



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/2018/ *Annual Report/Solidwast/1767-69* Dated: *24/06/2019*

To,

Smt. Divya Sinha,
Additional Director (UPC-II Div.),
Central Pollution Control Board
Parivesh Bhawan, East Arjun Nagar, Delhi-32

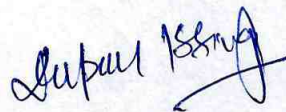
Sub: Furnishing Annual Report for the year 2018 on Implementation of Solid Waste Management Rules, 2016.

Sir,

This has reference to the provision for submission of Annual Reports to Central Pollution Control Board by Delhi Pollution Control Committee. All the five Urban local bodies have submitted the annual reports for the year 2018. The consolidated annual report in form-V along with Annexures as prescribed is being sent to you in compliance of the said SWM rules, 2016.

This is being issued with the approval of Member Secretary, DPCC.

Yours sincerely,


(D.K. Singh)
SEE, WMC-II

Copy To:

1. The Secretary, Ministry of Housing and Urban Affairs, Nirman Bhawan, Delhi-110001.
2. Director (HSMD), Ministry of Environment, Forest & Climate Change, Room No. 09, Agni Wing, Level IV, Indira Payavaran Bhawan, Jor Bagh Road, New Delhi-110003

O/C

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 - 2018**

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 : 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 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	Approximately, 10817 TPD of Solid waste is generated in NCT of Delhi as per returns filed by all ULBs. • 10614 TPD waste is collected. • 5714 TPD Waste is treated. • 5225 TPD waste is landfilled.
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. The percentage of household practice storage of waste at source in domestic bins ranges from 50 % - 100 % in Delhi. Percentage of households throw solid waste on the streets are 0% - 10 %. The percentage of premises segregating the waste at source ranges from 5 % - 100 %. Storage of waste is done by all ULBs. Almost 100% waste is transported to disposal facilities however the bifurcation of covered / uncovered transportation data is not given.

Processing of SW (Number/names of towns/capacity)				
Solid Waste processing facilities setup:				
Sl. No.	Composting	Vermi-composting	Biogas	RDF / Pelletization
1.	DCB - 1 Food waste composting capacity 0.175 MTD Sorting cum composting through 7 TPD XAPER machine.	DCB - Nil	DCB - Nil	DCB - Nil
2.	EDMC – NIL	EDMC – NIL	EDMC – NIL	EDMC – NIL
3.	NDMC - 11.46 TPD, Bio-methanation 0.5 TPD	New DMC – Nil	New DMC - 0.5 TPD	New DMC - Nil
4.	North DMC - 2000 TPD, Bio-methanation 4 numbers @5 TPD	North DMC - Nil	North DMC - 4 numbers @5 TPD	North DMC - 2000 TPD
5.	South DMC - 200 TPD, Vermi Composting 1 TPD, Bio-methanation 5 TPD	South DMC - 1 TPD,	South DMC - 5 TPD	South DMC - Nil
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 proposed.
Waste-to-Energy Plants: (Number/names of towns/capacity)				
Sl. No.	Plant Location	Status of Operation	Power generation (MW)	Remarks
Details enclosed as Annexure- IV				
Disposal of solid waste (number/names of towns/capacity):				
Landfill sites identified		2 (1 SLF site of EDMC at Ghonda Gujran & 1 SLF site of SDMC at Tehkhand)		
Landfill constructed		1 Engineered Sanitary Landfill (SLF) at Narela – Bawana Road.		
Landfill under construction		0		
Landfill in operation		1 Engineered Sanitary Landfill (SLF) at Narela – Bawana Road.		
Landfill exhausted		All three dump sites at Okhla , Ghazipur and Bhalswa are already exhausted but waste is being still disposed of there.		
Landfill capped		0		

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:	05					
Number of Action Plan submitted:	02 (Action Plan submitted by SDMC & DCB which are enclosed, and rest of 3 ULBs i.e. North DMC, EDMC & NDMC have not submitted Action Plan)					

Summary Statement on progress made by Delhi Cantonment Board in respect of Solid Waste Management.

The area of Delhi Cantonment Board is spread in 42.80 Sq km and its population is about 133200. As per Annual Report submitted by DCB to DPCC, the numbers of households in the area under jurisdiction of it are 10060, 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 67 MT per day. However, the actual quantity of solid waste collected in Delhi Cantonment Board's area is 64 MT per day. Per capita waste collected per day is 0.5 kg.

