

Annual Report

— 2019-20 —



Delhi Pollution Control Committee (DPCC)

ANNUAL REPORT 2019-20





Sh. Gopal Rai
Environment Minister

Message

It gives me immense pleasure that the Delhi Pollution Control Committee is releasing its Annual Report for the year 2019-2020. It is the statutory responsibility of DPCC to prepare an annual report, giving full accounts of the activities during the last financial year. Nevertheless, this report also reflects the efforts of the officers of DPCC in protecting the environment of Delhi.

The report gives the present environmental status of Delhi which could be useful in flagging the important environmental issues. This report also gives a message to every citizen of Delhi that environmental problems can be tackled only through collective efforts.

I am sure that this report will create mass awareness among the public about the environmental issues. The report would send a clear message to the public that pollution control is the responsibility of every individual. My compliments to the officers of the DPCC for this and I wish them every success in their endeavor of environment protection.



Sh. Satya Gopal
Additional Chief Secretary

Preface

Environmental concerns have grown since the last decades, it is the prime duty of Organizations like DPCC to raise their hands and work on Environmental Issues. It is our responsibility to introduce public to the steps taken in the last year towards environment.

This report will create mass awareness among the people of Delhi about the environmental issues concerning the Territory. Through this report we want to send a clear message to the public that pollution control is the responsibility of every individual.

I would like to congratulate all the officers of DPCC on the publication of this annual report.

“Be a part of the Solution, not a part of the Pollution”



Sh. Sanjeev Khirwar
Chairman

Preface

Environmental concerns are growing each day in industrial development and infrastructure in Delhi. We have reached a stage where we have to realize that all that we do impacts our delicate balance with nature. Various sectors exert impact on the environment in their own ways and to various degrees. It is essential to understand these pressures and impacts so that timely mitigating measures may be taken to correct the situation. To sustain this balance, it is essential that the development is in harmony with nature.

DPCC, a statutory body, which came into existence in the year 1991, after the delegation of Powers and Functions under the Water and Air Acts by Central Pollution Control Board, has been entrusted with the responsibility of enforcing various Acts and Rules pertaining to Environment Protection. Therefore, it is the responsibility of DPCC to plan a comprehensive programme for the prevention, control and abatement of water, air and land pollution in Delhi. I am happy that the officers of Delhi Pollution Control Committee have taken up this task under the able guidance of Member Secretary and successfully completed the same.

The report is supported by a huge quantity of data presented in the form of tables and graphs, rendering the data easy to comprehend. I hope that the report will be equally useful to research scholars, students, NGOs and every citizen of Delhi in understanding the environmental concerns in the development of Delhi.



Sh. K.S. Jayachandran
Member Secretary

From the desk of Member Secretary

Unplanned development of our metropolitan cities has created serious environmental problems leading to lowering of living standards, scarcity of basic requirement like drinking water and clean air, inadequate sewage treatment and waste disposal facilities and excessive burden on the infrastructure like transport and communications.

DPCC, a statutory body, has been consistently making efforts to reduce the use of natural resources by efficient utilization of water, power consumption thereby conserving the natural resources.

A regular watch is being kept at the ambient air & Noise quality of Delhi through Continuous Ambient Air & Noise Quality Monitoring Stations installed by DPCC.

This report has been prepared after compiling the information provided by various cells. I, therefore, congratulate all officers of DPCC for their contributions.

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1

INTRODUCTION

Acts and Rules



Delhi Pollution Control Committee (DPCC) has been delegated all the powers and functions of State Pollution Control Board in relation to NCT of Delhi by the Central Pollution Control Board (CPCB) under the provisions of Section 4 of the Water (Prevention and Control of Pollution) Act, 1974 and Section 6 of the Air (Prevention and Control of Pollution) Act, 1981 vide Notification dated 15.03.1991. DPCC acts as a regulatory body for implementation of various Pollution Control Acts, Rules, Notifications, Court orders in NCT of Delhi.

DPCC has also been vested with statutory Powers, Functions and Duties under Section 5 of the Environment (Protection) Act, 1986 and Rules made there under:

1.1 Acts

- i. The Water (Prevention and Control of Pollution) Act, 1974
- ii. The Air (Prevention and Control of Pollution) Act, 1981

iii. The Environment (Protection) Act, 1986

1.2. Rules

- i. The Water (Prevention & Control of Pollution) Rules, 1975
- ii. The Air (Prevention & Control of Pollution) (Union Territories) Rules, 1983
- iii. Environment (Protection) Rules, 1986
- iv. The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989
- v. Noise Pollution (Regulation and Control) Amendment Rules, 2000
- vi. The Ozone Depleting Substances (Regulation & Control) Rules, 2000
- vii. Batteries (Management and Handling) Rules, 2001
- viii. The Bio- Medical Waste Management Rules, 2016
- ix. E Waste (Management) Rules, 2016
- x. Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016
- xi. Construction and Demolition Waste Management Rules, 2016
- xii. The Plastic Waste Management Rules, 2016
- xiii. Solid Waste Management Rules, 2016

In order to decide the applications for consent and authorization in a transparent manner, various consent management committees have been constituted.



CONSTITUTION OF DPCC

Notification, Application (Area of jurisdiction and Main Activities)



2.1 Notification

In exercise of the powers conferred under clause (4) of section 4, of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974) and section 6 of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981), the Central Pollution Control Board vide notification no. S.O. 1729 (E) dated 29th May 2012, delegated all the powers vested in the said Board under the Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 in respect of the Union Territory of Delhi (known as National Capital Territory of Delhi) to Delhi Pollution Control Committee, as specified by the Central Government, consisting of sixteen members:

Table 2.1: Delhi Pollution Control Committee members

1.	Secretary, Department of Environment, Govt. of National Capital Territory of Delhi.	Chairman
2.	Commissioner, Department of Transport, Govt. of National Capital Territory of Delhi.	Member
3.	Secretary, Department of Health & Family Welfare, Govt. of National Capital Territory of Delhi.	Member
4.	Secretary, Department of Urban Development, Govt. of National Capital Territory of Delhi.	Member
5.	Commissioner, Department of Industries, Govt. of National Capital Territory of Delhi.	Member
6.	Member Secretary, Central Pollution Control Board.	Member
7.	Advisor / Director, Control of Pollution Division, Ministry of Environment and Forest, New Delhi.	Member
8.	Medical Superintendent, All India Institute of Medical Science (AIIMS), New Delhi.	Member
9.	Director, School of Planning & Architecture, New Delhi.	Member
10.	Prof. S.K. Singh Professor & Head, Department of Environment Engineering, Delhi Technological University (DTU), Delhi.	Member
11.	Prof. A.K. Mittal, Professor, Department of Civil Engineering, Indian Institute of Technology (IIT), Delhi.	Member
12.	Dr. T.K. Joshi, Director, Centre for Occupational & Environmental Health (COEH), Maulana Azad Medical College (MAMC), New Delhi.	Member

13.	Dr. Ravi Aggarwal, Founder Director, Toxics Link Jangpura Extension, New Delhi.	Member
14.	Mrs. Bharti Chaturvedi, Director, Chintan Environment Research and Action Group, Siddhartha Enclave, New Delhi.	Member
15.	Director, Department of Environment, Govt. of National Capital Territory of Delhi.	Member
16.	Member Secretary, Delhi Pollution Control Committee.	Member Secretary

2.2 Application (Area of Jurisdiction and Main Activities)

- a) All units causing Air/Water/Noise pollution or generating hazardous waste.
- b) Hospitals, Clinics, Nursing Homes, Pathological Labs, etc. for the implementation of Bio-Medical Waste Management Rules, 2016.
- c) Issuance of Consent to Establish (CTE) and Consent to Operate (CTO) to units under Section 25 and 26 of Water Act, 1974 and Section 21 of the Air Act, 1981.
- d) Issuance of authorization to units under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, Solid Waste Management Rules, Bio Medical Waste Management Rules, Plastic Waste Management Rules, Construction and Demolition Waste Management Rules etc.
- e) Monitoring and analysis of effluent, air emissions and noise levels on payment of required fees by the units such as industries, hotels, malls, etc.
- f) Monitoring the performance of Sewage Treatment Plants (STPs), Common Effluent Treatment Plants (CETPs), Power Plants etc.
- g) Ambient air quality monitoring in different parts of Delhi.
- h) Surface (river, drains etc.) and ground water monitoring and analysis.
- i) Providing guidance to small scale industries on prevention & control of pollution.
- j) Redressal of pollution related public complaints.
- k) Mass awareness programs to ensure public participation in preventing and controlling pollution.
- l) Carrying out research and development studies to control pollution.
- m) Providing subsidy to owner of Battery-Operated Vehicles (BOVs).



3

VISION AND MISSION



- a) Committed to Sustainable Development by ensuring improvement in Environmental Quality of National Capital Delhi through partnership with all Stakeholders.
- b) Prevention & Control of air, water and noise pollution and conservation of natural resources.
- c) Continual improvement in our environmental performance, thereby providing a better quality of life to Citizens of Delhi.
- d) Efficient and effective waste management practices to ensure that we Reduce, Reuse and Recycle all types of waste.
- e) Improvement in workplace environmental quality by adopting simple energy efficient practices like LED, solar water heating, natural lighting, green buildings concept, low energy consuming equipment etc.
- f) Awareness among all stakeholders towards rain water harvesting, water recycling, composting, use of metro and bicycle instead of petrol/diesel vehicles etc.
- g) Environmental awareness among all Stakeholders towards rain water harvesting, water recycling, composting, car-pooling, use of metro and bicycles instead of petrol/diesel vehicles etc.
- h) Mitigate climate change by ensuring that carbon emissions are checked and reduced.
- i) Proper enforcement of standards to ensure environmental protection.



4

FUNCTIONS

Major functions of DPCC



DPCC has a largely regulatory role. It plays a significant role in consent management of polluting units. The major functions DPCC perform are:

- i. To plan a comprehensive program for the prevention, control or abatement of pollution of streams and wells in the State and to secure the execution thereof.
- ii. To advise the State Government on any matter concerning the prevention, control or abatement of water pollution.
- iii. To collect and disseminate information relating to water pollution and the prevention, control or abatement thereof.
- iv. To encourage, conduct and participate in investigations and research relating to problems of water pollution and prevention, control or abatement of water pollution.
- v. To collaborate with the Central Board in organizing the training of person engaged or to be engaged in programmes relating to prevention, control or abatement of water pollution and to organizes education programmes relating thereto.
- vi. To inspect sewage or trade effluents, works and plants for the treatment of sewage and trade effluents and to review plans, specifications or other data relating to plants set up for the treatment of water, works for the purification thereof and the system for the disposal of sewage or trade effluents or in connection with the grant of any consent are required by this Act.
- vii. Lay down, modify or annual effluent standards for the sewage and trade-effluents and for the quality of receiving waters (not being water in an inter- State stream) resulting from the discharge of effluents and to classify waters of the State.
- viii. To evolve economical and reliable methods of treatment of sewage and trade effluents, having regard to the peculiar conditions of soils, climate and water resources of different regions and more especially the prevailing flow characteristics of water in streams and wells which render it impossible to attain even the minimum degree of dilution.
- ix. To evolve methods of utilization of sewage and suitable trade effluents in agriculture.
- x. To evolve efficient methods of disposal of sewage and trade effluents on land, as are necessary on account of the predominant conditions of scant stream flows that do not provide for major part of the year the minimum degree of dilution.
- xi. To lay down standards of treatment of sewage and trade effluents to be discharged into any particular stream taking into account the minimum fair-weather dilution



available in that stream and the tolerance limits of pollution permissible in the water of the stream, after the discharge of such effluents.

xii. To make, vary or revoke any order-

a) For the prevention, control or abatement of discharges of waste into streams or wells.

b) Requiring any person concerned to construct new systems for the disposal of sewage and trade effluents or to modify, alter or extend any such existing system or to adopt such remedial measures as are necessary to prevent control or abate



water pollution.

xiii. To lay down effluent standards to be complied with by persons while causing discharge of sewage or sullage or both and to lay down, modify or annual effluent standards for the sewage and trade effluents.

xiv. To advise the State Government with respect to the location of any industry the carrying on of which is likely to pollute a stream or well.

xv. To perform such other functions as may be prescribed or as may, from time to time be entrusted to it by the Central Board or the State Government.

xvi. The Board may establish or recognize a laboratory or laboratories to enable the Board to perform its functions under this section efficiently, including the analysis of samples of water from any stream or well or of samples of any sewage or trade effluents.

xvii. To plan a comprehensively programme for the prevention, control or abatement of air pollution and to secure the execution thereof;

xviii. To advise the State Government on any matter concerning the prevention, control or abatement of air pollution;

xix. To collect and disseminate information relating to air pollution;

xx. To collaborate with the Central Board in organizing the training of persons engaged programmes relating to prevention, control or abatement of air pollution and to organize mass-education programme relating thereto;



- xxi. To inspect air pollution control areas at such intervals as it may think necessary, assess the quality of air therein and take steps for the prevention, control or abatement of air pollution in such areas.
- xxii. To inspect air pollution control areas at such intervals as it may think necessary, assess the quality of air therein and take steps for the prevention, control or abatement of air pollution in such areas.
- xxiii. To lay down, in consultation with the Central Board and having regard to the standards for the quality of air laid down by the Central Board and having regard to the standards for the quality of air laid down by the Central Board, standards for emission of air pollutants into the atmosphere from industrial plants and automobiles or for the discharge of any air pollutant into the atmosphere from any other source whatsoever not being a ship or an aircraft: Provided that different standards for emission may be laid down under this clause for different industrial plants having regard to the quantity and composition of emission of air pollutants into the atmosphere from such industrial plants.



- xxiv. To advise the State Government with respect to the suitability of any premises or location for carrying on any industry which is likely to cause air pollution.
- xxv. To perform such other functions as may be prescribed or as may, from time to time, be entrusted to it by the Central Board or the State Government.
- xxvi. To do such other things and to perform such other acts as it may think necessary for the proper discharge of its functions and generally for the purpose of carrying into effect the purposes of this Act.
- xxvii. A State Board may establish or recognize a laboratory or laboratories to enable the State Board to perform its functions under this section efficiently.

ORGANISATIONAL STRUCTURE OF DPCC



5.1 Present Positions

As per Notification, Secretary, Environment & Forest is the Ex officio Chairman of DPCC. The powers to carry out various provisions has been delegated to Chairman and Member Secretary, DPCC. The post of Member Secretary was initially held by Director (Environment), Govt. of NCT of Delhi however a separate post was created in 1998. A total of 343 posts were created from time to time. Besides Chairman and Member Secretary, the work of DPCC is being managed by Environment Engineers and Scientists ably supported by legal, accounts and administrative wings.

5.2 Senior Officers of DPCC

Table 5.1: List of Senior Officers of DPCC

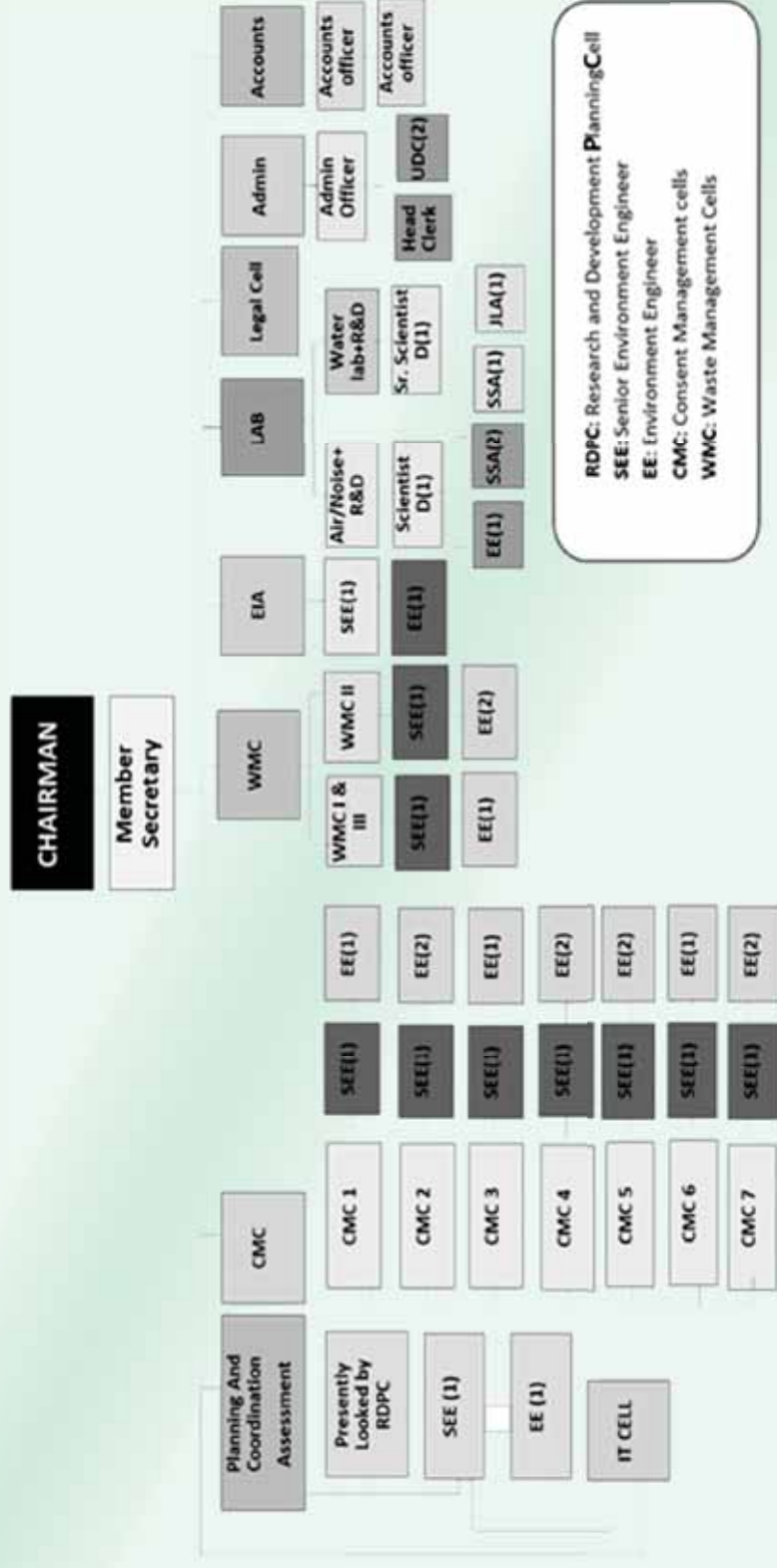
S. No	Name	Designation	Department	Area of Jurisdiction	Phone	Email Address	Address
1.	Sh. Sanjeev Khirwar	Chairperson	DPCC	All matters of DPCC	23392108	chdpcc@nic.in	6th floor, C wing, Delhi Secretariat, I P Estate, Delhi-110002
2.	Dr. K.S Jayachandran	Member Secretary	DPCC	All matters of DPCC	23860389, 23392306	msdpcc@nic.in	6th floor, C wing, Delhi Secretariat, I P Estate, Delhi-110002
3.	Dr. Chandra Prakash	Sr. Environmental Engineer	Legal	Legal matters of DPCC	23867167	cpoggia.dpcc@nic.in	5th Floor, ISBT Building, Kashmere Gate, Delhi -06

4.	Sh. Deepak Kumar Singh	Sr. Environmental Engineer	WMC-II	All matters related to CETPs, STPs, Water Treatment Plants, Solid Waste Management, Construction & Demolition Waste Management, Power Plants, TSDF for Hazardous Waste	9717593512	dlksingh.dpcc@nic.in	5th Floor, ISBT Building, Kashmere Gate, Delhi -06
5.	Sh. Pankaj Kapil	Sr. Environmental Engineer	WMC-I and EIA	All matters related to Health Care Establishments, All projects to whom Environmental clearances have been issued by MOEF & CC / SEIAA-Delhi, except those pertaining to Health Care Establishments and Power Plants/ Solid Waste Facilities.	9717593514	pankajkapil.dpcc@nic.in	5th Floor, ISBT Building, Kashmere Gate, Delhi -06

6.	Dr. M.P. George	Scientist C	Air Laboratory	All matters related to Air Lab (Air & Noise Monitoring).	9717593520	mohanpg.dpcc@nic.in	5th Floor, ISBT Building, Kashmere Gate, Delhi -06
7.	Dr. Nandita Moitra	Scientist 'C'	Water Laboratory	All matters related to Water & Waste Water Monitoring	9717593521	namditamoitre.dpcc@gov.in	4th Floor, ISBT Building, Kashmere Gate, Delhi -06
8.	Sh. B. L. Chawla	Sr. Environmental Engineer	IT Cell, RDPC and SPIO under RTI Act	IT related work and all matters related to Planning and coordination and SPIO (RTI Act, 2005).	9717593516	blchawla.dpcc@nic.in	5th Floor, ISBT Building, Kashmere Gate, Delhi -06
9.	Sh. P. S. Pankaj	Sr. Environmental Engineer	CMC-I	All matters of East, Shahadara and North East district and BOV related work	9717593517	pspankaj.dpcc@nic.in	1st floor, E Block, Vikas Bhawan-II, Civil Lines, Delhi-110054
10.	Smt. Ajeeta Dayal Aggarwal	Sr. Environmental Engineer	CMC-II and WMC-IV	All matters of South, South East & South West district and matters related to Covid-19 Health Care Establishments.	9717593511	ajeetaagarwal.dpcc@nic.in	2nd floor, C Block, Vikas Bhawan-II, Civil Lines, Delhi-110054
11.	Sh. Satender Kumar	Sr. Environmental Engineer	CMC III and CMC VII	All matters of North-West and Central district	9717593519	satender.dpcc@nic.in	4th Floor, ISBT Building, Kashmere Gate, Delhi -06

12.	Dr. B.M.S Reddy	Sr. Environmental Engineer	CMC-IV	All matters of New Delhi district. Matter related to E-Waste Rules, Battery Rules, Import of HW & Other wastes under HWM Rules and Slaughter House.	9717593543	bmsreddy.dpcc@nic.in	2nd floor, C Block, Vikas Bhawan-II, Civil Lines, Delhi-110054
13.	Sh. Md. Arif	Sr. Environmental Engineer	CMC V	All matters of North district.	9717593510	arifmohd.dpcc@nic.in	1st floor, E Block, Vikas Bhawan-II, Civil Lines, Delhi-110054
14.	Dr. Anwar Ali Khan	Sr. Environmental Engineer	CMC VI and Climate Change	All matters of West district and Matter related to Climate Change.	8527411124	envanwar@gmail.com	2nd floor, C Block, Vikas Bhawan-II, Civil Lines, Delhi-110054

ORGANISATIONAL STRUCTURE OF DPCC



6

SANCTIONED POSTS OF DPCC



Consequent upon approval by the DPCC Board and assessment and recommendations of Administrative Reforms Department of Govt. of NCT of Delhi, the Hon'ble Lt. Governor, Govt. of NCT of Delhi accorded his sanction for creation of 76 additional posts in DPCC vide U.O. No. 33486 dated 24.06.2019. Copy of the Office order dated 28.06.2019 is annexed herewith as **Annexure I**. The details of total 343 sanctioned posts including 267 posts sanctioned earlier are as below:

Table 6.1: Sanctioned posts of DPCC

S. NO.	Name of the Post	Level of pay in Pay Matrix	Earlier sanctioned posts (a)	Addl. Post assessed by AR Department (b)	Total Number of Post in DPCC (a+b)
1.	Member Secretary	Pay Level 13A of pay matrix	01	00	01
2.	Addl. Director (Engg.)	Pay Level 13 of pay matrix	02	01	03
3.	Sr. Env. Engineer	Pay Level 12 of pay matrix	06	09	15
4.	Env. Engineer	Pay Level 11 of pay matrix	13	10	23
5.	Asstt. Env. Engineer	Pay Level 10 of pay matrix	31	09	40
6.	Jr. Env. Engineer	Pay Level 6 of pay matrix	48	21	69
7.	Addl. Director (Lab) (Scientist-E)	Pay Level 13 of pay matrix	01	00	01
8.	Sr. Scientist L-II (Scientist-D)	Pay Level 12 of pay matrix	02	00	02
9.	Sr. Scientist L-I (Scientist-C)	Pay Level 11 of pay matrix	03	00	03
10.	Scientist-B	Pay Level 10 of pay matrix	04	00	04
11.	Scientist Assistant	Pay Level 6 of pay matrix	04	00	04
12.	Sr. Lab Asstt.	Pay Level 4 of pay	06	00	06

		matrix			
13.	Jr. Lab. Asstt.	Pay Level 2 of pay matrix	08	00	08
14.	Lab Attendant	Pay Level 1 of pay matrix	03	00	03
15.	System Analyst	Pay Level 11 of pay matrix	01	00	01
16.	Programmer	Pay Level 10 of pay matrix	01	00	01
17.	Law Officer	Pay Level 11 of pay matrix	01	00	01
18.	Asstt. Law Officer	Pay Level 7 of pay matrix	03	00	03
19.	Legal Assistant	Pay Level 6 of pay matrix	05	02	07
20.	Administrative Officer	Pay Level 9 of pay matrix	02	00	02
21.	Section Officer	Pay Level 8 of pay matrix	03	00	03
22.	Asstt. Section Officer (Head Clerk)	Pay Level 7 of pay matrix	10	00	10
23.	Senior Assistant (UDC)	Pay Level 4 of pay matrix	16	12	28
24.	Junior Assistant (LDC)	Pay Level 2 of pay matrix	33	11	44
25.	Peon	Pay Level 1 of pay matrix	31	01	32
26.	Chowkidar	Pay Level 1 of pay matrix	02	00	02
27.	Driver	Pay Level 2 of pay matrix	10	00	10
28.	Accounts Officer	Pay Level 9 of pay matrix	02	00	02
29.	Asstt.	Pay Level 8 of pay	03	00	03

	Accounts Officer	matrix			
30.	Pr. Private Secretary - PB3	Pay Level 10 of pay matrix	01	00	01
31.	Private Secretary	Pay Level 8 of pay matrix	02	00	02
32.	Steno Gr. I	Pay Level 7 of pay matrix	03	00	03
33.	Steno Gr. II	Pay Level 4 of pay matrix	06	00	06
Total			267	76	343

ACHIEVEMENTS

Major achievements of DPCC



- i. Five No. of Bio-methanation Plants of total capacity of 25 TPD (of 5 TPD Capacity each at Geeta Colony, Roshanara Bagh, MVID Hospital, Sarita Vihar & Punjabi Bagh) commissioned.
- ii. 11 No. of Compost Plants of total capacity of 11 TPD (of 1 TPD Capacity each at various locations in Delhi) commissioned.
- iii. A 2000 TPD Waste to Energy Plant is being constructed at Tehkhand and the same is expected to be commissioned by December, 2021.
- iv. 2000 TPD Integrated Municipal Waste Processing Facility is proposed at Ghonda Gujran and this facility will be having Waste to Energy Plant of 600 TPD, Bio-methanation Plant of 1200 TPD and C & D Waste Processing Plant of 200 TPD capacity. This Facility is a joint venture between NTPC & EDMC and the Facility is expected to be commissioned by September, 2022.
- v. 2500 TPD Integrated Waste Collection, Segregation, Transportation, Processing & Disposal is proposed by North DMC for its three zones KBZ, CSPZ & Narela. This is expected to be completed by December, 2023.
- vi. An Engineered Sanitary Landfill is proposed to be developed at Tehkhand by SDMC by December, 2021.
- vii. A 1000 TPD C & D Waste Processing Facility at Bakkarwala commissioned in March, 2020 and Consent & Authorization were issued by DPCC to the Operator of the Facility in this regard.
- viii. Total Capacity of C & D Waste Processing Facilities in Delhi increased from 2650 TPD to 3650 TPD.
- ix. Expansion of the existing C & D Waste Processing Facility at Shastri Park was proposed from 500 TPD to 1000 TPD. Besides this Additional 2500 TPD facilities are proposed at Maidangarhi (1000 TPD), Ranikhera (1000 TPD) & Libaspur (500 TPD).
- x. Off take of C & D Recycled Products from the C & D Waste Processing Facilities in Delhi increased from 3.05 Lakh Ton in 2018 – 2019 to 8.83 Lakh Ton in 2019-2020 (about 190 % increase in off take of C & D Recycled Products).
- xi. Inspection of 130 premises of E waste have been carried out till 16.12.2019 and 104 premises were found to be storing/handling E-Waste. 31 number of premises were closed effectively.
- xii. 4708 Health Care Facilities (HCFs)/ Establishments (HCEs) generating Bio-Medical Waste have been granted Authorization under BMW Rules.
- xiii. Two Common Bio-Medical Waste Treatment Facilities (CBWTFs) in Delhi are there for the Collection, Treatment & Disposal of the Bio-Medical Waste generated from the health care facilities operating in Delhi. Programmable Logic Control (PLC) has been installed by CBWTFs for better operation/ performance of Incinerators.

