Item Nos. 02 & 03 Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 519/2019

(With report dated 28.01.2021)

In re: News item published in "The Times of India" Authored by Jasjeev Gandhiok & Paras Singh Titled "Below mountains of trash lie poison lakes"

WITH

Original Application No. 386/2019

Centre for Wildlife and Environment Litigation Applicant

Versus

Union of India & Ors. Respondent(s)

Date of hearing: 29.01.2021

CORAM: HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON'BLE MR. JUSTICE SHEO KUMAR SINGH, JUDICIAL MEMBER
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER

Respondent(s): Mr. Raj Kumar, Advocate for CPCB
Ms. Jyoti Mendiratta, Advocate for GNCTD
Mr. Sanjay Poddar, Senior Advocate with Ms. Puja Kalra, Advocate for SDMC & North DMC
Mr. Balendu Shekhar, Advocate for EDMC

ORDER

1. This order is being passed in continuation of order dated 23.03.2020. The issue for consideration is the disposal of 'legacy' waste dumped at Bhalswa, Ghazipur and Okhla dumpsites in Delhi where huge garbage has accumulated over the period of time, adversely impacting public health and the environment, requiring emergent, scientific and environmentally safe disposal, as per applicable rules.

2. We may note the earlier proceedings in the matter. O.A. No. 519/2019 was taken up in view of a news item published in "*The Times of India" authored by Mr. Jasjeev Gandhiok & Paras Singh and titled "Below Mountains of Trash lies Poison Lakes*" reporting 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. The Solid Waste Management Rules, 2016 (SWM Rules) lay down statutory mandate for the manner of disposal of such old dumpsites but the same was not being done. 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.

3. 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 of208.7 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/I) 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/1, limit 0.2 mg/1), Iron (0.53 mg/1, limit 0.3), Chlorides (13119.04 mg/1, limit 250), Calcium (188.99 mg/1, limit 75), Alkalinity (1285.96 mg/1, limit 200), phenolic compound (0.07 mg/1, limit 0.001), Lead (0.15 mg/1, limit 0.01), Mercury (3.75 mg/1, limit 0.001) and Nickel (0.15 mg/1, 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/1), COD (2279 mg/1) & TDS (19000 mg/1) levels are higher in comparison to leachate standards of BOD (30 mg/1), COD (250 mg/1) & TDS (2100 mg/1) 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:

i. **East Delhi** ***Ghazipur*** **dumpsite- 1.4 crore metric tonne approx. on 70 acres of land**

ii. **North Delhi** ***Bhalswa*** **dumpsite - 80 lakh metric tonne approx. on 36 acres of land**

iii. **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 filing 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 filing.

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 Waste[1] 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 leachate can be taken to the ETP and leachate percolating underneath the dumpsite*

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

*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.***"**

4. 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."*

5. 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. ArchiCAD[2] and B.L. Wadhera v. Union of India and Ors.[3] 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 22.12.2016[4] 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.***

[2] (1980) 4 SCC 162
[3] (1996) 2 SCC 594
[4] O.A. No. 199/2014 (2016) SCC Online NGT 2981

15. *Vide order dated 20.08.2018[5], after referring to earlier proceedings and a chamber meeting with all the concerned stakeholders, the Tribunal considered the following questions:*

> *"i. Whether State-wise Action Plan with timelines and budgetary support/provision for management of MSW has been prepared?*
> *ii. Whether each city/town/urban local body is covered under the said Plan and individual Action Plan has timelines with budgetary provisions?*
> *iii. What time has been fixed to completely comply with the provisions of the Rules, 2016?*
> *iv. What are the main constraints of non-compliance of Rules, 2016?"*

It was directed that action plans be finalized latest by 31.10.2018 and executed latest by 31.12.2019 which was to be overseen by the Principal Secretaries of Urban/Rural Development Departments of States/UTs. *States were directed to standardize technical specifications instead of leaving the same to individual local bodies. Further directions are for installing CCTV cameras at dump sites, installing GPS system in garbage collection vans, adopting best practices including control rooms where citizens can upload photos of garbage to be looked into by responsible officers, conducting performance audit with reference to source segregation, door to door collection, public sweeping, waste processing, grievance redressal mechanism and monitoring. This Tribunal also constituted Regional/Apex Committees for a limited period.*

16. *On 16.01.2019, in O.A. No. 606/2018, the Tribunal directed the Chief Secretary of all the States to review progress on important environmental issues and appear in person before the Tribunal. Accordingly, Chief Secretary, Delhi appeared before the Tribunal on 11.03.2019. This Tribunal passed following order:*

