

**BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH AT NEW DELHI
ORIGINAL APPLICATION NO. 109 OF 2022**

IN THE MATTER OF:

Vivek Kamboj & Anr.

...Applicants

VERSUS

Union of India and Ors.

...Respondents

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**RESPONSE TO REPORT DATED 18.12.2023 OF MUNICIPAL
CORPORATION, GURUGRAM**

1. That the above-titled Original Application was filed bringing to the notice of the Hon'ble Tribunal dumping of municipal solid waste in forest areas of Aravallis and discharging of leachate in surrounding areas of Bandhwari landfill site in District Gurugram, Haryana. It was submitted that this action of dumping of waste and discharging leachate is not only in violation of the Solid Waste Management Rules, 2016, Forest (Conservation) Act, 1980, Punjab Land Preservation Act, 1900 but also in violation of several directions including Order dated 07.04.2021 of this Hon'ble Tribunal passed in O.A. No. 415 of 2015, O.A. No. 514 of 2018 and O.A. No. 606 of 2018. That this act of dumping of waste and discharging leachate is also causing irreversible damage to the ecology and environment of the Aravallis as well as causing nuisance to the people living in the Bandhwari village.

Preliminary Submissions on behalf of Applicants

2. That the issue of unscientific disposal of waste at Bandhwari landfill site and discharge of leachate has been before this Hon'ble Tribunal since 2015, when it was first raised by filing of an Original Application No. 415 of 2015 by the Applicant. The following chronology will show the lackadaisical approach of the authorities in handling the issue of waste management at Bandhwari:
 - i. 01.02.2015: Filing of OA No. 415 of 2015 (Vivek Kamboj & Anr. V. Union of India & Ors.) highlighting the dumping of waste at Bandhwari landfill

site and discharge of leachate from the landfill and for remediation of the Bandhwari landfill site, ensuring that no leachate is discharged into Aravallis, compliance with Solid Waste Management Rules and Bio-Medical Waste Management Rules and to restore the area.

- ii. 21.08.2017: the Central Pollution Control Board (CPCB) had filed a Report dated 21.08.2017 highlighting poor leachate management at the Bandhwari landfill site. The Report noted :

"Observations

...

12. It was observed that there are various non-point sources from where leachate was oozing out. Due to oozing out of leachate from various non-point sources, most of leachate does not get collected in the collection tanks. There is no storm water drain constructed and the surface runoff water is diverted from the landfilling site and leachates from solid waste locations get mixed with the surface runoff water and collected in the low lying areas at the site.

13. Poor Leachate Management: For the treatment of leachate from Landfill site, authority has not installed any treatment facility. There are two unlined collection tanks present at the site. There is no information provided regarding the capacity of the collection tank."

Copy of the Report dated 21.08.2017 of CPCB filed in Original Application No. 415 of 2015 is annexed herewith as **ANNEXURE A-1**.

- iii. 10.07.2018: The Hon'ble Tribunal directed that steps must be taken to manage the legacy waste and leachate at the Bandhwari landfill site. Relevant excerpt from the Order dated 10.07.2018 are reproduced below for reference:

"5. The applicant vide its Rejoinder dated 09th July, 2018 states that though the project agreement has been signed but the issues in the report dated 27th July, 2018 have not been addressed. It has not been ensured that the Bhandwari Plant and Landfill site do not turn into an ecological disaster for the ecologically fragile Aravalli forests. Reference has been to an article dated 29th June, 2018 published in Hindustan Times to the effect that the waste was already lying at the landfill site and the leachate contamination

*has become a serious health hazard for the local communities residing in the vicinity. **It is submitted that the Concessionaire must take immediate steps to manage the legacy waste and other waste in the first instance. We do not find any reason not to accept this prayer that the Concessionaire must take steps to manage the legacy waste and leachate, the suggestion made by the CPCB in its inspection report dated 27th July, 2017. The Concessionaire must also address the issues referred in this report dated 29th June, 2018 published in Hindustan Times with regard to Bandhwari Municipal Solid Waste landfill. This will also be the responsibility of the State of Haryana as the Concessionaire is merely an agency created by the State to carry out its responsibility.***

6. The Original Application No. 415 of 2015 is accordingly disposed of.

7. Let an affidavit of compliance of the above directions be filed within four weeks. The Concessionaire will also implement the segregation of the municipal solid waste at source as per rules.”

(Emphasis supplied)

Copy of order dated 10.07.2018 in Original Application No. 415 of 2015 is annexed herewith as **ANNEXURE A-2.**

iv. 08.08.2018: O.A. No. 415 of 2015 was renumbered as Original Application No. 514 of 2018, when the Report was filed, as directed by the Hon'ble Tribunal. Vide its various orders, the Hon'ble Tribunal had noted the non-compliance on part of the authorities. These orders have been reproduced and made part of the Order dated 23.09.2022 of the Hon'ble Tribunal in the present Original Application (Para 14 onwards).

3. That, however, even though the issue was raised almost a decade back in 2015, no steps have been taken by the authorities.
4. That the situation on ground has not improved and waste dumping is still continuing at the landfill site. This has led to a situation that fire has broken out in the waste dump on 04.01.2023 and is still going on.

Copy of photographs showing ongoing fire at the site is annexed herewith as **ANNEXURE A-3.**

5. That the incident of fire at Bandhwari landfill site was also reported in The Times of India in an article titled "*Fire breaks out at Bandhwari landfill site, doused in 2 hours*" dated 05.01.2024 wherein it was mentioned that excessive methane trapped in the waste triggered the fire. Relevant part of the article is reproduced below for reference:

"GURGAON: A fire broke out at the Bandhwari landfill site on Thursday morning. An MCG official said the fire would have erupted due to methane combustion or sparking caused by stones at the rear side of the landfill on the village road.

...

"Combustion of methane gas may have caused the fire as there is a higher concentration of gas at the landfill. Another reason could be sparking caused by stones at the site. We have, however, directed all agencies working at the site to be careful so such incidents are prevented," Naresh Kumar, MCG joint commissioner for Swachh Bharat Mission, said. However, the villagers said that the fire broke out on Wednesday night and was not visible due to fog. "We have to bear the brunt of the pollution caused by such fire incidents. We are already suffering because of the leachate flow into the surrounding villages and other health issues that are caused due to this waste mountain," a villager said."

Copy of article titled "*Fire breaks out at Bandhwari landfill site, doused in 2 hours*" dated 05.01.2024 published in The Times of India is annexed herewith as

ANNEXURE A-4.

6. That this Hon'ble Tribunal in the case of **Original Application No. 199 of 2014 (Almitra Patel & Anr. V Union of India & Ors.)** vide Order dated 22.12.2016 had directed that no open burning of waste can be allowed to be taken place, including at landfills:

"20. We specifically direct that there shall be complete prohibition on open burning of waste on lands, including at landfill sites. For each such incident or default, violators including the project proponent, concessionaire, ULB, any person or body responsible for such burning, shall be liable to pay environmental compensation of Rs. 5,000/- (Rs. Five Thousand only) in case of simple burning, while Rs. 25,000/- (Rs. Twenty Five Thousand only) in case of bulk waste burning. Environmental compensation shall be recovered

as arrears of land revenue by the competent authority in accordance with law."

(Emphasis supplied)

7. That vide IA No. 757 of 2023 filed by the Applicant on 07.10.2023 in the present Original Application, the Applicant had highlighted the fact that leachate is flowing towards the Bandhwari village, located at a distance of more than 1 kilometre and getting collected in a low lying area, which is causing health issues and nuisance to the people living in the area. It was also pointed out leachate is contaminating the groundwater by flowing into nearby water bodies, which serve as a watering hole for wild animals.
8. That the leachate is still being discharged into the Aravalli forest land and no action has been taken by the authorities, despite filing of the IA in October, 2023. Copy of photographs showing discharge of leachate from Bandhwari landfill site is annexed herewith as **ANNEXURE A-5**.
9. That approximately 23,000 kilolitres of leachate is collected in the ponds inside the Aravalli, surrounding the landfill. The RDF waste generated is being dumped into depressions and mining pits inside the village, thereafter covered with soil. For illegal expansion of the landfill, approximately 100 trees have also been cut around the landfill.
10. Therefore, strict action may be taken against the authorities who have failed to remediate the on-ground situation at Bandhwari landfill site, which is not only in violation of the Rules issued under the Environment (Protection) Act, 1986 but also detrimental to environment and human health.
11. That these Rules are issued by the Ministry of Environment, Forest & Climate Change under the provisions of Environment (Protection) Act, 1986 and therefore any violation of these Rules is also a violation of the Environment (Protection) Act, 1986. Section 15 of the Environment (Protection) Act, 1986 provides for penalty for contravention of the provisions of Environment (Protection) Act, 1986 which extends to imprisonment of 5 years with fine which may extend to one lakh rupees. Section 17 of the Act provides for contravention of the provisions of the Act by

Governmental departments. It provides that Head of the Department shall be deemed to be guilty of the offence and punished accordingly.