- xiv. On line continuous emission monitoring system (OCEMS) have been installed by both the CBWTFs and they are linked with the website of DPCC/ CPCB.
- xv. Both CBWTFs have installed software for barcode manifest system through their vendors.
- xvi. 223 number of hospitals (30 beds and above) have implemented barcode manifest system for collection and transportation of biomedical waste.
- xvii. All the Hospitals having 51 beds and above have installed Sewage Treatment Plant (STP)/ Effluent Treatment Plant (ETP) for the treatment of the effluent generated from the Hospital.
- xviii. DPCC has authorized four refurbishers of E-Waste under e-Waste Rules, 2016.
- xix. Total 23241 applications received for Consent under Water and Air Acts during period 2019-2020
- xx. Total 15633 Consent granted under Water and Air Acts during period 2019-2020.
- xxi. White Category Consent under Water and Air Acts were auto acknowledged by office order dated 17.04.2017.
- xxii. Capacity utilization of 35 operational STPs of Delhi Jal Board increased from 75 % (457 MGD) in 2018 – 2019 to 84 % (500 MGD) in 2019 -2020.
- xxiii. Capacity utilization of 13 operational CETPs increased from about 50 MLD in 2018 – 2019 to 60 MLD in 2019 -2020.



WATER POLLUTION

Water quality of river Yamuna, monitoring, average annual quality of drains, STPs, CETPs. Measures to prevent pollution, Ban on idol immersion, orders, and river rejuvenation committee



8.1 The River Yamuna

Yamuna, a major tributary of river Ganga, is a sacred river and supports the livelihoods of millions of people in its basin states. In order to fulfil the growing needs of drinking water and irrigation, several large dams and barrages have been built which divert large volumes of water from the river as it runs its course through the states of Uttarakhand, Haryana, the National Capital Territory of Delhi and Uttar Pradesh. In Delhi, the river is virtually reduced to a trickle and remains completely dry in stretches for almost nine months of the year.

The stretch of the River Yamuna from Wazirabad (Downside of Wazirabad Barrage) to Asgarpur Village (after Okhla Barrage) in Delhi is highly polluted due to flow of untreated sewage from unauthorized colonies and the discharge of inadequately treated industrial effluents.

- i. There is 54 KM Stretch of river Yamuna in Delhi from Palla (Delhi-Haryana border) to Badarpur (Delhi-Haryana border).
- ii. 22 KM Stretch from Wazirabad (Downside of Wazirabad Barrage) to Asgarpur Village (after Okhla Barrage), which is less than 2% of the total river length, accounts for about 76% of the pollution load in the river.
- iii. During the dry season, spreading over nearly nine months of the year, the river has no fresh water downstream of Wazirabad Barrage and the only flow available is sewage (both treated and untreated).
- iv. 18 Major Drains outfall into river Yamuna with discharge of about 3026 MLD (about 666 MGD) of waste water into the River Yamuna including 105 MGD waste water coming into Najafgarh Drain from Haryana and 14 MGD coming into Shahdara Drain from Ghaziabad. About 264 TPD is the pollution load in terms of BOD.
- v. 10 Cumecs of Water is released by the State of Haryana at Hathanikund during lean season. However, most of it evaporates or percolates before it reaches Wazirabad during the lean season and therefore it is highly inadequate to meet the dilution requirement to achieve the desired water quality of $Bod \leq 3 \text{ mg/l}$ & $DO \geq 5 \text{ mg/l}$.

8.2 Water Quality of River Yamuna

- i. Water quality of river Yamuna is monitored both by DPCC (at 9 Locations) and CPCB (at 5 Locations) on monthly basis.

ii. As per the trend analysis of CPCB carried out for the water quality in river Yamuna for the last 5 years:

- a) Dissolved Oxygen (DO) & BOD levels in river Yamuna are complying with water quality criteria for outdoor bathing at 2 locations, namely, Palla and Surghat.
- b) At other locations the water quality is non-compliant with the DO & BOD standards. BOD concentration varies from highest levels of 98 mg/l at Khajuri Paltoon Pool and 97 mg/l at Okhla after meeting Shahdara drain.
- c) The high concentration of BOD and COD levels at these locations is due to discharge of untreated waste water and joining of various drains at points between Nizamuddin and Okhla.
- d) DPCC has taken over the Online Monitoring System at Wazirabad and Okhla from Central Pollution Control Board w.e.f 15.02.2019.
- e) Online Monitoring System for measuring the concentration of Ammonia in river Yamuna at Palla has been installed by DPCC. This will help in issuing early alerts to the DJB water treatment plant at Wazirabad in the event of deterioration in water quality received at Palla due to discharge of sewage/industrial effluent from Haryana.



iii. Discharge of wastewater and BOD load from Major Drains into river Yamuna at Delhi (Based on the CPCB Data for the years 2017, 2018 & 2019 as mentioned in the 3rd Interim Report of the Yamuna Monitoring Committee appointed by Hon'ble NGT)

Table 8.1: Discharge of wastewater and BOD load from major drains into river Yamuna at Delhi

S.No	Name of Drain	Flow (in MLD) 2017	Flow (in MLD) 2018	Flow (in MLD) 2019	BOD Load (in TPD) 2017	BOD Load (in TPD) 2018	BOD Load (in TPD) 2019
1	Najafgarh Drain	2042.3	2066.7	1938.38	132.55	101.29	133.82
2	Shahdara Drain	513.9	473.5	500.97	41.26	38.95	61.44

3	Waste water input into Abandoned Agra Canal	260	218	117.93	33.5	30.63	21.54
4	Barapulla Drain	136.3	151.2	151.77	10.3	9.06	10.46
5	Tuglakabad Drain	88.9	45.8	22.10	9.12	3.25	3.42
6	Delhi Gate (Power House) Drain	84.8	47.5	39.02	6.26	3.31	3.43
7	Sen Nursing Home Drain	64.4	41	31.53	9.45	5.29	4.69
8	Abu Fazal Drain	50.9	35	28.94	1.54	1.08	0.88
9	ISBT + Mori Gate Drain	45.2	51	37.94	2.89	3.06	2.67
10	Sarita Vihar Drain	40.8	26	35.68	9.9	6.02	7.73
11	Maharani Bagh Drain	26.5	24.2	30.16	3.03	2.43	3.51
12	Jaitpur Drain	16.6	23.3	19.58	2.28	3.39	3.07
13	Molar Bandh Drain	14	19	22.17	1.98	2.07	2.36
14	Kailash Nagar Drain	11.9	7.8	9	3.15	2.82	2.70
15	Tonga Stand Drain	11.4	7.8	4.46	1.75	1.18	0.59
16	Shastri Park Drain	7.6	4.3	5.76	0.84	0.46	0.75
17	Drain No.14	7.3	4.3	6.54	0.13	0.05	0.07
18	Magazine Road Drain	7.1	6	4.32	0.54	0.44	0.30

19	Civil Mill Drain	6.3	8.6	11.14	0.5	0.57	0.67
20	Metcalf House Drain	6.1	4.3	3.45	0.2	0.12	0.11
21	Sweeper Colony Drain	6	6	5.4	0.16	0.18	0.10
22	Khyber Pass Drain	1.3	-	No Flow	0.03	-	No Flow
	Total	3449.6	3271.3	3026.24	271.36	215.65	264.31

The above Table shows that although the discharge into river Yamuna from various drains has reduced from 3450 MLD in 2017 to 3026 MLD in 2019, the reduction in BOD load per day is only marginal though there was substantial decline of 20.53% TPD during 2018 in comparison to 2017.

8.3 River Yamuna Water Quality Monitoring by DPCC. The water quality of river Yamuna is monitored both by CPCB and DPCC. CPCB monitors water quality of river Yamuna at 5 locations, while DPCC is carrying out water quality monitoring of River Yamuna at 9 locations as mentioned in the Table given below, for the parameters pH, BOD, COD, DO & Faecal Coliform on monthly basis. Monthly reports on the water quality of river Yamuna are being placed on the website of DPCC and link has been given to CPCB.



Table 8.2: Water quality monitoring locations at river Yamuna

Water Quality Monitoring Locations Under CPCB	Water Quality Monitoring Locations Under DPCC
Palla	Palla
Nizamuddin	Surghat (D/S of Wazirabad Barrage),
Okhla Bridge	Khajori Paltoon Pool (D/S of Najafgarh Drain)
Okhla (Downstream of Shahdara Drain)	Kudesia Ghat
Agra canal at Badarpur	ITO Bridge

	Nizamuddin Bridge
	Agra Canal (Okhla),
	Shahdara Drain (D/S of Okhla Barrage
	Agra Canal (Jaitpur).

DPCC has taken over the Online Monitoring System at Wazirabad and Okhla from Central Pollution Control Board w.e.f 15.02.2019 and Delhi Jal Board has been given link to receive the data. Online Monitoring System for measuring the concentration of Ammonia in river.

8.4 Annual Average Water Quality of River Yamuna

The highest annual average of DO is 8.1 mg/l at Palla. The annual average of BOD has ranged from 2.2 mg/l at Palla to 36 mg/l at D/S Okhla Barrage (after meeting Shahdara Drain). The water quality standards for DO and BOD as per CPCB norms are 5 mg/l and 3 mg/l respectively for class "C" of river water. The water quality monitoring results in the Delhi stretch clearly indicates river water is grossly polluted. Annual Average Water Quality of River Yamuna at 9 locations being monitored by DPCC laboratory on monthly basis for the period of April, 2019 to March, 2020 is given in following Table:

Table 8.3: Annual average water quality of river Yamuna at 9 locations: (April 2019 – March 2020)

S. No.	Locations	pH (mg/l)	COD (mg/l)	BOD (mg/l)	DO (mg/l)
	Water Quality Criteria	6.5-8.5	-	3mg/l or less	5mg/l or more
1	Palla	7.9	8.2	2.2	8.1
2	Surghat	7.7	13.1	3.2	5.6
3	Khajori Paltoon Pool	7.5	81.3	25.2	0.1
4	Kudesia Ghat	7.6	72.5	22.7	0.2
5	ITO Bridge	7.7	71.3	23	0.3
6	Nizamuddin Bridge	7.6	66.3	21	1.2

Yamuna at Palla has been installed by DPCC and data is transferred to DJB, DPCC & CPCB.

Water quality monitoring reports of river Yamuna indicate that the water quality parameters are meeting the Water Quality criteria of "C" class, at Palla only, which is upstream of Wazirabad Barrage.

7	Agra Canal Okhla	7.7	89	27	0.3
8	D/S Okhla Barrage (after meeting Shahdara Drain)	7.7	132	36	0.2
9	Agra Canal Jaitpur	7.8	78.6	24	0.2

8.5 Annual Average Water Quality of Drains:

DPCC Laboratory is carrying out water quality monitoring of the 24 major drains including 2 Drains (Sahibabad Drain & Indrapuri Drain) coming from UP, on monthly basis before their outfall into river Yamuna. Annual Average Water Quality of Drains out falling into river Yamuna in Delhi for the period of April, 2019 to March, 2020 is given in following Table:

Table 8.4: Annual average water quality of drains out falling into river Yamuna in Delhi (April 2019 – March 2020)

S. No.	Drain	pH	TSS	COD	BOD
	Water Quality Criteria	5.5-9.0	100 (mg/l)	250 (mg/l)	30 (mg/l)
1	Najafgarh Drain	7.8	114.44	135.11	46.55
2	Metcalf House Drain	7.7	40	50	14.25
3	Khyber Pass Drain	7.8	61.55	64.44	18.33
4	Sweeper Colony Drain	7.8	82.66	86.66	26.78
5	Magazine Road Drain	7.7	223.55	248	87.5
6	ISBT Drain	7.7	125.33	158.44	57.22
7	Tonga Stand Drain	7.7	126	168.44	56.88
8	Moat Drain	NO FLOW	NO FLOW	NO FLOW	NO FLOW
9	Civil Mill Drain	7.6	235.11	236.44	76.38
10	Power House Drain	7.7	147.55	190.88	60.33
11	Sen Nursing Home Drain	7.6	262.44	252.22	81.55
12	Drain No. 12A	NO FLOW	NO FLOW	NO FLOW	NO FLOW
13	Drain No. 14	7.7	64.88	86	27
14	Barapulla Drain	7.6	108.22	194	64.55
15	Maharani Bagh Drain	7.5	134.88	236.44	80.77

16	Kalkaji Drain	7.6	182.22	335.66	72.11
17	SaritaVihar Drain (Mathura)	7.6	216.88	289.55	107
18	Tehkhand Drain	7.7	154	247.55	88.11
19	Tuglakabad Drain	7.8	208.44	311.55	101.22
20	Drain Near LPG Bottling Plant	NO FLOW	NO FLOW	NO FLOW	NO FLOW
21	Drain Near SaritaVihar Bridge	7.7	148.25	218.22	74.22
22	Shahdara Drain	7.6	245.11	320.88	110.83
23	Sahibabad Drain	7.7	414.22	551.11	196.55
24	Indrapuri Drain	7.7	220	352.44	122.77

Water quality monitoring results of the drains indicate that most of the drains are not meeting the standards with respect to Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD) and Total Suspended Solids (TSS).

8.6 Annual Average Treated Water Quality of STPs of DJB

All the operational Sewage Treatment Plants (STPs) of Delhi Jal Board in Delhi are being monitored by DPCC Laboratory on monthly basis and Analysis Reports are placed on the website of DPCC and also conveyed to the Delhi Jal Board for rectification of the deficiencies to meet the prescribed standards.

Annual Average Treated Water Quality of STPs for the period of April, 2019 to March, 2020 are given in Table 8:

Table 8.5: Annual average treated water quality of STPs of DJB at different locations (April 2019 – March 2020)

S. No.	Name of STP	pH (6.5-9)	TSS (mg/l)	BOD (mg/l)	COD (mg/l)	Oil & Grease (mg/l)	Ammonical Nitrogen (mg/l)	Dissolved Phosphate (mg/l)
1	Coronation Pillar Ph-I, II STP (20MGD)	7.8	46.4	33.7	93.3	2.9	9.6	1.9

2	Coronation Pillar Ph-III STP (10MGD)	7.8	57.5	41.5	114.6	3.9	0.56	2.4
3	Delhi Gate STP New (15MGD)	7.5	6.2	4	14.7	0.4	3.3	0.5
4	Delhi Gate STP Ph-I (2.2MGD)	7.5	8.7	5.5	17.8	0.4	3.5	0.7
5	Keshopur STP New (12MGD)	7.5	32.7	23.2	69.5	2.1	7.1	1.8
6	Sen Nursing Home Nallah STP (2.2 MGD)	7.7	5.7	3.4	12	0.5	3.2	0.4
7	Nilothi STP- II (20MGD)	7.5	10.2	7.25	21.2	0.6	3.6	0.7
8	Nilothi STP (40MGD)	7.7	46.4	31.6	89.6	3.2	9.9	1.9
9	Najafgarh STP (5 MGD)	7.6	54.7	39.4	111.4	3.9	10.6	2.2
10	Rithala STP Ph-I (40MGD)	7.7	66.2	44.9	124.9	5.2	11.9	2.3
11	Rithala STP Ph-II (40MGD)	7.7	24.2	15.5	50.7	1.9	6.8	1.3
12	Pappankalan STP (20MGD)	7.7	50.4	38.5	100.5	3.4	10.4	1.7
13	Pappankalan STP-II (20MGD)	7.6	28.9	18.5	52	1.8	6.7	1.3

14	Narela STP (10 MGD)	7.8	37.5	32	91	2.9	9.2	2.3
15	Okhla STP New (30 MGD)	7.7	7.2	4.2	14.5	0.4	3.7	0.8
16	Kondli STP (25MGD)	7.8	18.8	12.8	34.3	1.7	8.6	1.1
17	Kondli STP New (45MGD)	7.7	19	12.7	38.2	1.8	7.8	1.1
18	Kapashera STP (5MGD)	7.6	16.7	11.1	33.8	1.3	5.2	1.0
19	Mehrauli STP (15MGD)	7.8	39.3	28.2	81.1	3.2	7.6	1.9
20	Vasant Kunj STP (2.2MGD)	7.6	31.3	22	57.7	2.4	6.5	1.7
21	Vasant Kunj STP (3MGD)	7.6	25.8	19.3	52.9	1.7	6.1	1.3
22	Yamuna Vihar STP Ph-III (25MGD)	7.6	48.7	31.1	93.8	3.9	10.9	2.4
23	Chilla STP (9 MGD)	7.6	12.9	8.8	26.2	1.1	4.9	1
24	Akshardham /Common Wealth Games Village STP (1 MGD)	7.6	3.9	2.4	9	0.2	2.3	0.2
25	Yamuna Vihar STP	7.5	43.3	29.5	83.1	3.7	9.9	1.9

	Ph I (10MGD)							
26	Yamuna Vihar STP Ph-II (10MGD)	7.6	45.1	30.7	89.3	3.3	8.8	3.1
27	Molarband Mini STP (0.66 MGD)	7.7	35.8	24.4	67.8	3.1	9.9	2.4
28	Okhla STP (12MGD)	7.7	27.7	21.2	52.5	1.9	5.8	1.1
29	Okhla STP (16MGD)	7.7	24.9	17.1	49.3	1.9	5.4	1
30	Okhla STP (37MGD)	7.7	26.4	18.9	55.1	1.9	7.1	1
31	Okhla STP (45MGD)	7.7	28.4	27.3	58.4	1.9	7.6	0.9
32	Keshopur STP (40MGD)	7.4	68.5	49.1	135	4	10.2	2.1
33	Keshopur STP (20MGD)	7.3	57	42.2	122	4.0	9.8	1.7
34	Rohini STP (15 MGD)	7.8	40	28	83.5	2.7	9.5	1.9
35	Ghitorni STP (5 MGD)	Sample could not be taken						

8.7 Annual Average Treated Water Quality of CETPs

All the 13 operational CETPs in Delhi are being monitored by DPCC Laboratory on monthly basis and Analysis Reports are placed on the website of DPCC and also conveyed to the CETP Societies / Operator of CETPs for rectification of the deficiencies to meet the prescribed standards.

Annual Average Treated Water Quality of 13 CETPs for the period of April, 2019 to March, 2020 is given in Table 9 and 10:

Table 8.6: Annual average treated water quality of 13 CETPs for the period April 2019 - March 2020 [excluding heavy metals]

S.No.	Name of CETP	Capacity (In MLD)	pH (6 - 9)	TSS (100 mg/l)	COD (250 mg/l)	BOD (30 mg/l, 3 days at 27°C)	Chlorides (1000 mg/l)	Sulphates (1000 mg/l)	Oil & Grease (10 mg/l)	TDS (2100 mg/l)	Ammonical Nitrogen as N (50 mg/l)	Sulphides as S (2 mg/l)
1	Wazirpur CETP	24	6.4	62.2	99.2	27.6	519.5	239.08	4.49	2691	26.7	2.14
2	SMA CETP	12	7.5	53.4	96.9	28.0	869.1	398.7	4.4	1919.4	24.7	2.5
3	Okhla CETP	24	7.5	54.5	104.9	32.2	610.5	276.9	5.5	1394.0	35.1	2.3
4	Narela CETP	22.5	7.7	60.4	108.7	28.3	771.5	302.8	3.9	2348.0	26.5	2.4
5	Naraina CETP	21.6	7.7	49.3	94.5	28.6	531.3	352.4	3.3	973.3	31.0	2.6
6	Nangloi CETP	12	7.5	81.8	150.9	46.2	1626.7	317.6	5.3	2587.0	30.9	2.9
7	Mangolpuri CETP	2.4	7.6	58.4	114.8	34.7	1946.4	343.9	4.3	2770.9	31.2	3.0
8	Lawrence Road CETP	12	7.28	107.6	208.6	62.3	1287.5	160.3	4.82	2142	33.7	1.92

9	Jhilmil CETP	16.8	7.6	56.7	118.0	33.3	700.0	260.2	5.2	1980.9	24.8	2.6
10	Bawana CETP	35	7.5	60.5	121.7	37.3	1800.0	119.4	4.6	3052.2	26.6	3.0
11	Badli CETP	12	7.1	60.0	115.1	34.8	411.7	361.3	3.0	1048.6	32.0	2.0
12	GTK Road CETP	6	7.6	49.5	115.1	31.0	567.3	272.0	4.9	1340.5	19.9	1.8
13	Mayapuri CETP	12	7.8	49.3	104.4	31.2	811.4	249.1	3.9	1855.5	31.9	2.2

Table 8.7: Annual average treated water quality of 13 CETPs for the period April 2019 – March 2020 [heavy metals]

S. No.	Name of CETP	Capacity (in MLD)	Ni (3 mg/l)	Cu (3 mg/l)	Zn (5 mg/l)	Cr+3 (2 mg/l)	Pb (0.1 mg/l)	Cd (0.5 mg/l)
1	Wazirpur CETP	24	1.6	2.52	1.0	1.81	0.48	0.36
2	SMA CETP	12	1.7	0.0	0.8	1.2	0.4	0.2
3	Okhla CETP	24	1.4	0.0	1.4	1.9	0.2	0.4
4	Narela CETP	22.5	5.0	2.1	0.7	0.8	0.4	0.6
5	Naraina CETP	21.6	3.5	0.2	0.9	0.1	0.0	0.1
6	Nangloi CETP	12	1.1	0.8	0.9	0.2	0.0	1.0
7	Mangolpuri CETP	2.4	1.3	2.5	0.7	0.3	0.5	0.4
8	Lawrence Road CETP	12	1.7	2.52	0.9	0.99	0.1825	0.2
9	Jhilmil CETP	16.8	1.6	0.9	1.3	0.9	1.0	0.2
10	Bawana CETP	35	1.9		0.7	0.9	0.3	0.3
11	Badli CETP	12	0.8	1.2	1.6	0.4	0.2	0.4
12	GTK Road CETP	6	1.4	2.5	1.2	0.8	0.5	0.3
13	Mayapuri CETP	12	1.4	2.5	1.1	0.9	0.2	0.2

8.8 Measures taken for Control of Pollution in River Yamuna

Major contributor of the water pollution in river Yamuna is sewage generated from domestic sector particularly untreated sewage discharge from the unauthorised colonies/ clusters in Delhi. Besides domestic sector water pollution is also caused by inadequately treated effluent

from the industries and also from the dumping of solid waste into the various drains out falling into river Yamuna.

i. **Sewage Treatment**

Estimated Sewage Generation in Delhi is 3273 MLD (720 MGD). There are 35 operational STPs of Delhi Jal Board being monitored by DPCC on monthly basis & Analysis Results are placed on the website of DPCC and also communicated to DJB for taking rectification measures to meet the prescribed standards. Online Monitoring Systems (OLMS) have been installed at all the operational STPs of DJB to track the pollutant load in the wastewater discharged from these plants into the drains. Data from OLMS installed at STPs are received by CPCB & DPCC through the server connected to the OLMSs.

