

DELHI POLLUTION CONTROL COMMITTEE
DEPARTMENT OF ENVIRONMENT, GOVT. OF NCT OF DELHI
5th FLOOR, ISBT BUILDING, KASHMERE GATE, DELHI-110006
visit us at : <http://dpcc.delhigovt.nic.in>

F.No. DPCC/WMC-II/Annual Reports / Solid Waste / 1298-99 Dated : 07/03/19

To,

Dr. S. K. Nigam
Additional Director
Central Pollution Control Board
Parivesh Bhawan, East Arjun Nagar, Delhi-32

Sub: Annual Reports for the year 2016 & 2017 under the Solid Waste Management, Rules, 2016

Sir,

This has reference to your letter No. B-13011/1/UPC-II/2017-18 / 10210 Dated 28.08.2018, regarding Annual Reports under the under the Solid Waste Management, Rules, 2016.

The Annual Reports in Form-V under the Solid Waste Management, Rules, 2016 , for the years 2016 & 2017 in respect of NCT of Delhi is enclosed herewith along with Brief Note on Present Status of Solid Waste Management in NCT of Delhi (**Annexure – “A”**) for your kind perusal please.

This issues with the approval of the Member Secretary, Delhi Pollution Control Committee.

कन्द्रीय प्रदूषण नियंत्रण बोर्ड
परिवेश भवन, पूर्वी अर्जुन नगर, दिल्ली-32

08 MAR 2019

Central Pollution Control Board

Yours Sincerely,

(Signature of D.K. Singh)
(D.K. Singh)

Sr. Env. Engr.
WMC-II

Enclosures : Annual Reports in Form-V & Annexure “A”

Copy to:

1. The Director (HSMD), Ministry of Environment, Forest & Climate Change, Govt. Of India, Room No. 09, Agni Wing, Level IV, Indira Payavaran Bhawan, Jor Bagh Road, New Delhi-110003

Form – V

[see rule 24(3)]

Annual Report w.r.t Solid Waste Management Rules, 2016 in respect of NCT of Delhi for the Year 2017

To,

The Chairman

Central Pollution Control Board

Parivesh Bhawan, East Arjun Nagar

Delhi - 110 032

Part A

1	Name of the State / Union territory	NCT of Delhi
2	Name & address of the State Pollution Control	Delhi Pollution Control Committee, 5th Floor, ISBT Building, Kashmere Gate, Delhi-110006
3	Number of local bodies responsible for management of solid waste in the State / Union territory under these rules	5
4	No. of authorization application received	Nil
5	A Summary Statement on progress made by local bodies in respect of Solid Waste Management	Annexure - I attached.
6	A summary statement on progress made by local bodies in respect of waste collection , segregation, transportation and disposal	Annexure- II attached
7	A summary statement on progress made by local bodies in respect of implementation of Schedule II	Annexure- III attached
	Date : 07.03.2019 Place : Delhi.	 Member Secretary, Delhi Pollution Control Committee

Part B

Towns/cities	
Total number of towns/cities	1
Total number of ULBs	5
Number of class I & class II cities/towns	1
Authorization status (names/number) • Number of applications received • Number of authorizations granted • Authorizations under scrutiny	Nil No authorization has been granted to any of the Urban Local Body / Municipal Corporations in NCT of Delhi however Authorization was granted to M/s Delhi MSW Solutions Ltd. at Narela Bawana Road, Delhi for its Integrated Waste Complex having Sanitary Land Fill, Waste to Energy Plant and Compost Plant.
Solid Waste Generation Status Solid waste generation in the state (TPD) • Collected • Treated • Landfilled	10512 TPD of Solid waste is generated in Delhi. • 4928.33 TPD is processed at 3 Waste to Energy Plants in Delhi. • 932 TPD is disposed of in compost plants. • 26.5 TPD is processed in decentralized plants / parks. • 5424.67 TPD is going to land fill site unprocessed.
Compliance to Schedule I of SW Rules (Number/names of towns/capacity) • Good practices in cities/towns • House-to-house collection • Segregation • Storage • Covered transportation	Partial Compliance.

Processing of SW (Number/names of towns/capacity)				
Solid Waste processing facilities setup:				
Sl. No.	Composting	Vermi-composting	Biogas	RDF / Pelletization
	2	3	1	3 (with WTEs)
Processing facility operational:				
Sl. No.	Composting	Vermi-composting	Biogas	RDF/Pelletization
	2	3	1	3 (with WTEs)
Processing facility under installation / planned:				
Sl. No.	Composting	Vermi-composting	Biogas	RDF/Pelletization
	-	-	-	2 New and Expansion of 2 Existing WTEs prosed.

Waste-to-Energy Plants: (Number/names of towns/capacity)						
Sl. No.	Plant Location	Status of Operation	Power generation (MW)	Remarks		
	Details enclosed					
Disposal of solid waste (number/names of towns/capacity): Landfill sites identified 3 Landfill constructed 1 Landfill under construction 0 Landfill in operation 1 Landfill exhausted 0 Landfill capped 0 (There is only one Engineered Sanitary Landfill in Delhi at Narela – Bawana Road.)						
Solid Waste Dumpsites (number/names of towns/capacity): Total number of existing dumpsites 3 Dumpsites reclaimed/capped 0 Dumpsites converted to sanitary landfill 0						
Monitoring at Waste processing/Landfills sites						
Sl. No.	Name of facilities	Ambient air	Ground water	Leachate quality	Compost quality	VOCs
1	Test Report enclosed					
2	Test Report enclosed					
3	Test Report enclosed					
Status of Action Plan prepared by Municipalities • Total number of municipalities: • Number of Action Plan submitted:						
5		Action Plan submitted by North Delhi Municipal Corporation and South Delhi Municipal Corporation only..				

Summary Statement on progress made by New Delhi Municipal Council in respect of solid waste management

New Delhi Municipal Council is spread in 42.67 Sq km and its population is about 2.57 Lakhs as fixed population and 15 Lakhs as Floating Population. Floating Population means the population which comes to New Delhi Municipal Council area in the morning and uses civic amenities during day time and go outside in the evening. As per Annual Report submitted by New Delhi Municipal Council to DPCC, the numbers of households in the area under jurisdiction of it are 50,000 Nos. non-residential (bulk generators) premises are 4050 and number of residential premises including commercial establishments, hotels, restaurants, educational institutions, offices, etc. are 4900. However, the actual quantity of solid waste generated and collected by New Delhi Municipal Council is 350-450 MT per day out of which 300 MT per day is transported.