> *"32. In view of above, after discussion with the Chief Secretary, following further directions are issued:*
>
> *i. Steps for compliance of Rules 22 and 24 of SWM Rules be now taken within six weeks to the extent not yet taken. Similar steps be taken with regard to Bio-Medical Waste Management Rules and Plastic Waste Management Rules.*
>
> *ii. Atleast three wards/zones/circles in each Municipal Corporation/New Delhi Municipal Council/Delhi Cantonment Board may be notified on the website within two weeks from today as model wards/zones/circles which will be made fully compliant within next six months.*

[5] O.A. No. 606/2018

iii. *The remaining wards/zones/circles may be made fully compliant in respect of environmental norms within one year.*

iv. *A quarterly report be furnished by the Chief Secretary, every three months. First such report shall be furnished by June 30, 2019.*

v. *The Chief Secretary may personally monitor the progress, atleast once in a month, with all the District Magistrates.*

vi. *The District Magistrates or other Officers may be imparted requisite training.*

vii. *The District Magistrates may monitor the status of compliance of environmental norms, atleast once in two weeks.*

viii. *Performance audit of functioning of all regulatory bodies may be got conducted and remedial measures be taken, within six months.*

ix. *The Chief Secretary may remain present in person before the Tribunal with the status of compliance in respect of various issues mentioned in para 20 as well as any other issues discussed in the above order on 23.09.2019."*

17. *On 10.01.2020, after reviewing the earlier orders in O.A. No. 606/2018, this Tribunal directed:*

"VII. DIRECTIONS:

36. We accordingly direct:

a. *In view of the fact that most of the statutory timelines have expired and directions of the Hon'ble Supreme Court and this Tribunal to comply with Solid Waste Management Rules, 2016 remain unexecuted, compensation scale is hereby laid down for continued failure after 31.03.2020. The compliance of the Rules requires taking of several steps mentioned in Rule 22 from Serial No. 1 to 10 (mentioned in para 12 above).* ***Any such continued failure will result in liability of every Local Body to pay compensation at the rate of Rs. 10 lakh per month per Local Body for population of above 10 lakhs, Rs. 5 lakh per month per Local Body for population between 5 lakhs and 10 lakhs and Rs. 1 lakh per month per other Local Body from 01.04.2020 till compliance. If the Local Bodies are unable to bear financial burden, the liability will be of the State Governments with liberty to take remedial action against the erring Local Bodies. Apart from***

compensation, adverse entries must be made in the ACRs of the CEO of the said Local Bodies and other senior functionaries in Department of Urban Development etc. who are responsible for compliance of order of this Tribunal.

b. ***Legacy waste remediation was to 'commence' from 01.11.2019 in terms of order of this Tribunal dated 17.07.2019 in O.A. No. 519/2019 para 28[6] even though statutory timeline for 'completing' the said step is till 07.04.2021 (as per serial no. 11 in Rule 22), which direction remains unexecuted at most of the places. Continued failure of every Local Body on the subject of commencing the work of legacy waste sites remediation from 01.04.2020 till compliance will result in liability to pay compensation at the rate of Rs. 10 lakh per month per Local Body for population of above 10 lakhs, Rs. 5 lakh per month per Local Body for population between 5 lakhs and 10 lakhs and Rs. 1 lakh per month per other Local Body. If the Local Bodies are unable to bear financial burden, the liability will be of the State Governments with liberty to take remedial action against the erring Local Bodies. Apart from compensation, adverse entries must be made in the ACRs of the CEO of the said Local Bodies and other senior functionaries in Department of Urban Development etc. who are responsible for compliance of order of this Tribunal.***

c. *Further, with regard to thematic areas listed above in para 20, steps be ensured by the Chief Secretaries in terms of directions of this Tribunal especially w.r.t. plastic waste, bio-medical waste, construction and demolition waste which are linked with solid waste treatment and disposal. Action may also be ensured by the Chief Secretaries of the States/UTs with respect to remaining thematic areas viz. hazardous waste, e-waste, polluted industrial clusters, reuse of treated water, performance of CETPs/ETPs, groundwater extraction, groundwater recharge, restoration of water bodies, noise pollution and illegal sand mining.*

d. *The compensation regime already laid down for failure of the Local Bodies and/or Department of Irrigation and Public Health/In-charge Department to take action for treatment of sewage in terms of observations in para 31*

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[6] The Chief Secretaries may ensure allocation of funds for processing of legacy waste and its disposal and in their respective next reports, give the progress relating to management of all the legacy waste dumpsites. Remediation work on all other dumpsites may commence from 01.11.2019 and completed preferably within six months and in no case beyond one year. Substantial progress be made within six months. We are conscious that the SWM Rules provide for a maximum period of upto five years for the purpose, however there is no reason why the same should not happen earlier, in view of serious implications on the environment and public health.