Table 8.8: Sewage Treatment in Delhi

Estimated Sewage Generation	3273 (720 MGD)
Functional Sewage Treatment Plants (STPs)	35 (at 20 Locations)
Capacity of 35 Functional STPs	2715 MLD (597.26 MGD)
Treatment of Sewage (as on 31.03.2020)	2273 MLD (500 MGD) (84% of Installed Capacity)
Gap between Sewage Generation & Installed Capacity	559 MLD [123 MGD (17 %)]
Sewage Treatment Capacity after completion of Proposed Projects [Interceptor Sewer Project (ISP), Rehabilitation / Upgradation of 12 STPs & Construction of New 70 MGD STP at Coronation Pillar & 124 MGD STP at Okhla]	3214 MLD (707 MGD) (By 31.12.2022)

To augment the capacity of sewage treatment in Delhi, Delhi Jal Board has following main proposed/ on-going projects:

- Interceptor Sewer Project (ISP)
- Trapping of Drains
- Rehabilitation / Up-gradation of Existing STPs & Construction of New STPs at Okhla and Coronation Pillar
- Decentralized STPs at various locations in Delhi
- Providing Sewerage Network in Unauthorised Colonies / Unsewered Areas in Delhi
- Up-gradation of balance Existing STPs with Parameters of BOD/TSS as 10/10 mg/l

ii. Interceptor Sewer Project (ISP):

DJB has Interceptor Sewer Project (ISP) comprising of Six packages for trapping of 108 sub-drains in the command area of 3 major drains viz. Najafgarh, Supplementary and Shahdara drains. The trapped waste water from the sub-drains are to be conveyed to the nearest Sewage Pumping Station for treatment in the nearest STP. After completion of the project about 1100 MLD (242 MGD) waste water shall be trapped. 71 sub-drains were trapped by January, 2020 and the project was scheduled to be completed by December, 2020 and subsequently by March, 2021. With the commissioning of all the six packages of Interceptor Sewer Project, the BOD load reduction in the river will be of the order of 165 TPD.

iii. Trapping of Drains:

There are 18 major drains which are directly discharging wastewater into river Yamuna in the Delhi stretch between Wazirabad to Okhla. Out of 18 drains, 13 drains have already been completely trapped. 02 major drains i.e. Najafgarh & Shahdara are included in Interceptor Sewer Project where substantial flow of sub-drains under its command areas will be trapped and treated. Further, in-situ treatment in these drains are also being proposed for which the consultants will be appointed shortly. For the balance 03 drains, action plan has been prepared which requires construction of STPs at the mouth of two drains i.e. Mori Gate and Barapullah drain. The land for these STPs is to be provided by DDA. In respect of the 3rd drain i.e. Maharani Bagh drain, the same has been partially trapped to the extent of 9-10 MLD flow and the balance 15 MLD flow will be trapped in the Batla House Sewerage System by 31.12.2021.

iv. Rehabilitation / Up-gradation of Existing STPs & Construction of New STPs at Okhla and Coronation Pillar:

Rehabilitation / Upgradation of STPs at Kondli, Rithala and Yamuna Vihar and Construction of New STPs at Okhla and Coronation Pillar are proposed/ under construction for meeting the new prescribed standards of BOD 10 mg/l & TSS10 mg/l as given in Table 8.9.

Table 8.9: Rehabilitation / Up-gradation of Existing STPs & Construction of New STPs

S.No.	Name of STP	Capacity	Revised Timeline	Remarks
Rehabilitation / Up-gradation of Existing STPs				
1.	Yamuna Vihar STP Phase II	10 MGD	March, 2022	Plant has already been made operational as per existing parameters. Contract for rehabilitation is yet to be awarded.
2.	Kondli STP Phase I, II & III	45 MGD [10+25+10]	Phase I- December, 2021 Phase II- December, 2022 Phase III- December, 2021	Contract awarded.
3.	Rithala STP Phase I	40 MGD	December, 2022	
Construction of New STPs				
4.	Existing STPs at Coronation Pillar Phase- I, II & III	30 MGD [10+10+10]	June, 2021	A New 70 MGD (318 MLD) Capacity STP at Coronation Pillar is under construction & after commissioning capacity will be enhanced by 40 MGD.
5.	Existing STPs at Okhla Phase I, II, III & IV	124 MGD [30+12+37+45]	December, 2022	A New 124 MGD (564 MLD) Capacity STP will be constructed at Okhla at new location in place of existing STPs (Phase I to IV). Till commissioning of new STP existing STPs will remain in operation.
	Total (12 STPs)	249 MGD (1132 MLD)		Capacity - 289 MGD (1313.8 MLD)

v. Decentralized STPs at various locations in Delhi:

As per Sewerage Master Plan- SMP 2031, 32 Nos STPs are to be constructed. 14 STPs are to be constructed in Najafgarh Drainage Zone and 18 STPs in Narela, Okhla, Outer South Delhi, Kanjhawala, Bawana, and Shahdara Zone. Due to land constraint, it has earlier been decided to construct Decentralized STPs at 42 locations in place of 18 STPs. For setting up 56 DSTPs (42+14) and 02 STPs at the mouth of drain, land at 73 locations is required which includes 15 locations of Sewage Pumping Stations (SPS). Out of total 73 locations, land at 09 locations is already available with DJB and for the balance 64 location, land would have to be made available by different agencies as follows:

- Land and Building Department, GNCTD after acquisition from 10 locations
- Private persons:
- Gaon Sabha lands: 14 locations
- DDA: 40 locations

Table 8.10: Status of 56 DSTPs

S.No	Name of STP	Timeline	Remark	Estimated Cost (in Crores)
1.	14 (7+7) STPs in Najafgarh Drainage Zone	18 to 30 months after approval of funding of balance STP by NMCG and allotment of land	Out of 14 locations, land is available only at 08 locations and land at balance 06 locations is yet to be allotted.	Cost of 56 Nos. Decentralized STPs having treatment capacity of about 92 MGD is about Rs. 828 Crores.
2.	42 Decentralized STPs at various locations	24 to 36 months after allotment of land	Land for construction of 42 DSTPs and connecting SPSs have been identified at various locations and it is still in the process of allotment by Revenue department of GNCT Delhi. Necessary action will be taken by DJB after allotment of land.	Further the land cost for these new DSTPs will be about Rs. 300 Crores. Thus total cost for construction of new DSTPs work out to about Rs. 1128 crores.

vi. Providing Sewerage Network in Unauthorised Colonies / Unsewered Areas in Delhi:

In Delhi, about 78% of population is already connected to sewerage network. The unsewered areas mainly consists of unauthorized colonies. There are 1799 unauthorized colonies out of which sewer lines have been laid and notified in 434 colonies and the work is in progress in 546 colonies. In 819 colonies, sewer network is yet to be laid, out of these 819 colonies, 116 are under tendering stage, 56 colonies are under O Zone and for 96 colonies, NOC is awaited on account of being on Forest, ASI land etc. Thus, sewerage system is to be laid in about 819 colonies for which about **Rs. 3276 Crore @ Rs. 4 Crore per colony** on an average are required for providing sewer network.

Table 8.11: Status of Sewerage Network in Unauthorised Colonies as in February, 2020 (as provided by DJB):

S. No	Status	No. of Unauthorised Colonies	Time lines
1	Sewer line laid and notified	434	Completed
2	Work of sewer network was in progress	597	Up to December, 2022 in phased manner
3	Work of sewer network at tendering stage	116	March, 2023
4	Colonies where NOC is awaited/O-Zone	131	About 03 years after receipt of NOC / Clearance from concerned department
5	Colonies where sewerage network is to be laid along with Decentralized STP	521	For laying sewerage network in these colonies 3 years time will be required after availability of land for DSTPs and committed fund of Rs. 3072 Crores @ 4 Crore per Colony (Total Balance Colonies 116+131+521 = 768 Nos)
	Total	1799	

vii. Up-gradation of balance Existing STPs with Parameters of BOD/TSS as 10/10 mg/l:

Up-gradation of balance Existing STPs with Parameters of BOD/TSS as 10/10 mg/l including Bio-nutrient & pathogen removal & sludge management is proposed by DJB however, subject to availability of funds as mentioned in Table 15.

Table 8.12: Up-gradation of balance Existing STPs

Up-gradation of balance Existing STPs with Parameters of BOD/TSS as 10/10 mg/l (Including Bio-nutrient & pathogen removal & sludge management)						
S. No.	Name of STP	Phase Wise Breakup	Design Capacity (in MGD)	Design Outlet Parameters BOD/TSS	Estimated Cost for Upgradation to 10/10 Parameters (Rs. Crore)	Expected Timelines of Completion (subject to availability of funds)
1	Rithala	Phase – II	40	15/20	312.76	The completion period for up-gradation of STPs is 3 to 4 years from the date of availability of funds.
2	Okhla	Phase-V	16	30/50	125.10	
		Phase-VI	30	20/30	234.57	
3	Kondli	Phase – IV	45	20/30	351.86	
4	Keshopur	Phase-I	12	20/30	93.83	
		Phase-II	20	30/50	156.38	
		Phase-III	40	30/50	312.76	
5	Yamuna Vihar	Phase – I	10	30/50	78.19	
		Phase-III	25	20/30	195.48	
6	Vasant Kunj	Phase – I	2	30/50	15.64	
		Phase – II	3	30/50	23.46	
7	Mehrauli	Mehrauli	5	20/30	39.10	
8	Narela	Narela	10	30/50	78.19	
9	Nilothi	Phase – I	40	30/50	312.76	
10	Najafgarh	Najafgarh	5	30/50	39.10	
11	Pappankalan	Phase – I	20	30/50	156.38	
12	Dr.Sen Nursin g Home Nalla	Dr. Sen Nursing Home Nalla	2.2	10/15	17.20	
13	Delhi Gate	Phase – I	2.2	10/15	17.20	
14	Rohini	Rohini	15	30/50	117.29	
15	Ghitorni	Ghitorni	5	30/50	39.10	

16	Molar Bandh	Molar Bandh	0.66	30/50	5.16	
		Total	348.06		2721	
			MGD			
Total fund requirement for 348.06 MGD @7.82 Crore/MGD = Rs. 2721 Crores						

viii. Sewage and Faecal Sludge Management (Septage Management):

Septage Management Regulations have been notified by the Urban Development Department, GNCTD on 12.11.2018 and necessary action is to be taken by Delhi Jal Board, District Magistrates and Local Bodies / Municipal Corporations as per the provisions of the said Notification. The main features of the Regulation are as under:

- Septic Tank Waste (Septage) shall be collected and transported only by vendor(s) having a valid License for this purpose issued by the Delhi Jal Board
- The Septage shall be transported only in the Vehicles approved for these purposes by the designated officer of Delhi Jal Board.
- The Licensee shall dispose of Septage only at the locations notified by the Delhi Jal Board from time to time.
- The worker(s) deployed by the Licensee shall be insured to cover compensation to be paid to the victims /their legal.
- Public Notice was issued for inviting applications from vendors/individuals engaged in the activity of cleaning of Septic Tank Waste for licensing. DJB had issued 156 Nos. of Licenses by January, 2020.
- The work of collection, transportation and disposal of septic tank waste by the licensed vendors began from April, 2019.
- Around 90 Million Litres of Septic Tank Waste was collected/ treated till 15.12.2019 from the un-sewered/ un-authorized areas by DJB.
- Concerned District Magistrates to enforce the provisions of the regulation to prevent unauthorised disposal of septage in drains etc. and to form a committee in this regard. DJB member will be Member Secretary of the Committee.



ix. Integrated Drain Management Cell (IDMC) for In-situ Bioremediation / Phytoremediation of Sewage in Drains:

In compliance to the orders dated 05.03.2020 of Hon'ble NGT in OA No. 06/2012 in the matter of Manoj Mishra vs. Union of India & Ors. an Integrated Drain Management Cell (IDMC) headed by Chief Secretary, Delhi has been constituted vide order dated 17.03.2020 issued by Urban Development Department, Govt. of NCT of Delhi for remediation and management of all drains of Delhi. IDMC is having members from all the Drain Owning Agencies (DOAs). Meetings of IDMC are held on regular basis.

x. Re-use of Treated Water

Action Plan for use of treated waste water from STPs was prepared by Delhi Jal Board and submitted to CPCB in compliance of the Orders of Hon'ble NGT in OA No. 148/2016 in the matter of Mahesh Chandra Saxena vs. South Delhi Municipal Corporation & Ors.

Out of 500 MGD of treated waste water from STPs about 90 MGD was being used for various purpose e.g. Horticulture, Irrigation, DTC Depot etc.

xi. Common Effluent Treatment Plants (CETPs) in Delhi

There are 13 CETPs operating in Delhi with total installed treatment capacity of 212.3 MLD. These 13 CETPs are connected to 17 Approved Industrial Areas in Delhi. All the 13 CETPs have been designed to treat mix waste i.e. industrial effluent & sewage generated from the Industries / Units in the Industrial Areas connected with the CETPs. These CETPs are treating about 55 to 60 MLD of waste water.

For smooth functioning of CETPs, Department of Industries, Govt. of NCT of Delhi enacted the CETP Act, 2000 and CETP Rules 2001. Under the said CETP Act & Rules Industries Department is the Prescribed Appropriate Authority to take necessary action w.r.t the provisions under the said Act & Rules. As per the directions of the Hon'ble Supreme Court, CETPs were handed over by DSIIDC to CETP Societies. Presently 11 CETPs are being operated & maintained by the concerned CETP Societies and rest 2 at Narela & Bawana are being operated & maintained by DSIIDC through the private operators. All the 13 CETPs are being monitored by DPCC Laboratory on monthly basis and Analysis Reports are placed on the website

of DPCC and also conveyed to the CETP Societies / Operator of CETPs for rectification of the deficiencies to meet the prescribed standards.

Sufficient treatment capacity (212.3 MLD) is available with existing 13 CETPs to treat the effluent generated from 17 approved industrial areas connected with these CETPs. Besides CETPs, Water Polluting Industries / Units in 17 Approved Industrial Areas connected to 13 CETPs

have individual Effluent Treatment System (ETP etc.) to treat the Trade / Industrial Effluent generated from their Activities / Processes.

All these OCEMS are connected to the servers of DPCC and CPCB. Calibration of OLMS installed at CETPs is being carried

out by DPCC Water Laboratory. The data of OLMS is also displayed at the gate of each CETP. Besides this, Calibration of OLMS at CETPs is being carried out by DPCC Water Laboratory.

CETPs have installed Flow Meters at the Inlet & out let of the CETPs. Online Monitoring Systems (OLMS) have been installed by all the 13 CETPs for measuring pH, TSS, BOD & COD at the outlet of the CETPs.

Table 8.13: Common Effluent Treatment Plants (CETPs) in Delhi

S. No.	Name of CETP	Name of CETP Society/ Operator of CETP	Industrial Areas Connected with CETP	Capacity (in MLD)	Flow (in MLD) (Feb, 2020)
1	Narela CETP	PNC Delhi Industrial Infra Pvt. Ltd.	Narela Industrial Area	22.5	10.58
2	Nangloi CETP	DSIDC & Udyog Nagar CETP Society	Nangloi & Udyog Nagar Industrial Areas	12	2.5
3	Mayapuri CETP	Mayapuri Industrial Area CETP Society	Mayapuri Industrial Area	12	1.65
4	Naraina CETP	Naraina Industrial Area CETP Society	Naraina Industrial Area	21.6	4.12
5	Bawana CETP	Bawana Infra Development Pvt. Ltd	Bawana Industrial Area	35	23.34

6	Badli CETP	Badli Industrial Estate CETP Society	Badli Industrial Estate	12	1.522
7	Okhla CETP	Okhla Industrial Area CETP Society	Okhla Industrial Area	24	2.15
8	SMA CETP	North West Industrial Area CETP Society	SMA, Rajasthani Udyog Nagar and SSI Industrial Areas	12	1.67
9	GTK Road CETP	GTK Road Industrial Estate CETP Society	GTK Road Industrial Area	6	2.50
10	Wazirpur CETP	Wazirpur Industrial Pollution Control (CETP) Society	Wazirpur Industrial Area	24	2.02
11	Lawrence Road CETP	Keshav Puram Industrial Area (KESPIA) CETP Society	Lawrence Road Industrial Area	12	1.0
12	Jhilmil CETP	Jhilmil and Friends Colony Industrial Area CETP Society	Jhilmil and Friends Colony Industrial Areas	16.8	5.50
13	Mangolpuri CETP	Mangolpuri Industrial Area CETP Society	Mangolpuri Industrial Area	2.4	1.71
		Total		212.3 MLD	60.48 MLD

xii. Upgradation of CETPs:

Since CETPs in Delhi are old ones (more than 15 years old) and characteristic of effluent has also been changed due to closure of Water Polluting Industries / Units in the past several years, DSIIDC has engaged CSIR-NEERI vide letter dated 05.11.2019 for providing consultancy w.r.t various issues related to CETPs including up gradation of CETPs as per following scope of work:

- Formulating an action plan for the survey of the individual industries in various industrial areas for ensuring their connectivity with the waste water conveyance system of CETPs and identifying industrial units violating environmental pollution norms.
- To assess the overall functioning of all 13 CETPs through a physical survey.

- c) To formulate an action plan for 13 CETPs after the study of the survey report in terms of:
- Required up-gradation and retrofitting of CETPs to make them compatible with the composition of effluent reaching CETP for capacity utilisation (use of CETP as STP) and to conform the effluent discharge standards and to work out cost associated with this task.
 - Management of the hazardous sludge being generated by CETPs.
 - Maximizing utilization of treated water from CETPs in order to achieve Zero Liquid Discharge and reducing dependency of greenbelts/parks in and around CETPs on ground water.
- d) Study regarding requirement of CETPs in 11 industrial areas which are presently not having CETP. NEERI had conducted preliminary survey of CETP Wazirpur, CETP SMA along with connected industrial areas by February, 2020. DSIIDC is monitoring the work of upgradation of CETPs.

8.8. Protection of Flood Plain of River Yamuna & Prevention of Encroachment:

a) Demarcation of 1: 25 years Flood Plains & Fixing up of Bollards and Fencing:

The demarcation of 1: 25 years flood plain of river Yamuna pertains from Wazirabad to Jaitpur on both banks. The flood plains from Wazirabad to ISBT (50 Nos) and from Sun Dial to Dhobighat (56 Nos) was marked and 106 Bollards were installed by DDA. The ring road from Yamuna Bazaar to Sun Dial and the road number 13 /A from Dhobighat to Jaitpur Ghat and further embankment upto Delhi Haryana Border acts / mark the flood plain boundary on western bank. Similarly, the Pustha road on the eastern Bank mark the entire flood plain boundary. 90 % work for demarcation of flood plains was completed and the balance was held up due to construction ban.

b) Engagement of Private Security to Stop Illegal Dumping:

Private security was engaged by DDA to stop illegal dumping: 100 Nos. of Security Guards were deployed.

c) Installation of Electronic Surveillance System:

CCTV cameras were installed by DDA from Old Railway Bridge to Yamuna Bank Metro Station, Khijrabad and MCRs (1) at Geeta Colony, (2) at Golden Jubilee Park

and Khijrabad respectively.

d) Removal of Encroachment from the Flood Plain:

550 Nos. Jhuggis / Chappers were demolished and an area of 5500 Sq. Meter was freed from encroachment. In, all out of 1026 Jhuggis / Structures existing of nearly 11.0 Acres of land in Okhla, Khijrabad and Jogabai 600 Jhuggis were removed and 5.00 Acres of land was reclaimed nearly 2.0 acres of land with 150 Jhuggis could not be removed due to stay by Courts. Balanced Jhuggis are proposed to be removed in due course.

e) Use of Technology like Artificial Intelligence for Aerial Mapping etc.

Possibility of Using Technology like Artificial Intelligence, Aerial Mapping etc. or Drones to keep a track of quantum and location of debris being dumped is being explored by DDA. An Electronic Surveillance System with patrolling along with a static party has been deployed. For monitoring of encroachments on vacant land using satellite imageries the subject has been taken up with ISRO and DDA has signed MOU with ISRO on 6th July 2018. If successful, will be implemented in monitoring of Yamuna River Flood Plain.

f) Restoration and Rejuvenation of the Floodplains of River Yamuna.

DDA is going ahead with the Restoration and Rejuvenation of the floodplains of River Yamuna. The complete stretch of Zone- 'O' falling under the jurisdiction of DDA has been subdivided into 10 Projects including the development of Bio-diversity Park near Kalindi Colony.

8.9 Requirement of Minimum Environmental Flow in River Yamuna

Minimum Environmental Flow for the dilution of the polluted water in river Yamuna in Delhi is required to meet the desired water quality levels in river Yamuna for bathing purpose i.e. $BOD \leq 3 \text{ mg/l}$ & $DO \geq 5 \text{ mg/l}$. To assess the minimum required environmental flow of river Yamuna for stretch between Hathini Kund to Okhla, a comprehensive study was assigned by National Mission for Clean Ganga (NMCG) to National Institute of Hydrology (NIH), Roorkee on 24.12.2018.

Final Draft Report has been submitted by NIH to NMCG. E-flow of 23 cumecs in the lean season has been recommended in the NIH study. Ministry of Jal Shakti (MoJ) is to take

necessary action for maintaining the E-flow as recommended in the said Report of NIH. However, Ministry of Jal Shakti (MoJ) / National Mission for Clean Ganga (NMCG) has observed that the water sharing agreement of 1994 among the riparian states of Uttarakhand, HP, UP, Haryana, Rajasthan and NCT Delhi is due for revision only in 2025 unless any of the states so demand implying that no revision of water sharing will be possible to achieve the E-flow in river Yamuna.

8.10 Prevention of Dumping of Solid Waste in Drains and River Yamuna

- i. As per the orders of Hon'ble NGT there is Environmental Compensation of Rs 5000 on dumping of Pooja Material/ Flowers etc and Rs 50,000 on the dumping of Construction Material / Malba in River Yamuna.
- ii. For preventing the dumping of solid waste in the drains, all the concerned Departments / Agencies have been directed vide order dated 09.01.2019 of Chief Secretary and Order dated 15.01.2019 of Urban Development Department, GNCTD for taking necessary action against the violators including imposition of Environmental Compensation of Rs 50,000.
- iii. Wire Nets etc have been provided at the Bridges across river Yamuna by the Bridge Owning Agencies in Delhi to prevent throwing of Pooja Material/ Flowers etc into river Yamuna.



8.11 Ban on Idol Immersion

- i. As per the directions of the Hon'ble NGT appointed Yamuna Monitoring Committee, idol immersion was performed by devotees in artificial ponds constructed all across Delhi by Revenue Department. Environment Department had launched mass awareness drive regarding idol immersion. Awareness Advertisements were published in 11 National Dailies (English, Hindi, Urdu, Punjabi) every week for about 1 ½ month. Awareness workshop for Eco-Club school teachers on idol immersion was conducted on 29.08.2019.

- ii. As per report from Revenue Department, 116 artificial ponds were constructed during Ganeshotsav and 89 artificial ponds were constructed during Durga Pooja. Around 10500 idols were immersed during both the festivals.
- iii. Further, water quality of river Yamuna was found to be improved (in post immersion) during this year, as per DPCC reports for both the festivals of Ganeshotsav and Durga Pooja.



8.12 Orders of Hon'ble Supreme Court & Hon'ble National Green Tribunal for control of Pollution and Rejuvenation of River Yamuna

- i. Hon'ble Supreme Court and Hon'ble National Green Tribunal have passed various orders from time to time for control of pollution in river Yamuna and its rejuvenation.
- ii. Hon'ble National Green Tribunal vide judgment dated 13.01.2015 in OA No. 06/2012 in the matter of Manoj Mishra Vs Union of India and Ors. has passed detailed orders giving various directions to all the concerned Agencies for control of pollution in river Yamuna and also constituted a Monitoring Committee vide order dated 26.07.2018 known as Yamuna Monitoring Committee for monitoring of the compliance of its directions given in various orders.
- iii. Yamuna Monitoring Committee submitted its Action Plan dated 22.10.2018 for rejuvenation of River Yamuna to Hon'ble NGT and also submitted its 3 interim reports to Hon'ble NGT after taking various meetings and monitoring the issues / action points with concerned Departments. DJB, DDA, DMCs, DSIIDC, IFCD etc are the main Departments which are required to take action in time bound manner to complete the works / projects in given time frame.
- iv. As per the timelines given by DJB in the Action Plan in respect of No. of STPs (Commissioning/ Rehabilitation/ Upgradation etc.) the projects shall be completed

by 31.12.2022 whereas as per the orders of Hon'ble NGT in OA No. 06/2012 in the matter of Manoj Mishra Vs. U.O.I & Ors., all the projects were to be completed by 31.12.2020.

- v. DPCC submitted its action taken/ status report to Hon'ble NGT and to the Yamuna Monitoring Committee from time to time as per the various orders of Hon'ble NGT in the said matter and direction of Yamuna Monitoring Committee.

8.13 River Rejuvenation Committee

In compliance to the directions of the Hon'ble National Green Tribunal issued vide orders Dated 20.09.2018 in O.A. No. 673/2018 in the matter of News item published in 'The Hindu' Authored by Shri Jacob Khoshy Titled "More river stretches are now critically polluted: CPCB", River Rejuvenation Committee (RRC) for Delhi was constituted vide office order dated 22.10.2018 for preparation of action plan and rejuvenation of river Yamuna in



Delhi in terms of said order. The RRC is to function under the overall supervision and coordination of Principal Secretary, Environment, Department of Environment, Government of National Capital Territory of Delhi. As per said order of the Hon'ble NGT, in case of Delhi, the polluted stretch of River Yamuna have been identified from

Wazirabad to Asgarpur village (22 km) which is a Priority I Stretch.

The said Committee consists of Director (Environment), Director (Urban Development Department), Director (Industries Department) & Member Secretary, DPCC. Action Plan prepared by RRC Delhi in compliance to the directions of the Hon'ble NGT in said matter was submitted to CPCB on 21.02.2020. Task Team of CPCB in its 10th meeting held on 26.02.2020 has recommended the said Action Plan subject to revision of action plan as per suggestions given by Task Team in the said meeting.

As per the orders of Hon'ble NGT dated 06.12.2019 in the said matter (O.A. No. 673/2018) Delhi is to submit Monthly Progress Report to the Secretary, Ministry of Jal Shakti, Govt. of India. Monthly Progress Report of Delhi is being submitted to Secretary, Ministry of Jal Shakti, Govt. of India regularly.