Door to door collection is practiced. NDMC covers 42.76 sq km which is further divided into 14 sanitation circles. New DMC is having 100% of its vehicle motorized. There are 1614 Nos. of secondary storage sites and 25 Masonry Bins, 1552 Nos. of bins having 1.1 cu. m capacity, 62 Nos. of bins having 2 to 5 cu. m capacity and 03 Nos. of bins having above 5 cu. m capacity. Bin population ratio is 1614: 2.57 Lakh in the area under jurisdiction of New Delhi Municipal Council.

Annexure-I

Year: 2017-2018

Summary Statement on progress made by North Delhi Municipal Corporation in respect of solid waste management

North Delhi Municipal Corporation is spread in 638.35 Sq km and its population is about 73.5 Lakhs. As per Annual Report submitted by NDMC to DPCC, the numbers of households in the area under jurisdiction of it are 13.5 Lakhs, non-residential premises are 277 and number of election/administrative wards in the city/town are 104. The estimated quantity of solid waste generated in NDMC area is 4250 MT per day. However, the actual quantity of solid waste generated in NDMC area is 4000 MT per day. Per capita waste collected per day is 0.55-0.6 kg.

Annexure-I

Year: 2017-2018

Summary Statement on progress made by East Delhi Municipal Corporation in respect of solid waste management

East Delhi Municipal Corporation is spread in 105.98 Sq km and its population is about 45 Lakhs. As per Annual Report submitted by EDMC to DPCC, the numbers of households in the area under jurisdiction of it are 10 Lakhs and number of election/administrative wards in the city/town are 64. The estimated quantity of solid waste generated in EDMC area is 2200-2400 MT per day. However, the actual quantity of solid waste generated in EDMC area is 2200-2400 MT per day. Per capita waste collected per day is 0.52 kg.

Annexure-I

Year: 2017-2018

Summary Statement on progress made by South Delhi Municipal Corporation in respect of solid waste management

South Delhi Municipal Corporation is spread in 656.91 Sq km and its population is about 64.15 Lakhs. As per Annual Report submitted by SDMC to DPCC, the numbers of households in the area under jurisdiction of it are 16,15,325 Nos., non-residential (bulk generators) premises are 380 and number of election /administrative wards in the city/town are 104. At present the legacy waste lying at Okhla Landfill site is 13,29,523 MT. However, the actual quantity of solid waste generated and transported by South Delhi Municipal Corporation is 3600 MT per day. Per capita waste collected per day is 0.56 kg.

Annexure-I

Year: 2017-2018

Summary Statement on progress made by Delhi Cantonment Board in respect of solid waste management

DCB is spread in 42.80 Sq km and its population is about 110351. As per Annual Report submitted by DCB to DPCC, the numbers of households in the area under jurisdiction of it are 9418, non-residential premises are 460 and number of election/administrative wards in the city/town are 08. The estimated quantity of solid waste generated in Delhi Cantonment Board's area is 58 MT per day. However, the actual quantity of solid waste generated in Delhi Cantonment Board's area is 71 MT per day. Per capita waste collected per day is 0.5 kg.

Annexure-II

Year 2017-2018

Summary Statement on progress made by New Delhi Municipal Council in respect of waste collection, segregation, transportation and disposal

New Delhi Municipal Council has reported that 350-450 Tons per day of waste is processed and zero waste is disposed at dumpsite/landfill.

Percentage of premises store the waste at source in the households under jurisdiction of New Delhi Municipal Council is 80% and the same is also for the non-residential premises (Bulk generators i.e. Commercial/institutional Bins). It has also been reported by New Delhi Municipal Council that 2% of the households and non-residential premises dispose of their waste on the streets.

Door to door collection is practiced. NDMC covers 42.76 sq km which is further divided into 14 sanitation circles. New DMC is having 100% of its vehicle motorized. There are 1614 Nos. of secondary storage sites and 25 Masonry Bins, 1552 Nos. of bins having 1.1 cu. m capacity, 62 Nos. of bins having 2 to 5 cu. m capacity and 03 Nos. of bins having above 5 cu. m capacity. Bin population ration is 1614: 2.57 Lakh in the area under jurisdiction of New Delhi Municipal Council.

At the same time 280 Tons per day of waste is processed in the Waste to Energy Plant at Okhla, 500 KPD Biogas Plant/ Bio-methanation Plant, 3 MT per cycle in Compost Plant/ Composter, 550 KPD in Organic Waste convertor and Fuel Pellet 8 MT per cycle. Bio-methanation/ Biogas Plant generates 40 cu. m of gas that is used in the kitchen of Indira Niketan, a working woman hospital. 03 Organic Waste convertors are under construction for processing of the waste.

The Action Plan for improving Solid Waste Management has been reportedly prepared but copy of the same is not enclosed with Annual Report submitted by New Delhi Municipal Council.

Annexure-II

Year: 2017-2018

Summary Statement on progress made by North Delhi Municipal Corporation in respect of waste collection, segregation, transportation and disposal

North Delhi Municipal Corporation has reported that 2000 Tons per day of waste is processed and disposed of at dumpsite/landfill. Percentage of premises segregating the waste at source with respect to organic and inorganic waste in the households under jurisdiction of NDMC is less than 1%.

Door to door collection of Domestic Waste is reported to be completed in 64 wards and partly completed in 40 wards through auto tippers. 94% of sweeping is conducted manually whereas mechanical sweeping is conducted in 6% of Roads having ROW greater than 60 ft. NDMC is having 60% of its vehicle motorized and remaining 40% are tri-cycle/hand cart.

There are 153 Nos. of open waste storage sites, 05 Nos. Masonry Bins, 505 Nos. Dhalao and 8000 Nos. of bins having 100 L capacity. It has 7575 cu. m storage capacity of waste and actually 8445 cu. m of waste is normally stored on daily basis.

