployment of adequate heavy machinery at the Dumpsite.</i>	<i>Departments machinery i.e. 06 Bulldozers, 04 excavators and 02 backhoe loaders are working at site, in addition to the machinery being used in the bio-mining process of legacy waste.</i>	<i>Action already taken</i>
8	<i>Erection of — security watch towers for proper ward and watch of the Dumpsite.</i>	<i>At present 31 cameras are working to cover /watch the SLF round the clock.</i>	<i>----</i>
Solid Waste Management Facility at Saligao			
1	<i>To examine the report and implement the same to the extent it is feasible in Delhi.</i>	<i>The report shall be studied and norms will be taken.</i>	<i>---</i>
Bio-Mining of Legacy Waste in Goa			
1	<i>To examine the report in detail and implement the best practices adopted by them which can _ be replicated in Delhi. Possibility of aggravating the problem at Bhalswa landfill site cannot be ruled out. Steps taken so far are not adequate.</i>	<i>As per order passed by Hon'ble NGT for original application No. 519/2019, the Bio-mining and Bioremediation of legacy waste is already taken up by MCD at Bhalswa Dumpsite which is in similar lines of the model implemented by Indore Municipal Corporation.</i>	<i>---</i>

6. Operational Waste to Energy Plants & Integrated Solid Waste Management Facilities, Gap Analysis on Solid Waste Management and proposed Waste Processing & Disposal Facilities in Delhi are given in following tables :

Operational Waste to Energy Plants & Integrated Solid Waste Management Facilities in Delhi

S. No	Name of Waste to Energy Plant	Existing Capacity	
		Waste Processing (in TPD)	Electricity Generation (in MW)

1.	Timarpur Okhla Waste management Company Ltd., Old NDMC Compost Site, Okhla	1950	23
2.	East Delhi Waste Processing Company Ltd., Ghazipur	1300	12
3.	Delhi MSW Solutions Ltd, Narela Bawana Road, Bawana [Integrated MSW Facility having Waste to Energy Plant- 1300 TPD, Compost Plant —700 TPD & Engineered Sanitary Landfill (SLF)]	2000	24
Total		5250	59

Gap Analysis on Solid Waste Management in Delhi

Generation (in TPD)	Total Capacity of Existing MSW Processing Facilities (Excluding Pit Composting & MRFs)	Gap in Processing Capacity	Capacity of proposed Processing Facilities
11357	5361 TPD	5996 TPD	6451 TPD

Proposed Waste Processing & Disposal Facilities in Delhi

S.No	MSW Facility	No.(s)	Location	Local Body	Capacity (in TPD)	Expected Timeline for Completion
1.	Waste to Energy Plant	1	Tehkhand	MCD	2000	Nov. 2022
2.	Waste to Energy Plant	1	Narela-Bawana [For 3 Zones (City-SP, Karol Bagh & Narela Zone)	MCD	3000	Aug., 2025
3	Expansion of existing WtE at Okhla	1	Okhla	MCD	1000 (From 1950 TPD to 2950 TPD)	Public Hearing held on 16.08.2022 & Proceedings of Public Hearing sent to MoEF&CC on 24.08.2022.
4.	Bio CNG Plant	1	Okhla	MCD	300 TPD (From existing compost plant of 200 TPD to 300 TPD)	Sep, 2023

5.	Compressed Bio Gas (CBG) Plant	1	Hastsal	MCD	100 TPD	Apr, 2023
6.	Sorting cum Composter Plants	2	Kirby Place in Delhi Cantt.	DCB	50 TPD (Total Capacity of 2 Plants)	Dec, 2022
7.	Decentralised Composter Plants	1	Vishwas Nagar	MCD	1	Oct, 2022
8.	Engineered Sanitary Landfill(SLF)	1	Tehkhand		MCD	Apr, 2023
	Total	08+ 01 SLF			6451 TPD	

Note:

- i. Bio-CNG Plants at Nangli Dairy (215 TPD), Goyla Dairy (215 TPD), Ghogha Village Dairy (290 TPD) by March, 2023 mainly for the Waste generated from Dairies.
- ii. Two MRFs one each at Bhalswa Dairy (150 TPD by Dec, 2022) and Rampura (30 TPD extendable upto 50 TPD) are proposed.”

