CHAPTER 8

ENVIRONMENTAL CONCERNS

1. This chapter dwells upon the various dimension of pollution including source, past and present status and efforts made to reduce the pollution level in Delhi. Delhi has now been showing sign of improvement in the pollution level for the past few years. Now Delhi is on the way to become one of the cleanest and greenest cities of the world with the sustained efforts put in by the Govt. of Delhi alongwith peoples cooperation. The fight against this menace, which started around 1997, has been continuing, as is evident from the declining trend of various pollutants in the ambient air quality status of Delhi.

2. AMBIENT AIR QUALITY STATUS:

Concentration of various pollutants in the ambient air is showing a declining trend, which is evident from the following statement:

Statement-1

YEAR WISE ANNUAL MEAN AMBIENT AIR QUALITY LEVELS IN DELHI

Year	Concentration in ambient air (In µg/m^3)				
	SO_2	Nox	CO	SPM	RSPM
1997	19	45	4810.00	362	-
1998	21	42	5450.00	377	-
1999	19	40	4241.00	375	-
2000	18	42	4686.00	430	-
2001	14	42	4183.00	394	149
2002	11	46	3258.00	455	192
2003	10	56	2831.00	390	169
2004	9.00	57	2581.00	389	164
2005	9.00	49	N.A	331	139

Source: Department of Environment, GNCTD

Statement – 2

NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Time Weighted Average	Concentration in ambient Air		
		Industrial Areas	Residential Rural & other Areas	Sensitive Area
1	2	3	4	5
Sulphur Dioxide (SO_2)	Annual Average* 24 hours**	80 $\mu g/m^3$ 120 $\mu g/m^3$	60 $\mu g/m^3$ 80 $\mu g/m^3$	15 $\mu g/m^3$ 30 $\mu g/m^3$
Oxides of Nitrogen as NO_2	Annual Average* 24 hours**	80 $\mu g/m^3$ 120 $\mu g/m^3$	60 $\mu g/m^3$ 80 $\mu g/m^3$	15 $\mu g/m^3$ 30 $\mu g/m^3$
Suspended Particulate Matter (SPM)	Annual Average* 24 hours**	360 $\mu g/m^3$ 500 $\mu g/m^3$	140 $\mu g/m^3$ 200 $\mu g/m^3$	70 $\mu g/m^3$ 100 $\mu g/m^3$
Respirable Particulate Matter (size less than 10 μm) (RPM)	Annual Average* 24 hours**	120 $\mu g/m^3$ 150 $\mu g/m^3$	60 $\mu g/m^3$ 100 $\mu g/m^3$	50 $\mu g/m^3$ 75 $\mu g/m^3$
Lead (Pb)	Annual Average* 24 hours**	1.0 $\mu g/m^3$ 1.5 $\mu g/m^3$	0.75 $\mu g/m^3$ 1.00 $\mu g/m^3$	0.50 $\mu g/m^3$ 0.75 $\mu g/m^3$
Carbon Monoxide (CO)	8 hours** 1 hour	5.0 mg/m^3 10.0 mg/m^3	2.0 mg/m^3 4.0 mg/m^3	1.0 $mg/m^3$2.0 mg/m^3

* Annual Arithmatic mean of minimum 104 measurements in a year taken twice a week 24 hourly at uniform interval.

** 24 hourly/8 hourly values should be met 98% of the time in a year. However, 2% of the time, it may exceed but not on two consecutive days.

Source – Central Pollution Control Board.

2.1 **Sulphur Dioxide (SO_2):** Statement 1 shows that level of SO_2 has drastically come down in the ambient air. Annual mean SO_2 level reduced form as 18.03 mg/m^3, in the year 2000, to 9.00 g/m^3 in 2005. As such SO_2 level has decreased by 50% in 2005 as compared to 1997. This tremendous achievement could be linked to conversion of all buses/Taxis/Autos in CNG mode. The annual mean of SO_2 level in Delhi satisfy the annual average of National Ambient Air quality standard for residential areas which is 60mg/m^3 (Statement-2)

2.2 **Nitrogen Dioxide (NO_2)** Annual average value of NO_2 has decreased significantly (4.82%) in 2003 as compared to previous year but there is an increase in 2004 as compared to 2003. It was 45 mg/ m^3 in 2003 and 57mg/ m^3 in 2004 as against 47.28 mg/ m^3 in 2002. The annual mean of NO_2

level in Delhi is well within the annual average of National Ambient Air quality standards for residential areas which is 60 g/ m^3

2.3 **Carbon Monoxide (CO):** As is evident from Statement -1, annual average CO level has gradually been reducing since 2001. It was 4183 mg/m^3 in 2001 whereas in 2003 and 2004 it came down to 2831 mg/m^3 and 2581mg/m^3 respectively. This could be attributed to the stringent implementation of vehicular emission norms, fuel quality up-gradation and better maintenance of engines through all possible measures i.e. promotional, educational and enforcement.

2.4 **Suspended Particulate Matter (SPM):** As may be seen in Statement -1, annual average SPM level has drastically come down from 455mg/m^3 in 2002 to 390 mg/m^3 in 2003 and 331 mg/m^3 in 2005.

2.5 **Respirable Particulate Matter (RSPM):** Annual average of RSPM level has reduced by 6.8% in the year 2004 as compared to 2003. It was139 mg/m^3 in 2005 as against 164 mg/m^3 in 2004.