Summary Statement on progress made by East Delhi Municipal Corporation in respect of waste collection, segregation, transportation and disposal

East Delhi Municipal Corporation has reported that 1000-1500 Tons per day of waste is processed and 900-1200 MT per day is disposed of at dumpsite/landfill. Percentage of premises store the waste at source in the households under jurisdiction of EDMC is 50%-60% and the same is also for the non-residential premises (Bulk generators i.e. Commercial/institutional Bins). It has also been reported by EDMC that 10% of the households and non-residential premises dispose of their waste on the streets.

Percentage of premises segregating the waste at source with respect to organic and inorganic waste in the households under jurisdiction of EDMC is 10% and rest are not segregating their waste.

In 90 % households the waste is collected from door to door collection w.r.t 64 wards. EDMC is having 90% of its vehicle motorized and remaining by tri-cycle/hand cart. There are 294 Nos. Dhalao and 1600 Nos. of bins having 100 L capacity.

Year: 2017-2018

Summary Statement on progress made by South Delhi Municipal Corporation in respect of waste collection, segregation, transportation and disposal

South Delhi Municipal Corporation has reported that 1950 Tons per day of waste is processed and 1650 Tons per day is disposed at dumpsite/landfill.

Length of roads, streets, lanes, bye- lanes in the city is 9591.90 km. 99% of sweeping is conducted manually whereas mechanical sweeping is conducted in 1% of Roads. SDMC is having 25% of its vehicle motorized and remaining 75% are tri-cycle/hand cart.

There are 761 Nos. Dhalao, 2200 Nos. of bins having 1.1 cu. m capacity, 74 Nos. of bins having 2 to 5 cu. m capacity and 117 Nos. of bins having above 5 cu. m capacity. Thus there 3152 Nos. bins placed in the area under jurisdiction of SDMC. The volume of these bins is 1306 cu. m. SDMC has 6633 cu. m storage capacity of waste and actually 6680 cu. m of waste is normally stored on daily basis.

At the same time 1950 Tons per day of waste is processed in the Waste to Energy Plant at Okhla as RDF for making electricity. Further the Compostable waste is disposed of at the composting site of Okhla.

Annexure-II

Year 2017-2018

Summary Statement on progress made by Delhi Cantonment Board in respect of waste collection, segregation, transportation and disposal

Delhi Cantonment Board has reported that 02 Tons per day of waste is processed in Waste to Compost Plant at Okhla. At the same time 45 Tons per day of waste is processed in the Waste to Energy Plant at Okhla as RDF for making electricity. Further 18 Tons per day of waste is dumped in the landfill site of Okhla under DCB.

Annexure-III

Year 2017-2018

Summary statement on progress made by New Delhi Municipal Council in respect of implementation of Schedule II

A team was constituted having representatives from CPCB, DPCC, MoEF & CC, an Expert from IIT & Sukhdev Vihar RWA.

Hon'ble NGT further directed vide order dated 09/10/2017 in OA No. 22 of 2013 T_{HC}, it is contended that keeping in view of the expenses involved, the fact is that the Central Pollution Control Board does not have in-house mechanism in their laboratories to analyse Dioxin and Furans. The prayer is that instead of monthly it may be made once in four months. We allow this prayer. The Central Pollution Control Board is permitted to collect and analyse the samples of the ambient air quality once in four months, they should also conduct at least two surprise inspections and analysis be made in a year.

Besides Hon'ble NGT also directed vide its order dated September, 27, 2018 in OA No. 640/2018 (Earlier OA No. 22/2013) passed the followings:

- i. *In pursuance of earlier order of this Tribunal dated 18.04.2018, joint inspection has been conducted by the CPCB and the DPCC. Finding the reports are that WtE plants at Okhla, Ghazipur and Bawana are non-compliant with respect to the standards of Particulate matter.*
- ii. *"Directed CPCB to send a copy of its report to the project proponents of Okhla, Ghazipur and Bawana Waste to Energy Plant for compliance and conduct another inspection within one month in view of the fact that the earlier inspection was in February, 2018 and requirement of carrying out inspection is in every 4 months We do not find any ground to accept the prayer for relieving CPCB of its requirement in four monthly monitoring. If there is a manpower constraint, it is for the CPCB to make any other appropriate arrangement for discharging its*

functions. This cannot be the ground to avoid responsibility under the binding directions of this Tribunal"

- iii. *"It is made clear that if the project proponents fail to maintain the standards, even after carrying out the deficiencies noticed in the joint inspection Report, CPCB may recommend the amount of environmental damage required to be paid by them".*

Waste-to-Energy Plant, Okhla:

a. The monitoring was carried out on 28-30 August, 2018. WtE Okhla receives approx. 1950 MT/D of Mixed Municipal Waste from South DMC, New Delhi Municipal Council and Delhi Cantonment Board (DCB), the waste is transferred through tippers and is dumped in a storage pit where microbial culture (solid and/or aqueous form) is mixed with MSW and kept for nearly 5 days. The storage pit is equipped with 02 grab cranes and keeps on mixing the waste for having homogenization. After 5 days MSW is sent to pre-processing section (covered under shed), which consist of two segregation channels. Each segregation channel has the following system;

b. Manual segregation on moving belt conveyor – To sort out large size recognisable wastes such as Construction & Demolition waste, sanitary hardware, fibre, plastic materials, etc.

c. Ballistic Separator, Shredder and Vibratory screen – A two deck density separation system where heavier and lighter fractions are separated. The heavier fractions are disposed into Okhla Landfill. The lighter fractions are separated into three sizes viz., (+) 100mm; (-) 100 mm to (+) 10mm and (-) 10mm. (+) 100mm size is passed through a shredder and shredded material directly goes to storage pit for feed into the Boilers. (-) 100 mm to (+) 10mm size material from the Ballistic Separator directly goes to storage pit for feed into the Boilers.

d. 10mm size from both the Ballistic Separator are being send to sieve of 6mm size, (+) 6mm is sent to RDF storage and (-) 6mm is sent to the compost section.

e. Magnetic Separator – An electromagnet with moving belt to trap ferrous metals is installed on the line transporting -100 mm material and +10 mm material to RDF storage Pit. Two magnetic separators have been installed on the conveyer belt carrying the bottom ash.