Response of the Applicants to the Report dated 18.12.2023

12. That the Report dated 18.12.2023 filed by the Municipal Commissioner, Gurugram before this Hon'ble Tribunal has raised the following points:
- i. That segregation of waste is taking place upto 47% by Municipal Corporation of Gurugram and 44% by Municipal Corporation of Faridabad (Para 4);
 - ii. That 20.46 lac MT of legacy waste was still left to be processed (Para 7);
 - iii. That 390 bulk waste generators are processing their own waste (Para 5);
 - iv. That for leachate management, leachate is being transferred through tankers for treatment at STPs (Para 10);

A. No segregation of waste is being undertaken and unsegregated mixed waste is being dumped at the site

13. That the averment of the Joint Committee that segregation of waste is taking place upto 47% by Municipal Corporation of Gurugram and 44% by Municipal Corporation of Faridabad is false and misleading, as no segregation of waste is being done before dumping it at the landfill site.
14. That the Applicant had earlier filed an IA No. 757 of 2023 on 29.09.2023 before this Hon'ble Tribunal highlighting that unsegregated fresh waste is being dumped at the site and due to lack of segregation and consequent release of gases, issues such as fire and discharge of leachate are taking place.
15. That the recent incident of fire at Bandhwari landfill was also caused due to the lack of segregation and release of toxic gases.

B. Slow progress in processing the legacy waste

16. That the Report at (Para 7) states that the total legacy waste assessed in January, 2023 was 30.43 lac MT and the balance waste to be processed is 20.46 lac MT.

17. It is submitted that there has been extremely slow progress in processing and treating the legacy waste at Bandhwari landfill site, as is evident from the information provided in Report dated 25.03.2022 of the Joint Committee.
18. That the Report dated 25.03.2022 stated that approximately 33 lac MT of legacy waste is dumped at the site. The Report also stated that at the time of inspection in January, 2021 in OA No. 514 of 2018, the legacy waste at the site was 33 lac MT, therefore not much progress had been made.
19. That in the Report dated 18.12.2023, the Joint Committee has informed that total legacy waste at the site, as on January, 2023 is 30.43 lac MT. There has only been a negligible change in the legacy waste dumped at the site from 33 lac MT to 30.43 lac MT.
20. It is pertinent to note that the Chief Secretary had filed a response dated 22.09.2022, which has been recorded in Order dated 23.09.2022 (Page 12, Para 7) wherein the Chief Secretary had provided targets of treatment of legacy waste till December, 2023. The response noted that 30 lac MT of legacy waste will be processed by the end of December, 2023. However, only a minuscule portion of the waste has been processed till now, which is further deteriorating the situation on ground.
21. That this slow progress of treatment of legacy waste was also noted in the Order dated 09.03.2021 of this Hon'ble Tribunal, for which the Hon'ble Tribunal considered imposition of environmental compensation (Para 4).
22. That it is also pertinent to note that Almitra Patel (Member, Supreme Court Committee for Solid Waste Management National Expert, Swachh Bharat Mission, Govt. of India) has highlighted the unrealistic tenders and timelines of the government authorities in processing the waste. It has been pointed out vide email dated 07.01.2024 that:

*“For example, five parties have been awarded tenders instead of at most 2 or 3, so they have no elbow room to work or deploy adequate machinery. **Without calculating or monitoring site performance, they require screening of 2 lakh tons in 2***

months' time. This works out to 3,333 tons per day each, or 138 tons per hour of nonstop 24 hour work, a physical impossibility."

(Emphasis supplied)

Copy of email dated 07.01.2024 written by Almitra Patel to the Applicant is annexed herewith as **ANNEXURE A-6**.

C. No processing of waste is taking place by bulk waste generators, leading to dumping of waste at Bandhwari landfill

23. That the Joint Committee has stated in its Report that 390 bulk waste generators are processing their generated waste.
24. That however, vide Additional Affidavit dated 06.11.2023 filed by the Applicant (at Page 427), it was highlighted that there is only a negligible number of bulk waste generators (approximately 17%), which are processing their own wet waste. For other such generators, all the unsegregated waste is getting dumped at Bandhwari landfill site.
25. That the Applicant had corroborated such information with the RTIs filed before the Municipal Corporation of Gurugram (at Page 435) and newspaper articles (at Page 459).
26. That therefore, the Joint Committee is providing false and misleading information before this Hon'ble Tribunal with respect to processing of waste by bulk waste generators.

D. The averment that leachate is being treated at STPs is misleading and false

27. That the Joint Committee has stated that the leachate is being transferred by tankers to STPs for treatment.
28. It is the submission of the Applicant that had such leachate treatment and management been taken place at STPs, there would not have been any discharge of leachate from the landfill into the forest and water bodies, as is evident from the photographs annexed by the Applicant.

29. That it is further submitted that STPs may not be suitable mechanism for treatment of leachate as leachate may contain such hazardous chemicals which the STPs are not equipped to treat or process. Therefore, complete processing of leachate may not take place in STPs.

Through



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Place:- Delhi

Dated:- 08.01.2024

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL,
PRINCIPAL BENCH, NEW DELHI.
ORIGINAL APPLICATION NO. 415/2015

IN THE MATTER OF:-

VIVEK KAMBOJ & ANR.

APPLICANTS

VS.

UNION OF INDIA & ORS.

RESPONDENTS

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01.	INSPECTION REPORT OF BANDHWARI MUNICIPAL SOLID WASTE DUMPSITE NEAR BANDHWARI VILLAGE AT GURGAON AND FARIDABAD ROAD, HARYANA, CONDUCTED BY THE TEAM OF CENTRAL POLLUTION CONTROL BOARD, NEW DELHI IN COMPLIANCE OF HON'BLE NGT, PB, NEW DELHI ORDER DATED 24.07.2017. FILED BY CENTRAL POLLUTION CONTROL BOARD, NEW DELHI	



M.K. Choudhary
Scientist 'E',

Central Pollution Control Board,
Parivesh Bhawan, East Arjun Nagar,
Delhi-110032.

Date: 21.08.2017
Place: Delhi

**REPORT ON INSPECTION OF BANDHWARI MUNICIPAL SOLID WASTE
DUMPSITE NEAR BANDHWARI VILLAGE AT GURGAON AND
FARIDABAD ROAD.**

Background:

Municipal solid waste (MSW) generation is increasing with industrial and commercial growth. There is no system of segregation of organic, inorganic and recyclable wastes at household level. Management of Municipal Solid Wastes (MSW) continues to remain one of the most challenging areas of urban India. In this context, Hon'able NGT issued an order on dated 24th July, 2017 in the NGT matter Vivek Kamboj Anr & UOI & Ors

"The Central Pollution Control Board should file complete report "

Municipal Corporation of Faridabad (MCF) had selected a site for landfilling the generated solid waste of the city. The site is located on out skirt of Faridabad on Faridabad-Gurgaon road. The land has been provided by Municipal Corporation of Gurgaon (MCG) at free of cost with an agreement between MCF & MCG. The landfill site at Bandhwari, Faridabad has been in operation since 2009 and reportedly received 1600 tonnes per day (TPD) of mixed MSW generating by the twin cities i.e. Gurgaon & Faridabad. Municipal Corporation of Gurgaon (MCG) and Municipal Corporation of Faridabad had jointly set up an integrated solid waste processing facility to process MSW at Bandhwari on Gurgaon-Faridabad road along with the sanitary landfill facility. The project has been set up under the Public Private Partnership (PPP) mode under JNNURM scheme. It was reported that M/s AKC Developers Private Limited was awarded a contract for running the aforesaid integrated solid waste processing facility in 2010. The facility was shut down in November 2013, due to a fire incident, since then the facility was abandoned by its operator (i.e. M/s AKC Developers Private Limited). As a result, MSW was not being processed till 2016. To make the matters worse, the waste was being disposed indiscriminately in and around the dysfunctional Bandhwari treatment facility on the foothills of Aravali, leading to environmental and health risk. As reported, in the year 2016, Municipal Corporation Gurgaon appointed Technical advisor for management of waste at the landfill site.

In compliance to above stated NGT order, Team of - Central Pollution Control Board, New Delhi visited the landfill site on 27th July, 2017. The following are the observations of the team.