Tribunal’s Observations, findings and directions

24. We have interacted with the Chief Secretary, Delhi who is present by video conferencing along with other concerned officers including the Commissioner, MCD.

25. Questions which arise for consideration are:

- (i) Whether measures so far taken in compliance of SWM Rules 2016 for handling legacy waste dump sites in question, including those for preventing fire incidents are adequate?
- (ii) In case the measures so far taken are not adequate, whether non compliance is resulting in damage to the environment ?
- (iii) What is the further course of action to be adopted in the light of answers to questions (i) and (ii)?

26. **With regard to questions (i) and (ii)**, it is seen that as per response of the Delhi Government itself, legacy waste bio-mined till 29.09.2022 is only to the extent of 21.08%. Thus, 78.92 or around 80% of legacy waste at the three dumpsites remains un-remediated. Unprocessed waste available is said to be about 220 lac MTs. Apart from the said waste, gap in waste generation and treatment is said to be 5996 MTD and on that account there is addition of 66 lakhs MTs in the last three years. Further addition is continuing. However, the Committee has found that only 7% legacy waste has been processed at Ghazipur since 2019. We assess the quantity of legacy waste at 300 lakh MTs.

27. We have noted the earlier orders of this Tribunal, including orders dated 11.03.2019 in OA 606/2018 and dated 17th July, 2019 in OA 519/2019, passed in the presence Chief Secretary, Delhi. Report of CPCB dated 12.2.2020 based on expert study found that damage of about Rs.450 crore had been caused to the environment and public health till the said report was submitted and further damage was continuing. As seen from para 15 above, monitoring of compliance of solid waste norms has been taking place in the last 26 years, for about 18 years in Supreme Court and 9 years in this Tribunal. We have noted orders of Hon'ble Supreme Court in (2000) 2 SCC 679 and (2004) 13 SCC 538 in Almitra Patel requiring compliance and (1980) 4 SCC 162, in Ratlam Municipality laying down that lack of funds cannot be a plea in such matter. Further judgement in BL Wadhwa (1996) 2 SCC 594 is in respect of handling waste in Delhi. This was followed by order dated 2.9.2014 in Almitra Patel WP 888/1996, directing this Tribunal to continue further monitoring.

28. The Tribunal passed further orders dated 22.12.2016 and 11.3.2019 to follow statutory timelines. The statutory deadline for final steps for

remediation of legacy waste expired on 07.04.2021 as per Rule 22 N of the Solid Waste Management Rules, 2016. Action required has not been completed. Apart from huge un-remediated legacy waste, there is gap even in processing of current waste generation. Para 6 of the report for Ghazipur shows that plea of the authorities is that it is unable to spend Rs. 25 crore for fencing/constructing wall around the dump site which is very essential, even though a sum of Rs.250 crore was deposited earlier in July 2019 under orders of this Tribunal. Vide order dated 30.11.2021, in OA 606/2018, the Tribunal noted continuing harmful impact of waste generating foul and toxic gases, contaminating ground water and affecting health of population in thickly populated area around the dump sites. Vide order dated 28.1.2021, direction to explore setting up of SPV for the purpose was directed which appears to have remained uncomplied.

29. The above undisputed factual scenario presents a grim picture and environmental emergency in the national capital. There is continuous emission of methane and other harmful gasses adding to already polluted air quality of Delhi. It is also continuously resulting in leachate generation contaminating ground water of Delhi. Health and safety of huge population in the vicinity of dump sites is seriously threatened. Even chances of fires in future continue. Such serious environmental hazard needs to be dealt with on war footing by any responsible administration. Needless to repeat the hazardous consequences of accumulated and unscientifically stored huge quantum of garbage which are 'mountains'. Even minimum safeguards against repeated fires are not adopted. To maintain aesthetics in the national capital and to avoid foul smell, garbage dumps need to be covered/fenced. The media has rightly reported that the dump sites are like 'time bombs'. Lives and health of inhabitants in the vicinity is certainly at serious threat. Damage to the environment is real and serious. Thus,

citizens living in close proximity of the three sites are exposed to health hazard. The smoke and foul smell from these sites results in poor visibility and asphyxiating the contiguous area. There are continuing media reports about ill-effects of unscientific handling of the legacy waste dump sites to the detriment of environment and public health.⁶