Two machines for bailing of polythene and light plastic material has been installed to reduce the volume of plastic waste. Expression of interest is being invited for processing of plastic waste. 90% in civil areas and 55 % in army areas of households storage the waste at source in domestic bins. In commercial/ institutional areas 95 to 98 % of premises practice storage of waste into bins. 2 % of households are estimated to dispose or throw solid waste on the streets. The solid waste is stored at source in a segregated form. Door to Door collection of waste is being done by Delhi Cantonment Board in all 8 wards. In commercial areas sweeping is done twice a day whereas, daily sweeping is done on all public roads and streets. Night sweeping is also being done in Shastri Bazar and Sadar Bazar area.

Summary statement on progress made by Delhi Cantonment Board in respect of Waste collection, segregation, transportation and disposal.

Delhi Cantonment Board has covered 100 % residential and non-residential premises for door to door collection of Solid Waste Management through motorized vehicles, except in army areas this is 55 % as far as waste collection from households is concerned. DCB has 864 Masonry bins, 13 Dhalao / covered rooms and 56 bins having 1.1 m³ capacity for secondary waste storages facilities.

The total volume of bins placed in the area of under jurisdiction of DCB is 13763 m³ capacity. The frequency of collection of waste from 92 no. of bins / depots is daily basis in DCB areas. It has provided 28 green bins and blue bins to collect segregated waste in civil pockets. 73% of waste is lifted thorough manual lifting whereas, 27 % of waste is lifted through mechanical process. DCB has put 8 Refuse Compactor and 21 Tipper to transport 64 tone of solid waste. Apart from this DCB has 4 Tractors and 4 JCB/Loaders in service for solid waste handling. A pilot plant of 175 Kg capacity of food waste for composting is running and a sorting cum composting Machine (XAPER) having capacity 7 TPD is also running on trial basis. 2 TPD of solid waste is disposed at composting plant at Okhla. The dry waste 30 MTD approximate is sent to Waste to Energy plant at Okhla for making electricity. DCB has engaged 1205 Safaikaramcharis, 18 Drivers, 12 Sanitary Guides, 2 Consultants and 3 Assistant Sainitary Inspectors.

DCB has no facility for dairy related activities and animal dung disposal facility. However, bio gas based slaughter house waste disposal facility is maintained.

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

Delhi Cantonment Board does not have any Secured Land Fill site & Waste to Energy plant. It is disposing all its Solid Wastes in the facility of South Delhi Municipal Corporation in Okhla. Waste-to-Energy Plant at 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;

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

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. 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.

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.

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 are maintained above 950°C as per Solid Waste Management Rules, 2016. Bottom ash along with inerts from pre-processing section is sent to landfill.

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.

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.

A team was constituted vide Hon'ble NGT order dated 09/10/2017 in OA No. 22 of 2013^{TIC} having representatives from CPCB, DPCC, MoEF & CC, an Expert from IIT & Sukhdev Vihar RWA have been conducting regular inspection of Okhla solid waste disposal facility and monitoring of all prescribed standards.

Summary Statement on progress made by East Delhi Municipal Corporation in respect of Solid Waste Management.

The area of East Delhi Municipal Corporation is spread in 105.98 Sq km and its population is about 50 Lacs. As per Annual Report submitted by EDMC to DPCC, the numbers of households in the area under jurisdiction of it are 10.50 lacs and number of election/administrative wards in the city/town are 64. The estimated quantity of solid waste generated in East Delhi Municipal Corporation's area is about 2800 TPD. However, the actual quantity of solid waste collected in East Delhi Municipal Corporation's area is 2600 to 2800 TPD. Per capita waste collected per day is 0.5 kg approximately.

EDMC has no Secured Land Fill site at present however, 1 dump site at Ghazipur and 1 Secured Land Fill site is coming up in Ghonda Gujran. EDMC has covered 90 % of households for door to door collection of solid waste generated. The collection of waste is done by motorized vehicles or by containerized tricycle/ handcarts. 10 Mechanical Sweeper vehicles have also been engaged by EDMC. EDMC has attained 90 % of area for street sweeping and equal percentage of population has been covered for street sweepings. 90% street sweeping is carried out by way of manual sweeping and remaining 10 % is by Mechanical sweeping.

10 % of households are estimated to dispose or throw solid waste on the streets in EDMC areas. The solid waste is stored at source in a segregated form only in some areas and only 50 to 60 % households practice storage of waste at source in domestic bins.