2.6 **Lead:** Annual average level of lead has significantly reduced after 1996. In 1996, the lead concentration in petrol was brought down from 0.56 g/l to 0.15 g/l. In 1998, lead was totally phased out from petrol. Consequently, this resulted in reduction of lead level in the ambient air.

2.7 Thus ambient air quality has improved significantly which can be gauged from the fact that as compared to 1997 the concentration of Carbon Monoxide has declined by 46% by 2004. Sulphur Dioxide level has reduced by 50% from 1997 to 2004. However, concentration of NOx has been showing slightly increasing trend from 2002. There was tremendous improvement in concentration of particulate matters (SPM & RSPM) in the ambient air in 2005 as compared to 2002 but remain almost constant in 2004 compared to 2003. This may be the root cause of respiratory problems affecting thousands of people in Delhi every year. The concentration of other pollutants like Lead & Benzene have also registered marked decline.

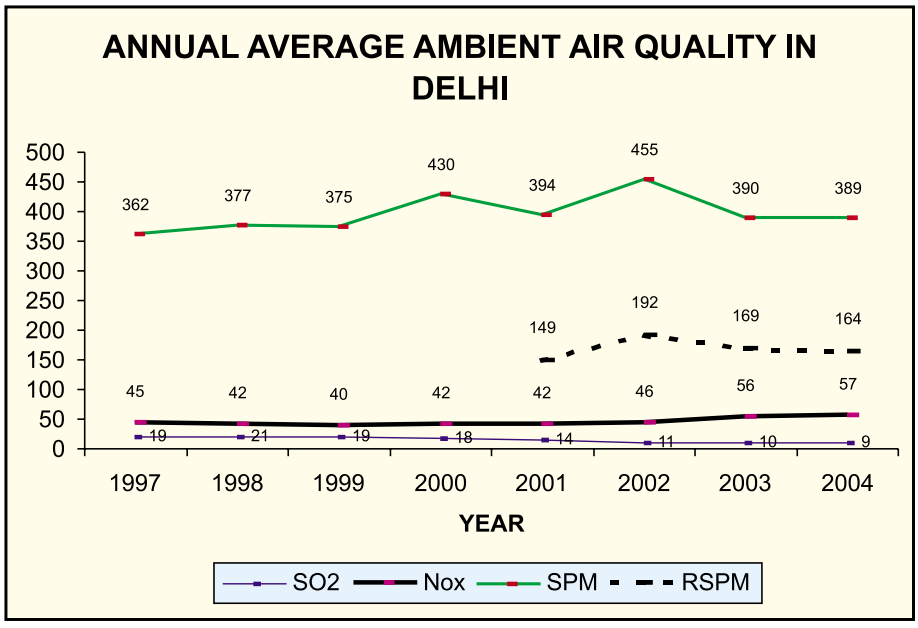
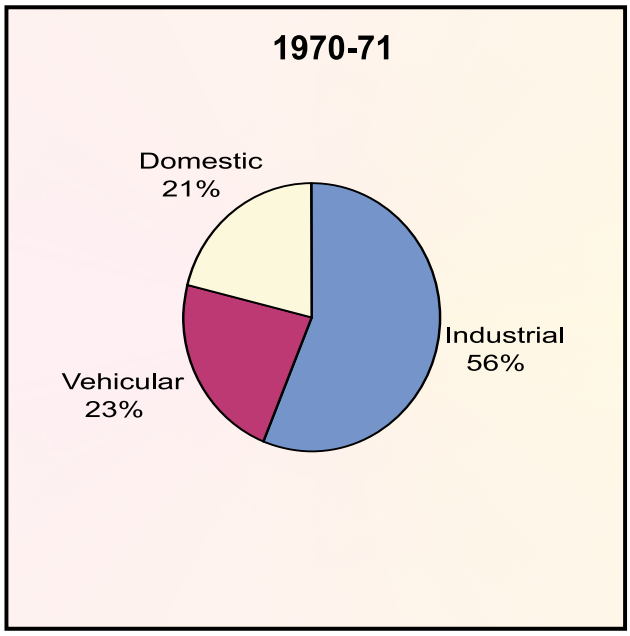
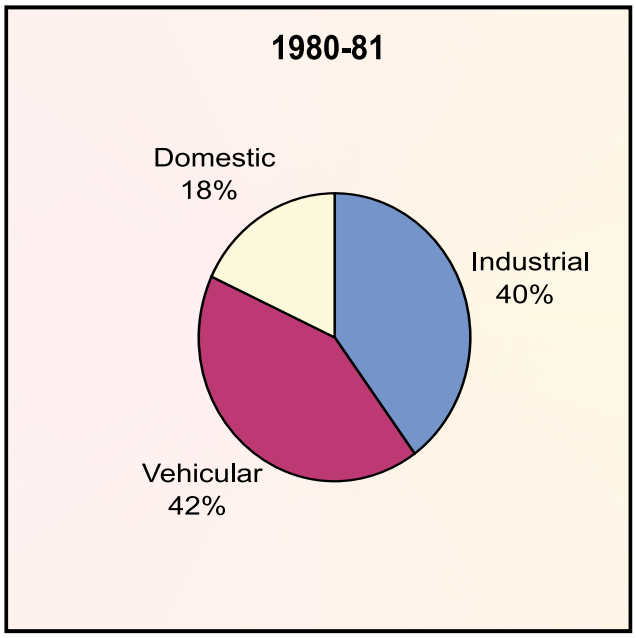
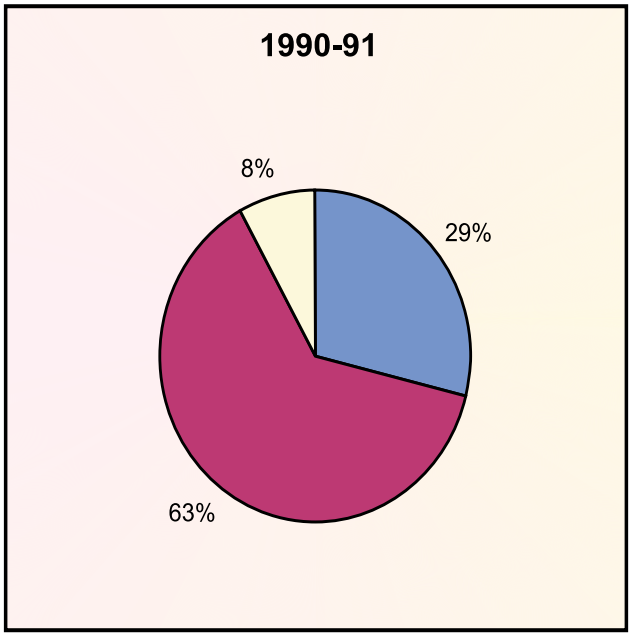


