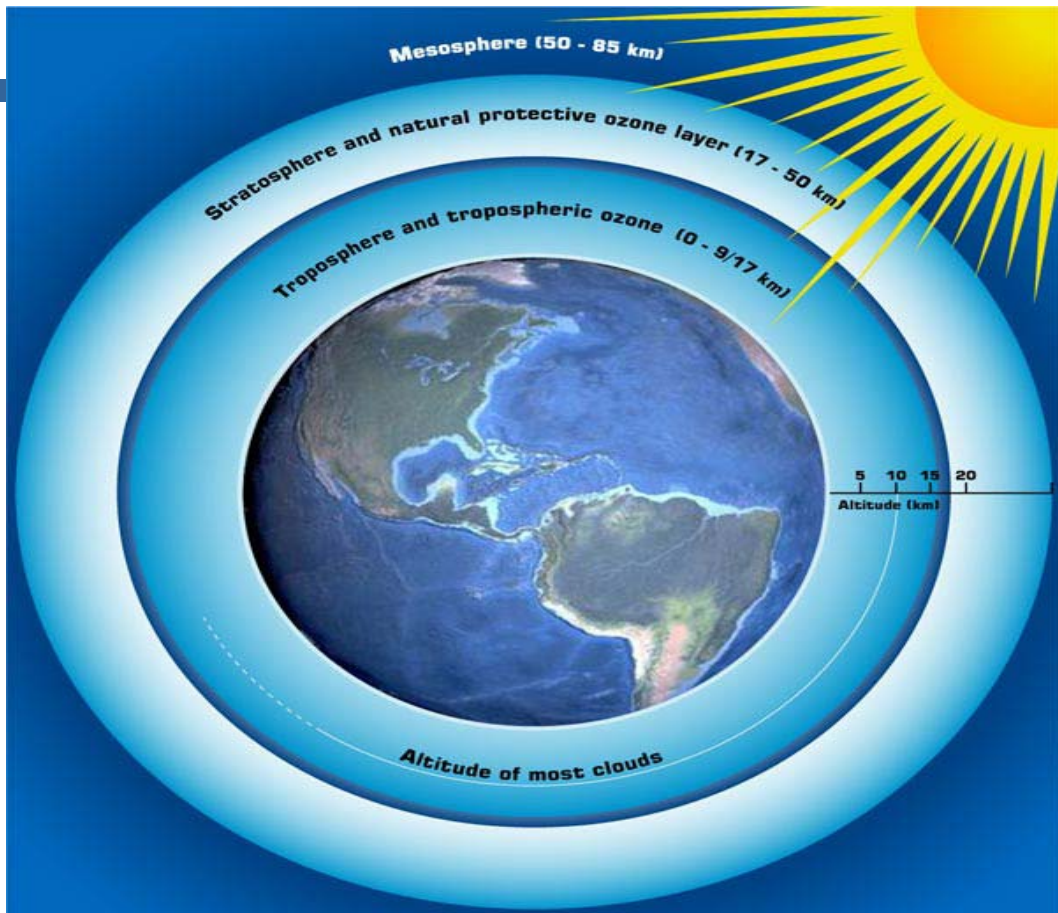


CHAPTER FOUR



Atmosphere

CHAPTER FOUR

ATMOSPHERE

Atmospheric Pollution – Main Sources

4.1 The atmosphere consists of a mixture of gases that completely surround the earth. It extends to an altitude of 800 to 1000 kms above the earth's surface, but is deeper at the equator and shallow at the poles. About 99.9% of the mass occurs below 50 Km and 0.0997% between 50 and 100 km altitude. Major polluting gases/ particles are confined to the lowermost layer of atmosphere known as Troposphere that extends between 8 and 16 Kms above the earth surface.

4.2 The main sources of atmospheric pollution may be summarized as follows:

- a) The combustion of fuels to produce energy for heating and power generation both in the domestic sector as well as in the industrial sector.
- b) The exhaust emissions from the transport vehicles that use petrol, diesel oil, etc.
- c) Waste gases, dust and heat from many industrial sites including chemical manufacturers, electrical power generating stations, etc.