EDMC has 294 Dhalao / covered rooms, MS Bins 100 ltrs. Capacity (500 nos. Blue, 500 nos. Green) and SBW container of capacity 12 ltrs. (11880 nos. Blue, 11880 nos. Green). EDMC collects waste from all 294 Dhalaos on daily basis. The storage depots maintained by EDMC are having 1500 nos. Green bins and 1500 nos. Blue bins for storage of segregated wastes. 100 % Mechanical lifting of solid waste is done by EDMC. It has 2 Non Tipping Trucks, 98 Tipping Trucks, 1 Mini Refuse Collector, 2 MMVs and 31 JCB/ Loaders. The manpower employed by EDMC at dump site is 75 and approximately 15000 workers are working for collection, Storage, Street Sweeping, and Transportation etc.

EDMC has 1 Waste to Energy plant at Ghazipur which is being run by IL&FS, about 1000-1500 MTD of Waste is processed here for making 12MW electricity.

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

East Delhi Municipal Corporation is collecting about 2600 TPD to 2800 TPD of waste and it has covered 10 % residential and non-residential premises for door to door collection of Solid Waste Management through motorized vehicles. EDMC has 294 Dhalao / covered rooms, MS Bins 100 ltrs. Capacity (500 nos. Blue, 500 nos. Green) and SBW container of capacity 12 ltrs. (11880 nos. Blue, 11880 nos. Green). EDMC collects waste from all 294 Dhalaos on daily basis. The storage depots maintained by EDMC are having 1500 nos. Green bins and 1500 nos. Blue bins for storage of segregated wastes. 100 % Mechanical lifting of solid waste is done by EDMC. It has 2 Non Tipping Trucks, 98 Tipping Trucks, 1 Mini Refuse Collector, 2 MMVs and 31 JCB/ Loaders. The manpower employed by EDMC at dump site is 75 and approximately 15000 workers are working for collection, Storage, Street Sweeping, and Transportation etc.

EDMC is transporting 100 % of its collected waste for processing and disposal. About 1000 to 1500 TPD of waste is processed at Ghazipur Waste to Energy plant which is generating up to 12 MW of Electricity. 70 Acres of land area is available for waste disposal with EDMC and 8 Acres of land is being currently used. Provision for gas venting has also provided by EDMC in 10 acres of land at Ghazipur site.

One Biomethanization plant is under process and yet to come up at Ghazipur. At SLF site Ghazipur for leveling and dressing of garbage and construction of internal temporary roads 04 nos. Bulldozes and 02 nos. Excavators, 01 nos. compactor has been provided through contractor. A project for reclamation of Ghazipur dump site was allowed by NHAI for using the decomposed garbage for filling in embankments/ approaches of NH-24 widening work. But yet to be implemented. A pilot project for processing of legacy waste to M/s AG Dauters is under consideration.

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

EDMC has no facility for composting, vermi composting and Bio-methanation facility for solid waste disposal. One Bio-methanation facility is under proposal and at present EDMC is disposing the solid waste generated from areas of its jurisdiction at Ghazipur dump site which has already been exhausted. A Waste-to-Energy plant at Ghazipur having capacity of 12 MW electricity generation from burning of waste being run by IL&FS. The facility 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 flue gases are diluted with atmospheric air to bring down the temperature to the level of about 200-300 Deg C. The flue gas 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.

Manual segregation on moving belt conveyor – To sort out large size recognizable wastes such as Construction & Demolition waste, sanitary hardware, fibre, plastic materials. etc. For the treatment of leachate an Effluent Treatment Plant (ETP) has been installed at Ghazipur site. It has provision to collect leachate generated from the mixed MSW and the leachate collected is thereafter treated at Effluent Treatment Plant.

Summary statement on progress made by New Delhi Municipal Council in respect of Solid Waste Management.