Table 8.14: Analysis report of ground water nearby Ghazipur land fill site: April 2019 – March 2020

Sampling Location	pH	TDS (mg/l)	Cl (mg/l)	Hardness as CaCO ₃ (mg/l)	Ca (mg/l)	SO ₄ (mg/l)	Nitrate (mg/l)	Arsenic (mg/l)	Zinc (mg/l)	Fe (mg/l)	PB (mg/l)	Cu (mg/l)	Cr (mg/l)	Ni (mg/l)	Cd (mg/l)
Desirab le Limit for Drinkin g Water	6.5 - 8.5	500	250	300	75	200	45	1	5	0.3	0.05	0.05	0.05	-	0.01
Ghazip ur Dairy Farm, Gali no. 4	7.6	530	110	650	160	208	34	ND	0.02	2.02	ND	ND	ND	2.64	1.50
Ghazip ur Dairy near Masjid	7.5	133	660	950	248	348	40	ND	ND	1.74	ND	ND	ND	2.64	0.86

Ghazipur landfill site near entry gate	7.0	241	165	1060	544	191	58	ND	0.02	4.09	ND	3.58	ND	3.18	0.69
Fish market Landfill Site Ghazipur	7.9	664	170	410	140	213	65	ND	ND	3.36	ND	ND	ND	2.55	0.53

Table 8.15: Analysis report of ground water nearby Bhalaswa Okhla landfill site: April 2019 – March 2020

Sampling Location	pH	TDS (mg/)	Cl (mg/)	Hardness as CaCO ₃ (mg/l)	Ca (mg/)	SO ₄ (mg/l)	Nitrate (mg/)	Arsenic (mg/l)	Zinc (mg/l)	Fe (mg/)	PB (mg/l)	Cu (mg/l)	Cr (mg/)	Ni (mg/)
Desirable Limit for Drinking Water	6.5-8.5	500	250	300	75	200	45	1	5	0.3	0.05	0.05	0.05	-
Okhla Landfill Site	7.0	175	1285	780	184	614	34	ND	ND	2.91	ND	ND	ND	2.28
ESI Hospital Okhla	7.5	565	185	400	128	481	22	ND	0.04	2.37	ND	0.25	ND	3.27
Okhla Bus Depot	8.1	171	1550	750	192	640	58	ND	ND	3.09	ND	ND	ND	3.09
PB Singh Camp Colony, Near Shiv Mandir	7.4	114	159	550	120	356	26	ND	0.02	3.0	ND	ND	ND	2.82

Table 8.16: Analysis report of ground water nearby Bhalaswa landfill site: April 2019 – March 2020

Sampling Location	pH	TD S (mg /l)	Cl (mg /l)	Hardness as CaCO ₃ (mg/l)	Ca (mg /l)	SO ₄ (mg /l)	Nitrate (mg/l)	Arsenic (mg/l)	Zinc (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	45	1	5	0.3	0.05	0.05	0.05	-	0.01
Bhalaswa Sanjay Gandhi Transport	7.3	167	1135	1100	400	451	38	ND	0.29	2.65	ND	0.41	ND	3.73	1.41
Bhalaswa Dairy	7.5	198	1960	980	344	288	32	ND	ND	7.51	ND	0.75	ND	3.09	1.26
Bhalaswa Landfill Site	7.0	240	2165	2300	784	658	49	ND	ND	5.17	ND	0.58	ND	2.01	0.69
Bhalaswa Janta Colony	7.3	202	1110	1200	288	432	36	ND	ND	3.01	ND	1.08	ND	2.38	1.02

Table 8.17: Analysis report of ground water nearby Bawana landfill site: April 2019 – March 2020

Sampling Location	pH	TDS (mg/l)	Cl (mg/l)	Hardness as CaCO ₃ (mg/l)	Ca (mg/l)	SO ₄ (mg/l)	Nitrate (mg/l)	Arsenic (mg/l)	Zinc (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	45	1	5	0.3	0.05	0.05	0.05	-	0.01
Main Gate Bawana (SLF)	8.1	438	35	190	40	703	14	ND	0.11	2.11	ND	1.08	ND	3.64	0.77
Store Waste to Energy	8.0	570	120	310	80	676	36	ND	0.11	2.74	ND	0.58	ND	3.10	0.37
Sonot Village Bawana	8.0	103	80	100	40	382	48	ND	0.16	2.47	ND	0.58	ND	1.84	0.45
Bawana Village	8.0	847	140	350	112	996	92	ND	0.28	1.93	ND	0.25	ND	4.18	0.69
Sector 5 Bawana	7.2	701	120	120	88	253	80	ND	0.26	2.02	ND	0.42	ND	4.36	0.86

Fig.8.1: Drain waste water quality (annual average April 2019 – March 2020)

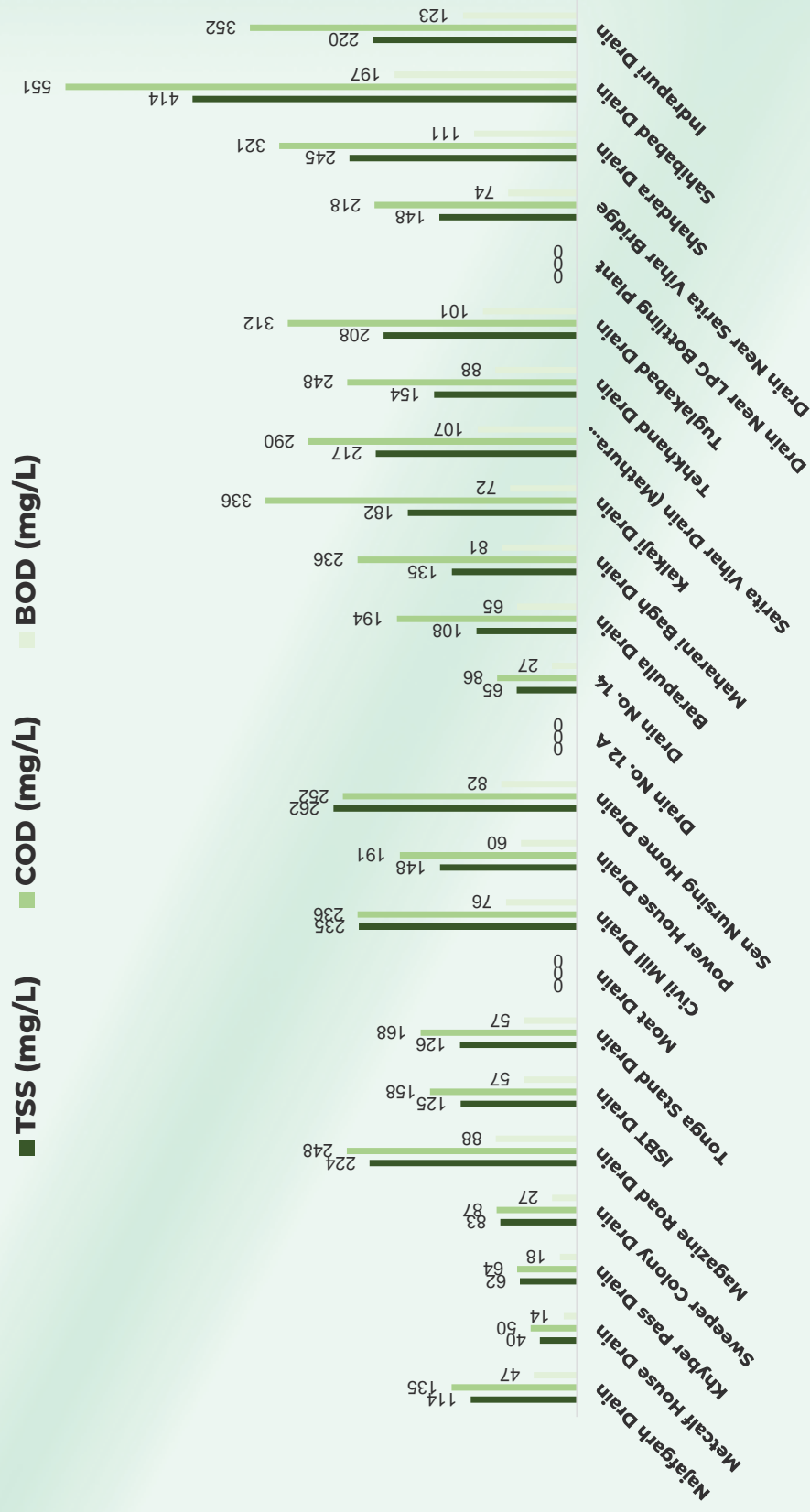
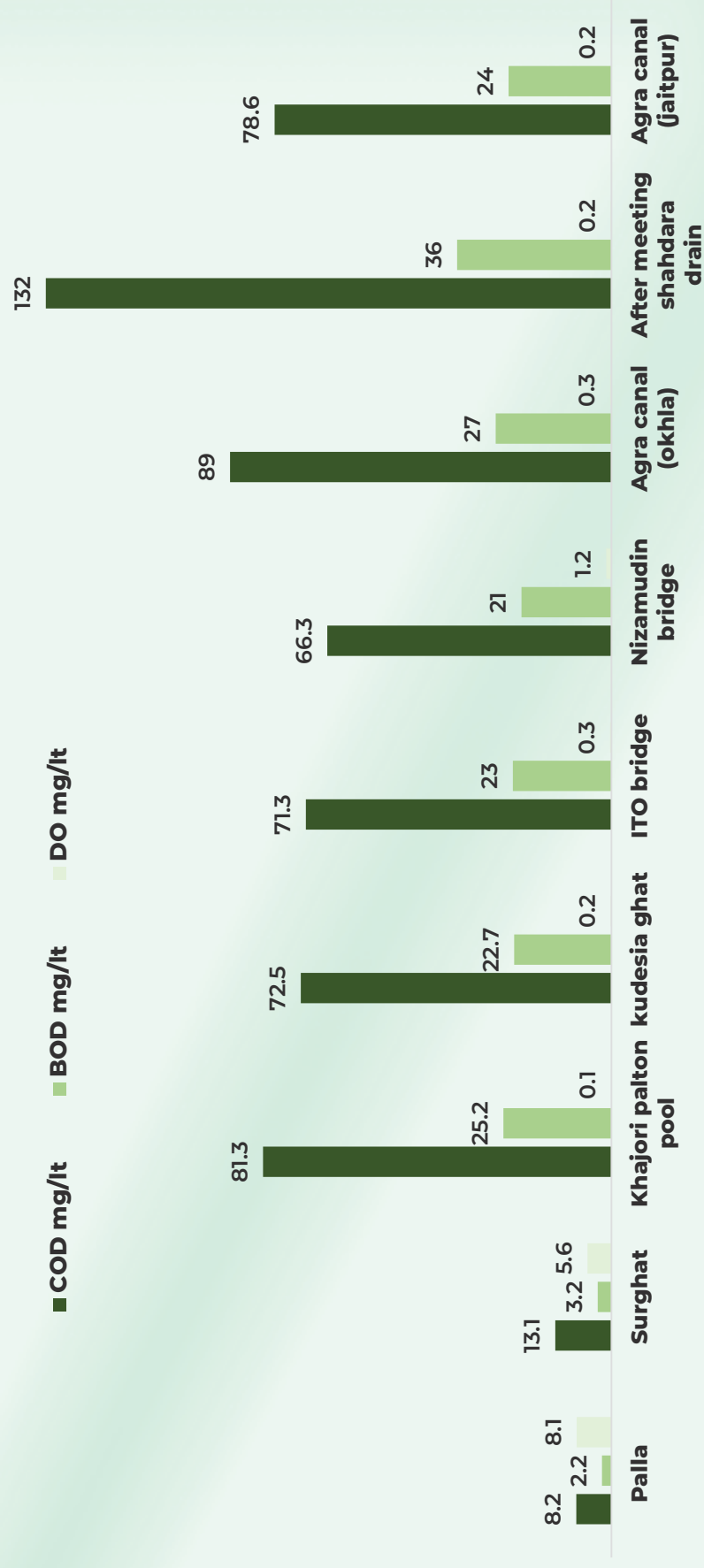


Fig.8.2: River water quality (annual average April 2019 – March 2020)



The following are the important observations:

- i. **pH** varied from 7.5 to 7.9. The minimum value was observed at Khajori Paltoon Pool and maximum value was observed at Palla.
- ii. **BOD** varied from 2.2 mg/l to 36 mg/l respectively at Palla and after meeting Shahdara drain respectively.
- iii. **COD** varied from 8.2 mg/l to 132 mg/l respectively at Palla and after meeting Shahdara drain respectively.
- iv. **Dissolved Oxygen** varied from 0.1 mg/l to 8.1 mg/l at different locations. Dissolved oxygen was present at Palla and Surghat throughout the year.



9

AIR POLLUTION

Ambient air quality, ambient noise quality



The Air Laboratory is mainly involved in monitoring of ambient air quality and source emission in Delhi. For ambient air monitoring a real time air monitoring network is developed with 26 stations which is distributed in different land use areas of Delhi. These stations monitor 08 prescribed pollutants i.e PM_{2.5} & 10, CO, NO₂, SO₂, Benzene, O₃, NH₃. Metrological parameters like wind speed, wind direction, Temperature, humidity, solar radiation, Barometric pressure, Rainfall also measured at all stations. Hourly data is generated for particulate and for gaseous pollutants 15 minutes average is taken. The figure-1 shows the geographic distribution of the air quality monitoring stations and table-1 shows the location of the Continuous Ambient Air Quality Monitoring System (CAAQMS).

FIGURE 9.1: DISTRIBUTION OF AIR QUALITY MONITORING STATION

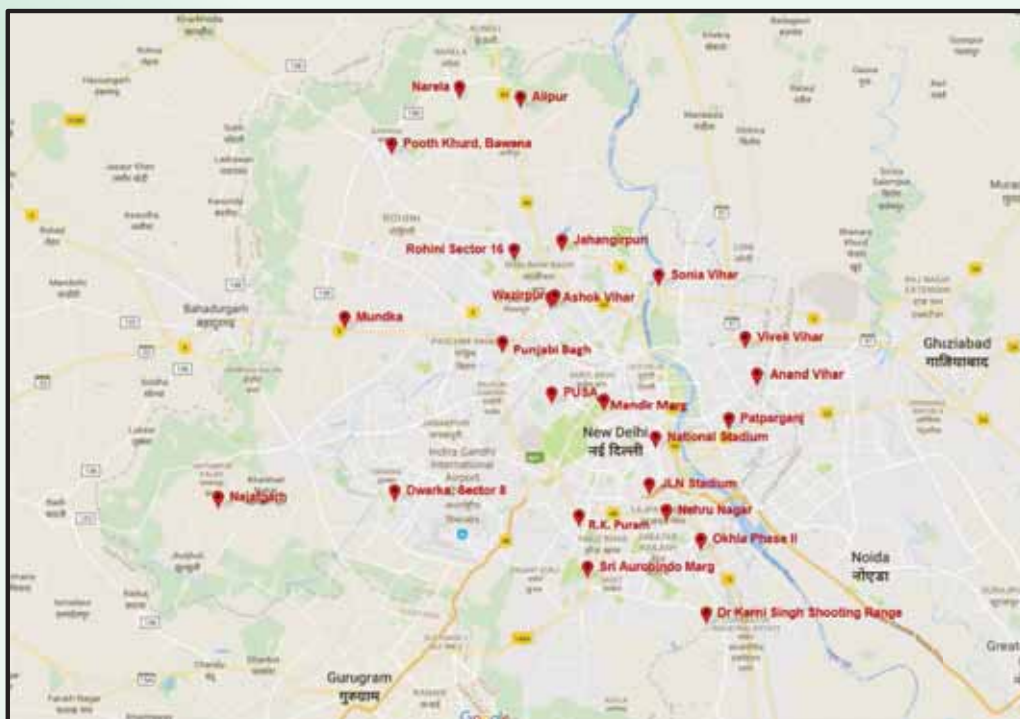


TABLE 9.1: LOCATION OF CAAQMS

S N	Name	Address
1	Mahatma Gandhi Institute for Combating Climate Change	Alipur, Baktawarpur Road, Bakoli, Delhi-110036
2	Industrial Training Institute,	K Block, Near Babu Jagjeevan Ram Hospital, Bhalswa, Jahangirpuri, Delhi-110033
3	ITI, Narela	Shahpur Garhi, Narela, New Delhi- 110040
4	Sonia Vihar Water Treatment Plant (DJB)	Wazirabad Rd, Jagat Puri, Sonia Vihar, New Delhi-110094

5	Mother Dairy Plant,	30, New Patpar Ganj Road, Block D, Parparganj, New Delhi-110092
6	Satyawati College, G.T Karnal Road	Ashok Vihar, Phase- III, Delhi-110052
7	PGDAV College, Srinivaspuri	Nehru Nagar, Opposite Shriniwaspuri, New Delhi-110065
8	National Institute of Tuberculosis & Respiratory Diseases,	Sri Arvindo Marg, New Delhi
9	Bramprakash Ayurvedic Hospital, Najafgarh	Khera Dabar, Najafgarh, Delhi-110073
10	ITI Shahdra (Jhilmil Industrial Area),	C176, Block C, Vivek Vihar Phase I, Vivek Vihar, Delhi, 110095
11	IARI	PUSA, PUSA institutional Area
12	Dhayanchand Stadium	India Gate, New Delhi-110002
13	J.L.N Stadium	Pragati Vihar, New Delhi-110003
14	Dr. Karni Singh Shooting Range, Asola	Suraj Kund Road, Tuglakabad, New Delhi-110044
15	National Institute of Malaria Research	Sector 8, Dwarka, New Delhi, Delhi 110077
16	Mundka Metro Residential Colony	
17	Shaheed Sukhdev College of Business Studies, Rohini	PSP Area-IV, Dr. K.N. Katju Marg, Sector-16, Rohini, Delhi-110089
18	Delhi Institute of Tool Engineering,	Wazirpur Industrial Area, Wazirpur, Delhi, 110052
19	DITE, Okhla Industrial Area, New Delhi	Block A, Okhla Phase-II, Okhla Industrial Area, New Delhi-110020
20	Maharshi Valmiki Hospital,	Bhavana Industrial Area, Pooth Khurd, New Delhi, Delhi 110039
21	Anand Vihar, ISBT	ISBT
22	Mandir Marg	N.P. Boys Sr. Sec. School, Madir Marg
23	Punjabi Bagh	SARVODAYA Kanya Vidyalaya, No. 2, Near Central Market
24	R.K.Puram	Kendriya Vidyalaya, Sec-2

The capital city has a tag of one of the most polluted city in the world mainly with reference to high level of particulate concentration. The gaseous pollutants are generally within the prescribed limit. The annual average of different parameters for last 9 years (2011-2019) is shown in Table 9.2

TABLE 9.2: YEARLY CITY AVERAGE OF VARIOUS POLLUTANTS OF DPCC CAAQMS (2011 - 2019)

Year*	PM 10 (ug/m ³)	PM 2.5 (ug/m ³)	SO ₂ (ug/m ³)	NO ₂ (ug/m ³)	O ₃ (ug/m ³)	NH ₃ (ug/m ³)	CO (mg/m ³)	C ₆ H ₆ (ug/m ³)
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2011	277	136	19.00	71.00	46.77	43.54	1.72	2.68
2012	368	164	18.00	90.00	47.06	55.36	1.72	2.59
2013	353	151	21.00	79.00	34.42	51.85	2.01	4.73
2014	324	149	15.94	82.45	40.89	46.87	1.58	4.76
2015	295	133	17.54	71.96	45.11	43.97	1.51	4.41
2016	303	137	20.52	71.63	39.78	43.16	1.84	6.28
2017	277	130	23.28	74.01	43.60	37.99	2.07	5.20
2018	275	128	18.61	50.00	38.57	40.00	1.52	3.10
2019	230	112	14.76	48.18	34.69	37.80	1.44	4.25

Yearly City Average of 4 stations except 2018-19 (24 stations average)

**Calendar Year*

9.1 Ambient Air Quality

i. Particulate Matter

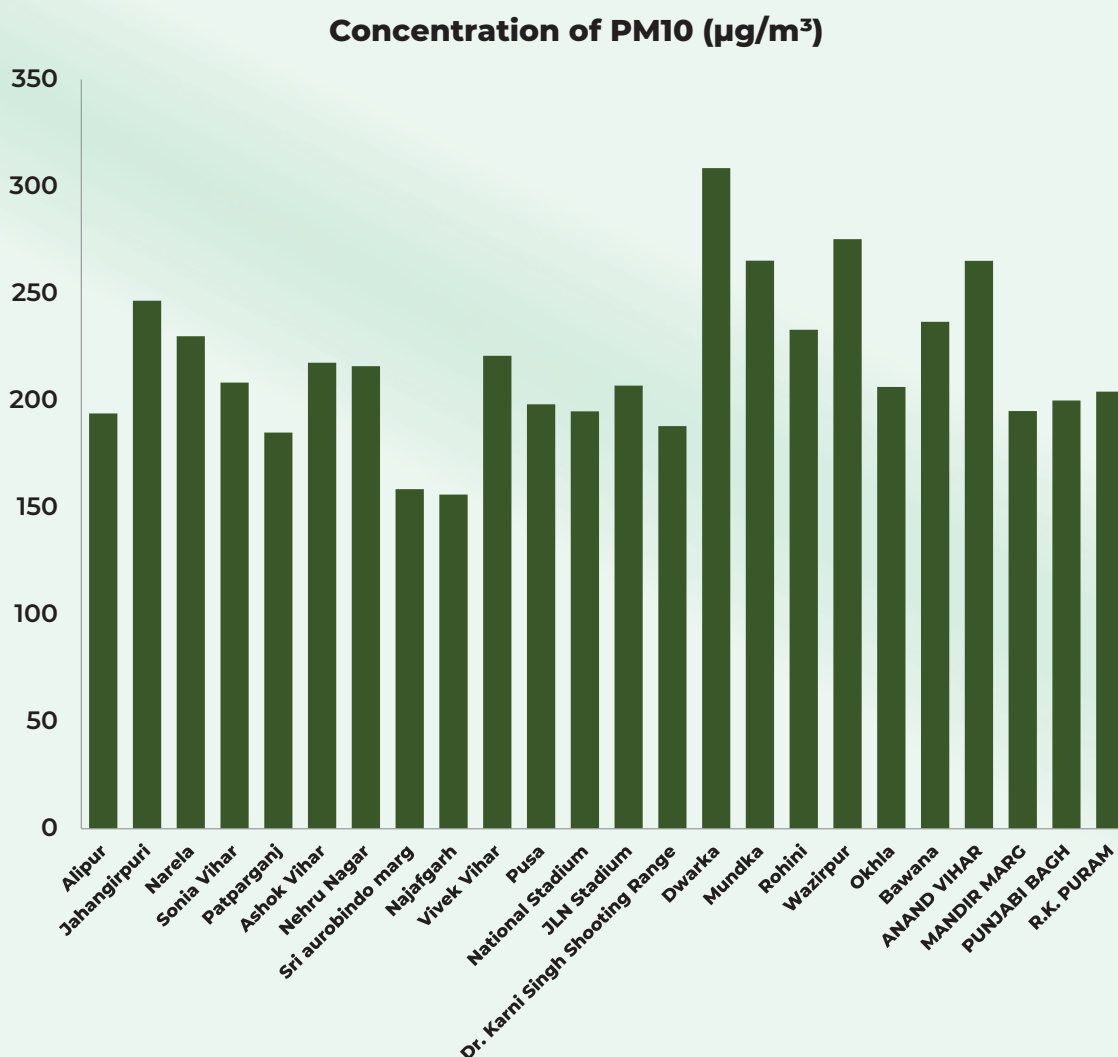
The geographical location of Delhi is one of the crucial reasons for high level of particulate in the city. The **climate** of **Delhi** city is humid subtropical and it is highly influenced by the seasonal monsoon. It has long, hot summers and cool, dry winters. In general every year three peaks were observed in the concentration of particulates. In the summer season the dust laden winds from the western part of the country bring particulate. In summer PM₁₀ concentration is high. With onset of winter harvesting of paddy starts in neighboring states and the agriculture residue burning is very common and contributes high concentration of PM_{2.5}. in the winter season metrological conditions like calm conditions, low wind speed, low mixing height, low temperature induced low dispersion of pollutants which increase the concentration.

The average values for different parameters as observed during the year have been presented in the form of graphs given as below:

a) PM_{10}

The range of PM_{10} is varied between $156 \mu\text{g}/\text{m}^3$ at Najafgarh to $309 \mu\text{g}/\text{m}^3$ at Dwarka, against the prescribe standard of $100 \mu\text{g}/\text{m}^3$. The concentration more than $200 \mu\text{g}/\text{m}^3$ was observed at 15 locations only 2 locations shows value less than $160 \mu\text{g}/\text{m}^3$ i.e Sri Aurobindo Marg and Najafgarh. These two CAAQMS is located inside the campus of Hospitals with thick foliage and the major roads is relatively away and vehicular emission not directly impacting the locations. The city average observed was $217 \mu\text{g}/\text{m}^3$.