f. Plant has constructed a pit (50 meters' x 28 meters) under a covered shed for storage of RDF equipped with Grab Cranes. The pre-processed waste from the RDF storage pit is fed into the Boilers (three Nos.) using grab crane to run turbine to generate electricity of 16MW. The temperature in the boilers should be maintained above 950°C as per Solid Waste Management Rules, 2016. Bottom ash along with inerts from pre-processing section is sent to landfill.

g. There are 03 flue gas cleaning units 01 for every boiler consisting of Lime spray reactor (lime slurry is added by atomizing), Activated Carbon Injection, Bag House filter followed by dispersion into the atmosphere through a common stack of height about 60 meters from the ground. Unit has installed brick manufacturing unit for utilization of fly ash.

h. The (-) 6mm material from pre-processing section is stacked and composted for 30-35 days as windrow. After completion of 30-35 days the decomposed material is passed through 4mm trammel (+)4mm is sent to RDF storage and (-)4mm is sent to another sieve of 2mm. (+)2mm is sent to RDF storage and (-)2mm is the composted material which is being used for in house horticulture process.

i. The leachate generated in the storage pits is treated in Multi Effect Evaporator (MEE). The wet sludge from MEE is incinerated along with RDF in the boilers and treated water is reused.

Annexure-III

Year: 2017-2018

Summary statement on progress made by North Delhi Municipal Corporation in respect of implementation of Schedule II

A team was constituted having representatives from CPCB, DPCC, MoEF & CC, an Expert from IIT & Sukhdev Vihar RWA.

Hon'ble NGT further directed vide order dated 09/10/2017 in OA No. 22 of 2013 T_{HC}, it is contended that keeping in view of the expenses involved, the fact is that the Central Pollution Control Board does not have in-house mechanism in their laboratories to analyse Dioxin and Furans. The prayer is that instead of monthly it may be made once in four months. We allow this prayer. The Central Pollution Control Board is permitted to collect and analyse the samples of the ambient air quality once in four months, they should also conduct at least two surprise inspections and analysis be made in a year.

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requirement in four monthly monitoring. If there is a manpower constraint, it is for the CPCB to make any other appropriate arrangement for discharging its functions. This cannot be the ground to avoid responsibility under the binding directions of this Tribunal"

- iii. *"It is made clear that if the project proponents fail to maintain the standards, even after carrying out the deficiencies noticed in the joint inspection Report, CPCB may recommend the amount of environmental damage required to be paid by them".*

Waste-to-Energy Plant, Bawana:

The Waste-to-Energy Plant, Bawana, receives mixed municipal solid waste (MSW) on covered tipping floor (of size 150 meters x 25 meters and 7.5 meters high), which is made of RCC and covered under shed. The tipping floor has provision to collect leachate generated from the mixed solid waste which is collected into storage tank. The leachate collected is treated in Leachate Treatment Plant (LTP) within the plant. The pre-processing system has five trommels (cylindrical rotary equipment with a screen) to sort out (+)50 mm size material which is stored separately in the said tipping floor and is used as Refuse Derived Fuel(RDF) and is conveyed to a storage pit to feed into Boilers.

Annexure-III

Year: 2017-2018

Summary statement on progress made by East Delhi Municipal Corporation in respect of implementation of Schedule II

A team was constituted having representatives from CPCB, DPCC, MoEF & CC, an Expert from IIT & Sukhdev Vihar RWA.

Hon'ble NGT further directed vide order dated 09/10/2017 in OA No. 22 of 2013^{T_{HC}}, it is contended that keeping in view of the expenses involved, the fact is that the Central Pollution Control Board does not have in-house mechanism in their laboratories to analyse Dioxin and Furans. The prayer is that instead of monthly it may be made once in four months. We allow this prayer. The Central Pollution Control Board is permitted to collect and analyse the samples of the ambient air quality once in four months, they should also conduct at least two surprise inspections and analysis be made in a year.

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- iii. *"It is made clear that if the project proponents fail to maintain the standards, even after carrying out the deficiencies noticed in the joint inspection Report, CPCB may recommend the amount of environmental damage required to be paid by them".*

Waste-to-Energy Plant, Ghazipur

Waste-to-Energy plant, Ghazipur, receives mixed Municipal solid waste(MSW) in a covered pit (Size 62 meter X 20 meters and 13 meters high). The waste from the pit is subjected to pre-processing in two lines and each line has provision of manual segregation on moving conveyor belts, two trommels for segregation of various sized viz. (+)200mm, (-)200mm to (+)50 mm and (-50)mm, magnetic separator and Shredder(100mm Size). The (+)200 mm size after shredding in shredder and (-)200 mm to (+)50 mm size wastes from both the lines are subjected to Rotary Cascade Dryer wherein moisture is reduced by direct heating with hot air Generator(HAG) using RDF as fuel(diesel is used for initial heating). Temperature of hot air from HAG is about 900⁰ C which is diluted with atmospheric air to bring down the temperature to the said level of about 200-300 Deg C. The flue gas temperature from outlet of the Rotary Cascade Dryer is about 90 Deg C which is subjected to air pollution control devices viz. Multicyclone, Venturi Scrubber with lime injection, demister (to remove moisture), and Activated Carbon Bed followed by dispersion into the atmosphere through a stack of > 950 DegC . The flue gas from the boiler passes through air pollution control devices viz. Selective Non-catalytic reactor where urea is injected (for NOX reduction), Semi-wet reactor where lime slurry is atomised, Activated Carbon Injection, Bag House (8 chamber and each having 14*14 bags) followed by dispersion into the atmosphere through a stack of height about 60 meters from ground.

The said pit has provision to collect leachate generated from the mixed MSW and the leachate collected is treated at Effluent Treatment Plant (ETP).

Summary statement on progress made by South Delhi Municipal Corporation in respect of implementation of Schedule II

A team was constituted having representatives from CPCB, DPCC, MoEF & CC, an Expert from IIT & Sukhdev Vihar RWA.