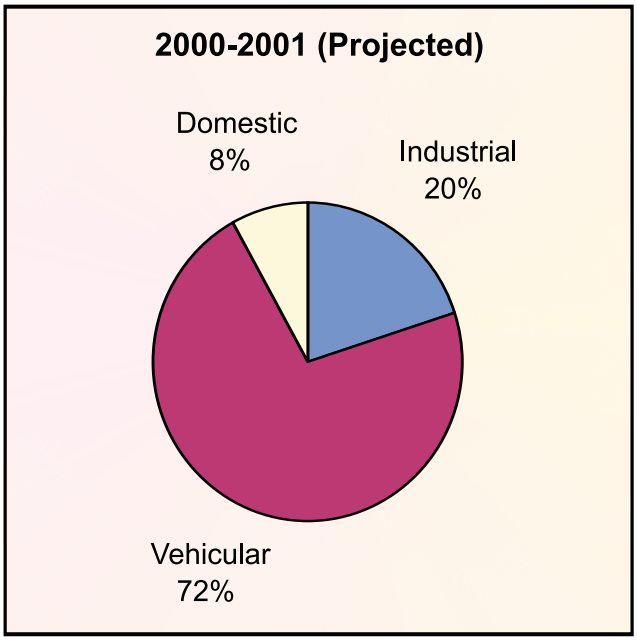
Chart -2

AIR POLLUTION BY SECTOR OF ORIGIN









Box-8.1

CRITICAL POLICY LINKS FOR URBAN ENVIRONMENTAL MANAGEMENT

Urban Environmental Management Issue	Underlying causes	Relevant policy reforms
Access to basic environmental Infrastructure and services:		
Serviced land shelter	Poor functioning urban land and housing markets; Highly regulated prices; Lack of affordable housing for the poor	Reforms property rights; Develop mortgage financing; Introduce affordable standards and target subsidies to the poor; Reduce unneeded regulations, government interventions and subsidies
Water supply, sanitation, drainage, solid waste collection/transport.	Supply side dominated by government monopoly; Prices heavily regulated; Heavy subsidies.	Introduce pricing and demand Management; Reconsider subsidies; Move toward decentralisation, privatisation, and participation.
Pollution from urban wastes and emissions:		
Water pollution	Uncontrolled municipal and industrial discharges; Excessive water use and waste generation; Failure to link water quantity and quality issues	Introduce water pricing and effluent charges; Subsidise sewage treatment; Strengthen regulations and capacity for monitoring and enforcement; Prepare comprehensive basin plans
Energy use and air pollution - Ambient air pollution - Indoor air pollution	Increased motorization and transportation congestion; Energy supply side dominated by government monopoly; Heavy energy subsidies; Household and cottage industry Use of low - quality fuels	Introduce energy and fuel pricing, road charges emission charges; Reduce automobile subsidies, fuel subsidies; Integrate transport and land use planning; Promote clean technologies, fuel substitution, and vehicle maintenance.
Solid and Hazardous waste Management.	Poor municipal management; Lack of disposal facilities; Inadequate regulation and Enforcement.	Introduce regulations, licensing and charges; Stimulate waste minimisation; strengthen operations; privatise disposal operations.
Resources losses:		
Ground water depletion	Unsustainable extraction linked to unclear property rights and treatment as free resources.	Clarify property rights; Introduce extraction charges; Rain water harvesting.
Land and ecosystem degradation	Low - income settlements "pushed" onto fragile lands by lack of access to affordable serviced lands (see above) Lack of controls over damaging Economic activities.	Co ordinate land development; Remove artificial shortages of land; Develop sustainable uses of sensitive areas; Monitor and enforce land use controls.
Loss of cultural and historic property	Lack of property rights, regulations, enforcement, maintenance; Failure to reflect social values in land prices.	Introduce tax incentives for preservation; Use redevelopment planning, zoning and building codes; Develop property rights.
Environment hazards		
Natural hazards	Poorly functioning land marks. Ineffective land policies; Poor construction practices.	Enable land markets (see above) Provide disincentives to construction practices occupation of high- risks areas, incentives for using disaster - resistant construction technique; Disaster preparation plans.
Man made hazards	Inadequate regulation and enforcement; Low - income settlements alongside hazardous activities.	Introduce and enforce environmental zoning; formulate urban disaster preparedness plans and strengthen response capacity. Disaster mitigation plans.