30. Huge scarce and costly public land is occupied by the waste dump site. The area is 152 acres and its price even at conservative rate is more than Rs.10000 crores at applicable circle rate. However, the market value may be much more. There is thus urgency to retrieve the said public asset for the beneficial public use.

31. We thus conclude that there is serious violation of rights of citizens and failure of public trust doctrine to protect environment and public health by the concerned authorities, including the Delhi Government and the Municipal Corporation of Delhi. Steps taken so far do not meet the mandate of law and are not commensurate to the grim factual emergency situation constantly threatening safety and health of citizens and the environment with no accountability of officers entrusted the task. This is in breach of constitutional and human rights of citizens of Delhi who are forced to breathe polluted air, accept contaminated water and face other health and safety hazards. Emergency measures are called for to remedy the situation with a new and sensitive approach in a mission mode, reviewing the past failures in the entirety of situation and with involvement of higher level dedicated officers. The report shows that so far work has been delegated to lower rank officers who have not been adequately

⁶ <https://ndtv.in/delhi-ncr-news/when-will-the-government-be-serious-about-waste-management-mountains-of-garbage-are-being-built-in-delhi-3400137>

able to handle the situation. We answer questions (i) and (ii) accordingly.

32. Coming to question (iii), we are of the view that remedial action needs to be taken as per Rules and norms and orders of Hon'ble Supreme Court and this Tribunal, as already mentioned. Recommendations in the two reports of the Committee need to be accepted and followed as no objection has been raised thereto. Accountability of the State authorities for past violation needs to be fixed on polluter pays principle, consistent with orders of this Tribunal dealing with such failures elsewhere. The Tribunal has to follow the 'polluter pays' principle as mandated in Vellore Citizens (1996) 5 SCC 647 and under section 20 NGT Act read with section 15.

33. As already mentioned, report filed by CPCB on 13.02.2020 in O.A. No. 519 of 2019 shows the extent of loss to the environment in monetary terms. For ready reference, observations from the report are quoted below:-

“7. xxxxxx.....xxx

5.0 SUMMARY & CONCLUSION :

- i. *Hon'ble NGT in OA No. 519/2019 constituted a Committee comprising of CPCB, NEERI & IIT Delhi to assessment of damage to environment due of dump sites in Delhi within two months.*
- ii. *Baseline information was collected by Committee through Questionnaire sent to three concerned Municipal Corporations (MCs). As per the information provided by the MCs, bio mining is being carried out at all three sites. **However, about 6% of waste has been bio-remediated at the three sites.** Further, fresh waste is being dumped at all three dumpsites.*
- iii. *Potential sources of air pollution at the sites include handling of fresh waste, Bio mining of legacy waste, Methane and other Green House gases from the Dumpsite , transportation of fresh waste & screened fractions, Odour & Fire accidents. Potential sources of water pollution at the sites includes Leachate which is being generated at all the three dumpsites*