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Waste-to-Energy Plant, Okhla:

- a. The monitoring was carried out on 28-30 August, 2018. WtE Okhla receives approx. 1950 MT/D of Mixed Municipal Waste from South DMC, New Delhi Municipal Council and Delhi Cantonment Board (DCB), the waste is transferred through tippers and is dumped in a storage pit where microbial culture (solid and/or aqueous form) is mixed with MSW and kept for nearly 5 days. The storage pit is equipped with 02 grab cranes and keeps on mixing the waste for having homogenization. After 5 days MSW is sent to pre-processing section (covered under shed), which consist of two segregation channels. Each segregation channel has the following system;
- b. Manual segregation on moving belt conveyor – To sort out large size recognisable wastes such as Construction & Demolition waste, sanitary hardware, fibre, plastic materials, etc.
- c. Ballistic Separator, Shredder and Vibratory screen – A two deck density separation system where heavier and lighter fractions are separated. The heavier fractions are disposed into Okhla Landfill. The lighter fractions are separated into three sizes viz., (+) 100mm; (-) 100 mm to (+) 10mm and (-) 10mm. (+) 100mm size is passed through a shredder and shredded material directly goes to storage pit for feed into the Boilers. (-) 100 mm to (+) 10mm size material from the Ballistic Separator directly goes to storage pit for feed into the Boilers.
- d. 10mm size from both the Ballistic Separator are being send to sieve of 6mm size, (+) 6mm is sent to RDF storage and (-) 6mm is sent to the compost section.
- e. Magnetic Separator – An electromagnet with moving belt to trap ferrous metals is installed on the line transporting -100 mm material and +10 mm material

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to RDF storage Pit. Two magnetic separators have been installed on the conveyer belt carrying the bottom ash.

f. Plant has constructed a pit (50 meters' x 28 meters) under a covered shed for storage of RDF equipped with Grab Cranes. The pre-processed waste from the RDF storage pit is fed into the Boilers (three Nos.) using grab crane to run turbine to generate electricity of 16MW. The temperature in the boilers should be maintained above 950°C as per Solid Waste Management Rules, 2016. Bottom ash along with inerts from pre-processing section is sent to landfill.

g. There are 03 flue gas cleaning units 01 for every boiler consisting of Lime spray reactor (lime slurry is added by atomizing), Activated Carbon Injection, Bag House filter followed by dispersion into the atmosphere through a common stack of height about 60 meters from the ground. Unit has installed brick manufacturing unit for utilization of fly ash.

h. The (-) 6mm material from pre-processing section is stacked and composted for 30-35 days as windrow. After completion of 30-35 days the decomposed material is passed through 4mm trammel (+)4mm is sent to RDF storage and (-)4mm is sent to another sieve of 2mm. (+)2mm is sent to RDF storage and (-)2mm is the composted material which is being used for in house horticulture process.

i. The leachate generated in the storage pits is treated in Multi Effect Evaporator (MEE). The wet sludge from MEE is incinerated along with RDF in the boilers and treated water is reused.

Annexure-III

Year 2017-2018

Summary statement on progress made by Delhi Cantonment Board in respect of implementation of Schedule II

A team was constituted having representatives from CPCB, DPCC, MoEF & CC, an Expert from IIT & Sukhdev Vihar RWA.

Hon'ble NGT further directed vide order dated 09/10/2017 in OA No. 22 of 2013_{THC}, it is contended that keeping in view of the expenses involved, the fact is that the Central Pollution Control Board does not have in-house mechanism in their laboratories to analyse Dioxin and Furans. The prayer is that instead of monthly it may be made once in four months. We allow this prayer. The Central Pollution Control Board is permitted to collect and analyse the samples of the ambient air quality once in four months, they should also conduct at least two surprise inspections and analysis be made in a year.

Besides Hon'ble NGT also directed vide its order dated September, 27, 2018 in OA No. 640/2018 (Earlier OA No. 22/2013) passed the followings:

- i. *In pursuance of earlier order of this Tribunal dated 18.04.2018, joint inspection has been conducted by the CPCB and the DPCC. Finding the reports are that WtE plants at Okhla, Ghazipur and Bawana are non-compliant with respect to the standards of Particulate matter.*
- ii. *"Directed CPCB to send a copy of its report to the project proponents of Okhla, Ghazipur and Bawana Waste to Energy Plant for compliance and conduct another inspection within one month in view of the fact that the earlier inspection was in February, 2018 and requirement of carrying out inspection is in every 4 months We do not find any ground to accept the prayer for relieving CPCB of its requirement in four monthly monitoring. If there is a manpower constraint, it is for the CPCB to make any other appropriate arrangement for*

discharging its functions. This cannot be the ground to avoid responsibility under the binding directions of this Tribunal"

- iii. *"It is made clear that if the project proponents fail to maintain the standards, even after carrying out the deficiencies noticed in the joint inspection Report, CPCB may recommend the amount of environmental damage required to be paid by them".*

Waste-to-Energy Plant, Okhla:

- a. The monitoring was carried out on 28-30 August, 2018. WtE Okhla receives approx. 1950 MT/D of Mixed Municipal Waste from South DMC, New Delhi Municipal Council and Delhi Cantonment Board (DCB), the waste is transferred through tippers and is dumped in a storage pit where microbial culture (solid and/or aqueous form) is mixed with MSW and kept for nearly 5 days. The storage pit is equipped with 02 grab cranes and keeps on mixing the waste for having homogenization. After 5 days MSW is sent to pre-processing section (covered under shed), which consist of two segregation channels. Each segregation channel has the following system;
- b. Manual segregation on moving belt conveyor – To sort out large size recognisable wastes such as Construction & Demolition waste, sanitary hardware, fibre, plastic materials, etc.
- c. Ballistic Separator, Shredder and Vibratory screen – A two deck density separation system where heavier and lighter fractions are separated. The heavier fractions are disposed into Okhla Landfill. The lighter fractions are separated into three sizes viz., (+) 100mm; (-) 100 mm to (+) 10mm and (-) 10mm. (+) 100mm size is passed through a shredder and shredded material directly goes to storage pit for feed into the Boilers. (-) 100 mm to (+) 10mm size material from the Ballistic Separator directly goes to storage pit for feed into the Boilers.
- d. 10mm size from both the Ballistic Separator are being send to sieve of 6mm size, (+) 6mm is sent to RDF storage and (-) 6mm is sent to the compost section.
- e. Magnetic Separator – An electromagnet with moving belt to trap ferrous metals is installed on the line transporting -100 mm material and +10 mm material to RDF storage Pit. Two magnetic separators have been installed on the conveyer belt carrying the bottom ash.