Source : DUEIIP-2021

3. NOISE POLLUTION

3.1 The other important cause of air pollution in Delhi is excessive noise. The major contributors to noise pollution are industries, vehicular traffic, festivals, construction activities, Diesel generating sets etc. Noise levels in Delhi exceed permissible levels in all areas except industrial areas according to a study by Delhi Pollution Control Committee in 1996. Following table indicates the ambient noise levels permitted by Central Pollution Control Board for different areas: -

Statement - 3

PRESCRIBED AMBIENT NOISE STANDARDS

S.No.	Area	Leq/dB (A)	
		Day Time *	Night Time **
1.	Industrial Area	75	70
2.	Commercial Area	65	55
3.	Residential Area	55	45
4.	Silence Zone***	50	40

Notes:

* Day time – 6 AM to 10 PM

** Night Time – 10 PM to 6 AM

*** Silence Zone is an area comprising not less than 100 meters around hospitals, educational institutions, courts, religious places or any other areas which is declared as such by competent authority.

Source: The Noise Pollution [Regulation and Control] Rules, 2000, Ministry of Environment and Forest

4. WATER POLLUTION

4.1 The 48-km stretch of the Yamuna River in Delhi is heavily polluted by domestic factors and partly by industrial wastewater. The river water upstream of Wazirabad is fit for drinking after treatment but after the confluence of the Najafgarh drain and 18 other major drains, the water quality becomes heavily degraded and is unfit even for animal consumption and irrigation (Table 8.5 & 8.6).

4.2 DOMESTIC WASTE WATER POLLUTION

The increase in population has resulted in a corresponding increase in the volume of domestic wastewater that is generated. Water Supply capacity of DJB is about 650 MGD while the present

Sewage Treatment Capacity is about 512.40 MGD. However, waste water being discharged in major drains (Table 8.5) is more than water supplied by DJB. It indicates that sufficient water consumption is through other sources in Delhi. The waste water generated in unplanned area are discharged into drains in the absence of sewerage network. The major cause of concern is non-utilisation of installed capacity of sewage Treatment Plants as at present only about 348.2 MGD sewage is being treated by all STPs against their installed capacity of 512.40 MGD.

4.3 INDUSTRIAL WASTE WATER

The industrial wastewater generated in Delhi is about 40 MGD. Although some industrial units have installed ETP to treat wastewater, most of the small-scale industries have not installed such facilities

5. VEHICULAR POLLUTION

5.1 Vehicle population has increased from 24.32 lac in 1994-95 to 44.89 lac in 2004-05. Thus, an increase of about 85% has been registered in a period of 10 years. Highest increase was in the category of car / jeeps (140.45%) followed by scooter / motorcycle (74.78%). This has resulted in a corresponding increase in pollutants emitted by vehicles. Petrol consumption has increased from 133 thousand tons in 1980-81 to 639 thousand tons in 2004-05, Diesel (HSDO) consumption has increased from 377 thousand tons to 1214 thousand tons. As such, petrol consumption has increased to about 480% and Diesel consumption to about 322% in the last 25 years.

6. SOLID WASTE

6.1 Latest estimates indicate that about 6500-7000 M. Tones of Solid waste is being generated each day in Delhi at present. In addition, industrial hazardous and non-hazardous waste, such as fly ash from power plants, is also generated. MCD and NDMC could manage to clear about 5500 M. Tones of garbage each day resulting in accumulation of garbage in the city area.

7. BIO MEDICAL WASTE

7.1 With the increase in the number of hospitals and nursing homes in Delhi, hospital waste has become another area of concern. In-house waste treatment facility in terms of autoclave/incinerators/ shredders are available in major hospitals. Small Nursing Homes, Clinics and Dispensaries are disposing off the waste through 'Operator of facility' who collect, treat and transport and dispose off the waste. Two such operators are operating in Delhi at present.

8. MEASURES TO COMBAT POLLUTION

8.1 Major environmental laws & regulations to control the pollution can be seen in Box 8.2

Box 8.2

LIST OF MAJOR ENVIRONMENTAL LAWS AND REGULATIONS

1	The Water (Prevention and Control of Pollution) Rules, 1975
2	The Air (Prevention and Control of Pollution) Rules, 1982
3	The Water (Prevention and Control of Pollution) Cess Act, 1977/1991 and Rules, 1978
4	The Environment Protection Act, 1986
5	Notification on Emission Standards of Pollutants from various industries, 1989
6	Hazardous Wastes (Management and Handling) Rules, 1989
7	Manufacture, Storage and Import of Hazardous Chemical Rules, 1989
8	Manufacture, Use, Import, Export and Storage of Hazardous Micro- Organisms Genetically Engineered Organisms or Cells Rules, 1989
9	The Public Liability Insurance Act and Rules, 1991
10	The Notification on Environment Impact Assessment of Development Projects, 1994 amended in 2004
11	The Chemical Accidents (Emergency, Planning, Preparedness and Response) Rules, 1996
12	The Bio-Medical Waste (Management and Handling) Rules, 1998
13	The Recycled Plastics (Manufacture and usage) Rules, 1999
14	The Hazardous Waste (Management and Handling) Amendment Rules, 2000
15	The Delhi Degradable Plastic Bag (Manufacture, Sales and usage) and Garbage (control) Act, 2000
16	Municipal Solid waste (Management & Handling) Rules, 2000
17	The Noise pollution (Regulation & Control) Rules, 2000
18	The Recycled Plastics (Manufacture and Usage) (amendment) Rules 2003