Observations

1. All monitoring & Administrative control is under Municipal Corporation of Gurgaon.
2. There is vegetation (forestry) around three sides of the dumpsite, while the fourth side is along the Gurgaon-Faridabad road;
3. The compound wall was found collapsed at various places of the dumpsite
4. No authorization has been granted to the site as per information provided.
5. Dumping of Mixed Waste: The waste generated from Gurgaon and Faridabad cities include both biodegradable and non-biodegradable are being transported to the site without any prior segregation and composting as specified under Solid Waste Management Rules 2016.
6. As reported, by the officials of Gurgaon Municipal Council (GMC) that an agreement has been signed with M/s Eco green pvt Ltd for management of waste.
7. During inspection, there is no fouling smell observed at the site. However, residents of the Bandhwari village was complaining about emission of foul smell from Landfill site during night hours and in the late evening. As informed by the MCG officials, Bio-sanitizer/ Bio-culture is being used for odour control but no record has shown during inspection regarding spraying frequency.
8. There is no green belt developed across the Landfill Site within the site plan area.
9. Bio-mining of waste at the site: As informed, steps like bio-mining of waste has been initiated for management of waste from Oct, 2016 onwards to reduce the waste quantity. For composting bio culture is being sprayed but name of the bio-culture was not disclosed by the authority. Records regarding the compost generation was also not shared by the authority during inspection.
10. As per information, inert material is being used by residents of Bhandwari village, Mangar village and nearby areas for filling low lying areas.
11. It was informed that recyclable material is being collected by kabariwalas and compost formed during operation is being used by farmers and some amount of compost is being disposed in the forest land.
12. It was observed that there are various non- point sources from where leachate was oozing out. Due to oozing out of leachate from various

non-point sources, most of the leachate does not get collected in the collection tanks. There is no storm water drain constructed and the surface runoff water is diverted from the landfilling site and leachates from solid waste locations get mixed with the surface runoff water and collected in the low lying areas at the site.

13. Poor Leachate Management: For the treatment of leachate from Landfill site, authority has not installed any treatment facility. There are two unlined collection tanks present at the site. There is no information provided regarding the capacity of the collection tank.
14. The team has collected leachate samples from three different locations,
 - a) One Sample from the leachate collection tank 2
 - b) Two samples from leachate collected at low lying areas near the boundary wall.

Results of the sampling is given below:

S.NO	Parameter	(Mode of Disposal) Standards			Collection tank 2	Low lying area 1 near the boundary wall	Low lying area 2 near the boundary wall
		Inland surface	Public sewers	Land disposal			
1	Suspended solids, mg/l, max	100	600	200	2070	1692	1694
2	Dissolved solids (inorganic) mg/l, max	2100	2100	2100	20452	19152	19860
3	pH value	5.5 to 9.0	5.5-9.0	5.5-9.0	7.45	7.80	7.22
6	Biochemical oxygen demand (3 days at 27 ^o C)	30	350	100	6967	3262	5754
7	Chemical oxygen demand, mg/l, max.	250			14808	9624	13144
8	Arsenic (as As), mg/l, max	0.2	0.2	0.2	0.17	0.23	0.15
11	Cadmium (as Cd), mg/l, max	2.0	1.0		0.03	BDL	BDL
12.	Total Chromium (as Cr), mg/l, max.	2.0			0.5	0.75	0.40
13.	Copper (as Cu), mg/l, max.	3.0			0.34	0.35	0.36
14.	Zinc (as Zn), mg/l, max.	5.0	15		0.50	0.67	0.50
15.	Nickel (as Ni), mg/l, max	3.0			0.32	0.38	0.29
16.	Cyanide (as CN), mg/l, max.	0.2		0.2			
17.	Chloride (as Cl), mg/l, max.	1000		600	4078	5999	3587

From the above results, it is observed that parameters like TSS, TDS , BOD , COD , Arsenic & chloride are not complying the discharge standards of the Leachate and found that there is no proper management system for storage and treatment of Leachate at the site. This practice shall increase the chances of ground water contamination.

15. Ground water Analysis: Team members collected five ground water samples from the following locations.

- a) Location 1: Bore well at the site (Longitude: 28^o. 3970430 and Latitude: 77^o .2266840), Depth of Borewell 450 ft (approx.)-GW-1
- b) Borewell in the Residence of Ms Nisha, Village Dera nearly 500m from the site, Depth of Borewell: 250 ft (approx.) (Longitude: 28^o.4069570 and Latitude: 77^o.1724210)-GW-2
- c) Borewell of PHED at Mangar Village (Longitude: 28^o.423283 and Latitude: 77^o. 147977), aerial distance 2.73 km from landfill site-GW-3
- d) Borewell at Bandhwari Village (Longitude: 28^o.41744770 and Latitude: 77^o. 1548070) - aerial distance 3.21 km from landfill site: Sarpanch House - GW-4
- e) Borewell at middle of Bandhwari Village-GW-5

Results of the Ground water samples are given below:

S. No.	Parameters	IS 10500:2012, Edition 2.2(2003-09) Desirable limit (mg/l except for pH)	GW-1	GW-2	GW-3	GW-4	GW-5
1	Arsenic	0.01	BDL	BDL	BDL	BDL	BDL
2	Cadmium	0.01	BDL	BDL	BDL	BDL	BDL
3	Chromium(as Cr ⁶⁺)	0.05	BDL	BDL	BDL	BDL	BDL
4	Copper	0.05	0.02	0.03	BDL	BDL	BDL
5	Nickel	-	BDL	0.16	BDL	BDL	BDL
6	Nitrate as NO ₃	45.0	4.2	4.8	101.7	48.2	57.5
7	Iron	0.3	2.59	1.36	0.14	0.43	0.43
8	Chlorides	250	351	888	119	51	49
9	Phenolic Compounds(as C ₆ H ₅ OH)	0.001	BDL	BDL	BDL	BDL	BDL
10	Zinc	5.0	0.61	0.33	BDL	1.04	BDL
11	Mn	0.1	0.07	14.11	0.11	0.23	0.34
12	Se	0.01	BDL	BDL	BDL	BDL	BDL
13	Fluoride	1.0	0.92	0.55	0.20	0.35	0.29
14	Ca	75	112	285	85	82	53
15	Boron	0.5	0.5	0.6	0.4	BDL	BDL

From the results it is observed that

- i. Nitrate: Nitrate exceeds the acceptable limit of drinking water standards as per BIS 10500:2012 at GW-3,GW-4,GW-5.

- ii. Fe: Iron exceed the acceptable limit of drinking water standard for Fe at four locations GW-1, GW-2 ,GW-4, GW-5 as per BIS 10500:2012
- iii. Chloride: Chloride exceeds the acceptable limit of drinking water standards for Chloride as per BIS 10500:2012 at GW-1&2.
- iv. Mn: Manganese exceeds the acceptable limit of drinking water standards for Mn as per BIS 10500:2012 at GW-2,3, 4,5.
- v. Ca: Calcium exceeds the acceptable limit of drinking water standards for Ca as per BIS 10500:2012 at GW-1,2,3,4
- vi. Boron: Boron exceeds the acceptable limit of drinking water standards for Boron as per BIS 10500:2012 at GW-2 and borderline at GW-1

From the above it is observed that

1. Nitrate in the ground water samples from Mangar village and Bhandwari village are not complying the drinking water standards hence Ground water at Mangar and Bandhwari village is not fit for drinking purpose but water can be used for bathing and irrigation purpose. To conclude the major source of contamination of ground water with nitrate, it is proposed that exhaustive study of Ground water analysis need to be done.
2. High values of Mn, Ca, Boron & chloride content at Borewell at Landfill Site (GW-1) and Borewell at Dera Village 500 m away from landfill Site (GW-2) are observed. Such contents of Mn, Ca, Boron & chloride are higher than the acceptable upper limits for drinking purposes as per BIS 10500:2012. This may be attributed to contamination of the borewells from landfill leachate.

16. Pictorial View of the inspection site is given at **Annexure-I**

Recommendations:

- a) Assess the total quantity of waste accumulated at the dumpsite.
- b) Prepare a plan for complete reclamation of waste in time bound manner.
- c) Compound wall should be constructed immediately where compound wall is collapsed.
- d) The storm water drain should be designed and constructed in such a way that the surface runoff water is diverted from the landfilling site and leachates from solid waste locations do not get mixed with the surface runoff water. Provisions for diversion of storm water discharge drains shall be made to minimize leachate generation and prevent pollution of surface water and also for avoiding flooding and creation of marshy conditions.
- e) Provisions for management of leachates including its collection and treatment should be made. Proper collection must be ensured for the

leachate which is oozing out of the landfill site. All the leachate must be diverted to the leachate collection tanks.

