CHAPTER 8 ENVIRONMENTAL CONCERNS

1. In Delhi today, pollution is one of the most critical problems facing the public and concerned authorities. According to the World Health Organisation (WHO), Delhi is the fourth most polluted city in the world in terms of suspended particulate matter (SPM). The growing pollution is responsible for increasing health problems. The deteriorating environment is the result of population pressure and haphazard growth. Industrial development has been haphazard and unplanned. Only about 20% of the industrial units are in approved industrial areas; the remainder are spread over the city in residential and commercial areas. Road transport is the sole mode of public transport; there has been a phenomenal increase in the vehicle population, which has increased from 2 lakh in 1971 to 32 lakh in 1999.

POLLUTION LEVELS Ambient Air Quality

2. Data from continuous monitoring of air quality reveals that while suspended particulate matter levels still far exceed stipulated standards, there is a significant downward trend as indicated in Table 8.1 and charts 8.1, 8.2, 8.3, and 8.4.



3. Noise levels in Delhi exceed permissible levels in all areas except industrial areas, according to a study by the Delhi Pollution Control Committee. Since noise is measured on a logarithmic scale, an increase of every 3-5 d BA has twice the effect on humans. Diesel generating sets and vehicles, particularly auto-rickshaws, have been identified as major sources of noise pollution in Delhi. Table 8.2 shows the ambient noise levels permitted by the Central Pollution Control Board for different areas.

Air Pollution

4. The 1991 report by the National Environmental Engineering Research Institute (NEERI), Nagpur documents the amount of pollution that is contributed by different sectors in Delhi:

Statement 8.1 Pollution by Sector of Origin



5. In relative terms, the quantum of industrial air pollution has decreased over the years. However, vehicular pollution has increased rapidly. The drop in share of domestic air pollution is due to the increased number of LPG connections in Delhi which have replaced other forms of fuel.

Water pollution

6. The 48-km stretch of the Yamuna River in Delhi is heavily polluted by domestic and industrial wastewater. The river water upstream of Wazirabad is fit for drinking after it has been treated, 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 8.3).

Domestic Wastewater Pollution

7. The increase in population has resulted in a corresponding increase in the volume of domestic wastewater that is generated. Sewage treatment capacity is about 344 MGD at present against about 470 MGD wastewater that is generated each day in Delhi. The sewage treatment capacity is not fully utilized due to malfunctioning of the trunk sewer system.

Industrial Wastewater

8. The industrial wastewater generated in Delhi is about 70 MGD. Although some industrial units have provided facilities to treat wastewater, most small-scale industries do not have such facilities.

Vehicular Pollution

9. The steep increase in vehicle population has resulted in a corresponding increase in pollutants emitted by vehicles. Petrol consumption has increased from 133 thousand tons in 1980-81 to 449 thousand tons in 1996-97 and HSD consumption from 377 thousand tons to 1,234 thousand tons.

Two-wheelers, which constitute 66% of the vehicles registered in Delhi, are the major source of air pollution.

Solid Waste

10. NEERI estimates indicate that about 8000 M. Tonnes 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 mange to clear about 5000-5500 M. Tonnes of garbage each day resulting in accumulation of garbage in the city area.

Hospital Waste Pollution

11. With the increase in the number of hospitals and nursing homes in Delhi, hospital waste has become another area of concern. Private nursing homes and small hospitals do not have arrangements to treat hospital waste. Installing incinerators to burn hospital waste is not an ideal solution since these incinerators add to air pollution.

MEASURES TO COMBAT POLLUTION

Vehicular Pollution

12. Delhi has more vehicles than the three metropolitan cities of Mumbai, Calcutta and Chennai combined. It is the only metropolitan city where commuters are primarily dependent on a single transport system, i.e., road. This has led to an enormous increase in the number of vehicles with the associated problems of traffic-congestion and increase in air and noise pollution. There is an urgent need to strengthen and encourage use of public transport including development of MRTS and better utilization of the existing ring railway.