- iv. *Air Pollution control measures taken at site includes mainly includes sprinkling of water. It has been informed by the authorities that smog guns are being procured for control of air pollution. **No concrete measures for leachate collection and treatment have being taken at the three dumpsites. Leachate is partially being recirculated for stabilization of waste and the remaining is being discharged into nearby surface water drains. Actual details regarding quantity of leachate used/ discharged not provided by the concerned authorities***
- v. *Concentration of TDS, TSS, COD & BOD in leachate exceeds the stipulated norms at all the three dumpsites. Concentration of Heavy metals is within the stipulated norms with the exception of lead which has marginally exceeded the permissible limits at Ghazipur. Assessment of Ambient Air, Surface & Ground Water quality is based on monitoring data of CPCB for the past three years. Zone of impact has been considered to be 5 km and information related to monitored stations located within and beyond this radius has been compiled and analysed. In addition, information provided by Delhi Pollution Control Committee regarding ground water monitoring has been taken into consideration.*
- vii. ***As per air quality monitoring data, PM₁₀ & PM₂₅ concentrations exceeded the prescribed values at all monitored stations upto 5 km distance & beyond from the Dumpsite sites. SO₂ & NH₃ concentrations are within the prescribed values at all monitored stations. Benzene has exceeded the stipulated limited at one station and NO_x has exceeded the permissible limit at 7 monitored stations.***
- viii. ***As per the water quality monitoring data, concentration value of Arsenic, Chromium, Copper, Chloride, TDS, Fluoride, Cadmium and Iron exceeded the permissible limits at specified locations of Surface & Ground Water locations. Besides COD was detected at several stations monitored. As heavy metals (except iron) concentration in leachate was within specified norms and Chloride and TDS were within the permissible drinking water limits (BIS 10500) at most stations monitored, further analysis was done in terms of COD & Fe concentration levels and following are the observations:***
- ***High level of COD & Fe reported in Ground water at all three sites in Ground water which may be due to leachate from the dumpsite***

- **Very High level of COD, Chloride, TDS, TSS, Turbidity reported in surface water body (Bhalswa lake) located within a radius of 0-1 km from Bhalswa site, which may be due to leachate from the dumpsite**
- **High COD values reported in surface water body (Sanjay Lake) located at a distance of 3-5 km from Ghazipur site. Owing to the distance from the site, actual impact due to dumpsite can be confirmed based on the hydrogeology of the region and contaminant transport modelling**
- **Fluctuating trend in Iron & COD concentration in ground water observed within 5 km radius at the three sites. Overall increase in Iron and COD levels observed with increase in distance from the dumpsites, indicating, marginal impact on ground water quality due to dumpsite within 5 km distance from dumpsite**
- **Ground water outside 5 km radius have reported higher value of COD & Fe than stations located within 5 km radius, indicating minimal impact of dumpsite on ground water quality. Local factors are contributing in deterioration in water quality at these stations**
- **As several sources of water pollution including open drains observed in these regions, actual impact of the local sources as well as that of the dumpsite can be confirmed based on the hydrogeology of the region and contaminant transport modelling**

- ix. *There are currently 37 Continuous Air Quality monitoring locations in Delhi, of which 10 are located within a distance of 5 km from the dumpsites.*
- x. *Range in variation in PM2.5 & PM10, NOx & Benzene concentration levels within 5 km overlaps the range observed for stations located at distance greater than 5 km from dumpsites. Fluctuating trend is observed in NOx / Benzene concentration levels vis-a-vis distance from the dumpsite.*
- xi. *Several local factors such as drains, road dust, vehicular pollution, C&D waste etc. also contribute towards air & water pollution in the region.*

*As per analysis of air and water quality carried out, deterioration in environmental quality cannot be attributed directly to the various activities happening at the dumpsites. **As further detailed investigations are required to assess actual impact of the dumpsite related activities on***

the environment (air, water & soil quality), interim cost of damage to environment is based on the Environmental Compensation to be levied for violation of Solid Waste Management Rules, 2016. Cost of damage to environment has been calculated based on the Environmental Compensation to be levied for violation of Solid Waste Management Rules and has been assessed as Rs.155.9 Crore (for Bhalswa), Rs. 142.5 Crore (for Ghazipur) and Rs. 151.1 Crore (for Okhla).

- xii. Source apportionment studies are required to assess the actual impact of air pollution sources at dumpsite on air quality in the region.*
- xiii. Detailed hydrogeological investigations and containment transport modelling is required to assess the impact of dumpsites on surface / ground water.”*

Quantum of compensation payable by authorities

34. Coming to the quantum of compensation, the Tribunal has consistently held that it has to be approximately equal to cost of restoration which has been assessed at Rs. 300 per MT of waste.⁷ The CPCB report dated 13.2.2020 quoted earlier shows that damage of Rs. 450 crores in monetary terms has already taken place.