- f) Storage capacity of the Leachate collection tank should be increased to handle the leachate generation during monsoon season. Leachate collection tank should be lined.
- g) In case of mixing of runoff water with leachate or solid waste, the entire mixed water shall be treated by the concerned authority.
- h) The end product compost should meet the standards prescribed under Fertilizer Control Order notified from time to time.
- i) Record should be maintained regarding the spraying of Anti - odourant. And action plan should be prepared to mitigate the odour nuisance from the site.
- j) As per results analyzed, Ground water sample value for nitrate at Mangar and Bandhwari Village exceeding the acceptable limit for drinking water. It is indicating that ground water is unfit for drinking purpose at Mangar and Bandhwari village but can be used for bathing and irrigation purpose. To conclude the major source of contamination of ground water, it is proposed that exhaustive study of Ground water analysis need to be done.
- k) High values of Mn, Ca, Boron & chloride content at Borewell at Landfill Site (GW-1) and Borewell at Dera Village 500 m away from landfill Site (GW-2) are observed. Such contents of Mn, Ca, Boron & chloride are higher than the acceptable upper limits for drinking purposes as per BIS 10500:2012. This may be attributed to contamination of the borewells at landfill site and Dera village from leaching of landfill leachate. It is very much necessary to do proper management of leachate at the site including its collection, storage and treatment.
- l) Proper records should be maintained for disposal of inert waste, recyclable materials and compost.
- m) Green belts should be developed all around the boundary of the landfill within the site plan.
- n) All the provisions of the Solid Waste Management Rules, 2016 should be complied.

Sharandeep

Sharandeep Singh

(Sct 'C', CPCB)

PICTORIAL VIEW OF INSPECTION OF BANDHWARI LANDFILL SITE

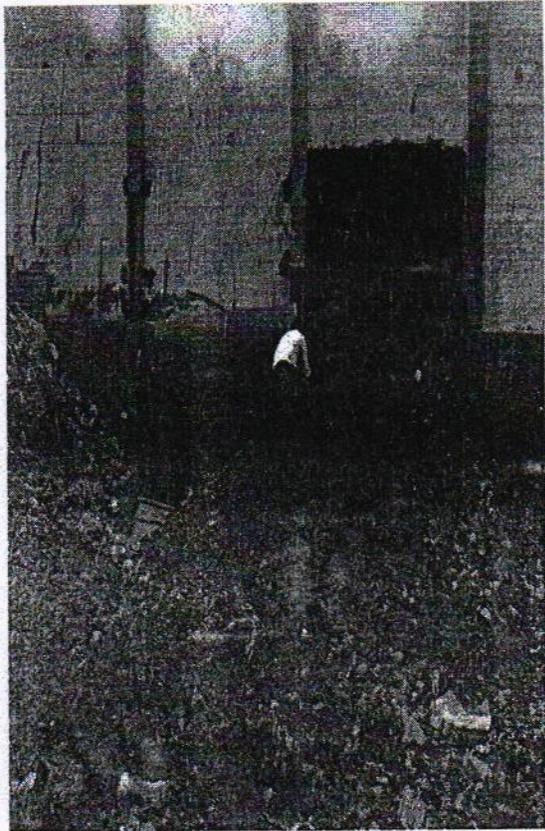


Fresh mixed Garbage dumping on Landfill Site

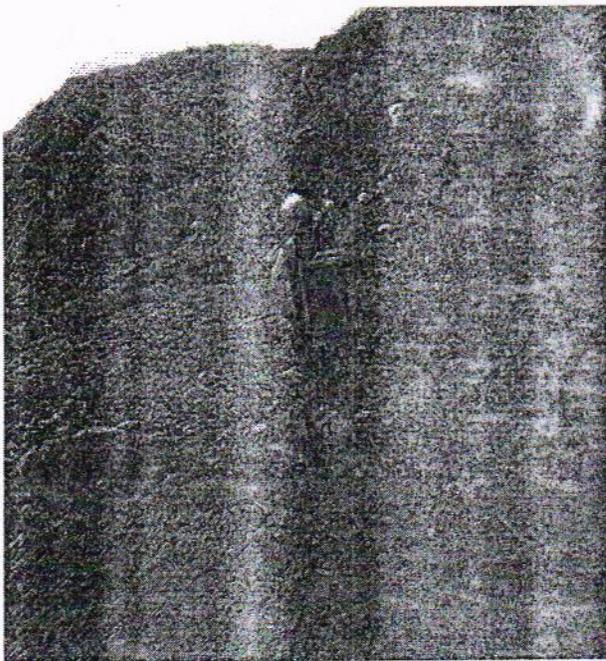


Burned machine at Landfill site

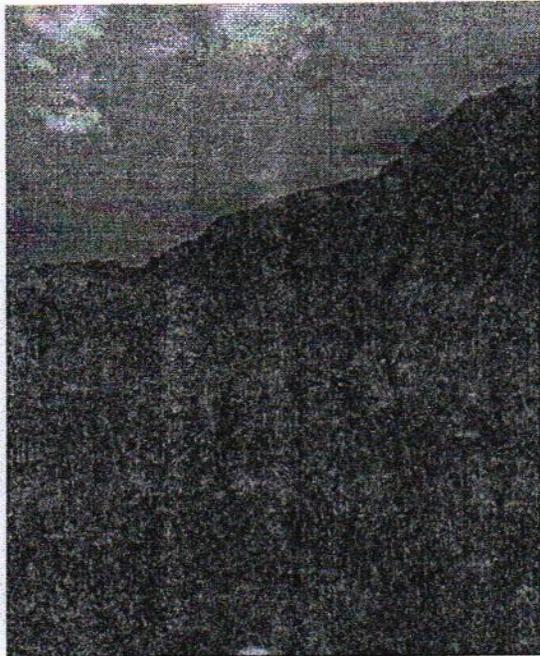
PICTORIAL VIEW OF INSPECTION OF BANDHWARI LANDFILL SITE



Compost

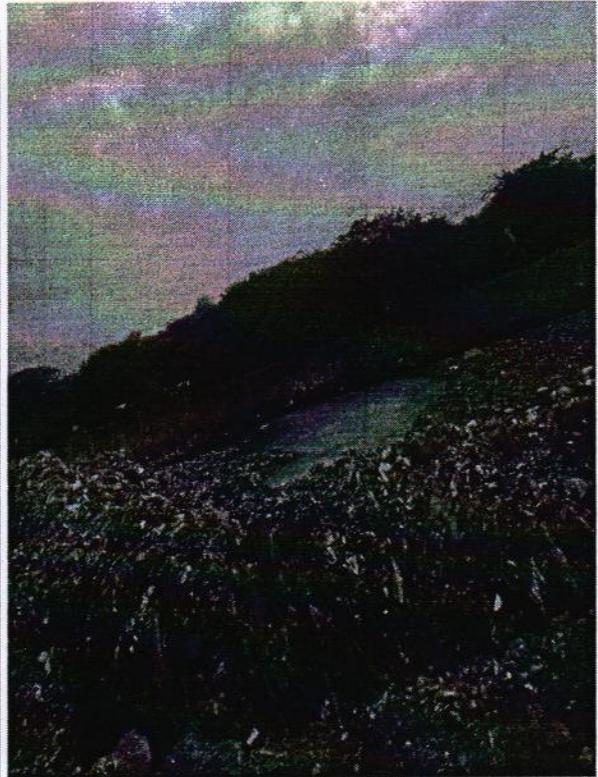
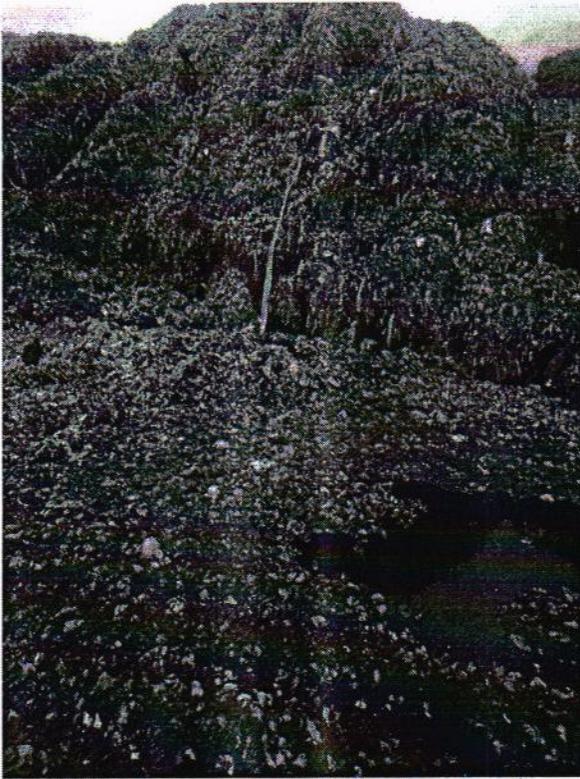