Source : DUEIIP-2021 & Environment Department, Govt. of Delhi

VEHICULAR POLLUTION

8.2 The main source of air pollution in Delhi is vehicular exhaust. Therefore, a strategy for use of cleaner fuel, reduction in fuel consumption, efficient maintenance of engines and installation of pollution control devices was adopted. Govt. of Delhi initiated the following steps in this direction:

- Mandatory fitting of catalytic converters -April, 1995
- Introduction of Low Sulphur Diesel – April, 1996.
- Introduction of CNG buses – April, 1998.
- Complete removal of leaded petrol – September, 1998.
- Restriction on plying of goods vehicles during day time-December, 1998
- Mandatory premixing of lubricant oil in petrol and ban on sale of loose lubricant Oil-December, 1998
- Amendment of Motor vehicle Act to bring CNG vehicle under permit & Tariff jurisdiction of government – September, 1999.
- Registration of private vehicles only conforming to Euro-II norms – April, 2000.
- Phasing out of Commercial vehicles older than eight years – April, 2000.
- Stricter emission norms (Bharat Stage – II) for registration of new taxis – October, 2001.
- Conversion of entire fleet of buses into CNG fuel mode– November, 2002.
- Euro-III norms mandatory for all four-wheeler w.e.f 1st April 2005.
- Euro-III norms mandatory for all two and three wheelers w.e.f 1st April 2005.
- 0.035% Sulphur in Diesel being supplied in Delhi w.e.f April 2005.
- 0.015% Sulphur in Petrol being supplied in Delhi w.e.f 1st April 2005.
- Stringent Emission Norms for 'in use' vehicles
- All authorized 485 pollution checking centres have been computerized and upgraded to current tail pipe emission norms & procedures.
- Two fully automated vehicles inspection and certification units have been set up in collaboration with ARAI Pune for better and quality inspection of all light & heavy vehicles.

INDUSTRIAL AIR POLLUTION

8.3 It is estimated that air pollution generated from industrial activity in Delhi is about 20% of total air pollution. Although several steps have been taken, industrial pollution may be reduced further. More than 1,300 industrial units, that should not have been operating as per the MPD-2001 norms, have been closed. A scheme has been prepared to relocate industrial units that currently operate in residential areas. About 18000 industrial plots have been allotted at new industrial estates being developed at Bawana, Narela and 8048 plots at Bhorgarh industrial estate. Land available within existing industrial estates is also being used to accommodate such industrial units. Anand Parbat, Shahdara and Samaipur Badli area are being developed as industrial estates.

8.4 Unauthorised industrial areas, which meet the norms declared as eligibility criteria for regularization, have been identified. Now these industrial areas may be regularized if association of these areas come forward to fulfill the norms by developing infrastructure according to eligibility criteria notified.

8.5 All Industries in Delhi using Coal Fired Boilers have been asked to change over to Oil or Gas Fired Boilers in order to reduce air pollution generated from industrial activities. This will also reduce the Fly Ash generated by the approximate 4000-5000 coal fired boilers in the City. All industries are also being advised to control pollution from diesel generating sets. They have been asked to increase the stack height to a level of 2-3 meters above their building height and also take acoustic measures to reduce the noise level from diesel generating sets.

8.6 The main pollutants from coal based thermal power plant are stack emissions, fly ash generation and fugitive emission in coal handling. There are five power plants in Delhi, out of which, two are gas based and three are coal based. All three coal based thermal power plants located in Delhi have installed pollution control systems and are adhering to the national standard of 150 mg/Nm^3. However, DPCC has given new stringent norms for particulate matter emission as 50 mg/ Nm^3 for which all the three Thermal Power Plants are in the process of upgrading their pollution control system. Besides, the Power Plants are using beneficiated coal (ash content less than 34% since 1999).

8.7 I.P.Thermal power plant has completed its life and as such it is now proposed to replace this thermal plant in a phased manner by a Combined Cycle Gas based plant of 1000 MW.

