

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

Original Application No. 519/2019
With
Original Application No. 386/2019

(With Report dated 13.11.2019)

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

With

Centre for Wildlife and Environment Litigation

Applicant(s)

Versus

Union of India & Ors.

Respondent(s)

Date of hearing: 19.11.2019

CORAM:

**HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON'BLE MR. JUSTICE S.P WANGDI, JUDICIAL MEMBER
HON'BLE MR. JUSTICE K. RAMAKRISHNAN, JUDICIAL MEMBER
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER
HON'BLE MR. SAIBAL DASGUPTA, EXPERT MEMBER**

For Respondent(s):

Mr. Vijay Dev, Chief Secretary, Delhi with Ms. Jyoti Mendiratta, Advocate
Ms. Geeta Luthra, Sr. Advocate, Mr. Balendu Shekhr, Advocate for EDMC
Mr. Rajkumar, Advocate for CPCB
Mr. Sanjay Poddar, Sr. Advocate with Ms. Puja Kalra, Advocate for SDMC with Commissioner, SDMC
Ms. Puja Kalra, Advocate with Ms. Varsha Joshi, Commissioner, NDMC

ORDER

1. This order may be read in continuation of order dated 17.07.2019.
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 environment, which requires expeditious 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 thereafter taken up on 17.07.2019 and it was observed:

"4. Accordingly, the Commissioners of the said Corporations are present in person. Mr. Vijay Kumar Dev, Chief Secretary, Delhi, Mr. Vinod Babu, Officiating Member Secretary of Central Pollution Control Board (CPCB) are also present. We have heard them and the learned counsel present at length.

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/l), COD (783.72 mg/l) and TDS (6841.83 mg/l) were found more as against the acceptable limit of zero for BOD, zero for COD and 500 mg/l 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/l), 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,

biomethanation, 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 Biomining / 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, backhoe 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/bioremediation process was followed as mentioned in the latest guidelines issued by the CPCB. Normally, the per metric tonn 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/ bioremediation 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 filing.

Local bodies can install number of trommels at bioremediation 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 Waste¹ 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 biomining 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 bioremediation 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**

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

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 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.

13. *Vide order dated 02.07.2019 in O.A. No. 113/2019, Amit M. Panchal, Advocate vs. State of Gujarat, the issue considered was of legacy waste in Ahmedabad at Pirana landfill site having more than 95 lakh metric tonnes on 84 acres of land with three 75 feet high mountains of waste. Having considered the information of dealing with the legacy waste at Indore, where the quantum of garbage was about 15 lakh metric tonne, it was assessed that the tentative cost of clearing the garbage at Pirana would be Rs. 75 Crores. At Indore, 15 lakh metric tonne garbage was reportedly cleared at the cost of Rs. 10 crores.*
14. *The above model was directed to be followed and a Committee was formed under Chief Secretary, Gujarat to ensure clearance of dump sites in six months and amount of Rs. 75 Crore was directed to be transferred to an ESCROW account.²*
15. *Again, vide order dated 10.07.2019 in O.A. No. 514/2018, Vivek Kamboj & Anr. vs. Union of India & Ors., the Tribunal dealt with the issue of legacy waste at Bandhwari, Gurugram where the waste was estimated to be 25 lakh metric tonne. The Tribunal assessed the cost of its handling on above pattern at Rs. 20 Crores and issued directions for making available such amount in an ESCROW account. The Tribunal also constituted a Committee headed by the Chief Secretary, Haryana with other expert members and fixed the timelines for executing the work.³*
16. *Following the said pattern, the estimated cost to clear the above three dump sites at Delhi may be approx. Rs. 250 Crores as follow:*
 - i. *EDMC Rs. 125 Crores*
 - ii. *North MCD Rs. 75 Crores*
 - iii. *SDMC Rs. 50 Crores*

The cost of land involved and recovered may be thousands of crores.