Leachate Storage Leachate Tank 1

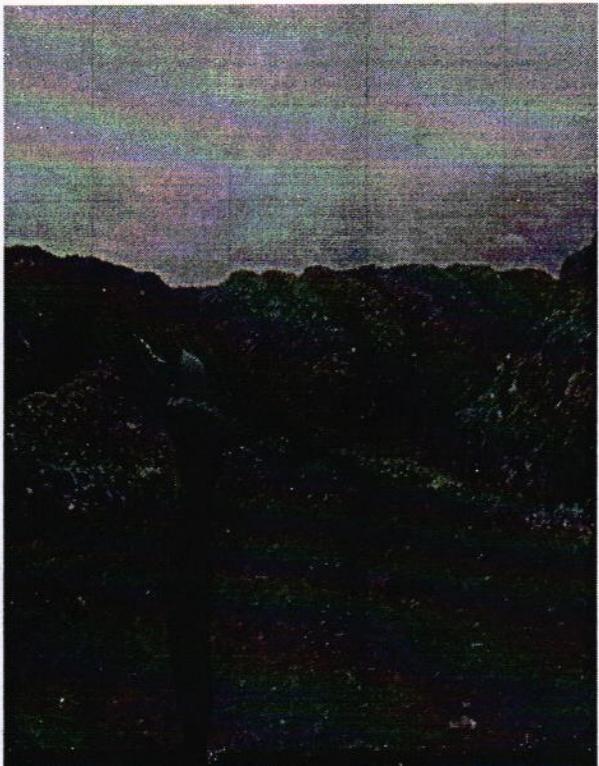
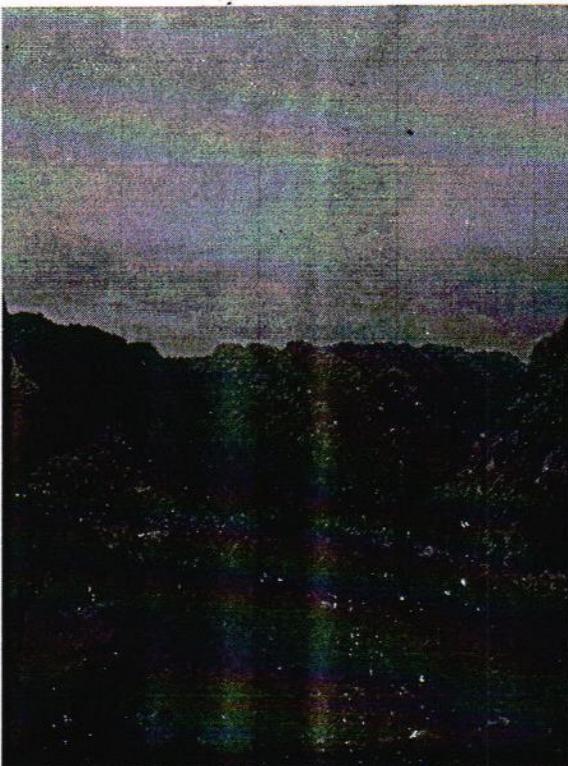


Leachate Storage Leachate Tank 2

PICTORIAL VIEW OF INSPECTION OF BANDHWARI LANDFILL SITE



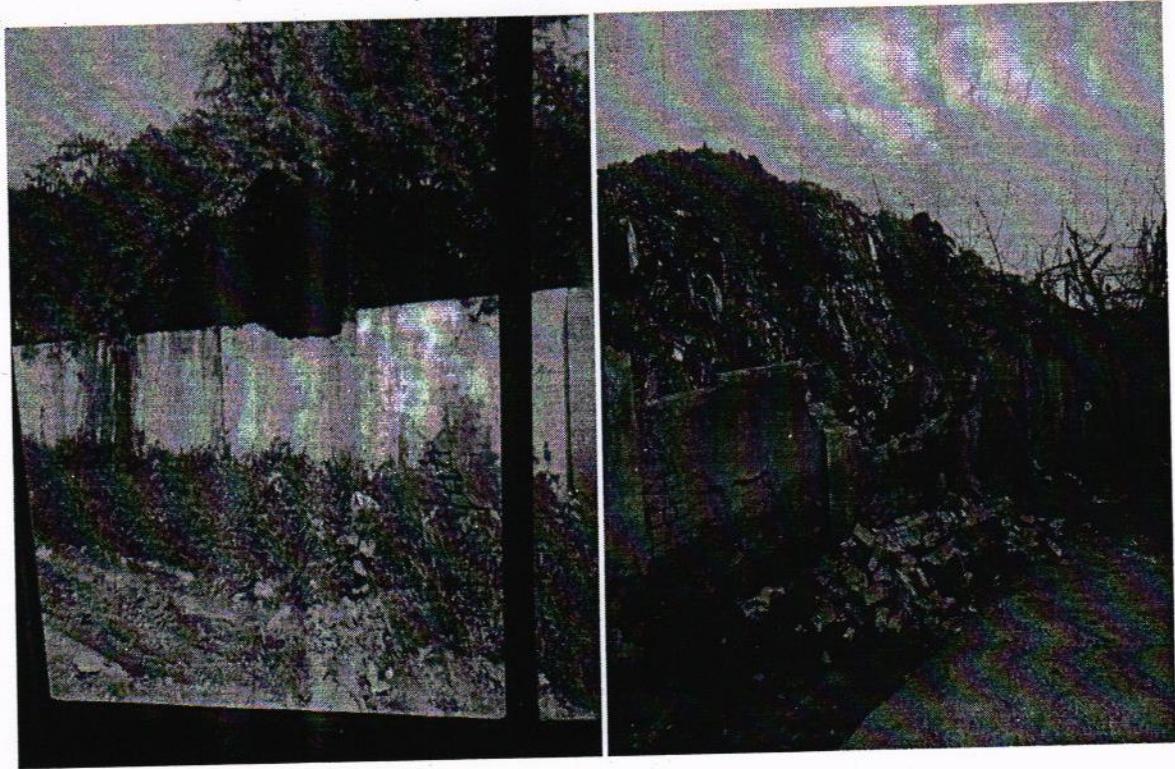
Leachate collected at Low lying area near the compound wall back side of the Dumpsite