35. Following the pattern adopted in respect of other States, we hold the NCT of Delhi liable to pay environmental compensation of Rs. 900 Crores having regard to the quantity of undisposed waste which is to the extent of 3 crore MTs at three landfill sites. This amount has to be used for restoration measures to recover the land which is of ten times the value.

⁷

Sr. No.	State	Amount of compensation levied	Date of order
1.	Punjab	180 cr	22.09.2022
2.	West Bengal	500 cr	01.09.2022
3.	Rajasthan	555 cr	15.09.2022
4.	Telangana	177 cr	29.09.2022
5.	Maharashtra	1200 cr	08.09.2022
5.	Bandhwari, Gurugram	100 cr	23.09.2022

Any delay and even proposed timeline extending upto the end of year 2023 is detrimental to public interest. The timelines are required to be compressed and credible service providers hired who can produce quick results. Plea of the State that non availability of funds is limiting factor even for construction of protection walls around the dumpsites has to be rejected. Tackling such serious emergency has to be the top priority of the authorities under the Constitutional scheme. Availability of funds could have been ensured by suitable planning particularly when cost involved is about 10 percent of value of land involved and tackling such problem will benefit public at large and the environment. Citizens cannot be faced with emergency situation due to lack of governance.

36. The amount may be placed in a ring-fenced account to be operated under the directions of the Chief Secretary, Delhi for restoration of environment by remediation of waste and other measures. The deposit may be made within one month which will be abide by further directions of a monitoring Committee in terms of order dated 28.1.2021 in OA 519/2019 which has attained finality. Deposit will be responsibility of the Chief Secretary. Funds can be raised in appropriate manner from the generators of waste, violators, erring officers, corporates and if so necessary and so decided from a part of the land under the garbage.

37. Restoration measures will include scientific disposal of the accumulated garbage as per statutory Rules and environmental norms, fire control and mitigation measures, construction of boundary wall/bio-fencing by trees and shrubs/ afforestation, plantation, leachate treatment facility. Course of action planned and executed at other places⁸ where legacy waste dumpsites are reported to have been remediated may also be

⁸ such as Indore and Ahmedabad

studied. Ground Water Authority may examine the extent of leachate flow into the ground water on which remedial action may be taken.

38. It is to be ensured that current waste is not added to legacy waste dumpsites. After collection, the same be taken to the destination such as Integrated Waste Management Facility or stand alone Waste Management Facilities such as Composting Centres, C&D Waste Centres and RDF Units, Waste to Energy Units, Cement Factories, Road Construction and filling up identified low lying areas, as per norms. This requires careful planning and execution with the involvement of senior level officers instead of leaving the task to junior officers as appears to be currently happening. Precautions in light of report of the Committee headed by Justice S.P. Garg, retired Judge, Delhi High Court need to be taken forthwith. To control foul smell and improve aesthetics, turfing of landfill sites must be done forthwith either in the form of a boundary walls with necessary entry and exit gates or fencing by plantations of at least three rows of native fast growing and tall native trees requiring minimum water in the periphery of landfill sites as well as complying with other criteria for development of facilities at such sites following the provisions under the Schedule I of MSW Rules, 2016. A clear action plan with defined course of action needs to be drawn up after brain storming and studying the remediation processes adopted at other places. Consequences of overshooting timeline against identified officers/service providers may be specified and enforced. The Committee may consider undertaking visits to appropriate sites.

39. One of the crucial links in management of remediation work based on bio-mining and bio-remediation is the utilization and disposal of rejects like inert, RDF, stabilized bio-earth. Segregated fractions and components which are in high quantity be safely utilized and disposed. Bulk users of

RDF, three waste to energy projects should utilize the RDF and if required enhance their capacity without compromising environmental norms and public safety.