above will result in liability to pay compensation as already noted above.

e. *Compensation in above terms may be deposited with the CPCB for being spent on restoration of environment which may be ensured by the Chief Secretaries' of the States/UTs.*

f. *An 'Environment Monitoring Cell' may be set up in the office of Chief Secretaries of all the States/UTs within one month from today, if not already done for coordination and compliance of above directions which will be the responsibility of the Chief Secretaries of the States/UTs.*

g. *Compliance reports in respect of significant environmental issues may be furnished in terms of order dated 07.01.2020 quarterly with a copy to CPCB.*

The Chief Secretaries of UP, Punjab and UT Chandigarh may remain present in person for further review tentatively on 24.08.2020."

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 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 stets 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."*

6. Accordingly, status report dated 28.01.2021 has been filed by the CPCB as follows:-

"2.0 Action Taken :-

In compliance of Para 19 of aforesaid Hon'ble NGT's Order, *Joint committee comprising of following members has been formed:*

- *Dr. S. K. Goyal, Chief Scientist and Head, NEERI Delhi Zonal Center*
- *Dr. G .V .Ramanna, Professor, Department. of Civil Engg., IIT-Delhi*
- *Ms D. Sinha, DH- UPC-II, CPCB*
- *Mr. P. Agarwal, Scientist-E, CPCB*

*Report on "**Assessment of amount of damage to environment on account of dumpsites in Delhi**" as prepared by Joint committee is placed at **Annexure-A.** Amount of Damage to Environment due to three dumpsites of Delhi to be*

levied on Municipal Corporations of Delhi is given in the following table:

S.No.	***Name of Municipal Corporation***	***Name of Dumpsite***	***Damage Cost assessed, (Rupees)***
1.	*NDMC (North Delhi Municipal Corp.)*	*Bhalswa*	*155.9 Crore*
2.	*EDMC (East Delhi Municipal Corp.)*	*Ghazipur*	*142.5 Crore*
3.	*SDMC (SouthDelhi Municipal Corp.)*	*Okhla*	*151.1 Crore*

In compliance of Para 23 of aforesaid Hon'ble NGT's Order, *CPCB officials inspected Bhalswa, Ghazipur and Okhla dumpsites during 14 -21 January,2021 and 16 -22 September,2020.*

3.0 Observations: *-*

An overview of the observations made during the inspection is given in Table 1. The detailed inspection reports of the legacy waste management through bioremediation at these sites are enclosed at ***Annexure B to D.***

Table /: *Overview of the CPCB observations made during inspection of three Dumpsites in Delhi*

S. No.	***Name of the dumpsite***	***Quantity of legacy waste dumped***	***Quantity of legacy waste being processed (TPD)***	***Total quantity of legacy waste processed so far***	***No. of trommels operational***		***Quantity of fresh waste being dumped (TPD)***	***Annexures of inspection report***
					30 mm screen	***6 mm screen***		
1	*Ghazipur*	*140 Lakh Ton*	*3300*	*3.5 Lakh Ton*	*11*	*4*	*1450*	***Annexure-B***
2	*Okhla*	*60 Lakh Ton*	*1800*	*3.1 Lakh Ton*	*6*	*4*	*1800*	***Annexure-C***
3	*Bhalswa*	*80 Lakh Ton*	*4500*	*11.5 Lakh Ton*	*15*	*4*	*2000*	***Annexure - D***
Total	***280 Lakh Ton***		***9600***	***18.1 Lakh Ton***	***32***	***12***	***5250***	

3.1 <u>Stabilization of Waste:</u> *-*

Waste stabilization through bio-remediation is being practiced at all three dumpsites. Windrow method has been adopted and bio culture is being sprayed over windrows to stabilize the waste prior to screening. Good stabilization of waste is observed at Ghazipur and Okhla, however, at Bhalswa, proper windrows are

not prepared and generation of fumes from stabilized waste is observed which indicates poor stabilization of waste.