New Delhi Municipal Council is spread in 42.76 Sq km and its fixed population is about 2.57 Lakhs and an estimated 15 lakh is floating population. The numbers of households in the area under jurisdiction of it are 50,000, non-residential (bulk generators) premises are 4050. At present the solid waste generation is 350 TPD. 100% waste is collected and processed by New Delhi Municipal Council. New Delhi Municipal Council is the only local authority who does not dispose of solid waste at dump site / landfill. All the Solid waste is stored at source in 100% households. No cases of throwing waste into streets / roads have been observed by New Delhi Municipal Council. 100 % door to door collection has been achieved by New Delhi Municipal Council. Transportation of waste is performed by motorized vehicles only. 79 Hand cart/ Tricycle for collection of waste have been given to 790 sanitation workers. There are 1226 waste storage depots, 1172 bins having capacity 1.1m^3 , 54 bins of capacity 2 to 5m^3 and 3 containers of 5m^3 have been provided by New Delhi Municipal Council for secondary storage of solid waste. The waste bins / containers are cleared on daily basis and 100% mechanical lifting of solid waste is undertaken by New Delhi Municipal Council. New Delhi Municipal Council has 36 Auto Tipper, 9 Open Tipper Truck (for horticulture waste), 17 Compactors, 790 Wheel barrow Tricycle, 2 JCBs and 2 Hook Loaders. The waste processing technology involved are waste to energy 280 MTD, OWC 550 KPD, Bio – gas Plant 500 KPD, Compost pit 11MT per cycle. 2187 Safaikaramcharies have been deployed for cleaning and sweeping work. Apart from it outside agency M/s Metro Waste Pvt. Ltd. has been engaged for collection and transportation of waste for New Delhi Municipal Council area to waste to energy plant Okhla which have 270 manpower.

The technologies adopted by New Delhi Municipal Council are composting 11.46 TPD, Bio-methanation 500 KPD and Waste to Energy technology 280 MTD.

NDMC has installed GEO tag on garbage iron trolleys placed at various location in NDMC area. The garbage vehicle taking system are being monitored through Command and Control Centre at Palika Kendra, New Delhi.

Action Plan has reportedly been prepared by New DMC for solid waste management however, copy is not attached with annual report.

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

Presently door to door collection and segregation of Solid waste is being done by the informal sector that is waste pickers in New DMC areas and segregation at source is carried out by most of the households. New DMC provides resources such as Auto Tippers, E-Rickshaw, Cycle Rickshaw, Wheel Barrows, for Street level collection of solid waste. 350 TPD of solid waste is generated and full quantity of solid waste is collected and processed. No waste is disposed at dumpsite / landfill site by New Delhi Municipal Council.

The frequency of street sweeping, which is carried out on daily basis, is covered for 100 % areas and 100% population is covered. Manual sweeping and mechanical sweeping both are undertaken for cleaning of streets / roads.

In New DMC area the Solid waste is stored at source in 100% households. No cases of throwing waste into streets / roads have been observed by New Delhi Municipal Council. 100 % door to door collection has been achieved by New Delhi Municipal Council. Transportation of waste is performed by motorized vehicles only. 24 JJ Clusters in New DMC area and door to door garbage system has been provided to all the JJ Clusters. 79 Hand cart/ Tricycle for collection of waste have been given to 790 sanitation workers. There are 1226 waste storage depots, 1172 bins having capacity 1.1m^3 , 54 bins of capacity 2 to 5m^3 and 3 containers of 5m^3 have been provided by New Delhi Municipal Council for secondary storage of solid waste. The waste bins / containers are cleared on daily basis and 100% mechanical lifting of solid waste is undertaken by New Delhi Municipal Council. New Delhi Municipal Council has 36 Auto Tipper, 9 Open Tipper Truck (for horticulture waste), 17 Compactors, 790 Wheel barrow Tricycle, 2 JCBs and 2 Hook Loaders.

The technologies adopted for processing and disposal of the Solid waste from New DMC area are composting – 11.46 TPD, Bio-methanation – 500 KPD and Waste to Energy technology -280 MTD. In New DMC area there is no dump site or Secured Land Fill site.

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

New Delhi Municipal Council is primarily managing and disposing almost all its Solid Wastes in the facility at Okhla dump site where waste to energy plant, compost plant and dump site are existing. Waste-to-Energy Plant at Okhla receives approx. 1950 MT/D of Mixed Municipal Waste out of which 280 MTD is sent by New Delhi Municipal Council. 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.

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

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.

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 are maintained above 950°C as per Solid Waste Management Rules, 2016. Bottom ash along with inerts from pre-processing section is sent to landfill.

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.

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.

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.

A team was constituted vide Hon'ble NGT order dated 09/10/2017 in OA No. 22 of 2013^{THC} having representatives from CPCB, DPCC, MoEF & CC, an Expert from IIT & Sukhdev Vihar RWA have been conducting regular inspection of Okhla solid waste disposal facility and monitoring of all prescribed standards.

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 North DMC to DPCC, the numbers of households in the area under jurisdiction of it are 13.5 Lakhs and number of election/administrative wards in the city/town are 104. There are 522 bulk generators of solid waste in North DMC. The estimated quantity of solid waste generated in North DMC area is 4350 MT per day. However, the actual quantity of solid waste generated in North DMC area is 4000 MT per day. Per capita waste collected per day is 0.537 kg.