13. The Delhi Government has started an incentive scheme to replace old commercial vehicles. The supply of lead-free petrol in Delhi since April 1998 has brought down the lead content in the air. The promotion of CNG as a fuel for buses, cars, taxis and auto-rickshaws is being considered as a method of reducing the level of vehicular pollution. Replacement of old commercial vehicles, no registration of army and government disposed old vehicles, etc. measures also contributed to some extent.

Pollution from Thermal Power Plants

14. Thermal power plants contribute to 13% of air pollution. The main pollutants are stack emissions, fly ash generation and fugitive emission in coal handling. All three thermal power plants need better use of their emission control devices and the fly ash that they generate. There is an immediate need to use beneficiated/washed coal which has a maximum ash content of 30%, which will reduce fly ash generation by about 25%. It has also been recommended to the Thermal Power Stations to examine the possibility of installing Bag House Filters in order to control emission of particles between the size of PPM 2.5 to PPM-10.

Industrial Air Pollution

15. The air pollution generated from industrial activity in Delhi is about 12% of total air pollution. Although several steps have been taken, industrial pollution needs to be reduced

further. More than 1,300 industrial units, that were not allowed to operate under the MPD-2001 norms, have been closed. A scheme has been prepared to relocate industrial units that currently operate in residential areas. About 1,300 acres of land have been acquired and new industrial estates are being developed at Bawana, Holumbi Kalan and Holumbi Khurd. 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 areas. 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.

Industrial Wastewater Pollution

16. There are 28 industrial areas in Delhi. Most of the small and tiny industries do not have individual facilities to treat liquid waste. The Hon'ble Supreme Court has ordered that 15 Common Effluent Treatment Plants (CETPs) be constructed. All water polluting industries in Delhi have been directed to comply with orders of the Hon'ble Supreme Court and ensure that they do not discharge untreated effluent. Action has been taken against 2,300 industrial units in Delhi so far (January, 2000) and is continuing to cover all such water polluting units. 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.

17. The breakdown of funding for the CETPs is given below:

- a) 25% by the Delhi Government
- b) 25% by the Government of India
- c) 20% by concerned industries through the CETP society, and

d) 30% loan financed by IDBI.

18. The cost of constructing 15 CETPs which was estimated at Rs. 90 crore in 1996-97 is now estimated at about Rs. 190 crore. Progress has been slow due to reluctance on the part of industrial units to contribute their share. Domestic Wastewater Pollution

19. The present water supply capacity in Delhi is approximately 591 MGD and the sewage treatment capacity is 344 MGD. 16 new sewage treatment plants are at various stages of commissioning and construction. Of the 16 plants, 5 were completed by March 1999, 8 will be completed in 1999-2000 and one in 2000-01. 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. Accordingly, a parallel channel from Wazirabad to Okhla has been proposed. The feasibility study for the proposed channel is being done by Water and Power Consultancies Services (WAPCOS).

Industrial Non-hazardous Waste Management

20. The main industrial non-hazardous waste is fly ash from power plants that emit about 6,000 metric tons of fly ash per day. Until recently, the fly ash was disposed off for earth filling apart from about 100 metric tons per day that was used to manufacture pozzolana cement. A small quantity of fly ash near BTPS is also used to manufacture bricks. Land is now being allotted to three brick manufacturing units near Rajghat and Indraprastha thermal power stations so that additional fly ash from these plants can be utilized. At the same time, the use of beneficiated/ washed coal may reduce the amount of fly ash generated by thermal power plants.

Hazardous Waste Management

21. The National Productivity Council, New Delhi has conducted an Environment Impact Assessment study to select a site for the disposal of hazardous waste. A 150-acre site on the Bawana-Narela Road was selected but it has not been made available due to opposition from local residents.

Solid Waste Management

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

i) Construction of dalaos/dustbins;

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

iii) Use of garbage to make compost with the participation of the private sector;

iv) Development of new sanitary land-fill sites;

v) Disposal of garbage at the local area level through vermi-composting.

vi) Involvement of NGOs and Resident Welfare Association in segregation and collection of garbage from houses.