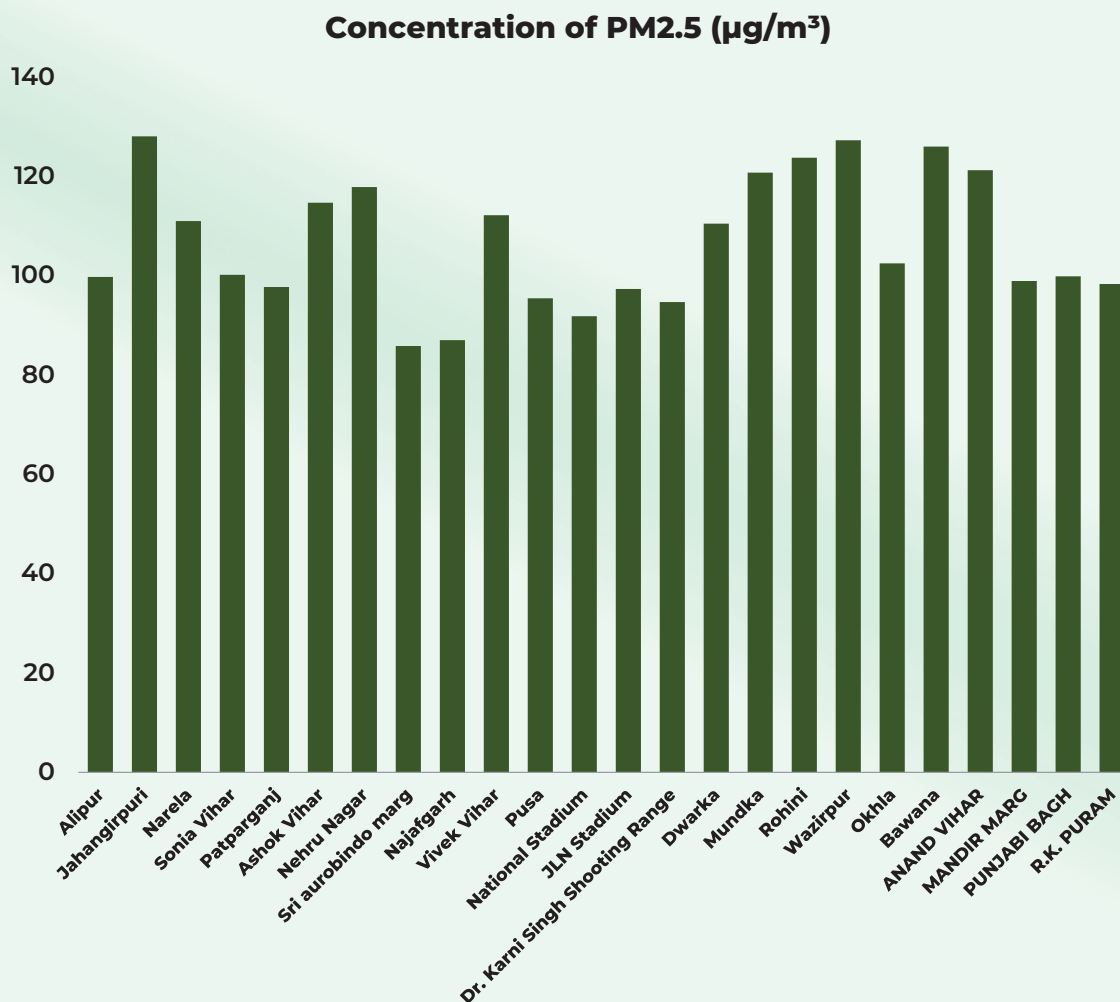
FIGURE 9.2: CONCENTRATION OF PM_{10} ($\mu\text{G}/\text{M}^3$)



b) PM_{2.5}

The range of PM_{2.5} is varied between 86 µg/m³ at Sri Aurobindo Marg to 128 µg/m³ at Jahangirpuri, against the prescribe standard of 60 µg/m³. The concentration more than 100 µg/m³ was observed at 12 locations. 2 locations shows value less than 90 µg/m³ i.e. Sri Aurobindo Marg and Najafgarh. These two CAAQMS is located inside the campus of Hospitals with thick foliage and the major roads are relatively away and vehicular emission not directly impacting the locations.

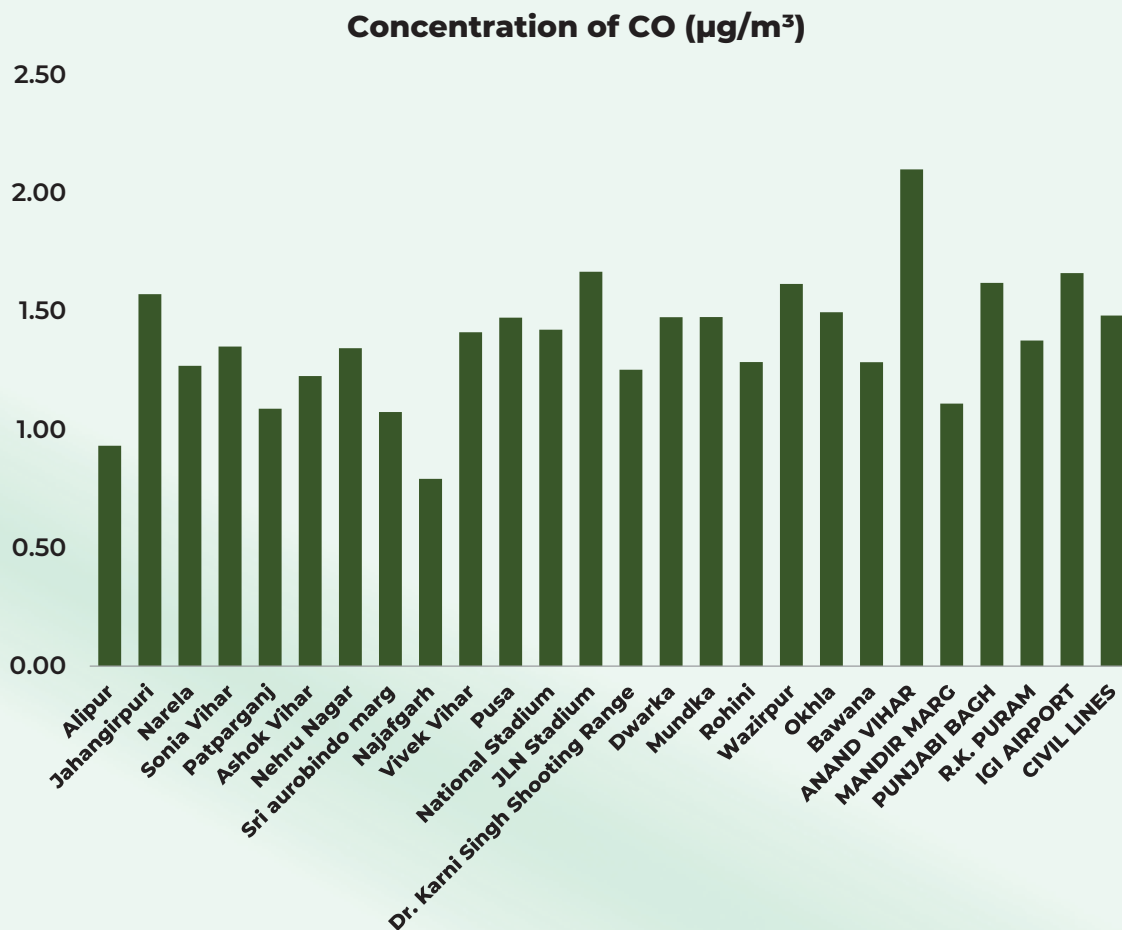
FIGURE 9.3: CONCENTRATION OF PM_{2.5} (µG/M³)



ii. Carbon Monoxide (CO)

The range of CO is varied between 0.79 mg/m³ at Alipur to 2.10 mg/m³ at Anand Vihar against the prescribe standard of 4 mg/m³. The concentration of CO is found within the prescribe limit most of the times.

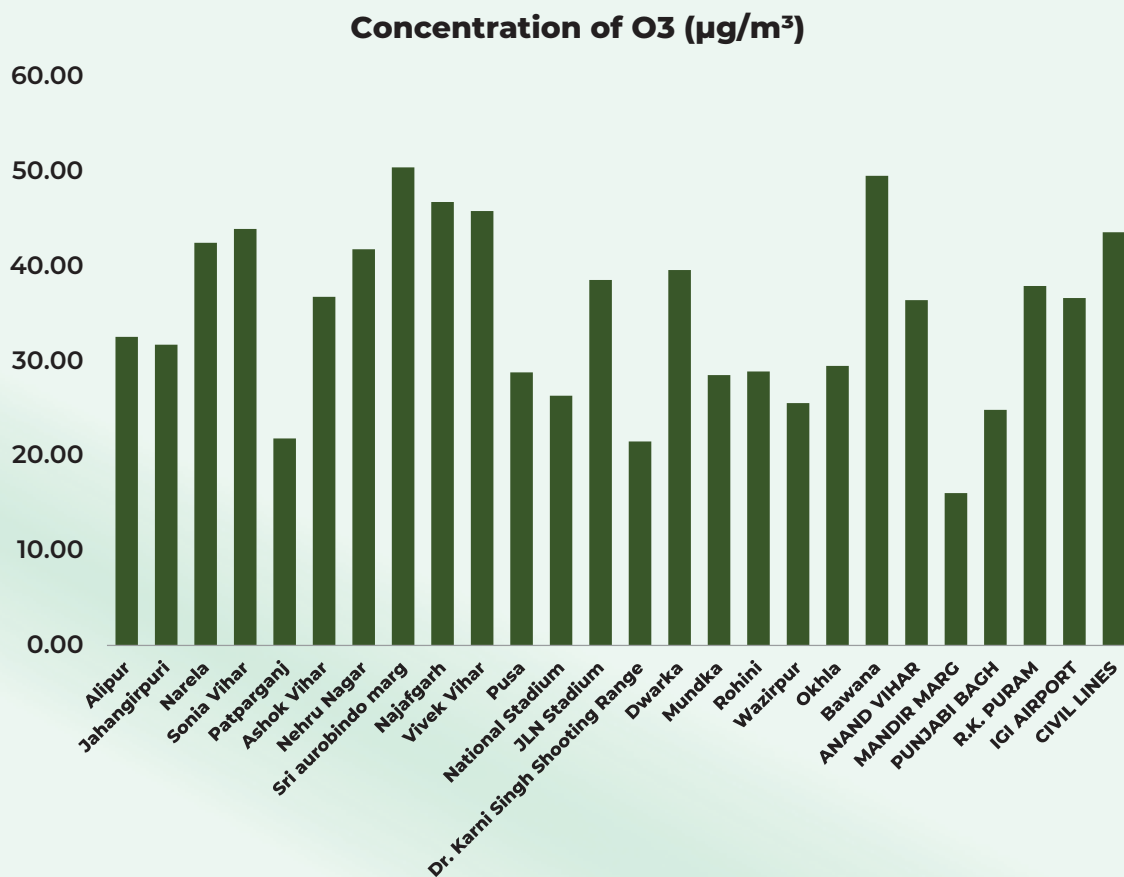
FIGURE 9.4: CONCENTRATION OF CO ($\mu\text{G}/\text{M}^3$)



iii. Ozone (O_3)

The range of O_3 is varied between $16.07 \mu\text{g}/\text{m}^3$ at Mandir Marg to $50.45 \mu\text{g}/\text{m}^3$ at Sri Aurobindo Marg against the prescribe standard of $180 \mu\text{g}/\text{m}^3$. 9 locations shows value less than $30 \mu\text{g}/\text{m}^3$ though hourly values exceeds prescribed standard sometimes mainly in summer seasons.

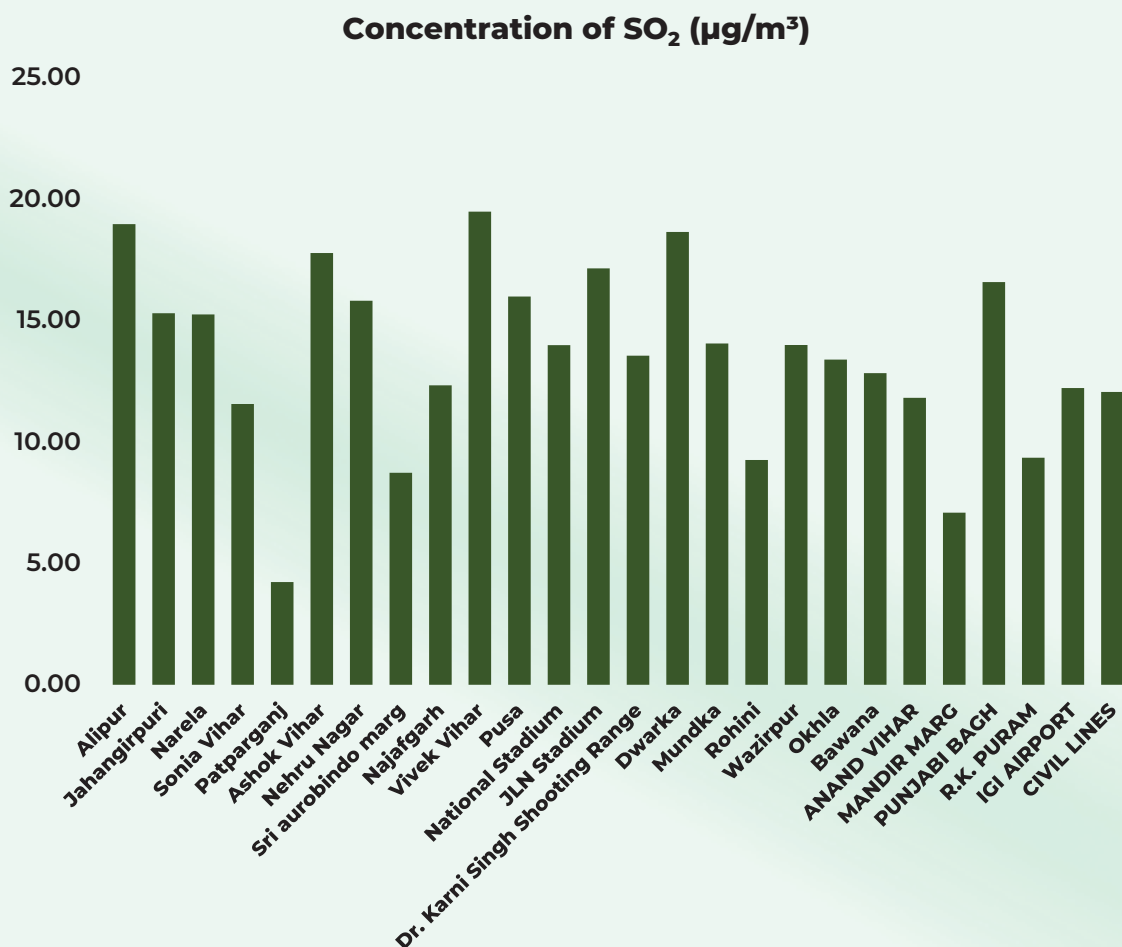
FIGURE 9.5: CONCENTRATION OF O₃ (µG/M³)



iv. Sulphur Dioxide (SO₂)

The range of SO₂ is varied between 4.23 µg/m³ at Patparganj to 19.49 µg/m³ at Vivek Vihar against the prescribe standard of 50 µg/m³. At all the 26 CAAQMS shows the value less than (50 µg/m³) annually prescribed standard.

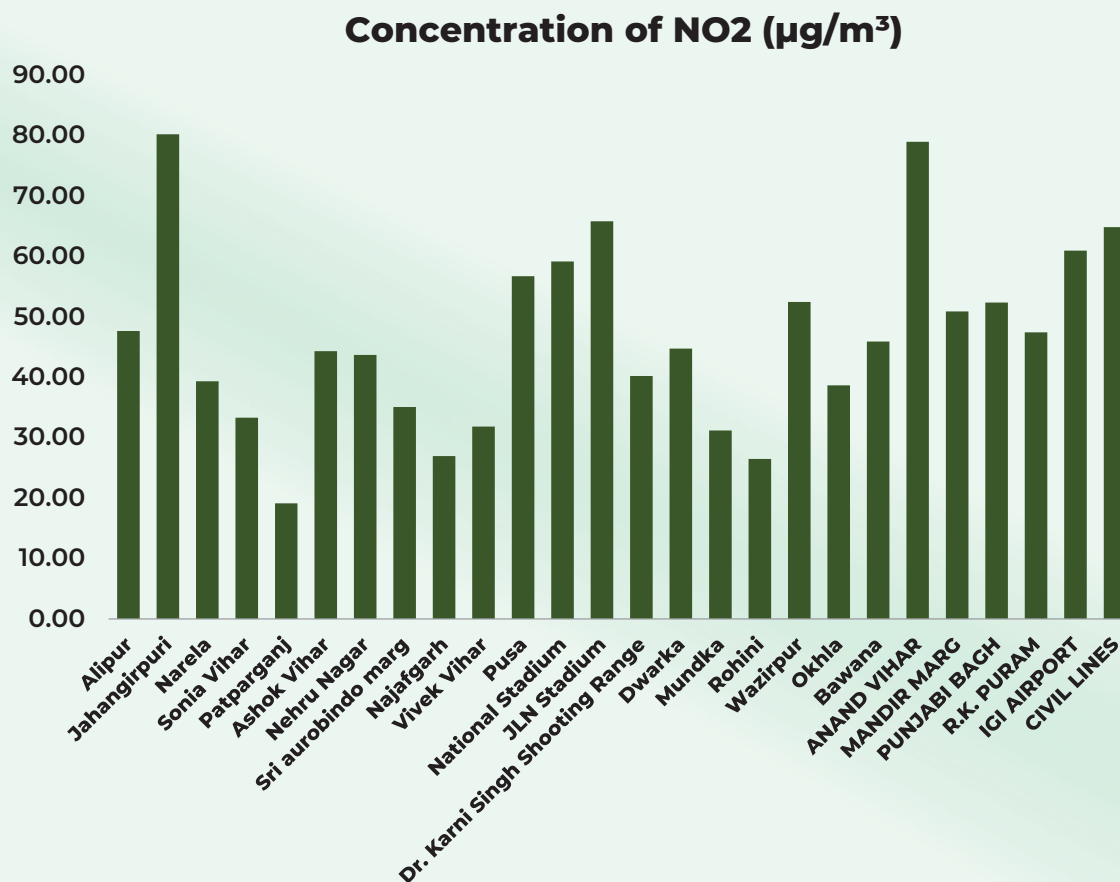
Figure 9.6: Concentration of SO₂ (µg/m³)



v. Nitrogen Dioxide (NO₂)

The range of NO₂ is varied between 19.14 µg/m³ at Patparganj to 80.23 µg/m³ at Jahangirpuri against the prescribe standard of 40 µg/m³. The 9 Locations shows value of more than prescribe standard (40 µg/m³) which may be attributed to vehicular emission.

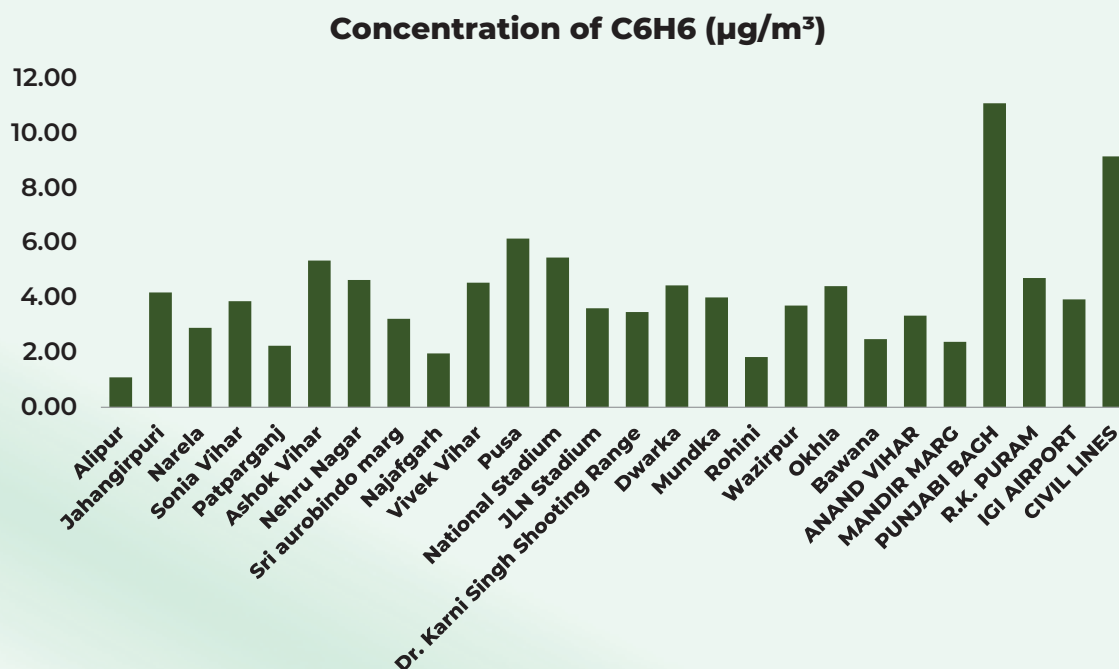
Figure 9.7: Concentration of NO₂ (µg/m³)



vi. Benzene (C₆H₆)

The range of Benzene is varied between 1.09 µg/m³ at Alipur to 11.09 µg/m³ at Punjabi Bagh against the prescribe standard of 5 µg/m³. The 4 Locations shows value more than the prescribe standard value. The highest concentration were observed at Punjabi Bagh and exceeded the prescribed standard (5 µg/m³) may be due to high vehicular density.

Figure 9.8: Concentration of C₆H₆ (µg/m³)



Industrial, Incinerator and Waste to energy plant

123 source emissions were monitored to determine the emissions from various industries. 3 Incinerators and 1 Waste to energy plant were monitored to assess the pollution level.

9.2 Ambient Noise Quality: -

Delhi city has one of the highest vehicular density in India and more than 30,000 kms. of road length exist in 1484 sq. km. geographical area of Delhi which induce the Ambient Noise of the city. DPCC installed 05 noise monitoring stations in different land use area of Delhi in month of October 2014. Analysis of these data shows that the Ambient Noise Level exceeded in all land use areas except industrial areas.

Table 9.3: The Noise Monitoring stations with Noise Standard:

S.No.	Locations	Zone	Day 6 AM to 10 PM Standard in dB(A)	Night 10 PM to 6 AM Standard in dB(A)
1	Anand Vihar	Commercial	65	55
2	Civil Lines	Commercial	65	55
3	Mandir Marg	Silence	50	40

4	Punjabi Bagh	Residential	55	45
5	R.K.Puram	Silence	50	40

The monthly average values for different stations observed during the day and night time as given below in table 9.4.

TABLE 9.4: MONTHLY AVERAGE OF REAL TIME AMBIENT NOISE LEVELS (DAY TIME) OF APRIL-2019 TO MARCH-2020

Month	Anand Vihar (dB (A))	Civil Lines (dB (A))	Mandir Marg (dB (A))	Punjabi Bagh (dB (A))	R.K. Puram (dB (A))
Apr-19	64.9	61.0	61.2	59.4	61.2
May-19	64.7	61.1	56.8	59.6	59.4
Jun-19	65.0	59.8	62.0	55.0	59.9
Jul-19	65.8	62.7	58.9	59.9	62.4
Aug-19	65.6	61.6	56.7	59.5	62.5
Sep-19	65.2	61.6	55.4	59.3	63.9
Oct-19	65.7	57.1	61.1	55.3	60.3
Nov-19	65.7	61.0	54.3	57.6	60.3
Dec-19	65.4	61.0	53.4	57.1	62.1
Jan-20	66.0	61.1	53.9	57.6	61.2
Feb-20	64.7	60.9	55.9	58.5	62.0
Mar-20	61.9	60.1	58.0	61.2	60.2

TABLE 9.5: MONTHLY AVERAGE OF REAL TIME AMBIENT NOISE LEVELS (NIGHT TIME) OF APRIL-2019 TO MARCH-2020

Month	Anand Vihar (dB (A))	Civil Lines (dB (A))	Mandir Marg (dB (A))	Punjabi Bagh (dB (A))	R.K. Puram (dB (A))
Apr-19	62.7	59.3	52.5	52.7	54.4
May-19	62.4	59.2	49.7	52.7	54.4
Jun-19	62.5	59.2	49.1	55.1	54.6
Jul-19	62.5	58.2	49.7	52.9	55.7
Aug-19	62.6	57.9	53.7	51.8	55.2
Sep-19	62.0	58.0	49.8	51.9	62.2
Oct-19	62.6	58.5	49.7	50.4	54.4

Nov-19	63.0	58.9	47.6	51.4	53.8
Dec-19	62.4	58.4	46.9	50.7	57.2
Jan-20	63.3	57.9	47.1	51.2	54.4
Feb-20	62.1	51.8	58.2	48.3	56.2
Mar-20	59.7	56.7	50.1	56.5	56.6

10

WASTE MANAGEMENT

Biomedical waste, Municipal Solid waste, Construction & Demolition waste, Plastic waste, electronic waste & battery management



Waste Management cells processes the Consent Applications/ Authorization Application under the relevant Rules including Bio-Medical Waste Management Rules, 2016, Solid Waste Management Rules, 2016, C & D Waste Management Rules, 2016 etc. and deals with matters related to STPs of DJB, CETPs, Water Treatment Plants (WTPs) of DJB, Thermal Power Plants (TPPs), Waste Processing Facilities including Waste to Energy Plants & Compost Plants, TSDF for Hazardous Waste, E-Waste & Battery Waste.



10.1 Bio Medical Waste Management

Ministry of Environment & Forest, GOI published Biomedical Waste (Management & Handling) Rules, 1998 for the proper handling & management of Bio-Medical Wastes. The rules have been revised in the year 2016 as Biomedical Waste Management Rules, 2016.

Under the rules, all Health Care Facilities (HCFs)/ Establishments (HCEs) are required to apply for authorization in DPCC for management of the biomedical waste generated by them. The Colleges attached with various hospitals are required to apply for the authorization separately. Hospitals having more than 50 beds are also required to apply for Consent to 'Establish' & 'Operate' under Air (Prevention and Control of Pollution) Act, 1981 as amended

to date and Water (Prevention and Control of Pollution) Act, 1974 as amended to date. Health care facilities having 50 or less beds have been exempted from applying for Consent to 'Establish' and 'Operate' under the Air & Water Acts.

The following two Committees have been constituted for deciding applications for grant of Authorization under BMW Rules and Consent under Air & Water Acts in respect of Health Establishments

Table 10.1: Committees constituted for deciding applications for grant of Authorization under BMW Rules

Sl. No.	Member of the Committee	Category
1.	BMW Committee No. 1 (a) Chairman, DPCC (b) Member Secretary, DPCC (c) Dr. T.K. Joshi, Head, COEH. (d) Medical Superintendent, GB Pant Hospital. (e) Concerned Sr. Eng. Engineer (f) Concerned Env. Engineers	Hospital/ Nursing Homes etc, having bed strength of 200 and above, Trans-boundary transporters of waste and Operators of Common Bio- Medical Waste Treatment Facilities.
2.	BMW Committee No. 2 (a) Member Secretary, DPCC (b) Dr. T.K. Joshi, Head, COEH (c) Medical Superintendent, Aruna Asaf Ali Hospital. (d) Concerned Sr. Env. Engineer (e) Concerned Env. Engineers.	Hospitals/ Nursing Homes/ Health Care Establishments etc, having bed strength of 51 to 199.

For bedded Health Care Establishments/ Nursing Homes having bed strength up to 50 beds Authorization is decided at the level of Sr. Env. Engineer. As large number of applications were received in DPCC since May 2019, it was decided by the competent authority that Authorization to non-bedded health care facilities can also be decided at the level of EE/ AEE of the Cell apart from the SEE.