Windrows formed for Bio- mining at the site

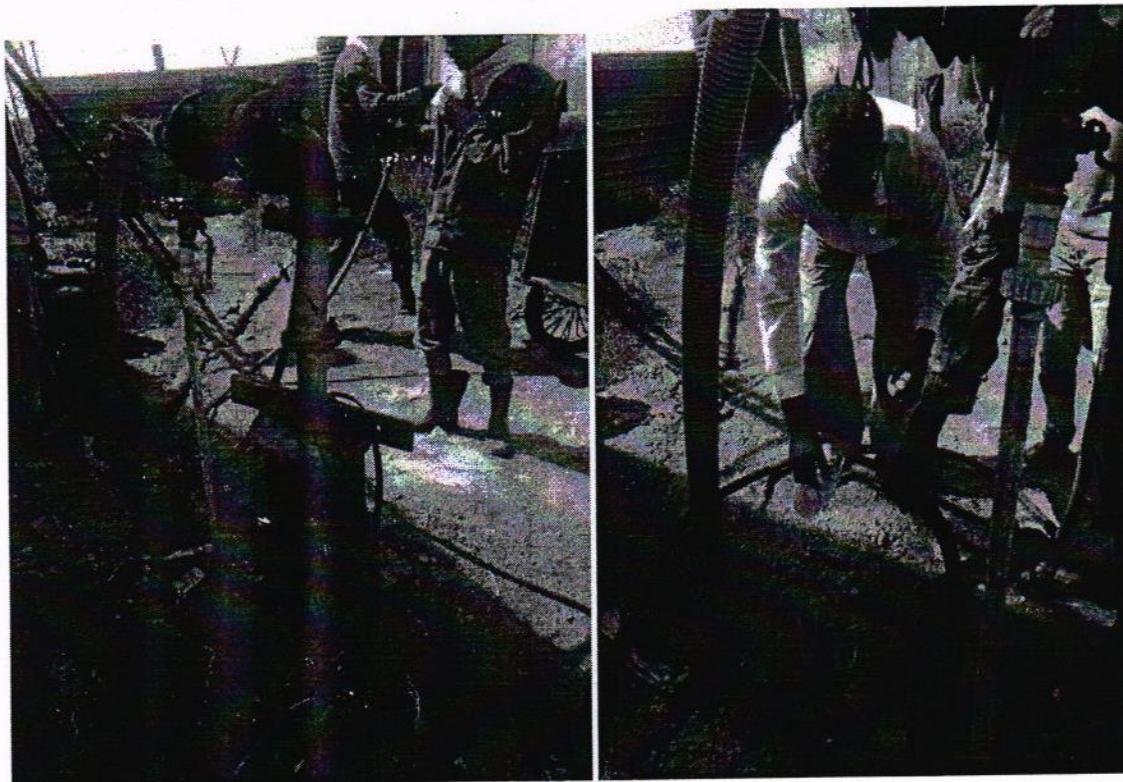


Sample collection from leachate collection tanks



Compound Wall Broken at various places

PICTORIAL VIEW OF INSPECTION OF BANDHWARI LANDFILL SITE

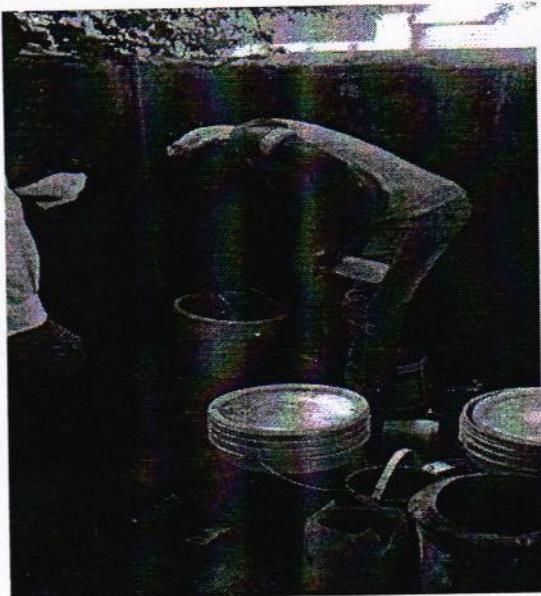


Ground water sampling inside the Landfill site

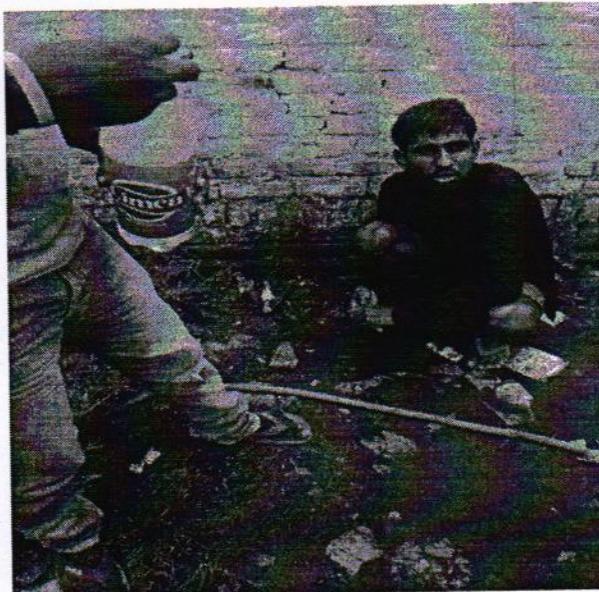


**Leachate oozing through compound wall at the back side of the
Dumpsite**

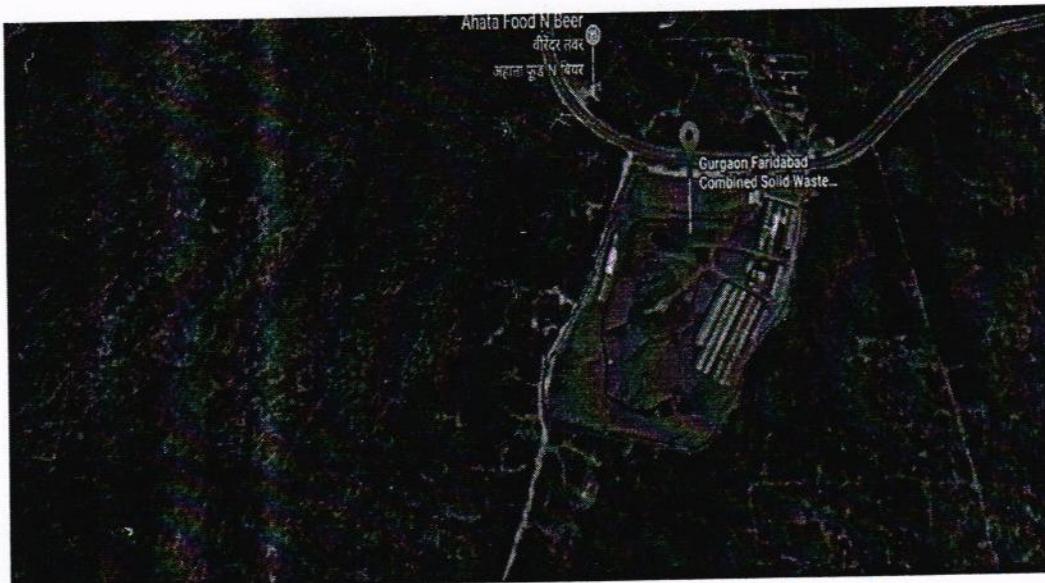
PICTORIAL VIEW OF INSPECTION OF BANDHWARI LANDFILL SITE



Ground water sample from Dera Village

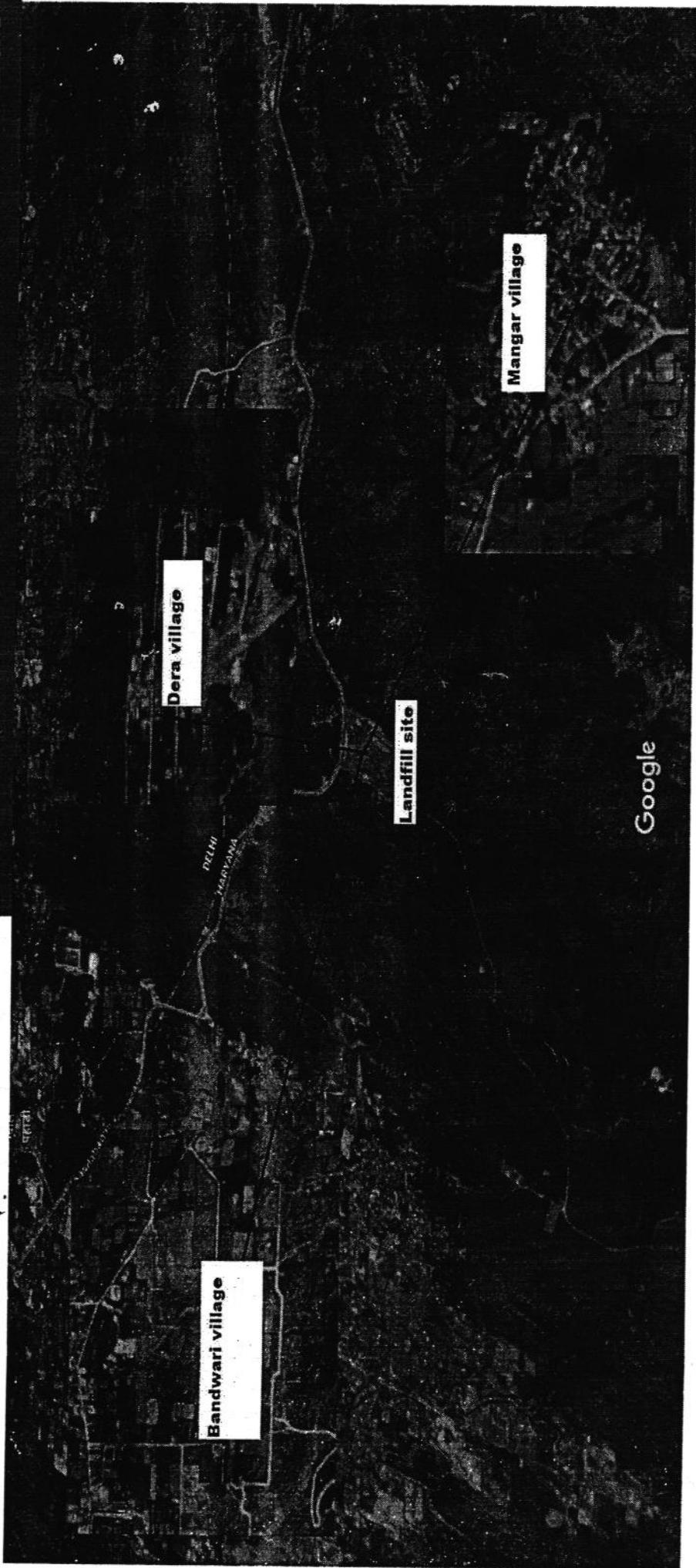


Ground Water sample in mangar village



Bandhwari Landfill Site

IN THE NGT MATTER ORIGINAL APPLICATION 415/2015: VIVEK KHAMBOJ & ANR VS UNION OF INDIA & ORS
ANNEXURE-I
PICTORIAL VIEW OF INSPECTION OF BANDHWARI LANDFILL SITE