Hospital Waste Disposal

23. The Delhi Government has constituted a committee to implement the Bio-Medical Waste (management and handling) Rules, 1998. Almost all government hospitals have installed incinerators for the disposal of hospital waste. Sanjay Gandhi Memorial (SGM) Hospital has also installed an autoclave that is used for 97% of its waste disposal. The Centre for Occupational and Environmental Health (COEH) is helping the committee monitor the progress of the programme and ensure that the Bio-Medical Waste Rules 1998 are implemented by all hospitals in Delhi. Other Measures

24. Several other measures are being taken to control pollution and improve the environment. These include:

i) Planting of 21 lakh trees/shrubs in 1999-2000;

ii) Public awareness campaigns;

iii) Setting up eco-clubs in schools;

- iv) Development and protection of the Ridge area;
- v) Development of a wildlife sanctuary at Bhati –Asola;
- vi) Development of old lakes;

vii) 10 City Forest Sites have been identified by the Forest Department. These will be developed by the Forest Department as 'Green Lungs' for various areas.

25. The Delhi Plastic (Manufacture, Sale & Usage) and Non-Biodegradable Garbage (Control) Bill, 1999 has been moved in the Legislative Assembly for banning the use of plastic bags for food items. This has been referred to a Select Committee of the House in the December 1999 Session of the Legislative Assembly.

Table 8.1 AMBIENT AIR QUALITY IN DELHI

Area/Parameters	1995	1998	1999	CPCB Standards		
Industrial Area						
Sulphur dioxide (mg/m3)	24.1	20.2	19.5	80.00		
Nitrogen dioxide (mg/m3)	35.5	34.7	33.5	80.00		
Suspended Particulate matter (mg/m3)	420	367	365	360.00		
Lead (mg/m3)	110	105	58	1.00		
Residential Area						
Sulphur dioxide (mg/m3)	16.5	15.8	16.2	60.00		
Nitrogen dioxide (mg/m3)	32.5	28.6	26.5	60.00		
Suspended Particulate matter (mg/m3)	409	341	351	140.00		
Lead (mg/m3)	155	95	46	0.75		
Traffic intersections						
Sulphur dioxide (mg/m3)	42	25	20	60.00		
Nitrogen dioxide (mg/m3)	66	63	60	60.00		
Suspended Particulate matter (mg/m3)	452	426	418	140.00		
Lead (<i>mg/m3)</i>	335	136	70			
Carbon Monoxide (mg/m3)	5587	5450	4241			
Source : Department of Environment, Government of NCT of Delhi and Central Pollution Control Board.						

Table 8.2PRESCRIBED AMBIENT NOISE STANDARDS

S.No.	Area LeqdB(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 :	tes				
*	Day Time —0600 hour to 2100 hour (15 hours)				
**	Night Time—2100 hour to 0600 hour (09 hours)				
***	Areas upto 100 metres around certain premises like hospitals, education institutions and courts may be declared as silence zones by the competent authority; honking of vehicle horns, use of loudspeaker, bursting of crackers and hawkers' noise should be banned in these zones.				
	Source : State of the Environment 1995, Ministry of Environment and Forests.				

Table 8.3DISCHARGES AND BOD LEVELS IN STORM WATER DRAINS

SI.No.	Description of Drain	Discharge (mld)	BOD (mg/l)
1.	Supplementary Drain	177	22
2.	Najafgarh Drain	1180	125
3.	Magazine Road Drain	4	190
4.	Sweepers Colony Drain	27	88
5.	Kheybar Pass Drain	23	65
6.	Metcalf House Drain	11	85
7.	Qudsia Bagh	24	155
8.	Mori Gate Drain		85
9.	Moat Drain	2	195
10.	Civil Mill Drain	55	180
11.	Rajghat/Delhi Gate Drain	43	190
12.	Sen-Nursing Home	100	280
13.	Drain No.14	153	320
14.	Bara Pula Drain	255	165

15.	Maharani Bagh Drain	54	370			
16.	Kalkaji Drain	27	210			
17.	Tehkand Drain	34	310			
18.	Tuglakabad Drain	11	150			
19.	Trans Yamuna	1471	240			
	Total	3651				
Source : DJB Pre-feasibility study report on rehabilitation of Sewer System.						