Inspections as decided by the aforementioned Committees are carried out to check the compliance of the BMW Rules and deficiencies observed, if any, are communicated by way of Show Cause Notices/ Letters to the Health Care Establishments (HCEs) for rectification of

the deficiencies. Inspections of 44 Health Care Establishments were conducted and letters / Show cause Notices were issued for rectifications of deficiencies as per the decision of BMW Committees.

In Delhi, there are two Common Biomedical Waste Treatment and Disposal Facilities (CBWTFs) to collect, transport, treat and safely dispose off the biomedical waste generated from Delhi. For this, all the health care facilities operating in Delhi are required to enter into an agreement with the concerned CBWTF.

Eleven revenue districts of Delhi have been divided between these two CBWTFs. Details of the CBWTF are as follows in Table 10.2.

Table 10.2: CBWTFs in Delhi

S.No	CBWTF name	Address	Date of start	Installed capacity	Districts allotted
1.	M/s SMS Water Grace BMW (P) Ltd	DJB, S.T.P., Nilothi, New Delhi-41	April 2011	28.8 tons per day {12 T incinerator + 16.8 T autoclave}	West, South West, Central, East, Shahdara and North East
2.	M/s Biotic Waste Solutions Pvt. Ltd.	46-47, SSI Ind Area, Delhi-33.	Oct. 2009	34 tons per day {25 T incinerator + 9 T autoclave}	North, North West, New Delhi, South and South East

These CBWTFs are having Treatment Equipments i.e. Incinerators and Autoclaves for the treatment of waste followed by segregation of treated waste and shredding for Disposal of recyclable waste. Incinerators are connected to the Programmable Logic Control system (PLC) for better control of the process and are connected to Air Pollution Control Devices. Online continuous emission monitoring system (OCEMS) has been installed in the stacks with connectivity to CPCB and DPCC. Quarterly Monitoring reports for this Treatment Equipment are submitted by the CBWTFs to DPCC. Regular inspections and monitoring are also carried out by DPCC. Third party audits of both the CBWTFs have also been carried out by DPCC through National Productivity Council. All the treated recyclable waste i.e. plastic, needles and glass waste are handed over to authorized recyclers. Both CBWTFs have also installed Effluent Treatment Plant for the treatment of the wastewater generated from their facilities. Treated wastewater is reused within the facilities.

Statistics of BMW Management in Delhi are as follows:

Total No. of HCFs: 10277

Table 10.3 Quantum of Bio-Medical Waste Generation in Delhi (kg/day): 28.5 T/day (Approx.)

BMW Generated Kg/d)	
i. Yellow (Incinerable).	12402
ii. Red (Recyclable plastic).	12015
iii. White (Sharps including metals).	551
iv. Blue (Glassware and metallic body implants)	3512
BMW Collected (Kg/d)	28480
Total BMW Waste Treated (Kg/day)	28480

Till March, 2019 only 4288 health care facilities had applied for authorization in DPCC. In the year 2019 following major steps were taken by DPCC for identifying the health care facilities (HCFs) operating in Delhi without authorization from DPCC and to subsequently cover them under the ambit of Bio-medical Waste Management Rules, 2016.

- i. DPCC has conducted survey of health care facilities operating in Delhi through both Common Bio-medical Waste Treatment Facilities operating in Delhi for the purpose of identifying the health care facilities operating in Delhi.
- ii. In addition to the above, the following additional steps were taken by DPCC:
- iii. The list of registered HCFs with DHS was scrutinized and the data was tallied with the data of HCFs registered in DPCC.
- iv. Public Notices have been issued in Newspapers for all HCFs to apply for authorization under the Bio-Medical Waste Management, Rules, 2016.
- v. DPCC has organized 22 Camps since May, 2019 for enabling the HCFs to apply on-line for Authorization en-masse.
- vi. From 01/04/2019 to 31/03/2020, 6389 HCFs have applied for authorization in DPCC. Out of this around 5715 applications have been received since May 2019.
- vii. In order to ensure inclusion of all the small clinics, letters have been issued to various associations of HCF i.e. DMA, IMA, Delhi Dental Association etc. and to both CBWTFs to certify that all the health care facilities, if any, operated/ run by their members have applied for authorization in DPCC.

- viii. Letters have also been issued to Directorate of Health Services, GNCTD; Husbandry Department, GNCTD, MCD and CDMOs to certify that all the health care facilities under their areas of jurisdiction have applied for authorization under BMWM Rules, 2016 in DPCC
- ix. Through the above efforts, all the health care facilities through known sources have been covered under the BMWM Rules, 2016.
- x. At present, health care facilities from all known sources have been covered by DPCC under the ambit of BMWM Rules, 2016. Efforts are still on to include small clinics in the ambit of DPCC.
- xi. The total biomedical waste generation in Delhi is 28.8 MT/day as on 31st December, 2019.

10.2 Municipal Solid Waste Management

Municipal solid waste is to be managed as per the provisions of the Solid Waste Management Rules, 2016 notified by the Ministry of Environment, Forest and Climate Change (MoEF&CC), Govt of India on 08.04.2016. Earlier Municipal Waste was to be managed as per the provisions of the Municipal Solid Waste (Management and Handling) Rules, 2000. Duties and responsibilities of Local Authorities & Village Panchayats, Urban Development Department, Waste Generators, District Magistrates and other Departments / Agencies / Ministries are mentioned in the said Rules. National Capital Territory of Delhi is having population of about 2 Crores. There are following 5 Local Authorities/ Local Bodies / Municipal Corporations in Delhi which are responsible for proper Solid Waste Management including its collection, processing & disposal:



- i. North Delhi Municipal Corporation (North DMC)
- ii. East Delhi Municipal Corporation (EDMC)
- iii. South Delhi Municipal Corporation (SDMC)
- iv. New Delhi Municipal Council (NDMC)
- v. Delhi Cantonment Board (DCB)

Municipal Solid Waste Generation, Processing / Treatment and Disposal is briefed in following Table:

Table 10.4: Solid Waste Generation, Processing /Treatment & Disposal (As per Annual Report for 2019-2020)

S.No.	Particulars	North DMC	SDMC	EDMC	NDMC	DCB	Total
1.	Area (in Sq. Kilometer)	636	656.91	105.98	42.67	42.8	1484.36
2.	Population (in Lakh)	90	70	50	2.57	1.332	213.902
3.	No. of Wards	104	104	64	14 (Circles)	8	294
4.	No. of House Holds (In Lakh)	16.5	1.615325	10.5	0.47558	0.10060	29.191505
5.	Solid Waste Generation (in TPD)	4013	3500	2700	185.57	72	10470.57
6.	Collection of Solid Waste in TPD (in %)	4013 (100%)	3500 (100%)	2700 (100%)	185.57 (100%)	68 (94 %)	10466.57 (99.96%)
7.	Processing / Treatment of Solid Waste in TPD (in %)	2013 (50.2 %)	1700 (48.6%)	1250 46.3%	185.57 (100%)	42 (58.3%)	5193.57 (49.6 %)
8.	Disposal of Solid Waste in Landfill/ Dumpsite Sites (at Bhalaswa, Ghazipur & Okhla)	2000* (49.8%) (at Bhalaswa)	1800 (51.4%) (at Okhla)	1450 (53.7%) (at Ghazipur)	Nil	26 (36.1%) (at Okhla)	5276 (50.4 %)
9.	Engineered Sanitary Land Fill (SLF)	One (Operational at Bawana)	- (Proposed at Tehkhand)	-	-	-	One
10.	Operational Waste to Energy Plant	One (at Bawana – 1300 TPD)	One (at Okhla- 1950 TPD)	One (at Ghazipur – 1300 TPD)	-	-	3 (4550 TPD)

11.	Operational Centralised Compost Plants	One (at Bawana)	One (at Okhla)	-	-	-	2
12.	Operational Bio-methanation Plants	2 (5 TPD each)	2 (5 TPD each)	1	-	-	5 (Total 25 TPD Capacity)
13.	Operational Composter Plants	2	7	2	-	-	11

**Excluding 425 TPD of rejects landfilled at Engineered Landfill Facility at Bawana.*

- Note :** 1. There are 122 Compost Pits at 53 Locations in various Parks etc. in the area of New Delhi Municipal Council (NDMC).
2. Most of the Five & Four Star Hotels and Major Hospitals having 50 Beds or more have installed Organic Waste Converter.

i. Collection, Segregation & Transportation of Municipal Solid Waste

Total Municipal Solid Waste generation in Delhi was **10470.57** Tonnes per day (TPD) in year 2019-2020. Local Bodies are implementing waste segregation at source, door to door collection, intermediate storage and transport facility with GPS for the transportation of the collected solid waste to the operational Solid Waste Processing / Treatment Facilities or at the 3 existing Landfill / Dumpsites at Bhalaswa, Ghazipur & Okhla in Delhi.

NDMC & Delhi Cantonment Board (DCB) are implementing the provisions of the SWM Rules, 2016 in their areas in a better way. However other Local Bodies (North DMC, SDMC, EDMC) are also making all efforts and taking measures to implement the provisions of the SWM Rules, 2016 in their areas.

About 100 % collection of Solid Waste, Door to Door collection and Transportation of Solid Waste in covered vehicles were reported by the Local Bodies in their

Annual Reports. NDMC reported that 90% Premises in the area were segregating the waste at source. Delhi Cantonment Board (DCB) reported that 90% Premises in Civil Area & 60% Premises in Army Area were segregating the waste at source. SDMC & EDMC reported that 10% Premises in their areas were segregating the waste at source. North DMC reported that 80% Premises in their 3 Model Wards were segregating the waste at source.



ii. Municipal Solid Waste Processing and Disposal Facilities

Out of total Municipal Solid Waste generated in Delhi, 49.6 % (5193.57 TPD) was processed / treated & disposed through the existing 3 Waste to Energy Plants & Compost Plants in Delhi and rest 50.4 % (5276 TPD) was being dumped at the 3 Dumpsites at Ghazipur, Bhalaswa & Okhla.

There is one functional Integrated Solid Waste Management Facility at Bawana for processing of 2000 TPD of municipal solid waste having Waste to Energy Plant (1300 TPD), Compost Plant and Engineered Sanitary Land Fill. This Integrated Solid Waste Management Facility is being operated by M/s Delhi MSW Solutions Ltd. There are 3 operational Waste to Energy Plants (WTE Plants) of total capacity of 4550 TPD at 3 different locations in Delhi namely Okhla, Ghazipur and Bawana. Besides these facilities there is one Centralised Compost Plant at Okhla with 200 TPD capacity.

One new Waste to Energy Plant of capacity of 2000 TPD is under construction at Tehkhand. One new Engineered Sanitary Land Fill is proposed to be developed by South Delhi Municipal Corporation (SDMC) at Tehkhand. An Integrated Solid Waste Management Facility for 2000 TPD is proposed to be developed by East Delhi Municipal Corporation (SDMC) in joint venture with NTPC at Ghonda Gujran. The said facility will be having Waste to Energy Plant of 600 TPD, Bio-methanation Plant of 1200 TPD & C & D Waste Processing Plant of 200 TPD.



iii. Waste to Energy Plants:

Delhi has 3 operational Waste to Energy Plants (WTE Plants) of capacity 4550 TPD

at 3 different locations in Delhi namely Okhla, Ghazipur and Bawana. One New Waste to Energy Plant of capacity of 2000 TPD is under construction at Tehkhand and another of 600 TPD is proposed in the Integrated Waste Complex at Ghonda Gujran. After commissioning of these 2 proposed WTEs capacity of WTE Plants will increase from 4550 TPD to 7150 TPD by September, 2022.

Table 10.5: Operational Waste to Energy Plants in Delhi

S. No	Name of Waste to Energy Plant	Year of Commissioning	Existing Capacity	
			Waste Processing (in TPD)	Electricity Generation (in MW)
1.	Timarpur Okhla Waste Management Company Ltd., Old ND MC Compost Site, Okhla, Delhi-20	2012 (January)	1950	23
2.	East Delhi Waste Processing Company Ltd., Ghazipur, Delhi-94	2016 (June)	1300	12
3.	Delhi MSW Solutions Ltd, Narela Bawana Road, Bawana, Delhi-39	2016 (December)	1300	24
	Total		4550	59

Table 10.6: Waste Handling Concepts in WTE Plants in Delhi

Okhla WTE Plant	SDMC provides MSW at the WTE Plant. The WTE Plant processes MSW for RDF making and production of electricity. Compost is also produced from the Organic Bio-degradable fraction of MSW.
Bawana WTE Plant	MSW is collected from the House Holds by the company / firm which is operating the WTE Plant & collected MSW is transported to the Integrated MSW Management Facility at Bawana for processing, Composting, Electricity production through WTE Plant and disposal of inerts / rejects at the Engineered Sanitary Landfill (SLF).
Ghazipur WTE Plant	EDMC provides MSW at the WTE Plant. The WTE Plant processes MSW for RDF making and production of electricity. Organic Bio-degradable fraction of MSW is sent to Okhla Compost Plant for production of compost.

The Waste to Energy Plants (WTE Plants) use combustible fraction of MSW and Refused Derived Fuel (RDF) and generate electricity.

iv. Inspection & Monitoring of Existing Operational Waste to Energy Plants in Delhi:

As per the orders of the Hon'ble National Green Tribunal in Application No. 281 of 2016 in the matter of Kudrat Sandhu Vs. Govt. of NCT & Ors. and Application No.22 (THC) of 2013 in the matter of Sukhdev Vihar Residents Welfare Association & Others Vs State of NCT of Delhi & Others, joint inspections of all the 3 operational Waste to Energy Plants in Delhi are carried out by a team consisting of representatives of CPCB, DPCC, MOEF&CC and IIT, Delhi once in four months. Monitoring of the stack emissions and Ambient Air Quality is also carried out by CPCB during the joint inspections and report is submitted by CPCB to the Hon'ble NGT from time to time. Online Continuous Emission Monitoring System (OCEMS) has been installed by all the 3 operational Waste to Energy Plants in Delhi and the same are also connected to the server of CPCB & DPCC.



Joint inspection of all the 3 operational Waste to Energy Plants in Delhi were carried out with team consisting of representatives of CPCB, MOEF&CC and IIT, Delhi in the months of August , 2019 & February / March, 2020. Monitoring of the stack emissions and Ambient Air Quality were also carried out during the inspections.

Table 10.7: Gap in MSW Generation & Processing and Proposed Facilities to fill the Gap:

Generation (in TPD)	Processing (in TPD)	Gap (in TPD)	Proposed Facilities to fill the Gap
10470.57	5193.57	5277	(i) 2000 TPD WTE Plant (under construction) at Tehkhand by 31.12.2021 (SDMC). (ii) 2000 TPD Integrated Municipal Waste Processing Facility (including 600 TPD WTE, 1200 TPD Bio-methanation Plant and 200 TPD C & D Waste Processing Plant) at Ghonda Gujran by 30.09.2022 (Joint Venture between NTPC & EDMC). (iii) 2500 TPD Integrated Waste Collection, Segregation, Transportation, Processing & Disposal Facility of North

			DMC at Ranikhera for its 3 Zones viz. KBZ, CSPZ & Narela by 31.12.2023. (iv) Engineered Sanitary Landfill of SDMC at Tehkhand by 31.12.2021
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v. Decentralized Waste Management Facilities (Compost Plants /Biomethanation Plants)

The Government is in the process of installation of decentralized Waste Management Facilities (Compost Plants / Bio- Methanation Plants) so that the solid waste generated is segregated & treated near the source of generation and the transport and dumping of waste in faraway areas can be done away with. The details of the decentralized plants already commissioned and proposed as in March, 2020 are as follows:

a) North DMC

(i) Composter Plants of 1 TPD Capacity (Total 6 Nos, commissioned – 2, Proposed –4)

- 2 Plants commissioned at Bhorgarh Nursery and Rajendra Nagar Nursery.
- 4 Plants proposed at Sector 11 Rohini, Maurya Enclave Pitampura, Mori Gate & Nursery at Ramleela Ground and expected to be commissioned in 2020 / 2021.

(ii) Bio-Methanation Plants of 5 TPD Capacity (Total 4 Nos, commissioned – 2, Proposed - 2)

- 2 Plants commissioned at Roshanara Bagh and MVID Hospital.
- 2 Plants proposed at Mangolpuri Industrial Area Phase I and Naraina Industrial Area Phase I and expected to be commissioned in 2020 / 2021.

(iii) 200 TPD Bio Gas Plant proposed at Ghogha Dairy, Narela for Dairy Waste (Not included in Total MSW)

- Expected to be commissioned by December,2023

b) East DMC

(i) Composter Plants of 1 TPD Capacity (Total 10 Nos, commissioned – 7, Proposed - 3)

- 7 Plants commissioned at various locations.
- 3 Plants proposed at various locations and expected to be commissioned in 2020 / 2021.

- (ii) **Bio-Methanation Plants of 5 TPD Capacity (Total 2 Nos, commissioned – 1, Proposed – 1)**
 - One Plant commissioned at Geeta Colony.
 - Another Plant proposed at Shastri Park and expected to be commissioned in 2020 / 2021.
- (iii) **100 TPD Bio Gas Plant proposed at Ghazipur for Dairy Waste (Not included in Total MSW)**
 - Clearance from PESO is awaited.

c) South DMC

- (i) **Composter Plants of 1 TPD Capacity (Total 4 Nos, commissioned – 2, Proposed – 2)**
 - Plants commissioned at Chirag Delhi & Punjabi Bagh Nursery.
 - Plants proposed at East of Kailash (near Lady Shri ram College) & Dwarka Sector 14 and expected to be commissioned in 2020 / 2021.
- (ii) **Bio-Methanation Plants of 5 TPD Capacity (Total 4 Nos, commissioned – 2, Proposed – 2)**
 - 2 Plants commissioned at Sarita Vihar & Punjabi Bagh Nursery.
 - 2 Plants proposed at Dwarka Sector 14 & Massod Pur in Vasant Kunj and expected to be commissioned in 2020 / 2021.
- (iii) **400 TPD Bio Gas Plants proposed at Goyal Dairy (200 TPD) & Nangli Dairy (200 TPD) in Najafgarh for Dairy Waste (Not included in Total MSW)**
 - Expected to be commissioned by February, 2022
- (iv) **Four Bio-Methanation Plants (5 TPD Each).**
 - Three plants commissioned.
 - One plant likely to be commissioned by Sept, 2020

Table 10.8: Status of ULB wise Management of Municipal Solid Waste in Delhi in 2019-2020

ULB	Total MSW Generation in TPD	Total MSW Processed in TPD	Existing MSW Facilities	Proposed MSW Facilities

North DMC	4013	2013 (50.2%)	• One WTE Plant of 1300 TPD at Bawana in the Integrated MSW Facility of 2000 TPD capacity including Compost Plant • 2 Bio-Methanation Plants- 10 TPD (5 TPD each at Roshanara Bagh & MVID Hospital) • 2 Composter Plants –2 TPD • (1 TPD each at Bhorgarh Nursery & Rajendra Nagar)	• 2500 TPD Integrated Waste Collection, Segregation, Transportation, Processing & Disposal Facility at Rani khera for 3 Zones viz. KBZ, CS PZ & • Narela by 31.12.2023. • 2 Bio-Methanation Plants of 5 TPD each at Mangolpur i Indl. • Area Ph-I & Naraina Indl. Area Ph-I by 2020/2021. • 4 Composter Plants of 1 TPD each at Maurya Enclave Pitampura, Sector -11 Rohini, Mori Gate & Ramleela Ground Nursery by 2020 / 2021
South DMC	3500	1700 (48.6%)	• One WTE Plant at Okhla– 1950 TPD • One Centralised Compost Plant of 200 TPD at Okhla • 2 Bio-Methanation Plants - 10TPD (5 TPD each at Sarita Vihar & Punjabi Bagh Nursery) • 2 Composter Plants – 2 TPD	• 2000 TPD WTE Plant at Tehkhand by 31.12.2021 • Engineered Sanitary Landfill at Tehkhand by 31.12.2021 • 2 Bio-Methanation Plants of 5 TPD each at Dwarka Sec-14 & Masood Pur in Vasant Kunj by 2020 / 2021

			• (1 TPD each at Chirag Delhi, & Punjabi Bagh Nursery)	• 2 Composter Plants of 1 TPD each at Near Lady Shri Ram College East of Kailash & Dwarka Sector 14 by 2020 / 2021
EDMC	2700	1250 (46.3%)	• One WTE Plant at Ghazipur – 1300 TPD • One Bio-Methanation Plant of 5 TPD at Geeta Colony • 7 Composter Plants – 7 TPD • (1 TPD each at various locations)	• 2000 TPD Integrated M SW • Processing Facility (including WTE Plant of 600 TPD, Bio-methanation Plant of 1200 TPD and C&D Waste Processing Plant of 200 TPD) at Ghonda Gujran by 30.09.2022 (Joint Venture between NTPC & EDMC). • One Bio-Methanation Plant of 5 TPD at Shastri Park by 2020 / 2021 • 3 Composter Plants of 1 TPD each at various locations by 2020 / 2021
NDMC	185.57	185.57 (100%)	• 2 Organic Waste Converter –2TPD (1 TPD each at Madhulimey Marg & Raza Bazar in New Delhi) • 118 Compost Pits, 23 Organic Waste Converter (OWC) & 6 Biogas Plants in NDMC area having total capacity of 78.6 TPD • Treatment & Disposal of MSW generated from NDMC area through the	No. of Composter Plants of 1 TPD each.

			WTE Plant & Centralised Compost Plant at Okhla.	
DCB	72	42 (58.3%)	• 2 Food Waste Composter (One of 0.125 TPD at Tigris Road and One of 0.05 TPD at Tigris Road, New Delhi.) • Treatment & Disposal of about 42 TPD of MSW generated from DCB area through the WTE Plant & Centralized Compost Plant at Okhla. • Rest of the 30 TPD of MSW is dumped at Okhla Dumpsite.	-
Total	10470.57	5193.57 (49.6 %)		

vi. Remediation of Legacy Waste (Old MSW)

There are 3 Dumpsites at Ghazipur, Bhalaswa and Okhla in Delhi where Municipal Solid Waste have been dumped and there was legacy waste of 28 million Tons in July, 2019.

Table 10.9: Brief of Landfill / Dump Sites in NCT of Delhi as in July, 2019

S. No.	Name of Dumpsite	Concerned Municipal Corporation	Starting Year of Operation	Area (in Acres)	Height of Dump Site (Appx.) (in Meters)	Legacy Waste (in Million Tons)
1	Ghazipur (East Delhi)	East DMC	1984	70	65	14
2	Bhalaswa (North Delhi)	North DMC	1994	36	62	8
3	Okhla (South East Delhi)	South DMC	1996	46	40	6
	Total			152		28

Hon'ble National Green Tribunal vide order dated 17.07.2019 in OA No. 519 / 2019 in the matter of News item published in "The Times of India" Authored by Jasjeev Gandhiok & Paras Singh Titled "Below mountains of trash lie poison lakes" and OA No. 386/2019 in the matter of "Centre for Wildlife and Environment Litigation" Vs Union of India & Ors." had passed detailed order regarding Disposal of 'Legacy' Waste dumped at Bhalswa, Ghazipur and Okhla Dumpsites and given various directions. Hon'ble NGT had directed the Municipal Corporations to go for bio mining using trommels instead of capping of the dump sites at Bhalswa, Ghazipur and Okhla. The estimated cost to clear the above three dump sites at Delhi may be approx. Rs. 250 Crores as given below:

- EDMC - Rs. 125 Crores
- North MCD - Rs. 75 Crores
- SDMC - Rs. 50 Crores

As per the directions of the Hon'ble Tribunal the contributions towards said amount of Rs. 250 Crores in three separate ESCROW accounts will be as follows:

I	EDMC	(i)	NCT Delhi	Rs. 65 Crore	Total Rs. 125 Crore
		(ii)	EDMC	Rs. 40 Crore	
		(iii)	NDMC*	Rs. 10 Crore	
		(iv)	DCB**	Rs. 10 Crore	
II	North MCD	(i)	NCT Delhi	Rs. 35 Crore	Total Rs. 75 Crore
		(ii)	North MCD	Rs. 30 Crore	
		(iii)	NDMC	Rs. 05 Crore	
		(iv)	DCB	Rs. 05 Crore	
III	SDMC	(i)	NCT Delhi	Rs. 25 Crore	Total Rs. 50 Crore
		(ii)	SDMC	Rs. 15 Crore	
		(iii)	NDMC	Rs. 05 Crore	
		(iv)	DCB	Rs. 05 Crore	

As per the said order legacy waste dumpsites was to be cleared within one year and substantial progress was to be made and demonstrated within six months.

Out of Rs. 250 Crores, an amount of Rs. 245 Crores have been contributed by the DPCC, DMCs, DCB & NDMC. DCB has deposited only 15 Crores (out of Rs. 20 Crores) and filed an application before the Hon'ble Supreme Court for exemption of Rs. 5 Crores to be deposited to North DMC, because DCB is not dumping its MSW at Bhalswa landfill site.

As directed by the Hon'ble NGT, the Committee headed by Chief Secretary, Govt. of NCT of Delhi was constituted by the Urban Development Department, Govt. of NCT of Delhi vide

order dated 25.07.2019. The ESCROW accounts for North DMC, East DMC and South DMC were opened. Regular meetings of the Committee headed by Chief Secretary were held to review the progress in the said matter.

The Committee prepared the plan for “Bio-mining” of the Legacy waste from the above mentioned 3 dumsites in Delhi. North DMC was appointed as Nodal Corporation among all the three Municipal Corporations for tendering process for hiring trommels for bio mining and bio remediation of dump sites on rental basis. Tenders were called on 30.8.2019. The rates of lowest tender were Rs. 629944/- per month per trommel as per requirement of tender documents. Panel of 9 Contractors was approved by the competent authority. The implementation of the project started w.e.f. 01.10.2019. Inert material generated during the process is about 60% to 70% by weight or 40% by volume of the waste being processed, which needs to be disposed of in a scientific manner. It is a major challenge before the municipal corporations to make suitable land available for disposal of this inert material particularly since the availability of land is extremely scarce in Delhi.