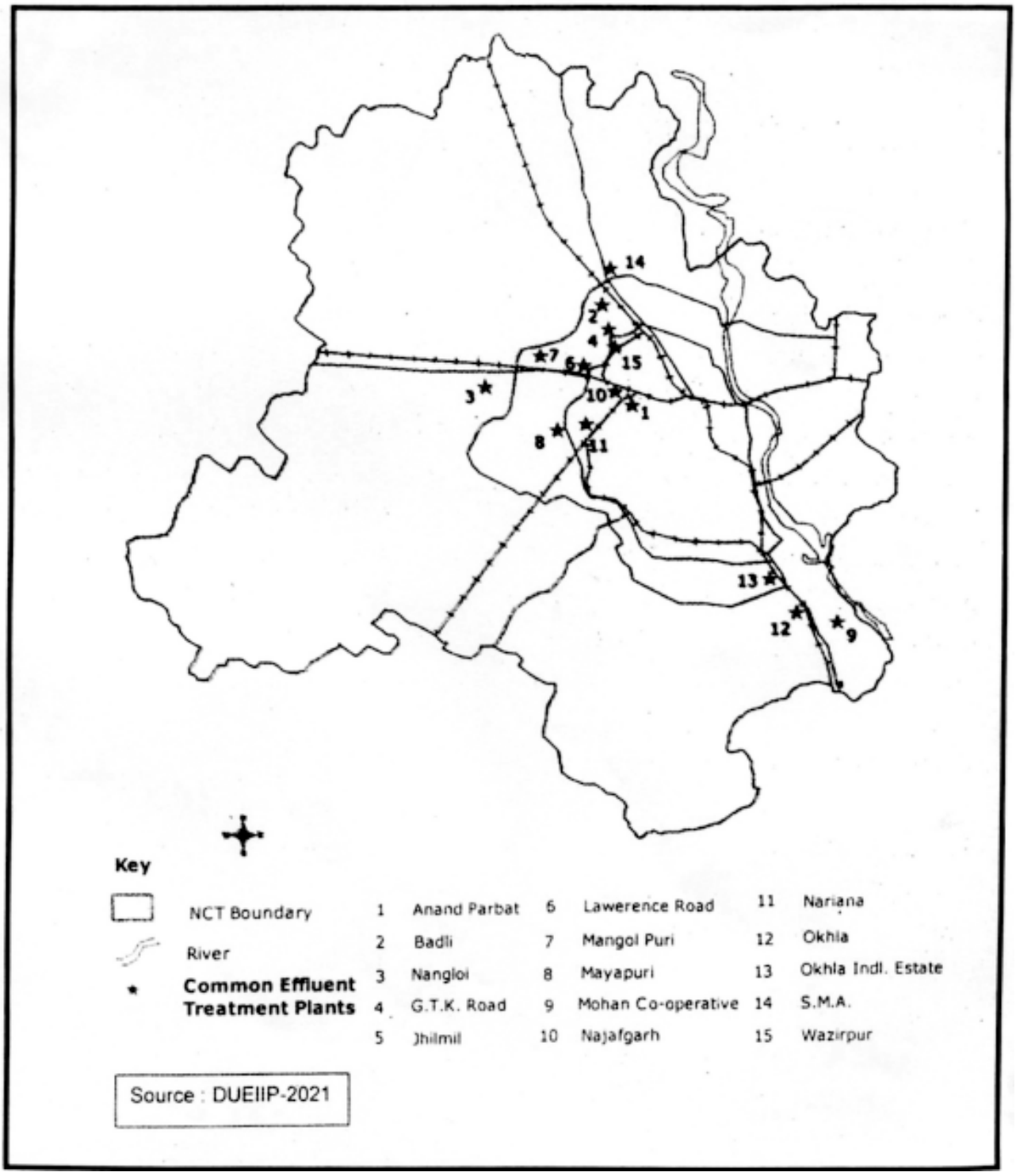
8.8 The Fly Ash notification of Govt. of India, regarding utilization of fly ash with in the radius of fifty kilometer from coal or lignite based thermal power plants, being implemented in Delhi by different departments/user agencies, is being monitored by the Environment Department . The provisions of the Notifications are to restrict the excavation of topsoil for manufacturing the bricks and promoting the utilization of fly ash base building materials in construction activity and use of fly ash/pond ash in construction of roads/flyover/ embankment (as per IRC guidelines)/refilling of soil burrow area and reclamation of low lying area. The quality of fly ash bricks need to be improved as there are complaints by users.

INDUSTRIAL WASTE WATER POLLUTION

8.9 There are 31 industrial areas in Delhi. Most of the small and tiny industries do not have individual facilities to treat liquid waste. Each unit has been asked to install an Effluent Treatment Plant to ensure neutralization of acidity, removal of oil and grease and removal of total suspended solids to the levels specified for each industry by the Central Pollution Control Board or up to sewage standards wherever specific standards have not been laid down. For management of industrial effluent, 15 CETPs were originally proposed to cater the treatment of effluent generated from the various Industrial units in Delhi. 10 CETPs have been constructed so far and made functional. 2 CETPs at Narela Industrial Area and Bawana Industrial Area are nearing completion. Empowered Committee constituted by the Supreme Court has recommended not to construct remaining 3 CETPs. Government of Delhi has already invested more than Rs.84 crore as its share of 25% cost of 12 CETPs but Government of India is yet to release its full share of 25%. CETPs societies are to contribute 50% of balance cost and are also liable to maintain these CETPs. 8 CETPs have been handed over to the CETP societies till now.

Map 8.1

LOACTION OF PROPOSED INDUSTRIAL COMMON EFFULENT TREATMENT PLANTS (CETPS)



8.10 DOMESTIC WASTE WATER POLLUTION

The present water supply capacity of DJB is approximately 650 MGD and the sewage treatment capacity is 512.4 MGD. 17 new sewage treatment plants have already been commissioned. However, since unauthorized colonies and JJ clusters may not be provided with sewerage systems, wastewater from these areas will continue to be discharged through drains. In such areas, about 1000 public toilets have been constructed with JBIC funds in addition to public toilets being constructed by Slum Wing under their plan scheme. Decentralised system of waste water treatment is the only possible solution to this problem. DJB is contemplating to prepare a feasible plan for this purpose. MCD has also appointed consultant under YMP-II for this purpose.