North DMC has covered 100 % areas under its jurisdiction for door to door collection of solid waste. 50 % of collection is done by motorized vehicle and remaining 50 % by containerized tricycle handcarts. A daily street sweeping of all areas and population has been covered by North DMC. 95% of sweeping is carried out by manual sweeping and remaining 5 % by machines.

North DMC has 133 open waste storage sites, 500 nos. Dhalaos/ covered rooms, 32 nos. covered metal / plastic containers, 2000 nos. of bins having capacity 1.1m^3 , 46 nos. bins of capacity 2m^3 to 5m^3 and 14 nos. of bins are of capacity more than 5m^3 . A total no. of 6000 bins have been placed by North DMC which has approximately 6000m^3 volume of wastes storage. The entire waste is lifted by machines. Waste is directly transported from households to treatment plant from 10% of households in North DMC areas. It has 8 Tractors, 49 Tipping Trucks, 196 Dumpers, 61 Compactors, 16 JCB/ Loaders, 4 Litter Pickers, 380 Auto Tippers, 40 TATA 407, 5 Hyva Truck and 2078 Cycle Rickshaw/ E-Rickshaw for transportation of solid waste. The frequency of transportation is on daily basis and North DMC is able to transport 100% of its waste collected.

The only Secured Land Fill site of NCT of Delhi is operational in Bawana area is under jurisdiction North DMC which is being maintained by M/s Delhi MSW Solutions Ltd.. 2000 TPD of waste is being composted by North DMC. No vermi composting facility is available. However, 4 nos. of Bio methanation plants having capacity of 5 MTD and 6 plants of 1 MTD capacity has been in progress. 1 plant of Bio methanation of capacity 200 MTD for specifically cow/ animal dung is also under consideration.

At its Bawana facility being run by M/s Delhi MSW Solutions Ltd., 2000 MTD of waste is disposed of into RDF which is used in the Waste to Energy plant for making electricity having capacity of 24 MW.

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

North Delhi Municipal Corporation is presently segregating the waste at source with respect to organic and inorganic waste in less than 5 % of the total households. It has reported that 2000 Tons per day of waste is processed and disposed of at dumpsite at Bhalswa and Secured Land Fill site at Bawana. Door to door collection of Domestic Waste is reported to be completed in 64 wards which is 100%. 95% of sweeping is conducted manually whereas mechanical sweeping is conducted in 5% of Roads having ROW greater than 60 ft. North DMC is having 50% of its vehicle motorized and remaining 50% are tri-cycle/hand cart.

North DMC has 133 open waste storage sites, 500 nos. Dhalaos/ covered rooms, 32 nos. covered metal / plastic containers, 2000 nos. of bins having capacity 1.1m^3 , 46 nos. bins of capacity 2 m^3 to 5 m^3 and 14 nos. of bins are of capacity more than 5 m^3 . A total no. of 6000 bins have been placed by North DMC which has approximately 6000 m^3 volume of wastes storage.

The entire waste is lifted by machines. Waste is directly transported from households to treatment plant from 10% of households in North DMC areas. It has 8 Tractors, 49 Tipping Trucks, 196 Dumpers, 61 Compactors, 16 JCB/ Loaders, 4 Litter Pickers, 380 Auto Tippers, 40 TATA 407, 5 Hyva Truck and 2078 Cycle Rickshaw/ E-Rickshaw for transportation of solid waste. The frequency of transportation is on daily basis and North DMC is able to transport 100% of its waste collected.

The total waste collected by North DMC is about 4000 MTD out of which 2300 MTD is processed at integrated waste disposal facility at Bawana where composting, Landfilling of rejects in Secured Land Fill site and waste to energy plant facility is available.

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

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.

Segregation on moving belt conveyor is carried out to sort out large size recognizable wastes such as Construction & Demolition waste, sanitary hardware, fibre, plastic materials, etc. The waste then processed and disposed into composting facility, RDF for waste to energy facility and rejects are sent to secured landfill site. For the treatment of leachate an Effluent Treatment Plant (ETP) has been installed at Bawana site. It has provision to collect leachate generated from the mixed MSW and the leachate collected is thereafter treated at Effluent Treatment Plant.

A Joint Inspection team was constituted having representatives from CPCB, DPCC, MoEF & CC, an Expert from IIT & Sukhdev Vihar RWA as per the directions of Hon'ble NGT which has regularly been inspecting and monitoring the waste to energy plants in NCT of Delhi for compliance of the standards.