Table 10.10: Bio-Mining of Legacy Waste at 3 Dumpsites in Delhi (As on 12.03.2020)

S. No.	Name of the Dumpsite	Quantity of Legacy Waste Dumped (As on 17.07.2019)	No. of Trommels Installed	Total Quantity of Legacy Waste Processed (As on 12.03.2020)
1	Ghazipur (East DMC)	140 Lakh Ton	3	80,000 Ton (0.57 %)
2	Bhalaswa (North DMC)	80 Lakh Ton	13	1,47,000 Ton (1.84 %)
3	Okhla (South DMC)	60 Lakh Ton	3	31,000 Ton (0.52 %)
Total		280 Lakh Ton	19	2,58,000 (0.92 %)

vii. NGT Case OA No. 606 / 2018 regarding Compliance of Municipal Solid Waste Management Rules, 2016.

his NGT case covered almost all the important matters / issues related to control of pollution and management of various types of waste including Solid Waste Management. In compliance of the orders of Hon'ble Tribunal in the said matter passed from time to time,

meetings were taken by the Chief Secretary, GNCTD from time to time and compiled Information / Action Taken Reports of Govt. of NCT of Delhi were submitted to Hon'ble NGT.

In compliance to the orders dated 16.01.2020 of Hon'ble NGT, a State Level Committee (SLC) headed by Chief Secretary was constituted vide office order dated 15.02.2020 for 6 months period (later on term of the SLC was extended by 6 months vide office order dated 27.09.2019 & further 6 months vide office order dated 15.12.2020) and status report was filed before the Hon'ble NGT on 08.03.2019. Special Task Forces (STFs) for each District were constituted by Environment Department vide office order dated 07.03.2019 & 16.04.2019. Subsequently modified office order dated 20.03.2020 was issued for STFs to be headed by concerned ADMs of the Districts.

As per the orders dated 16.01.2019 & 11.03.2019 in the said matter Chief Secy, GNCTD was required to personally monitor the progress w.r.t compliance of said Rules & orders of Hon'ble NGT and to submit Quarterly Report to Hon'ble NGT. 1st & 2nd Quarterly Reports of Govt. of NCT of Delhi were filed before the Hon'ble NGT on 29.06.2019 and 10.10.2019 respectively. Subsequently orders dated

12.09.2019 & 07.01.2020 were passed by the Hon'ble NGT and in compliance to the said orders Compliance Reports of Govt. of NCT of Delhi in respect of following 14 Thematic Areas were submitted to CPCB vide letters dated 01.11.2019 and 28.02.2020 respectively:

In compliance to the order Dated 11.03.2019, Model Wards were notified by the 3 DMCs & DCB (3 Model Wards by each DMC & DCB) and whole of the NDMC area (14 Circles) was notified as model area.

- a) Compliance to Solid Waste Rules including Legacy Waste.
- b) Compliance to Bio-medical Waste Rules.
- c) Compliance to Construction & Demolition Waste.
- d) Compliance to Hazardous Waste Rules.
- e) Compliance to E-waste Rules.
- f) 351 Polluter Stretches in the country.
- g) 122 non-attainment cities.
- h) 100 industrial clusters.
- i) Status of STPs and re-use of treated water.
- j) Status of CETPs/ETPs including performance.
- k) Ground water extraction/contamination and re-charge.
- l) Air pollution including noise pollution.

- m) Illegal sand mining.
- n) Rejuvenation of water bodies.



viii. Main Provisions of the Solid Waste Management Rules, 2016 and Requirement of Authorization under the Rules & Consent under the Air & Water Acts

uties and Responsibilities of the Local Authorities and Village Panchayats of census

D towns and urban agglomerations are mentioned at **Rule 15 of the Solid Waste Management Rules, 2016** including preparation of solid waste management plan as per state policy and strategy on solid waste management within 6 months from the date of notification of state policy and strategy , arrange for door to door collection of segregated solid waste from all households slums and informal settlements, commercial, institutional and other non-residential premises, direct waste generators not to litter i.e throw or dispose of any waste, setup material recovery facilities or secondary storage facilities with sufficient space for sorting of recyclable materials, establish waste deposition centers for domestic hazardous waste, direct street sweepers not to burn tree leaves collected from street sweeping, facilitate construction, operation and maintenance of solid waste processing facilities and associated infrastructure, undertake on own or through any other agency construction, operation and maintenance of sanitary landfill and associated infrastructure as per Schedule 1 for disposal of residual wastes , frame bye-laws and prescribe criteria for levying of spot fine for persons who litters or fails to comply with the provisions of these rules, create public awareness through information, education and communication campaign and educate the waste generators etc.

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.

It is pertinent to mention that Delhi Pollution Control Committee with the approval of Hon’ble Lt. Governor, GNCTD 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 National Capital Territory of Delhi.

As per **Rule 22** of the Solid Waste Management Rules, 2016, necessary infrastructure for implementation of these rules shall be created by the local bodies and other concerned

authorities, as the case may be, on their own, by directly or engaging agencies within the time frame for various activities specified in the Table given under the said Rule.

As per **Rule 24 (1)** of the Solid Waste Management Rules, 2016, The operator of facility shall submit the annual report to the local body in Form-III on or before the 30th day of April every year.

As per **Rule 24 (2)** of the Solid Waste Management Rules, 2016, the Local Body shall submit its Annual Report in Form-IV to State Pollution Control Board or Pollution Committee (Delhi Pollution Control Committee in case of Delhi) and the Secretary-in-Charge of the Department of Urban Development of the concerned State or Union Territory in case of metropolitan city and to the Director of Municipal Administration or Commissioner of Municipal Administration or Officer in -Charge of Urban Local Bodies in the state in case of all other local bodies of state **on or before the 30th day of June every year.**

As per **Rule 24 (3)** of the Solid Waste Management Rules, 2016, Each State Pollution Control Board or Pollution Control Committee (DPCC in case of Delhi) as the case may be, shall prepare and submit the consolidated annual report to the Central Pollution Control Board and Ministry of Urban Development on the implementation of these rules and action taken against non-complying local body by the 31st day of July of each year in Form-V.

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.

Govt. 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/ Municipal Bodies in Delhi. In these Bye –Laws there is provision of levying user fee and penalty charges.

Requirement of Authorization under the

Solid Waste Management Rules, 2016 and Consent under the Air & Water Acts:

As per **Rule 15 (y)** of the Solid Waste Management Rules, 2016, Local Authorities (Local Bodies/ Municipal Corporations) are required to “make an application in Form-I for grant of

authorization for setting up waste processing, treatment or disposal facility, if the volume of waste is exceeding five metric tones per day including sanitary landfills from the State Pollution Control Board or the Pollution Control Committee, as the case may be.

As per **Rule 19 (2), (3) & (6)** of the Solid Waste Management Rules, 2016 regarding setting up Solid Waste Processing and Treatment Facility:

Rule 19 (2): “The operator of the facility shall design and set up the facility as per the technical guidelines issued by the Central Pollution Control Board in this regard from time to time and the manual on solid waste management prepared by the Ministry of Urban Development”.

Rule 19 (3): “The operator of the facility shall obtain necessary approvals from the State Pollution Control Board or Pollution Control Committee”.

Rule 19 (6): “The operator of the solid waste processing and treatment facility shall submit annual report in Form III each year by 30th April to the State Pollution Control Board or Pollution Committee and concerned local body”.

In view of the above provisions under the Solid Waste Management Rules, 2016 and also considering the provisions under the Air & Water Acts, Local Authorities (Local Bodies/ Municipal Corporations) and operators of the Solid Waste Processing and Treatment Facilities are required to obtain Authorization under the Solid Waste Management Rules, 2016 and Consent to Establish & Consent to Operate under the Air & Water Acts from Delhi Pollution Control Committee prior to Establishing and starting operation of such facilities in NCT of Delhi.

Consent to Establish was issued by DPCC to M/s Tehkhand Waste to Electricity Project limited for upcoming Waste to Energy Plant of 2000 TPD capacity at Tehkhand.

Groundwater samples were collected near the Ghazipur, Bhalaswa & Okhla Dumpsites and also near the Engineered Sanitary Landfill at Bawana. Concentration of various physico-chemical parameters including heavy metal concentration and microbiological parameters were determined in groundwater samples.

Analysis reports in respect of the Ground water samples collected near the Ghazipur, Bhalaswa & Okhla Dumpsites and near the Engineered Sanitary Landfill at Bawana are collectively given at **Annexure II**.

A Meeting-cum-Training Programme for District Magistrates, Officers of Local Bodies / Municipal Corporations, Urban Development Department of Govt. of NCT of Delhi & other concerning Departments was organized by Department of Environment, Govt. of NCT of Delhi on “Implementation of Solid Waste Management Rules, 2016 and Directions of the Hon’ble NGT in OA 606/2018” on **04.06.2019** at Delhi Secretariat.

Annual Reports on Solid Waste Management were prepared by DPCC for the Year 2018 – 2019 & 2019 – 2020 in Form V and submitted to CPCB & Ministry of Housing & Urban Affairs (MoUHA) vide letters dated 24.06.2019 & 29.07.2020 respectively.

10.3 Construction and Demolition Waste Management

Construction and Demolition Waste is required to be managed as per the provisions of the Construction and Demolition Waste Management Rules, 2016 notified by MoEF&CC vide Notification Dated 29.03.2016. These Rules came into force with effect from 27.04.2016 i.e date of publication in Gazette of India. Earlier Construction and Demolition Waste was covered under the then existing Municipal Solid Waste (Management and Handling) Rules, 2000.



Main Provisions of the Construction and Demolition Waste Management Rules, 2016:

These Rules are applicable to every waste resulting from Construction, re-modelling, repair and demolition of any civil structure of individual or organization or Authority who generates construction and demolition waste such as building materials, debris, rubble.

Duties of Waste Generators, Local Authorities (Local Bodies/ Municipal Corporations), Service Providers / Contractors , operators of the Processing or Recycling Facilities for C & D Waste, SPCBs/ PCCs, State Govt. /Union Territory Administration , CPCB, Bureau of

Indian Standards & Indian Roads Congress , Central Govt. etc. are given in the Construction and Demolition Waste Management Rules, 2016.

As per **Rule 6** of the Construction and Demolition Waste Management Rules, 2016 , it is the responsibility of Local Authorities (Local Bodies/ Municipal Corporations) to issue directions with regard to proper management of construction and demolition waste within their jurisdiction and final clean up after completion of the construction and demolition activity.

Local Authorities (Local Bodies/ Municipal Corporations) are required to make arrangements and place appropriate containers for collection of waste and to remove at regular intervals; or when they are filled, either through own resources or by appointing private operators.

Local Authorities (Local Bodies/ Municipal Corporations) are required to get collected waste transported to appropriate sites for processing and disposal either through own resources or by appointing private operators. Local Authorities (Local Bodies/ Municipal Corporations) are also required to examine and sanction the waste management plan of the generators within a period of one month or from the date of approval of building plan, whichever is earlier from the date of its submission; keep track of the generation of construction and demolition waste within its jurisdiction and establish a data base and update once in a year.

As per **Rule 7** of the Construction and Demolition Waste Management Rules, 2016, the operator of the Processing or Recycling Facilities for C & D Waste shall apply in Form I for authorization from SPCBs / PCCs and shall also submit Annual Report to SPCBs / PCCs.

As per **Rule 8** of the Construction and Demolition Waste Management Rules, 2016, SPCBs / PCCs shall (1) Monitor the implementation of these rules by the concerned local bodies and the competent authorities (2) Grant authorization to construction and demolition waste processing facilities (3) Prepare Annual Report in Form IV with special emphasis on the implementation status of compliance of these rules and forward report to CPCB before the 31st July for each financial year.

i. C & D Waste Management in Delhi

Approximately 3900 TPD of Construction & Demolition Waste (C & D Waste) is generated in Delhi. There are following 5 Local Authorities (Local Bodies/ Municipal Corporation)

which are mainly responsible for the proper management of the Construction and Demolition Waste and implementation of the Construction and Demolition Waste Management Rules, 2016 in NCT of Delhi:

- (i) North Delhi Municipal Corporation (North DMC)
- (ii) East Delhi Municipal Corporation (East DMC)
- (iii) South Delhi Municipal Corporation (South DMC)
- (iv) New Delhi Municipal Council (NDMC)
- (v) Delhi Cantonment Board (DCB)

Separate Collection and Transport Infrastructure for C & D Waste has been set up under which the C & D Waste Collection at ear marked sites identified by 3 Municipal Corporations (North DMC, East DMC & South DMC), NDMC & Delhi Cantonment Board (DCB) and the same is transported to the 4 Existing Construction and Demolition Waste Processing / Recycling Facility/ Plants Functioning in Delhi. The Capacity of 4 Existing Construction and Demolition Waste Processing / Recycling Facility is 3650 TPD.

Fig. 10.11: Construction and Demolition Waste Processing Facilities operating in Delhi

S. No.	C& D Waste Processing Facility	Plot Area (in Acres)	Year of Commissioning	Existing Capacity (in March, 2020 in TPD)	Proposed Expansion
1	C & D Waste Processing Facility at Jahangir Puri (Burari) (Operated by IL&FS Environmental Infrastructure and Services Ltd. & Located in North DMC Area)	7	2009	2000	-
2	C & D Waste Processing Facility at Shastri Park (Operated by IL&FS Environmental Infrastructure and Services Ltd. & located in East DMC Area)	2.5	2016	500	500 TPD (by 2020)
3	C & D Waste Processing Facility at DMRC Site Rani Khara (Operated by IL&FS Environmental Infrastructure and Services Ltd. on behalf of DMRC)	2.95	2018	150	-
4.	C & D Waste Processing Facility at Bakkarwala (New Facility started operation in	5	2020	1000	-

	March, 2020 by M/s Garg & Company and Located in South DMC Area)				
	Total			3650 TPD	500 TPD

Table 10.12: Proposed New Construction and Demolition Waste Processing Facilities in Delhi

S.No	Proposed Site of C& D Waste Processing Facility	Proposed Waste Processing Capacity (in TPD)
1	Maidangarhi (South DMC)	1000
2	Ranikhera (North DMC)	1000
3	Libaspur(PWD)	500
	Total	2500 TPD

- Processing of Construction and Demolition Waste consists of:
- Receiving of Construction and Demolition Waste at site
- Weighing (weigh bridge provided near gate/office)
- Grading (loose soil to landfill and road building)
- Sizing unit/breaking/processing

Output different sizes of Aggregates, used in making of Paver Blocks, Kerb Stones, Tiles, Brick, Road building, RMC (Ready Mix Concrete) and Sand and Soil of BIS standards for uses in various purposes.

Table 10.13: Waste received and processed in these facilities

Sl No.	Description	Quantum (Year 2019-20)		
		Jahangirpuri (Burari)	Rani Khera	Shastri Park
1	C & D Waste Received	676635 MT	30407 MT	206640MT
2	Non-Structural Concrete Aggregate	265880 MT	Nil	Nil
3	Manufactured Sand	17450 MT	Nil	17221MT
4	Ready Mix Concrete	Nil	Nil	Nil
5	Paving Blocks	4912 m ³	5839.71 m ³	Nil
6	Granular Sub Base (GCB)	26547 MT	5684 MT	43410 MT
7	Soil	462614 MT	32687 MT	93848MT
8	Cement Concrete Bricks	3061 m ³	----	3302 m ³

Department of Urban Development, Govt. of NCT of Delhi has already issued order dated 06.07.2019 regarding use of Recycled Products from C&D Waste including following measures to be taken for compliance by all Municipal / Local Govt. Bodies in Delhi, Public Works Department, Irrigation & Flood Control, DSIIDC, DJB & Departments and organizations of GNCTD involved in Construction/Maintenance of Civil Works:

- (i) A minimum of 2% of C&D Recycled Products shall be used for building works.
- (ii) 10% of C&D Products shall be used for Road works.
- (iii) Urban Local Bodies (ULBs) in Delhi shall mandate 5% use of C&D recycled products for nonstructural application by all, including private individuals. This condition shall be introduced by modifications in bye laws, if necessary, & by including the same condition in the building plan approval.
- (iv) Compliance of these conditions shall be verified and certified by the concerned Executive Engineer before verifying and certifying the bills for payments in any such contract.
- (v) Intimation of the action taken/compliance report.

Ministry of Housing and Urban Affairs, Govt. of India, (MoHUA) had fixed the target of 16, 07,000 MT for use of Construction and Demolition recycled materials by various Departments in the Financial Year 2019-20.

ii. Action Taken by DPCC and main Achievements in respect of C & D Waste Management in Delhi

NGT Case O.A No. 02/2019 in the matter of “Pawan Kumar Sharma, MLA vs Govt. of NCT Delhi” related to C & D Waste Management in Delhi and C & D Waste Processing Facility at Jahangirpuri and related issues was dealt by WMC II and following are the brief of action taken by DPCC :

- a) Inspections of C & D Waste Processing Facility at Jahangirpuri (Burari) were carried out on 22.02.2019 & 31.07.2019 and Directions u/s 31 (A) of the Air Act & u/s 5 of the EP Act were issued on 11.04.2019 to M/s IL & FS for taking necessary action for rectification of deficiencies. Environmental Compensation of Rs Five Lakh was imposed & Operator of Facility (M/s IL&FS) was also directed to submit Bank Guarantee of Rs Five Lakh and the same was deposited by M/s IL&FS to DPCC.
- b) Meetings were taken by the Chairman, DPCC from time to time to review the C & D Waste Management and off take / lifting of C & D Recycled Materials from the existing C & D Waste Processing Facilities in Delhi.

- c) North Delhi Municipal Corporation was also asked to take necessary action for removal of huge deposition of C & D Waste near the facility at Jahangirpuri.
- d) Directions u/s 5 of the EP Act were issued on 14.01.2020 to various Govt. Departments / Agencies for expediting & maximizing the utilization of C&D Waste Recycled Materials / Products of the 3 C & D Waste Processing Facilities in Delhi in their projects to meet the targets fixed by MoHUA.

iii. Achievements in respect of C & D Waste Management in Delhi

- a) A 1000 TPD C & D Waste Processing Facility at Bakkarwala commissioned in March, 2020.
- b) Total Capacity of C & D Waste Processing Facilities in Delhi increased from 2650 TPD to 3650 TPD.
- c) Expansion of the existing C & D Waste Processing Facility at Shastri Park was proposed from 500 TPD to 1000 TPD. Besides this Additional 2500 TPD facilities are proposed at Maidangarhi (1000 TPD), Ranikhera (1000 TPD) & Libaspur (500 TPD).
- d) Offtake of C & D Recycled Products from the C & D Waste Processing Facilities in Delhi increased from 3.05 Lakh Ton in 2018 – 2019 to 8.83 Lakh Ton in 2019-2020 (about 190 % increase in offtake of C & D Recycled Products)
- e) In the Financial Year 2019 -2020 in respect of existing 3 C & D Waste Processing Facilities [at Jahangirpuri (Burai), Shastri Park & Mundka], Total C&D Waste Intake was 9.2 Lakh MT , Total C&D Waste Processed was 8.8 Lakh MT and Total Off-take of C & D Recycled Materials by Govt. Departments & Private Parties was 8.8 Lakh MT.
- f) Meetings taken by the Chairman, DPCC and action taken by DPCC from time to time resulted in improvement in the off take / lifting of C & D Recycled Materials from the existing C & D Waste Processing Facilities in Delhi.
- g) Over the last 10 years, it was the first time when C & D waste Intake Quantity, Processed Quantity and Off-take Quantity were more or less same during the financial year 2019-20.



iv. Issuance of Consent & Authorisation to C & D Waste Processing Facilities

- a) Consent to Establish under the Air & Water Acts issued to New Proposed C & D Waste Processing Facility of M/s IL& FS of 1000 TPD at Ranikhera (expected to be commissioned by June, 2021).
- b) Consent to Operate under the Air & Water Acts and Authorization under the C & D Waste Management Rules, 2016, issued to New C & D Waste Processing Facility of 1000 TPD at Bakkarwala (C & D Plant commissioned in March, 2020).
- c) Consent to Establish under the Air & Water Acts issued to M/s IL& FS for Expansion of C & D Waste Processing Facility at Shastri Park (from 500 TPD to 1000 TPD)
- d) Consent to Operate (Renewal) under the Air & Water Acts and Authorization (Renewal) under the C & D Waste Management Rules, 2016, issued to M/s IL& FS for its C & D Waste Processing Facility at Jahangirpuri (Burai).

Annual Reports on Construction & Demolition Waste Management were prepared by DPCC for the Year 2018 – 2019 & 2019 – 2020 in Form IV and submitted to CPCB vide letters dated 24.06.2019 & 30.07.2020 respectively.

Disposal of Incinerable Waste & Development of TSDF for Hazardous Waste

There is no Treatment, Storage and Disposal Facility (TSDF) for Hazardous Waste (TSDF) in Delhi. Industries / Units and CETPs are storing their Hazardous Waste (ETP/CETP Sludge etc.) at the site.

v. Disposal of Incinerable Waste

Authorisation has been given by DPCC to following two Operators of TSDF for Hazardous Waste in Uttar Pradesh (Kanpur Dehat) for Collection, Reception, Transportation and Disposal of incinerable hazardous waste generated by the units operating in NCT of Delhi :

- a) M/s Bharat Oil and Waste Management Ltd (TSDF at Gata No. 672, Village Kumbhi, Tehsil-Akbarpur, District- Kanpur Dehat, Uttar Pradesh- 209101).
- b) M/s Uttar Pradesh Waste Management Project (a division of M/s Ramky Enviro Engineers Ltd.) (TSDF at Plot No. 672, Village Kumbhi, Tehsil-Akbarpur, District- Kanpur Dehat, Uttar Pradesh- 209101).

Besides above, Authorisation under the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 has been granted to Gujrat Enviro Protection &

Infrastructure Limited, for collection, transportation, pre-processing, co-processing and disposal of sludge from CETPs in Delhi to its facility at Chittorgarh in Rajasthan.

vi. Development of TSDF for Hazardous Waste in Delhi

In the matter of Balam Singh Rawat vs Govt. of NCT of Delhi & Ors, Hon'ble NGT directed vide order dated 30.03.2015 that the TSDF Project is to be developed by DSIIDC in collaboration with DPCC. Accordingly, 14 Acres of land at Bawana was procured by the Environment Department, Govt. of NCT of Delhi from the North Delhi Municipal Corporation (North DMC) and the same was handed over to DSIIDC for development of TSDF for Hazardous Waste. Subsequently the approval of Delhi Cabinet was sought for setting up of TSDF for Hazardous Waste at Bawana. DPCC made a payment of Rs. 44.10 Crore to North DMC from the Air Ambience Fund on account of cost of Land for setting up of TSDF for Hazardous Waste at Bawana. An amount of Rs. 8.05 Crores has also been given to DSIIDC as grant in aid towards 50 % of Capital cost of TSDF. TSDF will also be having Incinerator for disposal of Incinerable Hazardous Waste.

DSIIDC invited Request for Proposal for the development of TSDF in December 2017 but only one bidder participated. Hence, the RFP was re-invited in Feb-2018. This bid was also rejected being a single bid on 19.12.2018. Further, RFP was invited third time by DSIIDC on 26.12.2018 in which two bidders participated. One of the bidders namely M/s SMS Ltd., who participated in the bids invited in February, 2018, had filed a case before Hon'ble High Court of Delhi against rejection of their bid. The Hon'ble High Court dismissed the writ petition on 09.10.2019.

Hon'ble NGT vide order dated 19.11.2019 in the matter of "All India Lokadhikar Sangathan Vs Govt. of NCT of Delhi & Ors." (OA No. 159/2013) with "M/s Ashok Vihar Mitra Mandel Vs Govt. of NCT of Delhi & Ors." (OA No. 77/2016), had directed to set up TSDF in Delhi by June, 2020.

DSIIDC awarded the work of development of TSDF for Hazardous Waste at Bawana to M/s Tamil Nadu Waste Management Limited (M/s TNWML) on 30.11.2019. Concession Agreement was signed by DSIIDC & M/s TNWML on 18.12.2019. MoEF & CC vide letter dated 06.01.2020 had given Terms of Reference (TOR) for Environmental Clearance for the said project.

10.4 Plastic Waste Management

Plastic waste is required to be managed as per the provisions of the Plastic Waste Management Rules 2016 notified by MOEF&CC vide Notification Dated 18.03.2016. These rules came into force with effect from 18.03.2016 i.e. date of publications in Gazette of India.

- a) Total plastic waste generation in Delhi: 1060 TPD, which is 10.10 % of the total solid waste generation in Delhi and Single Use Plastic waste is 5.6 % of the total Solid waste generated in Delhi which is more than around half the total quantity of plastic waste generated in Delhi.
- b) Environmental Compensation of Rs. 50,000/- each imposed on 236 manufacturing units, which were found engaged in burning/dumping of plastic waste in Bawana and Narela Industrial Areas. These 236 units have deposited the Environmental Compensation in total Rs. 1,18,00,000/-
- c) Action has been taken against 5024 violators, banned plastic of 136438 kgs have been seized and Environmental Compensation/penalty of Rs. 1.09 Crores have been received from the violator. Apart from this, units engaged in the activity of manufacturing of plastic carry bags were inspected and Environmental damages of Rs. 35,00,000 (Rs. Thirty-Five lakhs) was imposed on the units found manufacturing carry bags of thickness less than 50 micron. EDC has been deposited by these defaulting units.
- d) Surprise raids were conducted in the main trading markets/ centers of plastic bags to check violations. During this exercise, total 28656 kg of banned plastic carry bags were seized.
- e) Inspections were carried out in Industrial areas, during which approximate 29400 kg of banned (less than 50 microns) Plastic Bags/ Packaging materials were seized.
- f) A special joint drive was carried out by the enforcement agencies for removal of plastic waste from the Govt. land near Prayas Child Home, Jahangir Puri, Delhi in the month of August, 2019. During this drive, about 950 Metric Ton of Plastic Waste was removed which lying on land was allotted to defense establishments, PWD.
- g) DPCC has issued SCNs to 151 units and closure directions to 53 units. EDC of Rs. 88,97,500/- has also been recovered.

- h) Directions u/s 5 of EP act issued on 24.04.2019 to all ULBs for setting up of Material Recovery Facilities and compliance of PWM rules.
- i) Public Notice issued on 04.07.2019 and 10.12.2019 in leading newspapers for awareness of Producers, Recyclers and manufacturers of plastic carry bags/ packaging materials.
- j) In compliance of Hon'ble NGT orders in OA 56/2013 and OA 57/2013, a major drive was also carried out to remove the illegal activities of handling of plastic waste/scrap on the agricultural land & other areas in the West district of NCT of Delhi in the year 2019-2020, during which 1003 bighas of agricultural land were cleared, 10766 MT of plastic waste were lifted and sent to waste to energy plant at Bawana for safe disposal.