3.2 <u>Screening of Waste:</u> *-*

- *The screening of waste is currently being done in trommels of 2 screen sizes (30 mm and 6 mm) at all the 3 dumpsites.*
- *The screened fractions are under 6 mm fraction (soil enricher), Refuse Derived Fuel (RDF), Construction & Demolition (C & D) waste and inerts.*
- *Proper arrangement for preparation of RDF as per MoHUA Guidelines has not been made and only a fan has been provided at outlet of trommels. No process control measure implemented for improving quality of RDF.*

3.3 <u>Testing of Screened fractions</u>

- *Testing of under 6 mm fraction has been carried out by all the three dumpsites. As per the analysis of under 6 mm fraction carried out by Ghazipur and Okhla in September,2020, the fraction complies with the limits specified for heavy metal but does not comply for Total Organic Carbon (TOC), C/N ratio, Nitrogen, P2O5 and K2O specified for Organic Compost as specified in Schedule II of SWM Rules 2016. As per Bhalswa's test report of below 6 mm fraction carried out in October,2020, the fraction does not comply with most of the parameters (namely TOC, Nitrogen, P2O5, K205, density, moisture content, Chromium & Nickel).*
- *RDF testing as specified in MoHUA Guidelines on usages of RDF under Segregated Combustible Fraction (SCF) has not been carried out at the three dumpsites since last one year.*
- *Testing of the screened fractions is not being done on continuous basis.* ***3.4 <u>Disposal of Different Fractions:</u>*** *-*

  At Ghazipur, *as informed, RDF generated is being sent to Waste to Energy plant at Ghazipur and less than 6 mm fraction is being sent to Eco park, NTPC Badarpur and EDMC parks. C&D waste is utilized in road repair at dumpsite. Inerts (< 30 mm fraction) have been sent to low laying area at Vinod Nagar.*

  At Okhla, *as informed, RDF generated is being sent to Waste to Energy plant at Okhla. Less than 6 mm fraction, some amount of inerts & C & D waste have been utilized onsite, inerts are also being sent to low lying areas at Jaitpur & Eco park, NTPC. Some amount of screened fractions are dumped on site.*

  At Bhalswa, *RDF is being sent to Waste to Energy plant, Bawana. Inerts including less than 6 mm fraction are being dumped at low lying areas at Mukundpur primary school, Horticulture park Bhalswa Dairy and NTPC Badarpur . Further, as informed, approx. 4.5 lakh ton screened fractions are dumped on site.*

Improvement in disposal of screened fractions has been observed, however, the plan for disposal of screened fractions at all the three dumpsites is still not sufficient and some amount of screened fractions are still dumped on—site.

3.5 As informed, height of Bhalswa and Ghazipur dumpsites has been reduced by 11 m and 9 m respectively.

3.6 *Bioremediation/bio mining process is being carried out at very slow rate and only approx. 18 lakh ton legacy waste has been biomined out of total 280 lakh ton legacy waste dumped at the 3 dumpsites in last more than one year which is only 6% of total legacy waste dumped.*

3.7 *Work is being executed on piece meal basis and no comprehensive time bound action plan for bio-remediation, including timeframe for clearance of dumpsite, utilization of screened fractions has been prepared for bioremediation of the three dumpsites.*

3.8 *Leachate is being generated, however, leachate treatment is not being carried out at any of these dumpsites. Some quantity of leachate is being recirculated over windrows at Okhla and Gazipur site.*

3.9 *Fresh waste is being dumped at all the three dumpsites.*

3.10 *The bio-remediation is being carried out in the open. No shed has been provided in the bio-remediation and trommel area in absence of which work may be hampered during rain."*

7. Report of inspection conducted by the joint Committee comprising of the CPCB, NEERI and IIT Delhi is filed with following summary and conclusion:

*"**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, PMio & 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 NOx 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."

8. From the above, it is clear that the work executed by the statutory authorities is inadequate, resulting in continued damage to the environment, apart from the damage to the tune of Rs. 450 crore assessed for the past. Providing of clean environment is an inalienable constitutional duty of the State Authorities and negligence of duty renders such authorities liable to pay compensation on 'Polluter Pays' principle. Continuing damage is taking place in violation of mandate of the Air (Prevention and Control of Pollution) Act, 1981, Water (Prevention and Control of Pollution) Act, 1974 and the Environment (Protection) Act, 1986. The delay in executing the work is also in violation of order of the Hon'ble Supreme Court and this Tribunal referred to above.

9. We have perused the report filed by the SDMC, EDMC, NDMC and UD, NCT. We note that even statutory period under the Solid Waste Management Rules, 2016 for completing all steps specified in Rule 22 will come to an end on 07.04.2021. Steps taken can hardly be said to be adequate. This is certainly causing huge damage to the public health and environment which is a matter of serious concern. Environmental damage is no less than causing physical injuries to the citizens and any welfare State authority must take the matter with the requisite sensitivity, which unfortunately is not happening.

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.

The Applications are disposed of.

A copy of this order be forwarded to the Chief Secretary, Delhi and the CPCB by email for compliance.

Adarsh Kumar Goel, CP

S.K. Singh, JM

Dr. Nagin Nanda, EM

January 29, 2021
Original Application No. 519/2019 &
Original Application No. 386/2019
AB