8.11 YAMUNA ACTION PLAN (PHASE - II)

The Yamuna Action plan (YAP) Phase - I, focused on the treatment of partial wastewater discharge from 15 towns till the year 1998 and the pollution from Delhi was not fully addressed. Hence, the schemes of this project did not contribute fully in improvement of water quality of river Yamuna. Therefore, YAP - II has been formulated by M/o Environment & Forest, Govt. of India to achieve the desired water quality standards for Yamuna River and to improve the sanitary and hygienic conditions of the low - income population. The total cost is Rs.387.17 crore for the schemes under "Yamuna Action Plan Phase - II" in Delhi. The cost of the schemes is to be shared on 85:15 basis between the Govt. of India and Govt. of Delhi. A few study projects are also included in YAP - II, which will be implemented under YAP (Phase-III)

Projects under Yamuna Action Plan Phase -II (YAP-II)

Projects finalized by MOEF	**Cost (Rs. in Crore)**
324 MLD (72 MGD) Keshopur, STP rehabilitation, Pumping station and rising main in Keshopur STP pilot plant for electricity generation from biogas	66.36
Okhla STP augmentation with electricity generation plant for 170 MGD STP	85.27
Ring Road trunk sewer rehabilitation	90.07
Wazirabad road trunk sewer settlement	64.20
Bela Road trunk sewer rehabilitation	17.47
DPR Preparation including Pilot Plant implementation for YAP III	35.00
Misc. e.g. Slum Rehabilitation, Public Participation and Awareness and Capacity Building/PR	28.80
Total	**387.17**

Funds have been released to MCD and DJB by the Government of India to initiate the implementation of schemes. The Selection of Project Management Consultants by the project implementing agencies has been completed and now implementation will be speeded up.

8.12 For control of pollution in River Yamuna in addition to above mentioned programmes, DJB has decided to appoint a Consultant through global bidding. The selected consultant will prepare a comprehensive Project Report for total rejuvenation of the river taking into account present status and also future scenario.

HAZARDOUS WASTE MANAGEMENT

8.13 Hazardous Waste (Management & Handling) Amendment Rules, 2000, specifies 36 types of hazardous waste generating processes as well as type of hazardous waste. Under the rules, it is the responsibility of all the industrial units who generate specified hazardous waste to ensure that the hazardous waste is properly collected, treated, stored, transported and disposed of in environmentally sound manner.

8.14 Delhi Pollution Control Committee, undertook a general census of industrial units, located in all the 31 approved industrial areas of Delhi through National Productivity Council. As Per report submitted by NPC in March 2004, the number of hazardous waste generating units was reported to be 1777. The quantity of the hazardous waste expected to be generated from 31 approved industrial areas in Delhi is reported to be 20,000 MT per year. The National Productivity Council, New Delhi conducted a Environment Impact Assessment study of 3 probable sites for the disposal of hazardous waste. A Temporary Storage Facility for hazardous waste generated in Delhi has been developed near CETP Wazirpur. Department of Environment has decided to prepare the plan for development of its own facility site within Delhi.

SOLID WASTE MANAGEMENT

8.15 The management of solid waste in Delhi is being improved through various measures adopted by concerned agencies. These measures include the following:

I Construction of dalaos/dustbins & Purchase of Steel frame large Size dustbins

II Purchase of additional front-end loaders, refuse collectors, mechanical sweepers, tipper trucks, dumper placers, etc;

III Minimising garbage through segregation between degradable and non-degradable

IV Development of new sanitary land-fill sites;

V Disposal of garbage at the local area level through vermi-composting/compost making.

VI Involvement of NGOs and Resident Welfare Associations in segregation and collection of garbage from houses.

VII The Govt. of India has notified Municipal Solid Waste (Management & Handling) Rules, 2000 with the objective of collection, segregation, storage, transportation and processing and disposal of Municipal Solid Waste (Management & Handling) Rules, 2000. Implementation of these Rules is being taken care of by concerned local bodies in their respective areas.

VIII Besides the above, the Municipal Corporation of Delhi, which is managing the solid waste, has taken the following policy level decision to improve the management system:

(a) Private Sector participation in transportation of Solid Waste in six zones.

(b) Setting up of processing facilities through private entrepreneurs.

(c) Infrastructure development at the local level collection and at the terminal processing level for segregation of wastes.

BIO MEDICAL WASTE MANAGEMENT

8.16 About 10 M.T. Bio-Medical wastes is generated each day in Delhi (2005). For the centralized common disposal of Bio-Medical Wastes, the work of setting up of such a facility was awarded to a private firm which will start functioning shortly. Delhi Pollution Control Committee has authorized two operators for collecting the waste from the individual generators and disposing it off at their facilities. With the commencement of facility from two operators, a number of major hospitals, who had installed incinerators, had closed down their incinerators and started availing the services of the operators. DPCC has authorized one more operator to collect and transport hospital waste from Delhi and to treat and dispose at their facility at Gaziabad.