10.5 Electronic Waste

- a) According to the E-waste (Management) Rules, 2016 every producer of electrical and electronic equipment listed in Schedule-I, can apply for Extended Producer Responsibility (EPR) in Form-I and obtain authorization from CPCB. As well as maintain records in Form-2 and shall file returns of previous year in Form-3 to CPCB on or before 30th day of June every year.
- b) "Dismantler of E-Waste" can apply for Authorization in Form- IV in DPCC under E-Waste (Management) Rules, 2016 and also has to obtain consent to establish (CTE) and consent to operate (CTO) in Green Category under the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981.
- c) "Refurbishers of E-waste" can apply for Authorization in Form-I in DPCC under E-Waste (Management) Rules, 2016 and also has to obtain consent to establish (CTE) and consent to operate (CTO) in Green category under the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981.

Table 10.14: Number of authorized manufacturers, refurbisher, Collection center, dismantler and recycler for management of E-Waste in Delhi under these rules

Sl No.	Type of Function	Number
1	Manufacturer	0
2	Refurbisher	3
3	Collection Centers	0

4	Dismantlers	0
5	Bulk Consumers	73

Table 10.15: Categories of waste collected along with their quantities on a monthly average basis

Sl No.	E-Waste Category	Total waste collected in Kgs (approx.)	Quantity in Kgs (Monthly average, approx.)
1.	Information technology & telecommunication equipment (ITEW)	234450.65	19537.55
2.	Consumer electrical & Electronics (CEEW)	160422.13	13368.51
3.	Scrap Deep freeze	84005	7000.41
4.	Scrap Milk Chilling Unit	7335	611.25
5.	Scrap electrical equipment	1545	128.75
6.	Wires Cables & Switches	19	1.58
7.	Mobile Battery	0.325	0.02708
8.	Power banks	39	3.25
9.	Others	30	2.5
10.	Total	487846.105	40653.27708

It is mandatory for the Producers, Bulk Consumers/ Consumers of the Electrical and Electronic equipment, Collection Centers, Dismantlers, Recyclers of the E-waste to comply with the provisions of the E- waste (Management) Rules, 2016. Majority of the functions under the said Rules have been vested with the Central Pollution Control Board as the manufacturers/producers are operational in multiple states. CPCB grants authorization for Extended Producer Responsibility (EPR). DPCC is responsible to ensure compliance of the terms and conditions of the authorization granted by the CPCB.

- a) Inspection of 54 collection centers carried out to check for the compliance status of the terms & conditions of the EPR authorizations granted by the CPCB. At 30 locations, storage of waste could not be found and the list of such entities was forwarded to CPCB and the authorizations were revoked accordingly.
- b) In one NGT matter namely OA No. 1001/2019, teams headed by the respective SDMs have inspected 130 premises till 16.12.2019 and 104 premises were found to be storing/handling E-Waste. 31 number of premises were closed effectively.

Environmental Compensation of Rs. 7.30 lakhs has been imposed on these 31 handlers.

- c) Apart from the above actions, Delhi Pollution Control Committee took suo-moto action against illegal e-waste handling units in Old Seelampur area and closed 57 premises effectively in the month of July 2019. It has been decided to levy EDC on these 57 tiny illegal e-waste handlers.
- d) In compliance of the orders passed by this Hon'ble Tribunal regarding initiating action on e-waste handling units, in the matter of OA No. 20/2019 (Resident of Gali No. 11, Bhagirathi Vihar Vs NCT of Delhi), Delhi Pollution Control Committee had effectively closed 36 illegal E-waste storage/handling units in the area of Bhagirathi Vihar in the months of May and June 2019 and an Environmental Compensation (EC) of Rs. 7.20 lakhs was imposed on them as these were a very tiny entities. 21 occupiers have deposited the EC imposed on them.

10.5 Battery Management

- a) Ministry of Environment and Forests, Government of India made certain amendments to Battery (Management and Handling) Rules, 2001 vide notification dated 04.5. 2010. These rules shall apply to every manufacturer, importer, re-conditioner, assembler, dealer, recycler, auctioneer, consumer and bulk consumers involved in manufacturer, processing, sale, purchase and use of batteries or components thereof.
- b) Importers are submitting undertakings in Form-III to DPCC with respect to imports of Lead Acid batteries.
- c) The Ministry of Environment, Forests & Climate Change, Govt of India has notified draft Rules in the month of February 2020 with a proposal to amend the existing Rules.

Battery operated vehicles		
a.	Total number of beneficiaries given subsidy for Battery Operated Vehicles (Four Wheelers)	167
b.	Total number of beneficiaries given subsidy for Battery Operated Vehicles (Two Wheelers)	1293
c.	Grant of subsidy to E-rickshaw (in lakhs)	2500 Lakhs transferred to Transport Department

d.	Grant of subsidy to BOV (2-wheelers) (in Rs. lakhs)	71.12
e.	Grant of subsidy to BOV (2-wheelers) (in Rs. lakhs)	250.5

11

CONSENT MANAGEMENT CELL



Consent Management Cell (CMC) processes the applications for Consent under the provisions of the Water (Prevention & Control of Pollution) Act, 1974 and the Air (Prevention & Control of Pollution) Act, 1981, wherein any industry, operation or process or an extension and addition thereto, which is likely to discharge sewerage or trade effluent into the environment or likely to emit any air pollution into the atmosphere will have to obtain consent of Delhi Pollution Control Committee, and to prevent and control pollution of water and air through education, awareness and offering scientific and technological solutions to achieve its goal of a cleaner and greener environment. This cell also deals with the applications under Hazardous Rules and Environmental Clearance.

The CMC has been divided in seven CMCs as per the details given below: -

- i. CMC-I – South West District, West District and New Delhi District.
- ii. CMC-II- North West District and Central District.
- iii. CMC-III- South District, East District and North East District.
- iv. CMC IV- New Delhi and West District.
- v. CMC-V- North and Central District.
- vi. CMC-VI - West District of Delhi
- vii. CMC-VII - Central Delhi

EIA Cell has also been created separately to look after Consent Management Committee work related to cases in which Environmental Clearances have been issued (except those pertaining to Healthcare Establishments and Power Plants/Solid Waste Facilities) and for coordinating the Meetings of SEIAA and SEAC (Tenure of erstwhile SEIAA and SEAC expired on 31.03.2018 and reconstitution under process). The Cell also implements dust control norms in Environmental Clearance Projects. Environmental compensation of Rs 1,75,50,000/- was imposed during the period 01.04.2019 to 31.03.2020 on defaulting projects.

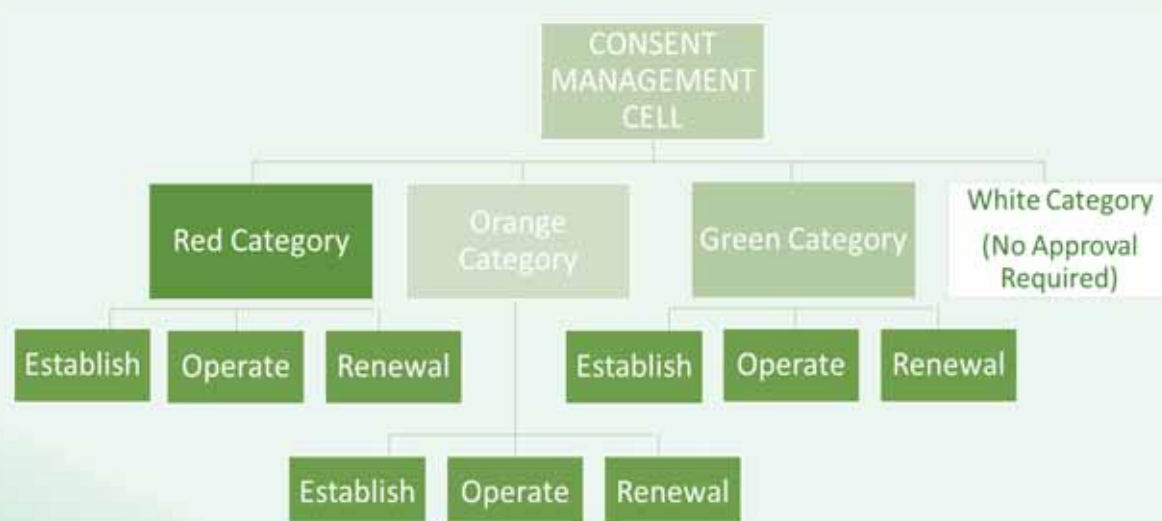


Table 11.1: Consent Status of the CMC's during the year 2019-20

Sl No.	Consent status	Number
1	Total number of applications received for Consent under Water and Air Acts during reference period:	23241
2	Total number of Consent granted under Water and Air Acts during reference period	15633
3	Total number of Consent refused under Water and Air Acts during reference period:	425
4	Total number of pending applications for Consent under Water and Air Acts at the end of financial year/ reference period	7183

11.1 SAMEER APP

The SAMEER App, developed by the Central Pollution Control Bureau (CPCB), provides information air quality for more than 100 cities across India. The app is available on the Google Play Store and Apple App Store for both Android and iOS users, the Sameer India's AQI application can be conveniently downloaded across personal mobile phones.

The application provides a user-friendly Interface, representing the listed cities in a colour-coded format based on their AQI levels.



i. Complain redressal status during the year 2019-20

- Number of SAMEER App Complaint received: **6427**
- Number of SAMEER App Complaint pertains to DPCC: **98**
- Number of SAMEER App Complaint disposed by DPCC: **98**

12

ENVIRONMENTAL IMPACT ASSESSMENT



The Ministry of Environment and Forests (MoEF), Government of India (GoI), vide notification S.O. 1533(E) dated 14.09.2006 made environmental clearance mandatory for construction of new projects or activities, Expansion or modernization of existing projects or activities listed in its schedule entailing capacity addition with change in process and or technology undertaking in any part of India. All the projects listed in the schedule of notification are categorized into two broad categories namely Category A and Category B.

As per the Government of India notification number S.O.1533 (E) dated 14 September, 2006, the Ministry of Environment, Forests & Climate Change, Government of India has

Category A projects requires appraisal by the Central Level Expert Appraisal Committee (EAC) and Environmental Clearance (EC) from MoEF, GOI
Category B projects requires appraisal by the State Level Expert Appraisal Committee (SEAC) and Environmental Clearance from State Environment Impact Assessment Authority (SEIAA).

to notify SEIAA and SEAC for Union Territories/States under due nomination of Chairman, Member Secretary and Members from the State Government/Union Territory Administration concerned.

For Delhi the SEIAA/SEAC were notified by MoEF, GOI vide notification no S.O. 1888(E) dated 30.07.2008 and again vide notification no.S.O. 1845(E) dated 5th August, 2011. The member and the Chairman of the SEIAA/SEAC hold the office for a fixed term of three years. Vide Gazette Notification no S.O. 919(E) dated 01.04.2015 MoEF &CC notified the third SEIAA and SEAC for Delhi consisting of 3 and 10 members respectively. Delhi Pollution Control Committee (DPCC), was declared as the agency to act as a Secretariat for providing all financial and logistic support including accommodation, transportation and other such facilities in respect of all statutory functions of the State Environment Impact Assessment Authority (SEIAA), and State Level Appraisal Committee (SEAC).

As on date there is no SEIAA or SEAC functioning in Delhi as tenure of third SEIAA/SEAC has expired on 31.03.2018. In the absence of duly constituted SEIAA or SEAC, all category “B” projects are considered at Central Level i.e. by MoEF&CC, GOI Implementation of Notification issued on Approved Fuel.

13

PIPED NATURAL GAS



13.1 Background

- i. Hon'ble NGT vide order dated 18 Dec, 2017 in Vardhaman Kaushik Vs UoI noted industrial and thermal power house emissions as one of 7 major contributors of air pollution.
- ii. PMO Task Force to review air quality of NCR on 18 Dec 2018 decided that all industries in NCR Delhi must shift to PNG, wherever gas supply is available by 31 Mar, 2019 (further extended to 30 Apr, 2019).
- iii. CPCB reviewed status of conversion of industries into PNG as fuel (Jan and May 2019).
- iv. CPCB's directions on 2 Jul, 2019 to issue closure directions to non-compliant industrial units.

13.2 Cleaner Fuels Conversion: Steps taken

- i. DPCC decided to stop use of unapproved fuels and initiated steps to convert all industrial units to switch over to PNG to curb air pollution due to industrial emission in April 2017.
- ii. DPCC's three-pronged strategy of continuous engagement, awareness creation and strict enforcement
- iii. Awareness creation: Meetings, Public Notices on approved fuels, Banners and hoardings in industrial areas.
- iv. Outcome: Commissioning of PNG pipelines in 48 of 50 industrial areas by IGL during 2017 – 2020

Table 13.1: Conversion of industries to Piped Natural Gas (PNG):

1	Total number of industries required to convert into PNG from other fuels	1535
2	Number of units converted on PNG	1398
3	Number of units converted remaining to be converted on PNG	137

13.3 Enforcement Actions taken:

- i. Closure directions issued to industrial units who failed to convert their unit on PNG. Closure directions issued to 191 units in July 2019.
- ii. Closure directions issued to additional 55 units in December, 2019 based on inspections
- iii. Continuous monitoring including physical inspections during night patrolling to check the usage of PNG.

Year	No. of Inspections	No of Closures/sealed(s)	EC received (in Rs.)
------	--------------------	--------------------------	----------------------

2019	89	55	46,50,000
2020	201	54	18,50,000

- iv. Non-conforming areas: 32 units sealed including removal of electric meters for unclean fuel usage
- v. Inspections on regular basis including Night patrolling esp. in problem areas like Mandoli, Wazirpur, Narela, Bhawana and Mundka. to check use of unapproved fuels.

13.4 Way forward

- i. Enhanced awareness campaigns, public notices and advertisements
- ii. Continued enforcement actions and identification of air polluting units which requires conversion.
- iii. Strict compliance on use of PNG by monitoring gas consumption.

14

INFORMATION TECHNOLOGY



DPCC is maintaining its website which gives information as regards various pollution control laws, decisions of various committees, constituted for deciding the applications for grant of Consent and Authorization. The available information is updated regularly. The following information is available on DPCC's website.

- i. Web based software has been developed for online processing of the consent/authorization.
- ii. All the application forms (downloadable) with respect to applications under The Water (Prevention and Control of Pollution) Act 1974 and The Air (Prevention and Control of Pollution) Act 1981, Bio-Medical Waste Management Rules 2016, Plastic Waste Management Rules 2016, E-Waste Management Rules 2016, Hazardous and Other Wastes (Management and Transboundary Movement) Rules 2016, Solid Waste Management Rules 2016 and Construction and Demolition Waste Management Rules 2016.
- iii. Information regarding Environmental Standards pertaining to Air, Water & Noise.
- iv. Integrated Software for all the necessary functions i.e. Consent, Bio-medical, Hazardous Waste, Solid Waste, Plastic Waste, E-Waste, Laboratory Management, Legal, Public grievances etc.
- v. Various Acts, Rules, Notifications, Orders and Circulars pertaining to Environment and Pollution Control.
- vi. Status of various applications with respect to Consent, Authorization, Laboratory Test Report etc.
- vii. The Minutes of Meeting with respect to various committees, constituted for deciding the application under The Water and The Air Act, Bio-Medical Waste Management Rules, Hazardous and Other Wastes (Management and Transboundary Movement) Rules & Environment Impact Assessment Notification.
- viii. Information regarding Water Quality of River Yamuna, Drains, STP, TPP, CETP, WTP, including the information regarding Ground Water Quality and Ambient Air Quality in Delhi.
- ix. Waste Management with respect to MSW, BMW, HW, Electronics Waste, Mercury Waste, Battery Waste, Construction and Demolition Waste and Fly Ash Management.
- x. Information about Empanelled Agencies and Citizen Charter.
- xi. Status of RTI applications.
- xii. Interlinking of Important Websites.
- xiii. Information on publications and Advertisements.

15

ACCOUNT STATEMENT



ACCOUNT STATEMENT

							Unaudited
Receipts and payments for the financial year 2019-2020							Amount in Lakhs
(A) Receipts							
1	Departmental Receipts						
i	Consent & BMW Authorization (Authorization or Renewal including Addl./Balance Fees)						4812.36
ii	Laboratory Monitoring Fees						612.64
ii	NGT Penalty						1984.96
iv	Misc Receipt						199
	Total						7608.96
2	Interest Received on FDR						25.65
(B) Payments							
1	Pay & Allowances						1014.03
2	Salary (Outsources Staff)						396.84
3	Vehicle Repairing & Running						12.01
4	Misc. (Imprest)						11.83
5	Misc. (Purchasing)						150.88
6	Telephone Expenses						14.03
7	Professional Charges						166.28
8	Monitoring Charges (Air Station)						167.52
9	Advertising Charges						45.12
10	Hiring of Vehicle						103.23
11	License Fee & Electricity Expenses						581.87
12	Trainee Stipend						254.81
13	Postage Charges						6.54
14	Sitting Fees						1.23
15	Research & Study						31.47
16	Lab (Equipment)						13.7
17	Software Development						38.7
18	AMC Charges						5.76
21	Renovation Work						8.9
22	Monitoring water Station						29.67
23	Misc.						10.28
	Total						3064.7

ANNEXURE-I



DELHI POLLUTION CONTROL COMMITTEE
DEPARTMENT OF ENVIRONMENT, (GOVT. OF NCT OF DELHI)
5TH FLOOR, ISBT BUILDING, KASHMERE GATE, DELHI-110006

Page 1 of 2

F. No. DPCC/(3)(2)(29)/Admin-16/Vol.IV/72-77

Dated: 28/06/19

ORDER

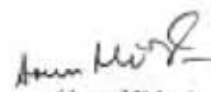
Consequent upon approval by the DPCC Board and assessment & recommendation of Administrative Reform Department of Govt. of NCT of Delhi, the Hon'ble Lt. Governor, Govt. of NCT of Delhi has accorded approval for creation of 76 additional posts in DPCC vide U.O. No. 33486 dated 24.06.2019. The details of total 343 sanctioned posts including 267 earlier sanctioned posts, are as below:-

S. No.	Name of the Post	Level of pay in Pay Matrix	Earlier sanctioned posts (a)	Addl. Post assessed by AR Deptt. (b)	Total Number of Posts in DPCC (a+b)
1.	Member Secretary	Pay Level 13A of pay matrix	01	00	01
2.	Addl. Director(Engg.)	Pay Level 13 of pay matrix	02	01	03
3.	Sr. Env. Engineer	Pay Level 12 of pay matrix	06	09	15
4.	Env. Engineer	Pay Level 11 of pay matrix	13	10	23
5.	Asstt. Env. Engineer	Pay Level 10 of pay matrix	31	09	40
6.	Jr. Env. Engineer	Pay Level 6 of pay matrix	48	21	69
7.	Addl. Director(Lab) (Scientist-E)	Pay Level 13 of pay matrix	01	00	01
8.	Sr. Scientist L-II (Scientist-D)	Pay Level 12 of pay matrix	02	00	02
9.	Sr. Scientist L-I (Scientist-C)	Pay Level 11 of pay matrix	03	00	03
10.	Scientist-B	Pay Level 10 of pay matrix	04	00	04
11.	Scientific Assistant	Pay Level 6 of pay matrix	04	00	04
12.	Sr. Lab. Asstt.	Pay Level 4 of pay matrix	06	00	06
13.	Jr. Lab. Asstt.	Pay Level 2 of pay matrix	08	00	08
14.	Lab Attendant	Pay Level 1 of pay matrix	03	00	03
15.	System Analyst	Pay Level 11 of pay matrix	01	00	01
16.	Programmer	Pay Level 10 of pay matrix	01	00	01

Amir Mohd

Contd...2

S. No.	Name of the Post	Level of pay in Pay Matrix	Earlier sanctioned posts (a)	Addl. Post assessed by AR Deptt. (b)	Total Number of Posts in DPCC (a+b)
17.	Law Officer	Pay Level 11 of pay matrix	01	00	01
18.	Asstt. Law Officer	Pay Level 7 of pay matrix	03	00	03
19.	Legal Assistant	Pay Level 6 of pay matrix	05	02	07
20.	Administrative Officer	Pay Level 9 of pay matrix	02	00	02
21.	Section Officer	Pay Level 8 of pay matrix	03	00	03
22.	Asstt. Section Officer (Head Clerk)	Pay Level 7 of pay matrix	10	00	10
23.	Senior Assistant (UDC)	Pay Level 4 of pay matrix	16	12	28
24.	Junior Assistant (LDC)	Pay Level 2 of pay matrix	33	11	44
25.	Peon	Pay Level 1 of pay matrix	31	01	32
26.	Chowkidar	Pay Level 1 of pay matrix	02	00	02
27.	Driver	Pay Level 2 of pay matrix	10	00	10
28.	Accounts Officer	Pay Level 9 of pay matrix	02	00	02
29.	Asst. Accounts Officer	Pay Level 8 of pay matrix	03	00	03
30.	Pr. Private Secretary -PB3	Pay Level 10 of pay matrix	01	00	01
31.	Private Secretary	Pay Level 8 of pay matrix	02	00	02
32.	Steno Gr. I	Pay Level 7 of pay matrix	03	00	03
33.	Steno Gr. II	Pay Level 4 of pay matrix	06	00	06
TOTAL			267	76	343


(Arun Mishra)
Member Secretary
DPCC

Copy for information to :-

1. P.S. to Secretary, Administrative Reform Department, GNCTD.
2. P.S. to Secretary(Env.)-cum-Chairman, DPCC.
3. P.A. to Spl.Secretary(Env.)-cum Member Secretary, DPCC
4. Administrative Officer for placing the order for kind information of DPCC in its next Board Meeting
5. Accounts Officer, DPCC
6. EE(IT Cell) - for upload the order on official website of DPCC.

ANNEXURE II

ANALYSIS REPORT OF GROUND WATER NEARBY GHAZIPUR LAND FILL SITE: APRIL 2019 – MARCH 2020

Sampling Location	PH	TDS (mg/l)	Cl (mg/l)	Hardness as CaCO ₃ (mg/l)	Ca (mg/l)	SO ₄ (mg/l)	Nitrate (mg/l)	Arsenic (mg/l)	Zinc (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	45	1	5	0.3	0.05	0.05	0.05	-	0.01
Ghazipur Dairy Farm, Gali no. 4	7.6	530	110	650	160	208	34	ND	0.02	2.02	ND	ND	ND	2.64	1.50
Ghazipur Dairy near Masjid	7.5	133	660	950	248	348	40	ND	ND	1.74	ND	ND	ND	2.64	0.86
Ghazipur landfill site near entry gate	7.0	241	165	1060	544	191	58	ND	0.02	4.09	ND	3.58	ND	3.18	0.69
Fish market Landfill Site Ghazipur	7.9	664	170	410	140	213	65	ND	ND	3.36	ND	ND	ND	2.55	0.53

ANALYSIS REPORT OF GROUND WATER NEARBY BHALASWA OKHLA LANDFILL SITE: APRIL 2019 – MARCH 2020

Sampling Location	P H	TDS (mg /l)	Cl (mg /l)	Hardness as CaCO ₃ (mg/l)	Ca (mg /l)	SO ₄ (mg /l)	Nitrate (mg/l)	Arsenic (mg/l)	Zinc (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	45	1	5	0.3	0.05	0.05	0.05	-	0.01
Okhla Landfill Site	7.0	175	1285	780	184	614	34	ND	ND	2.91	ND	ND	ND	2.28	0.21
ESI Hospital Okhla	7.5	565	185	400	128	481	22	ND	0.04	2.37	ND	0.25	ND	3.27	0.13
Okhla Bus Depot	8.1	171	1550	750	192	640	58	ND	ND	3.09	ND	ND	ND	3.09	0.53
PB Singh Camp Colony, Near Shiv Mandir	7.4	114	159	550	120	356	26	ND	0.02	3.0	ND	ND	ND	2.82	1.01

ANALYSIS REPORT OF GROUND WATER NEARBY BHALASWA LADFILL SITE: APRIL 2019 – MARCH 2020

Sampling Location	PH	TDS (mg/l)	Cl (mg/l)	Hardness as CaCO ₃ (mg/l)	Ca (mg/l)	SO ₄ (mg/l)	Nitrate (mg/l)	Arsenic (mg/l)	Zinc (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	45	1	5	0.3	0.05	0.05	0.05	-	0.01
Bhalaswa Sanjay Gandhi Transport	7.3	167	1135	1100	400	451	38	ND	0.29	2.65	ND	0.41	ND	3.73	1.41
Bhalaswa Dairy	7.5	198	1960	980	344	288	32	ND	ND	7.51	ND	0.75	ND	3.09	1.26
Bhalaswa Landfill Site	7.0	240	2165	2300	784	658	49	ND	ND	5.17	ND	0.58	ND	2.01	0.69
Bhalaswa Janta Colony	7.3	202	1110	1200	288	432	36	ND	ND	3.01	ND	1.08	ND	2.38	1.02

ANALYSIS REPORT OG GROUND WATER NEARBY BAWANA LANDFILL SITE: APRIL 2019 – MARCH 2020

Sampling Location	PH	TDS (mg/l)	Cl (mg/l)	Hardness as CaCO ₃ (mg/l)	Ca (mg/l)	SO ₄ (mg/l)	Nitrate (mg/l)	Arsenic (mg/l)	Zinc (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	45	1	5	0.3	0.05	0.05	0.05	-	0.01
Main Gate Bawana (SLF)	8.1	438	35	190	40	703	14	ND	0.11	2.11	ND	1.08	ND	3.64	0.77
Store Waste to Energy	8.0	570	120	310	80	676	36	ND	0.11	2.74	ND	0.58	ND	3.10	0.37
Sonot Village Bawana	8.0	103	80	100	40	382	48	ND	0.16	2.47	ND	0.58	ND	1.84	0.45
Bawana Village	8.0	847	140	350	112	996	92	ND	0.28	1.93	ND	0.25	ND	4.18	0.69
Sector 5 Bawana	7.2	701	120	120	88	253	80	ND	0.26	2.02	ND	0.42	ND	4.36	0.86