f. Plant has constructed a pit (50 meters' x 28 meters) under a covered shed for storage of RDF equipped with Grab Cranes. The pre-processed waste from the RDF storage pit is fed into the Boilers (three Nos.) using grab crane to run turbine to generate electricity of 16MW. The temperature in the boilers should be maintained above 950°C as per Solid Waste Management Rules, 2016. Bottom ash along with inerts from pre-processing section is sent to landfill.

g. There are 03 flue gas cleaning units 01 for every boiler consisting of Lime spray reactor (lime slurry is added by atomizing), Activated Carbon Injection, Bag House filter followed by dispersion into the atmosphere through a common stack of height about 60 meters from the ground. Unit has installed brick manufacturing unit for utilization of fly ash.

h. The (-) 6mm material from pre-processing section is stacked and composted for 30-35 days as windrow. After completion of 30-35 days the decomposed material is passed through 4mm trammel (+)4mm is sent to RDF storage and (-)4mm is sent to another sieve of 2mm. (+)2mm is sent to RDF storage and (-)2mm is the composted material which is being used for in house horticulture process.

i. The leachate generated in the storage pits is treated in Multi Effect Evaporator (MEE). The wet sludge from MEE is incinerated along with RDF in the boilers and treated water is reused.

Brief Note on Present Status of Solid Waste Management in NCT of Delhi

Solid Waste Management and related issues are being regularly monitored by the various agencies and courts in Delhi including Hon'ble National Green Tribunal, Hon'ble High Court and Hon'ble Supreme Court.

Hon'ble National Green Tribunal vide order dated 20.08.2018 (Revised Order Dated 31.08.2018) in OA No. 606 / 2018 regarding compliance of Municipal Solid Waste Management Rules, 2016 had given several directions and constituted Apex Monitoring Committee, Regional Monitoring Committees and State Level Committees to oversee the steps to be taken to give effect to the directions of the Tribunal. Delhi was under the North Zone Regional Monitoring Committee.

In the said order following was also mentioned:

“This order will not in any manner affect the directions issued by the Hon'ble Supreme Court in SMW (C) No(s) 1/ 2015 [In Re: Outrage as Parents End Life After Child's Dengue] with regard to garbage disposal in Delhi or otherwise. This order is being passed only for giving effect to the Rules, 2016 and the pre-existing orders of the Tribunal.”

With respect to said Order of Hon'ble National Green Tribunal, a State Level Committee was formed vide order dated 17.10.2018.

1st Meeting of the North Zone Regional Monitoring Committee was held at Chandigarh on 19.09.2018 & was attended by the officials of Environment Department and Delhi Pollution Control Committee.

In compliance of the directions of the Hon'ble Supreme Court Dated 17.08.2018 and 29.08.2018 in the matter of SWM (C) No (S) 1/2015 “ Outrage as Parents End Life After Child's Dengue Death) regarding formation of Committee to go in depth into all aspects of Solid Waste Management in Delhi including cleaning up the dumpsites in Gazipur, Bhalswa and Okhla and to frame a workable and implementable policy, Department of Urban Development, Govt. of NCT of Delhi vide Order Dated 29.08.18 constituted a 24 members Committee under the Chairmanship of Principal Secretary (UD), Govt. of NCT of Delhi.

In view of the above mentioned orders of Hon'ble Supreme Court and order dated 12.10.2018 of Hon'ble National Green Tribunal, NCT of Delhi was excluded and was not called for subsequent meetings of the Regional Monitoring Committee for North Zone.

Hon'ble National Green Tribunal vide Order Dated 16.01.2019 in OA No. 606/2018 in the matter of Compliance of Municipal Solid Waste Management Rules, 2016 has passed detailed order and also constituted State Level Committee and Task Forces in every District.

State Level Committee has been constituted vide office order dated 15.02.2019 and Special Task Forces (STF) for each District has also been constituted vide office order dated 07.03.2019.

Final Report of the Committee constituted by Hon'ble Supreme Court in the matter of SWM (C) No. (S) 1 / 2015 in Re : Outrage as Parents End Life After Child's Dengue Death, has been submitted to Hon'ble Supreme Court in January, 2019 and based on the said report and information available with Delhi Pollution Control Committee following is the brief regarding Solid Waste Management in Delhi :

Responsibility of implementation of the Solid Waste Management, Rules, 2016 mainly lies with the Urban Local Bodies/ Municipal Bodies in Delhi and Urban Development Department, Govt. of NCT of Delhi. There are 5 Urban Local Bodies/Municipal Bodies and **Quantum of waste generation is given in following Table :**

S.No.	Name of Urban Local Body (ULB)	Quantum of Solid Waste (in TPD)	Quantum of C & D Waste (in TPD)	Total Waste (in TPD)
1	South Delhi Municipal Corporation (SDMC)	3600	1000	4600
2	North Delhi Municipal Corporation (North DMC)	4000	2000	6000
3	East Delhi Municipal Corporation (EDMC)	2500	700	3500
4	New Delhi Municipal Council (NDMC)	350	150	500
5	Delhi Cantonment Board (DCB)	62	50	100
	Total	10512	3900	14700

TPD - Tonnes per day.