- Aerial distance :- Landfill site to Dera village-0.48 km
- Aerial distance :- Landfill site to Mangar village-2.73 km
- Aerial distance :- Landfill site to Bandhwari village-3.21 km

	<p>Item No. 20</p> <p>July 10, 2018</p> <p>ss</p>	<p>restore it to its original position after receiving all the waste.</p> <p>(iv) Direct the Respondents to comply with the Bio-Medical Rules, 1998 and not to mix the bio-medical waste with municipal waste and ensure its proper disposal.</p> <p>(v) Direct the Respondents to inspect the ground water of the nearby areas of Delhi, Gurgaon, and Faridabad, to test for all possible contaminants and continue the same on a quarterly basis, to assess the long term impact of groundwater pollution in the vicinity of the landfill.</p> <p>(vi) Pass an order thereby imposing environmental cost on Municipal Corporation, Faridabad and Municipal Corporation, Gurgaon for causing pollution of the area and contaminating the ground water.</p> <p>(vii) Pass an order directing the set up of an expert committee to suggest areas where waste dumps, landfills, waste treatment plants may not be planned due to their eco-sensitive nature and higher risk of pollution, and steps for remediation at the existing Bandhwari plant.</p> <p>(viii) Direct the Government of Haryana to say all plans for locating any waste dumps, landfills, waste treatment plants, in eco-sensitive areas of Aravalli Hills, water bodies, river beds and floodplains.</p> <p>(ix) Direct the Government of Haryana to identify and zone sites for decentralized recycling, at sector, ward, and zone level in the town master plans.</p>
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	<p>Item No. 20</p> <p>July 10, 2018</p> <p>ss</p>	<p>2. On 28th October, 2015 this Tribunal directed the Authorities and the State of Haryana to take steps to ensure proper dumping of waste as well as proper maintenance, collection of the already dumped waste while ensuring it that it does not in any way contaminate the ground water.</p> <p>3. An inspection was conducted by the CPCB and as per its report dated 27th July, 2017 it made several recommendations which were noted in the order dated 18th January, 2018 as follows:-</p> <ul style="list-style-type: none">a) "Assess the total quantity of waste accumulated at the dumpsite.b) Prepare a plan for complete reclamation of waste in time bound manner.c) Compound wall should be constructed immediately where compound wall is collapsed.d) The storm water drain should be designed and constructed in such a way that the surface runoff water is diverted from the landfilling site and leachates from solid waste locations do not get mixed with the surface runoff water. Provisions for diversion of storm water discharge drains shall be made to minimize leachate generation and prevent pollution of surface water and also for avoiding flooding and creation of marshy conditions.e) Provisions for management of leachates including its collection and treatment should be made. Proper collection must be ensured for the leachate which is oozing out of the landfill site. All the leachate must be diverted to the leachate collection tanks.
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	<p>Item No. 20</p> <p>July 10, 2018</p> <p>ss</p>	<p>f) Storage capacity of the Leachate collection tank should be increased to handle the leachate generation during monsoon season. Leachate collection tank should be lined.</p> <p>g) In case of mixing of runoff water with leachate or solid waste, the entire mixed water shall be treated by the concerned authority.</p> <p>h) The end product compost should meet the standards prescribed under Fertilizer Control Order notified from time to time.</p> <p>i) Record should be maintained regarding the spray of Anti-odourant. And action plan should be prepared to mitigate the odour nuisance from the site.</p> <p>j) Proper records should be maintained for disposal of inert waste, recyclable materials and compost.</p> <p>k) Green belts should be developed all around the boundary of the landfill within the site plan.</p> <p>l) All the provisions of the Solid Waste Management Rules, 2016 should be complied.”</p> <p>4. An affidavit dated 23rd March, 2018 was filed on behalf of M/s. Eco-Green Energy Private Limited. It is stated that Concessionaire Agreement was signed on 14th August, 2017 for the project for segregation, collection and transportation and installation of Waste to Energy Plant. In the project for the municipal waste processing plant, requisite steps have been taken for disposal of the waste. In compliance with the inspection report dated 27th July, 2017 steps taken are shown in the Chart which is as follows:-</p>
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	Item No. 20 July 10, 2018 ss	“ Recommendations made By CPCB vide report Dated 27.07.2017	Compliance by the Answering respondent
		a) Assess the total quantity of waste accumulated at dump site.	Total accumulated waste at Dump Site is around 2-2.5 million tons.
		b) Prepare a plan for complete reclamation of waste in time bound manner.	<p>Phase I Installation of RDF plant planned to be completed by March 2019. Thereafter, approx.. 1500TPD of waste shall be processed to produce RDF.RDF will be sold to Cement Plants and other end users.</p> <p>Phase II 25 MW Power Plant is planned to be completed by June 20 19. Approx. 1200TPD of RDF . shall be consumed in operating the plant. This RDF will be produced from fresh and legacy waste. Accordingly in about 8-10 years, the complete accumulated waste shall be processed.</p>
		c) Compound wall should be constructed immediately where compound wall is collapsed.	Compound wall wherever collapsed, has been constructed and work completed.
		d) The storm water drain should be designed and constructed in such a way that the surface runoff water is diverted from the land filling site and leachate from solid waste locations do not get mixed with the surface runoff water. Provisions for diversion of storm water discharge drains shall be made to minimize the leachate generation and prevent pollution of surface water and also for avoiding flooding and creation of marshy conditions.	<p>The storm water drainage system is designed as follows to avoid mixing of rain water with leachate</p> <ol style="list-style-type: none"> Drainage system for rain water outside the plant (from catchment area around the plant) is planned like a garland drain leading to discharge outside the plant and not entering the plant boundary. The drainage system for the areas where waste is not handled shall be separately constructed and water shall be used within the plant. The drainage system for the landfill and other areas where waste is handled, shall be in the form of arterial drains leading to common lined pits from where it will be pumped to the Leachate Treatment Plant
		e) Provisions of management of leachate including its collection and Treatment should be made. Proper collection must be ensured for the leachate which is oozing out of the landfill site. All the leachate must be diverted to leachate collection tanks. Storage capacity of the Leachate collection tank	<p>In the landfill, sloped drains will be prepared all around to collect the leachate in leachate ponds in the landfill area. From leachate pond the leachate is pumped to the Leachate Treatment Plant (Under construction). Leachate collection tank shall be lined.</p> <p>Capacity of Leachate Collection & Equalization Tank is designed considering the monsoon season.</p> <p>The leachate will be treated in the Leachate Treatment Plant which is already under construction and proposed to be commissioned by April 18. During construction period of the</p>

<p>Item No. 20</p> <p>July 10, 2018</p> <p>ss</p>		<p>should be increased to handle the leachate generation during the monsoon season. Leachate collection tank should be lined.</p>	<p>Waste to Energy Plant, the treated leachate will be released to the nearest sewerage drain. The treated leachate will meet the standards specified in Schedule-II of SWM Rules 2016.</p> <p>After the start of Waste to Energy plant, the treated leachate will be recycled and utilized for the plant consumption.</p>
	g)	<p>In case of mixing of runoff water with leachate or solid waste, the entire mixed water should be treated by the concerned authority.</p>	<p>In case of mixing of runoff water with leachate or waste the complete runoff water is planned to be collected in a separate tank and treated in the Leachate Treatment Plant.</p>
	h)	<p>The end product compost should meet the standards prescribed under Fertilizer Control Order notified from time to time.</p>	<p>Compliance will be ensured.</p>
	i)	<p>Record should be maintained regarding the spraying of anti-odorant. And action plan should be prepared to mitigate the odor nuisance from the site.</p>	<p>Spraying of anti-odorant is continued ever since Ecogreen Energy has taken over management of Bandhwari site i.e. 21/09/2017 and record is being maintained.</p>
	l)	<p>Proper record should be maintained for disposal of inert waste, recyclable material and compost.</p>	<p>After our processing plant starts functioning, proper records for disposal of inert waste, recyclable materials and compost shall be maintained.</p>
	m)	<p>Green belt should be developed all around the boundary of the landfill within the site plan.</p>	<p>Compliance will be ensured.</p>
	n)	<p>All the provision of the Solid Waste Management Rules 2016 should be complied.</p>	<p>Compliance will be ensured.</p>
		<p>BIO MINING</p>	<p>Following steps shall be undertaken for Bio Mining:</p> <ul style="list-style-type: none"> • Spraying of Microbial Culture to reduce the volume of old waste • Bio-mining of the digested waste for pre-processing through Hydraulic Excavator, Bull Dozers, Dumper Trucks. • Pre-processing the waste through Ballistic Separators based on density and sieve size • Recovering combustibles (RDF) from old waste by density separation. • Separation of inert & construction waste and disposing into identified first cell of landfill. • Selling of the RDF to nearby industries/use for Waste to energy plant. • Filling of low lying areas with soil separated from old waste processing.”