40. To compensate the affected citizens of the area, the authorities are under obligation to develop dense forest in at least on one third of the land occupied by the dumpsite, after the sites are cleared. One third can be utilized for setting up Integrated Waste Management Facilities or other like infrastructure. The remaining one-third can be utilized for any other purpose, including raising of funds consistent with environment concerns without affecting the use of the two-third, as earlier mentioned. The authorities may explore setting up a tourism and recreational centre with the involvement of an appropriate agency on PPP or Hybrid Annuity Model or other mechanism so that investment is made which is allowed to be recovered from the tourists visiting such centres. Creation of an appropriate water body may be considered as part of such recreational centre. Possibility of setting up an Interpretation Centres at all the three sites to facilitate study for creating awareness for the citizens may also be considered.

41. Community involvement including the Welfare Associations, Educational Institutions, Volunteers, corporates, charitable and other social organisations and individuals may be explored. Such involvement may be explored for plantation drives also. There is also need to strengthen the Control Room and set up Grievance Redressal Mechanism accessible to the citizens to extend immediate help in emergencies within a month.

42. Since one of the obstacles pointed out by the Chief Secretary is the delay in getting environmental clearance for expanding waste to energy plant, we direct that expansion of such project can proceed without such

clearance but consistent with environment norms. We refer to similar view taken in recent order dated 23.09.2022 in O.A. 172/2021, *Poonam Yadav v. M/s Ecogreen Energy Pvt. Ltd. & Ors.* in handling legacy site at Gurgaon:-

“30. ...If any plant is required to be established which requires EC, since such plant will benefit the environment, grant of EC need not be awaited but all the environmental issues may be followed, including with regard to forest, wildlife and waterbodies. ...”

43. Identifying the end users of the legacy waste dumpsites may help timebound remediation. Since it is stated that the land belongs to DDA, this aspect be considered within two months by a joint Committee of Secretary, Urban Development, GoI and Vice Chairman, DDA or any other relevant authority to be identified by the said two officers. Vice Chairman, DDA will be the nodal agency for the purpose.

44. In terms of order dated 28.1.2021, reproduced in para 21 above, the Monitoring Committee will be headed by Chief Secretary, Delhi with nominees of LG, Secretary, Environment Department, Delhi, Secretary, Urban Development, Delhi, Commissioner, Municipal Corporation of Delhi, Chief Conservator of Forest, Delhi, Member Secretary, CPCB, CEO, DJB and jurisdictional District Magistrates and DCPs (in all 13 members). To utilise experience in handling such situations, nominees of Municipal Corporations, Ahmedabad and Indore may be special invitees.

45. The Committee will be free to coordinate with any other concerned Department and co-opt any other Experts/Institutions or officers for speedy preparation and execution of the action plan. It may meet within two weeks for taking stock of the situation and further planning. Meetings may be physical or online. It must meet atleast once a month but its secretariat may function round the clock with defined responsibilities.

Interim progress report on the subject may be filed with this Tribunal giving status of compliance as on 31.12.2022 by 15.01.2023 by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF. The report may specify the area reclaimed and steps taken for speeding up the waste processing facilities to reduce gap in waste generation and processing.

46. We place on record our appreciation for the services rendered by Justice SP Garg, former Judge, Delhi High Court in providing useful inputs by way of two reports.

List for further consideration on 10.02.2023.

The Chief Secretary, Delhi may remain present in virtual mode on the next date.

A copy of this order be forwarded to the Chief Secretary, Delhi, CPCB, Secretary, Urban Development, GoI, Vice Chairman, DDA and Municipal Corporations, Ahmedabad and Indore by email for compliance.

A copy of this order be also forwarded to Chief Secretaries of all States/UTs to consider the observations in this order (particularly in paras 37 to 41) and adopting necessary measures in handling the legacy waste dump sites in their respective areas, by mail.

A copy of this order be also forwarded to MoEF&CC, by mail.

Adarsh Kumar Goel, CP

Sudhir Agarwal, JM

Prof. A. Senthil Vel, EM

Dr. Afroz Ahmad, EM

October 11, 2022
Original Application No. 300/2022
With Original Application No. 288/2022
AB+SN