As per the Final Report of the Committee constituted by Hon'ble Supreme Court in SWM (C) No. (S) 1 / 2015, **ULB wise status of waste directly going to dumpsite is as given in following Table:**

S. No	Name of Urban Local Body (ULB)	Waste (in TPD)	Waste Process at WTE Plant (in TPD)	Waste being processed / Centralized in Compost Plants (in TPD)	Waste being processed in decentralized Plants / Parks (in TPD)	Waste going to Landfill Sites Unprocessed (Average) (in TPD)
1	SDMC	3600	1800	200	-	1600
2	North DMC	4000	1300	700	-	2000 Bhalaswa 400 at Narela / Bawana processed inert
3	EDMC	2500	1500	0	0	1800
4	New Delhi Municipal Council	350	300	30	20	-
5	Delhi Cantonment Board	62	28.83	2	6.5	24.67
	Total	10512	4928.33	932	26.5	5424.67

As per the Final Report of the Committee constituted by Hon'ble Supreme Court in SWM (C) No. (S) 1 / 2015, **Future plans of ULBs regarding handling of unprocessed waste going to the Landfill Sites is as given in following Table :**

S. No.	Name of Urban Local Body (ULB)	Balance Waste to be processed (in TPD)	Waste to be processed at WTE Plant (in TPD)	Waste to be processed / Centralized in Plants (in TPD)	Waste to be processed in decentralized Plants / Parks (in TPD)	Waste to Landfill Sites Unprocessed (Average) (in TPD)
1	SDMC	1600	2000At Tehkhand	600	200	--
2	North DMC	2000	1000	500	500	--
3	EDMC	1800	1000	700	500	--
4	New Delhi Municipal Council	--	--	100	--	--
5	Delhi Cantonment Board	4.5	Nil	Nil	1.0	19.17
	Total	5404.5	4000	1900	1201	19.17

Brief of Landfill / Dump Sites in NCT of Delhi is as given in following Table:

S. No.	Name of Landfill / Dump Site	Location	Area (in Acres)	Concerned ULB	Height of Dump Site (Appx) (in Meters)	Legacy Waste (in Million Tonnes)
1	Bhalaswa (Dump Site)	North Delhi	40	North DMC	62	14
2	Ghazipur Dump Site	East Delhi	70	EDMC	65	14
3	Okhla Dump Site	South East Delhi	32	SDMC	55	5
4	Bawana (Engineered SLF)	North Delhi	100	North DMC	--	
	Total					33

Waste to Energy Plants in Delhi:

Delhi has 3 Waste to Energy Plants (WTE Plants) of capacity 5250 TPD at 3 different locations in Delhi namely Okhla, Ghazipur and Bawana. 2 New Waste to Energy Plants are proposed at Bhalaswa & Tehkhand. Expansion of existing 2 Waste to Energy Plants at Okhla & Ghazipur are also proposed to increase their capacity. After commissioning of 2 New WTE Plants and Expansion of existing 2 WTE Plants, capacity of WTE Plants will increase from 5250 TPD to 10450 TPD by the year 2020.

Brief information about operational Waste to Energy Plants in Delhi and proposed expansion is given in the following Table:

S.No	Name of WTE	Existing Capacity		Proposed Expansion for Addl. Waste Processing Capacity (in TPD)
		Waste Processing (in TPD)	Electricity Generation (in MW)	
1	Timarpur Okhla Waste Management Company Ltd., Old NDMC Compost Site, Okhla.	1950	16	500
2	East Delhi Waste Processing Company Ltd., Ghazipur	1300	12	1200
3	Delhi MSW Solutions Ltd., Narela Bawana Road, Bawana	2000	24	----
	Total	5250	52	1700

Proposed New Waste to Energy Plants in Delhi :

S.No	Name / Site of WTE	Proposed Waste Processing Capacity (in TPD)
1	Bhalaswa	1500
2	Tekhhand*	2000
	Total	3500

*Environmental Clearance has been granted by MoEF&CC vide letter dated 26.07.2018 after Public Hearing on 21.05.2018.

As per the orders of the Hon'ble National Green Tribunal in the matter of Application No. 281 of 2016 (M.A. No. 1007/2016); Kudrat Sandhu Vs. Govt. of NCT & Ors. and application No.22 (THC) of 2013 (M.A No. 19 of 2014); Sukhdev Vihar Residents Welfare Association & Others Vs State of NCT of Delhi & Others, joint inspection of all the 3 operational Waste to Energy Plants in Delhi by the team consisting of representatives of CPCB, DPCC, MOEF&CC and IIT, Delhi is carried out once in four months, as directed by this Hon'ble Tribunal vide order dated 02.12.2016. Monitoring of the stack emissions and Ambient Air Quality is also carried out by CPCB during the inspections and report is submitted to Hon'ble National Green Tribunal. Online Continuous Emission Monitoring System has been installed by all the 3 operational Waste to Energy Plants in Delhi.

As per the Rule 18 of the Solid Waste Management Rules, 2016, "All industrial units using fuel and located within one hundred km from a solid waste based refused derived fuel plant shall make arrangements within six months from the date of notification of these rules to replace at least five percent of their fuel requirement by refused derived fuel so produced".

Delhi Pollution Control Committee, in light of directions issued by Hon'ble Supreme Court of India in WP (C) No. 13029/1985 titled as "M.C. Mehta Versus Union Of India and Others", has issued Notification on 29.06.2018 regarding "List of Approved Fuels in The National Capital Territory of Delhi".

As per the said Notification, Refuse Derived Fuel is permitted to be used only for Waste-to-Energy Plants. In view of the said Notification, Refuse Derived Fuel is not permitted to be used by the Industrial Units in NCT of Delhi.

Wet Waste Processing (Decentralized Processing)

The collective status and time line of wet waste processing facilities are already planned and given below:

Status of South, North and East DMC
• 20 Plants of 1 TPD capacity organic waste composter being commissioned. Target Date : 31st March, 2019 • 10 Plants of 5 TPD capacity Bio-Methanation being commissioned. Target Date : 31st March, 2019 • 100 % on site composting by Bulk Waste Generators by December, 2019

Centralized / Semi Centralized / Decentralized Bio- Degradable Waste Processing Plants:

The collective status and timeline of proposed wet processing facilities are as under:

Present Status	Proposed Bio Gas Plants
South DMC Centralized composting plant of installed capacity 200 TPD under operation at Okhla	South DMC 02 Large Bio-Gas Plants of 200 TPD each to cater Cow dung & Vegetable Markets Waste have been awarded, will be commissioned by December, 2019.
North DMC Centralized composting plant of installed capacity 700 TPD under operation at Narela Bawana	North DMC 01 Large Bio-Gas Plant of 200 TPD to cater Cow dung is under award and will be commissioned by December, 2019.
East DMC Centralized composting plant – Nil Due to non availability of suitable land.	East DMC 01 Large Bio-Gas Plant of 100 TPD to cater Cow dung and one 100 TPD Bio-degradable MSW based Bio Gas Plant will be commissioned by December, 2019.