As on date (2005), 19 incinerators, 19 autoclaves and 2 microwaves are in place for effective management of the Bio-Medical Waste (Management & Handling) Rules, 1998. Besides, more than 2000, individual Health Care establishments have made an agreement with the operators who have the facility for the management of Bio-Medical Waste. Extensive training programmes for different hospitals have been conducted by D.P.C.C. with the involvement of NGOs and experts in the field. About 1000 Health Care workers have been trained during the programme organized in April-June, 2002.

NOISE POLLUTION

8.17 The growing number of DG sets is categorized as one of the source of noise pollution in Delhi. The guidelines issued on the subject by Government from time to time are as under:-

8.18 NOISE LIMIT FOR GENERATOR SETS RUN WITH DIESEL

A. Noise limit for diesel generator sets (upto 1000 KVA) manufactured on or after the 1st July, 2003.

The maximum permissible sound pressure level for new diesel generator (DG) sets with rated capacity upto 1000 KVA, manufactured on or after the 1st July, 2003 shall be 75 dB(A) at 1 metre from the enclosure surface.

The diesel generator sets should be provided with integral acoustic enclosures at the manufacturing stage itself.

B. Noise limit for DG sets not covered by paragraph A.

Noise limits for diesel generator sets not covered by paragrapha A, shall be as follows:

a) Noise from DG set shall be controlled by providing an acoustic enclosures or by treating the room acoustically, at the users end.

b) The acoustic enclosure or acoustic treatment of the room shall be designed for minimum 25 dB(A) insertion loss or for meeting the ambient noise standards, whichever is on the higher side (if the actual ambient noise is on the higher side, it may not be possible to check the performance of the acoustic enclosure/acoustic treatment. Under such circumstances the performance may be checked for noise reduction upto actual ambient noise level, preferably, in the night time). The measurement for Insertion Loss may be done at different points at 0.5 m from the acoustic enclosure/room, and then averaged.

c) The DG set shall be provided with proper exhaust muffler with insertion loss of minimum 25dB(A).

d) These limits shall be regulated by the State Pollution Control Boards and the State Pollution Control Committees.

e) Guidelines for the manufacturer/user of Diesel Generator sets shall be as under :-

i) The manufacturer shall offer to the user a standard acoustic enclosure of 25dB(A) insertion loss and also a suitable exhaust muffler with insertion loss of 25 dB(A).

ii) The user shall make efforts to bring down the noise levels due to the DG set, outside his premises, within the ambient noise requirements by proper siting and control measures.

iii) Installation of a DG set must be strictly in compliance with the recommendations of the DG set manufacturer.

iv) A proper routine and preventive maintenance procedure for the DG set should be set and followed in consultation with DG set manufacturer which would help prevent noise levels of the DG set from deteriorating with use.

8.19 ORDER OF THE Lt. GOVERNOR OF DELHI IN RESPECT OF D.G.SETS

a. Generator sets above the capacity of 5 KVA shall not be operated in residential areas between the hours of 10.00 PM to 6.00 AM except generator sets of Group Housing Societies and Multi Storey residential apartments.

b. Generator sets above the capacity of 5 KVA in all areas residential/commercial/industrial shall operate only with the mandatory acoustic enclosures and other standards prescribed in the Environment (Protection) Rules, 1986;

c. Mobile generator sets used in social gathering and public functions shall be permitted only if they have installed mandatory acoustic enclosures and adhere to the prescribed standards for noise and emission as laid down in the Environment (Protection) Rules, 1986.

8.20 PUBLIC AWARENESS CAMPAIGNS

Sustained and concerted efforts of the Government on the environmental front yielded fruitful results on many counts. Public participation specially from Students, Resident Welfare Associations, Market Traders Associations in the Campaigns, has achieved great success with cooperation from all concerned.

FOREST

8.21 Delhi's forest cover has increased from 88 sq.kms in 1999 to 170 sq.kms. in 2003. Thus, jumping from 7.5 per cent forest cover in 1999 to 11.46 per cent in 2003. The expansion of forest area is a remarkable achievement in afforestation of Delhi. The tree cover that exists along the roadsides, streams, and vacant lands falling outside the forest cover in Delhi constitutes 98 sq. Km. in 2003. The total tree cover & forest cover is now 268 sq. Kms, in 2003 which is 18.07 percent of the total geographical area of Delhi. Delhi is the first Mega City in the country with highest green cover of 18.07% of total area.

8.22 Due to a well coordinated system, efforts of the Nodal Officers and cooperation of the RWAs, plantation programme in last monsoon has been quite successful and more than 3 lakh saplings were distributed free of cost to RWAs, NGOs, Schools and General public etc. In addition to this, more than 3 lakhs saplings were planted by the Forest Department.

8.23 OTHER MEASURES

Several other measures are being taken to control pollution and improve the environment, which are as follows: -

(i) Reuse of treated wastewater for gardening and cooling purposes, which is discharged from Sewage Treatment Plants.

(ii) Making use of bio-degradable kitchen solid waste for Vermi-composting at community level and utilizing compost for gardening purpose.

(iii) The Department of Environment has supported various schools for putting up paper recycling equipment.

(iv) Development and protection of the Ridge area.

(v) Development of wild life sanctuary at Bhatti, Asola.

(vi) Development and preservation of old lakes and other water bodies.

(vii) Bombay Natural History Society (BNHS) has been engaged to perform their activities at Asola Sanctuary for visitors and thus play the role of Environment Resource Centre in Delhi for the public.