	<p>Item No. 20</p> <p>July 10, 2018</p> <p>ss</p>	<p>5. The applicant vide its Rejoinder dated 09th July, 2018 states that though the project agreement has been signed but the issues in the report dated 27th July, 2018 have not been addressed. It has not been ensured that the Bhandwari Plant and Landfill site do not turn into an ecological disaster for the ecologically fragile Aravalli forests. Reference has been to an article dated 29th June, 2018 published in Hindustan Times to the effect that the waste was already lying at the landfill site and the leachate contamination has become a serious health hazard for the local communities residing in the vicinity. It is submitted that the Concessionaire must take immediate steps to manage the legacy waste and other waste in the first instance. We do not find any reason not to accept this prayer that the Concessionaire must take steps to manage the legacy waste and leachate, the suggestion made by the CPCB in its inspection report dated 27th July, 2017. The Concessionaire must also address the issues referred in this report dated 29th June, 2018 published in Hindustan Times with regard to Bandhwari Municipal Solid Waste landfill. This will also be the responsibility of the State of Haryana as the Concessionaire is merely an agency created by the State to carry out its responsibility.</p> <p>6. The Original Application No. 415 of 2015 is accordingly disposed of.</p> <p>7. Let an affidavit of compliance of the above directions be filed within four weeks. The Concessionaire will also implement the segregation of the municipal solid waste at source as per rules.</p>
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	<p>Item No. 20</p> <p>July 10, 2018</p> <p>ss</p>	<p><u>M.A. No. 967 of 2015, M.A. No. 68 of 2016, M.A. No. 341 of 2016 & M. A. No. 1310/2017</u></p> <p>These applications do not survive for consideration as the main application itself stands disposed of.</p> <p>....., CP (Adarsh Kumar Goel)</p> <p>....., JM (Dr. Jawad Rahim)</p> <p>.....,JM (Raghuvendra S. Rathore)</p> <p>.....,EM (Dr. Satyawan Singh Garbyal)</p> <p>10.07.2018</p>
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Photographs dated 04.01.2023 showing fire at Bandhwari landfill site





Bandhwari Landfill Site: Fire breaks out at Bandhwari landfill site | Gurgaon News

[TOI timesofindia.indiatimes.com/city/gurgaon/fire-breaks-out-at-bandhwari-landfill-site/articleshow/106560729.cms](https://timesofindia.indiatimes.com/city/gurgaon/fire-breaks-out-at-bandhwari-landfill-site/articleshow/106560729.cms)

Vishakha Chaman / TNN / Updated: Jan 5, 2024, 11:43 IST

A fire broke out at the Bandhwari landfill site due to methane combustion or sparking caused by stones. Three fire tenders from Udyog Vihar and Bhim Nagar fire stations took over two hours to douse the flames. Excess methane gas in the landfill and sparking caused by stones were identified as potential causes. The villagers expressed their concerns about the pollution caused by such fire incidents and the ongoing issues with leachate flow and health problems. An environmental activist suspected that the fire was deliberately set ahead of an upcoming NGT hearing.



GURGAON: A fire broke out at the Bandhwari landfill site on Thursday morning. An MCG official said the fire would have erupted due to methane combustion or sparking caused by stones at the rear side of the landfill on the village road.

Fire officials said it took over two hours for three fire tenders to douse the flames.

“We have received information on the fire around 10.36am. The three fire tenders were sent from Udyog Vihar and Bhim Nagar fire stations,” Gulshan Kalra, deputy director (technical), Haryana Fire Services.

MCG joint commissioner claimed excess methane gas in the landfill could have triggered the blaze.

“Combustion of methane gas may have caused the fire as there is a higher concentration of gas at the landfill. Another reason could be sparking caused by stones at the site. We have, however, directed all agencies working at the site to be careful so such fire incidents are prevented,” Naresh Kumar, MCG joint commissioner for Swachh Bharat Mission, said. However, the villagers said that the fire broke out on Wednesday night and was not visible due to fog. “We have to bear the brunt of the pollution caused by such fire incidents. We are already suffering because of the leachate flow into the surrounding villages and other health issues that are caused due to this waste mountain,” a villager said.

“A fire at this landfill is reported every four months, so nothing has changed on ground. Commissioners come and go, but nothing changes. I suspect that the waste was deliberately put on fire ahead of the NGT hearing on January 9. The temperature is also not very high. There is still leachate flowing out of the landfill site in the jungle,” said Vaishali Rana Chandra, an environmental activist.

ANNEXURE A-5

Photographs dated 06.01.2024 showing discharge of leachate at Bandhwari landfill site





To: "zorawar.wrc2015@gmail.com" <zorawar.wrc2015@gmail.com>

Subject: Re: NGT review of Bandhwari performance

Mrs Almitra H Patel MS MIT, USA,

50 Kothnur, Bagalur Rd, Bengaluru 560077 Opp New Horizon School

98443 02914. almitrapatel@rediffmail.com, www.almitrapatel.com, www.youtube.com/c/AlmitraPatel36

Member, Supreme Court Committee for Solid Waste Management

National Expert, Swachh Bharat Mission, Govt of India

7..1.2024

Vaishali Rana

98990 78299 zorawar.wrc2015@gmail.com

Dear Vaishali

Greetings and thanks for our phone chat just now. I am deeply grateful for your PIL re Bandhwari (Please send me the full case number) because I mentored its model bioremediation in 2016, when an 80-100 ft hill of mixed waste was reduced to a carpet of stabilized 5m high windrows in one year's time by Raagini Jain supervising MCG's own earthmovers and providing biotreatment. See my 2-minute video of how this was done, under Gurugram Faridabad in www.youtube.com/c/AlmitraPatel36. Before we could begin biomining (screening) the site was handed over to Ecogreen, which has created an even higher hill ~ 125 ft high, being tackled now by Five biomining operators with grave malpractices and ecological destruction of Aravalis by some of them.

It is good that Hon. NGT is taking this issue seriously, but the panicked over-reaction to NGT orders by MCG (Mpl Corp Gurugram) has led to their awarding unrealistic tenders and timelines. For example, five parties have been awarded tenders instead of at most 2 or 3, so they have no elbow room to work or deploy adequate machinery. Without calculating or monitoring site performance, they require screening of 2 lakh tons in 2 months' time. This works out to 3,333 tons per day each, or 138 tons per hour of nonstop 24 hour work, a physical impossibility.

These unviable expectations have led to numerous malpractices and scams, the worst being simply shifting untreated waste clandestinely to numerous depressions in the Aravalis. This will irreversibly ruin both surface and groundwaters over time, even upto Delhi. I will separately list each problem along with a doable solution for it. But ensuring compliance needs oversight by knowledgeable experts with integrity.

So I urge you to please request the NGT to immediately appoint an Expert Monitoring Committee to urgently assess ongoing on-ground performance. A 3-member team can do a rapid review in a week. It should be headed by Anna University's Centre for Environmental Studies. Their Centre for Environmental Studies, headed by Prof Kurian Joseph, has by far the widest experience of monitoring biomining in the country, doing this for over 100 sites in Tamil Nadu, including daily oversight of Chennai's huge 25 lakh ton dump where 14 lakh tons have been cleared a year ahead of schedule with perfect compliance to rules and ecofriendly outcomes.

Other Expert Members if needed can be from IIT Roorkee or CPCB or Haryana SPCB and a nominee of the Petitioners in your case.

Please submit this letter to the NGT if you wish. The NGT may even wish to appoint Anna U as Amicus in your Bandhwari case.

With best wishes and always with pleasure at your service,

Almitra