Delhi has 33 Million Tonnes of Legacy waste at 3 Dump Sites (Okhla, Ghazipur & Bhalaswa). For Slope Stabilization & remediation of these 3 Dump Sites, IIT Delhi has been engaged as a consultant.

Urban Development Department, Govt. of NCT of Delhi, has notified State Policy and Solid Waste Management Strategy for Delhi on 03.11.2017, as per Rule, 11 of the Solid Waste Management Rules, 2016.

Government of NCT of Delhi, has also notified Bye –Laws for Management of Solid Waste on 15.01.2018 in respect of all the 5 Urban Local Bodies (North DMC, South DMC, East DMC, New Delhi Municipal Council and Delhi Cantonment Board) in NCT of Delhi. In these Bye–Laws, there is provision of levying user fee and penalty charges.

Urban Development Department, Govt. of NCT of Delhi has issued Order Dated 06.07.2016 regarding Use of Compost .

Urban Development Department, Govt. of NCT of Delhi has issued Order Dated 06.07.2016 regarding Use of Recycled Products from Construction & Demolition Waste.



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ANALYSIS REPORT OF GROUND WATER NEARBY GAZIPUR LAND FILL SITE

Report No.: DPCC/W/LF/16-17/03/1488
Date of monitoring: -18/01/2017

Date 22/01/2017

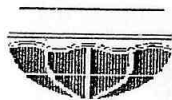
S. No	Sampling Location	pH	TDS (mg/l)	Cl (mg/l)	Hardness as CaCO ₃ (mg/l)	Ca as Ca (mg/l)	SO ₄ (mg/l)	Turbidity (NTU)	Nitrate (mg/l)	Fluoride (mg/l)	Zn (mg/l)	Fe (mg/l)	Pb (mg/l)	Cu (mg/l)	Cr (mg/l)	Ni (mg/l)	Cd (mg/l)
	Desirable Limit for Drinking Water	6.5-8.5	500	250	300	75	200	5	45	1	5	0.3	0.05	0.05	0.05	-	0.01
1.	Gazipur Dairy Farm, Gali No.-4	6.6	1370	1540	490	130.4	249.9	NIL	0.43	0.13	ND	ND	ND	ND	ND	ND	ND
2.	Gazipur Dairy near Masjid	6.7	1340	390	370	104	227.6	NIL	0.60	0.08	0.47	0.23	ND	ND	ND	ND	ND
3.	Gazipur Landfill Site Near Entry Gate	6.8	5230	1625	420	115	268.8	NIL	0.78	0.24	1.06	0.08	ND	ND	ND	ND	ND
4.	Landfill Site Gazipur	6.9	6640	440	930	240	265.8	NIL	1.3	0.21	3.41	0.86	ND	ND	ND	ND	ND
5.	Fish Market Landfill site Gazipur	7.1	1080	415	340	95	175.8	NIL	0.78	0.32	ND	ND	ND	ND	ND	ND	ND

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Report No.: DPCC/W/LF/16-17/02 / 1487
Date of monitoring: - 24/01/2017

ANALYSIS REPORT OF GROUND WATER NEARBY BHALSWA LAND FILL SITE

Date 22/02/2017

S. No	Sampling Location	pH	TDS (mg/l)	Cl (mg/l)	Hardness as CaCO ₃ (mg/l)	Ca as Ca (mg/l)	SO ₄ (mg/l)	Turbidity (NTU)	Nitrate (mg/l)	Fluoride (mg/l)	Zn (mg/l)	Fe (mg/l)	Pb (mg/l)	Cu (mg/l)	Cr (mg/l)	Ni (mg/l)	Cd (mg/l)
	Desirable Limit for Drinking Water	6.5-8.5	500	250	300	75	200	5	45	1	5	0.3	0.05	0.05	0.05	-	0.01
1.	Bhalswa Sanjay Gandhi Transport	6.5	1270	310	590	150	195.9	NIL	1.1	0.11	1.06	0.23	ND	ND	ND	ND	ND
2.	Bhalswa Dairy	6.6	3330	1495	900	230	153.0	NIL	0.43	0.86	0.47	ND	ND	ND	ND	ND	ND
3.	Bhalswa landfill site	6.8	5280	2390	1060	270	212	NIL	1.5	0.43	2.23	0.39	ND	ND	ND	ND	ND
4.	Bhalswa Janta Colony	7.1	2350	920	810	206.5	74	NIL	0.95	0.24	1.06	0.08	ND	ND	ND	ND	ND

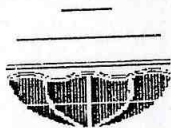
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ANALYSIS REPORT OF GROUND WATER NEARBY OKHLA LAND FILL SITE

Date 22/07/2017

Report No.: DPCC/W/LF/16-17/01/1486
Date of monitoring: - 13/01/2017

No	Sampling Location	pH	TDS (mg/l)	Cl (mg/l)	Hardness as CaCO ₃ (mg/l)	Ca as Ca (mg/l)	SO ₄ (mg/l)	Turbidity (NTU)	Nitrate (mg/l)	Fluoride (mg/l)	Zn (mg/l)	Fe (mg/l)	Pb (mg/l)	Cu (mg/l)	Cr (mg/l)	Ni (mg/l)	Cd (mg/l)
	Desirable Limit for Drinking Water	6.5-8.5	500	250	300	75	200	5	45	1	5	0.3	0.05	0.05	0.05	-	0.01
	Okhla Landfill Site	6.6	1990	965	1090	265.5	124.6	NIL	1.1	0.18	2.23	0.23	ND	ND	ND	ND	ND
	ESI Hospital Okhla	7.3	660	155	260	75	123.4	NIL	0.26	0.56	0.47	ND	ND	ND	ND	ND	ND
	Okhla Bus Depot	6.6	2080	990	1150	280	129.3	NIL	1.6	0.44	1.65	0.39	ND	ND	ND	ND	ND
	B.P.Singh Camp Colony, Near Shiv Mandir	6.7	2050	925	1010	250	121.1	NIL	0.95	0.26	1.06	0.08	ND	ND	ND	ND	ND

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