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 70 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 solid waste generation is 12,40,000 MT annually. However, the actual quantity of solid waste generated and transported by South Delhi Municipal Corporation is 3600 TPD. Per capita waste collected is 500 gm/day. The estimated quantity of solid waste generated in the local body area per day 3400 TPD. Against this estimated generation of solid waste 1800 TPD waste is processed by SDMC. A dump site at Okhla where a waste to energy plant has also been installed, 1600 TPD of solid waste is processed.

As per annual report submitted by SDMC the solid waste is stored at source in domestic / commercial , institutional bins in 80 % of households in SDMC areas and 60 % of non-residential premises practice storage at waste of source in commercial / institutional areas. 20 % households reportedly throw their waste into streets/ roads. This figure is 30 % for non-residential premises. The status of segregation at source is also needs improvement as only 10 % households in SDMC area are reportedly segregating their waste at source level itself.

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

Presently door to door collection and segregation of Solid waste is being done by the informal sector that is waste pickers. SDMC, However provides resources such as Auto Tippers, E-Rickshaw, Cycle Rickshaw, Wheel Barrows, for Street level collection.

In SDMC Bulk generators of MSW are 380nos. out of which 103 nos. Restaurants, 19 nos. starred hotel, 24 nos. Unstarred Hotel/ Guest houses, 23 nos. Motels, 11 nos. Malls, 54 nos. Banquet Halls, 14 nos. Clubs, 81 nos. Other Bulk generators and 51 nos. Groups housing societies. The frequency street sweeping is carried out on daily basis and 100 % areas and population is covered. Manual sweeping is conducted to a maximum about 98 % and 2% areas are covered by mechanical sweeping.

244 open waste storage, 761 Dhalao/covered rooms/ space and 7000 nos. of bins having capacity of 1.1m^3 have been provided by SDMC for the storage of collected solid waste. These storages /bins are daily cleared and the waste is transported for disposal. The target of 100 % mechanical lifting has been achieved by SDMC. For the transportation solid waste . SDMC has 40 Tractors, 77 Tipping Trucks, 108 Refused collector, 74 Compactors, 26 JCB/ Loader , 51 hook loaders , 656 Auto Tippers, 95 TATA 407, 20 Hyva Trucks, 2050 Cycle Rickshaw/E-Rickshaw. SDMC processed and disposed solid waste by using the technology waste to energy, composting, Vermi- composting, Bio-methanation etc.

The details are Composting 200 TPD, Vermi composting 1 TPD, Bio-methanation 5 TPD and waste to energy technology 1600 TPD.

Separate provisions for dairy related activities, slaughter house waste and C&D waste have also been made by SDMC. 22,750 Safaikarcharies have been employed for collection, streets sweeping, secondary storage, transportation, processing and disposal of waste.

Door to Door collection of waste from residential / non-residential premises are covered 25% by motorized vehicles and remaining 75 % is covered by containerized tricycle/ handcarts.

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

South Delhi Municipal Corporation is primarily managing and disposing almost all its Solid Wastes in the facility at Okhla dump site where waste to energy plant , compost plant and dump site are existing.

Waste-to-Energy Plant at 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

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

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.

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.

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.

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 are maintained above 950°C as per Solid Waste Management
- Rules, 2016. Bottom ash along with inerts from pre-processing section is sent to landfill.

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.

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.

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.

A team was constituted vide Hon'ble NGT order dated 09/10/2017 in OA No. 22 of 2013^{T_{HC}} having representatives from CPCB, DPCC, MoEF & CC, an Expert from IIT & Sukhdev Vihar RWA have been conducting regular inspection of Okhla solid waste disposal facility and monitoring of all prescribed standards.

Sub: Status of Waste to Energy Plants (Number/names of towns/ capacity)

Delhi has 3 Waste to Energy Plants (WTE Plants) of capacity 5250 TPD at 3 different locations in Delhi namely Okhla, Ghazipur and Bawana. One New Waste to Energy Plant is proposed at Tehkhand. Expansion of existing 2 Waste to Energy Plants at Okhla & Ghazipur are also proposed to increase their capacity. After commissioning of the New WTE Plant and Expansion of existing 2 WTE Plants, capacity of WTE Plants will increase from 5250 TPD to 8950 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 Plant in Delhi:

S.No	Name / Site of WTE	Proposed Waste Processing Capacity (in TPD)
1	Tehkhand*	2000

(*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.