² Para 14 in O.A 113/2019, order dated 02.07.2019

³ Para 17 & 18 in O.A 514/2018, order dated 10.07.2019

17. The above amount of Rs. 250 Crores be transferred to three separate ESCROW accounts wherein contributions will be as follows:

i.	EDMC	i. NCT Delhi : Rs. 65 Crore ii. EDMC : Rs. 40 Crore iii. NDMC* : Rs. 10 Crore iv.DCB** : Rs. 10 Crore
ii.	North MCD	i. NCT Delhi : Rs. 35 Crore ii. North MCD : Rs. 30 Crore iii.NDMC : Rs. 05 Crore iv.DCB : Rs. 05 Crore
iii.	SDMC	i. NCT Delhi : Rs. 25 Crore ii. SDMC : Rs. 15 Crore iii. NDMC : Rs. 05 Crore iv.DCB : Rs. 05 Crore

*NDMC- New Delhi Municipal Corporation

**DCB- Delhi Cantonment Board

18. The amount of contribution that NDMC and DCB is required to pay may not be proportionate to their respective garbage generation, but having regard to the practical considerations, we are requiring the above contribution on suggestion of the Chief Secretary, subject to dispute, if any being separately settled. The amount may be contributed positively without one month.

19. We direct constitution of the following Committee to deal with the matter:

i.	Chief Secretary, Delhi	-	Chairman
ii.	Finance Secretary, Delhi	-	Member
iii.	Secretary, Urban Development, Delhi	-	Member
	Convener		
iv.	Commissioner, EDMC	-	Member
v.	Commissioner, SDMC	-	Member
vi.	Commissioner, North MCD	-	Member
vii.	Chairman, NDMC	-	Member
viii.	CEO, Delhi Cantonment Board	-	Member
ix.	Member Secretary, CPCB	-	Member
x.	Chairman, DPCC	-	Member

20. The Committee may co-opt any other technical persons/agencies. After removing legacy waste from the entire or part of the land, the Committee may consider using part of the recovered land for Integrated Waste Processing and Treatment Facility. At the periphery a bio-diversity park can be developed to improve the air quality and

ambience. The Committee may have the Commissioner, Municipal Corporation, Indore or his nominee as a special invitee. The Committee may meet preferably within two weeks and after taking stock of the situation, plan to start further action. The work may actually commence from 01.10.2019 in view of ensuing monsoon.

21. The work already awarded may be taken into account and if necessary, reviewed. Having regard to urgency of the situation, if Indore model is to be adopted, wholly or in part, the need for tender process can be dispensed with if the work is to be done departmentally, as already directed in the cases of Ahmedabad and Gurugram.

22. The legacy waste dumpsites may be cleared within one year but substantial progress must be made and demonstrated within six months. If satisfactory progress is not made, the amount of the ESCROW account may be directed to be forfeited. The ESCROW account will be operated by the Chief Secretary, Delhi. The direction for operation of ESCROW account by Chief Secretary of the concerned state will apply in the case of Ahmedabad and Gurugram also, in modification of the earlier orders.”

4. The Tribunal also issued directions for clearing of such waste dump sites throughout India and required an interim report.

5. We have reviewed the compliance report dated 13.11.2019 filed by the NCT Delhi *inter alia* stating that:

“ 9. That according to the Action Taken Report of SDMC, in compliance of said order dated 17.07.2019, the tromeles hired for the project, nine agencies have been empanelled for providing tromeles for implementation of the project, as of now one trammel of 600 TPD has been installed in Ghazipur landfill site in EDMC. SDMC has also installed one trammel of capacity 300 TPD at Okhla Landfill site. North DMC has installed 6 tromeles of capacity 300 TDP each at the Bhalswa dumpsite.”

6. As per the statistics furnished during the hearing, about 1500 tones 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.

Adarsh Kumar Goel, CP

S.P Wangdi, JM

K. Ramakrishnan, JM

Dr. Nagin Nanda, EM

Saibal Dasgupta, EM

November 19, 2019
Original Application No. 519/2019
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