Environment Pollution due to Energy Use

4.3 A considerable amount of air pollution results from burning of fossil fuels. Fuels are primarily derived from fossilized plant material and consist mainly of carbon and/or its compounds. The household sector is the largest consumer of energy in India. More than 60 percent of Indian households depend on traditional sources of energy like fuel wood, dung and crop residue for meeting their cooking and heating needs. Out of total rural energy consumption about 65 per cent is met from fuel wood. Fuel wood consumption during 2001-02 is estimated at 223 million tones, 180 millions tones of which is for household consumption and the balance for cottage industry, big hotels etc. Burning of traditional fuels introduces large quantities of CO₂ when the combustion is complete, but if there is incomplete combustion and oxidation then Carbon monoxide (CO) is produced, in addition to hydrocarbons. Incomplete combustion of coal produces smoke consisting of particles of soot or carbon, tarry droplets of unburnt hydrocarbons and CO. Fossil fuels also contain 0.5–4.0% of sulphur which is oxidized to SO₂ during combustion.

4.4 The environmental effects of various fuels, namely, coal, oil, nuclear etc. are of growing concern owing to increasing consumption levels. The combustion of these fuels in industries and vehicles has been a major source of pollution. Coal production through opencast mining, its supply to and consumption in power stations, and industrial boilers leads to particulate and gaseous pollution which can cause pneumoconiosis, bronchitis, and respiratory diseases. Another major impact of coal mining is land degradation, especially of forest areas.

4.5 The consumption of petroleum products in vehicles, industries and domestic cooking activities results in the emission of pollutants in large quantities. Radioactive emissions from nuclear power plants are of grave concern as they can cause serious impact both in terms of spatial and inter-generational concerns. In addition, two key problems are long-term waste disposal and the eventual decommissioning of plants. Due to limited reserves of petroleum, main emphasis needs to be given to non-conventional energy sources such as wind energy, solar energy and ocean energy.

Industrial Emissions

4.6 Air borne emissions emitted from various industries are a cause of major concern. These emissions are of two forms, viz. solid particles (SPM) and gaseous emissions (SO₂, NO_x, CO, etc.). Liquid effluents, generated from certain industries, containing organic and toxic pollutants are also a cause of concern. Heavily polluting industries were identified which are included under the 17 categories of highly polluting industries for the purpose of monitoring and regulating pollution from them. The Ministry of Environment and Forests has, developed standards for regulating emissions from various industries and emission standards for all the polluting industries including thermal power stations, iron and steel plants, cement plants, fertilizer plants, oil refineries, pulp and paper, petrochemicals, sugar, distilleries and tanneries have been prescribed. The industrial units in India are largely located in the States of Gujarat, Maharashtra, Uttar Pradesh, Bihar, West Bengal and Madhya Pradesh. The highest concentration of sulphur dioxide and oxides of nitrogen is, therefore, often found in cities located in these states. Some other industrial estates in Delhi, Punjab, Rajasthan and Andhra Pradesh are also becoming critical.

Road Transport

4.7 Road vehicles are the second major source of pollution. They emit CO, HCs, NO_x, SO₂, and other toxic substances such as TSP and lead. Diesel engines are much less polluting than petrol engines. Both types of engines are not very efficient converters of fuel energy. However, diesel types with a conversion efficiency of around 30% must be more efficient and use less fuel than petrol types with a 15-20% conversion efficiency. Both types of engines have incomplete combustion of fuel, so the major pollutant is CO, amounting to 91% by weight of all vehicle emissions. The primary pollutants produced in vehicle emissions undergo a series of complex interrelated chemical reactions in the troposphere and lower stratosphere to form secondary products.

4.8 Four factors make pollution from the vehicles more serious in developing countries.

- (i) Poor quality of vehicles creating more particulates and burning fuels inefficiently.
- (ii) Lower quality of fuel being used leads to far greater quantities of pollutants.
- (iii) Concentration of motor vehicles in a few large cities.
- (iv) Exposure of a larger percentage of population that lives and moves in the open.

Harmful Effects of Emissions

4.9 The high concentration of particulates in the atmosphere over large urban and industrial areas can produce a number of general effects. Smoke and fumes can increase the atmospheric turbidity and reduce the amount of solar radiation reaching the ground. The overall effect of air pollution upon the biosphere and the built environment can be broadly considered under 3 headings: The effect upon-

- (i) buildings and materials,
- (ii) soil, vegetation, crops and animal life,
- (iii) human beings.

- i) **Buildings and Materials:** The fabric of buildings that are surrounded by heavily polluted air for years undergo chemical changes. Gradual erosion takes place and this is only too evident when grimy upper surface is removed. A good example is that of the famous historical monument 'Taj Mahal' at Agra, which, on account of reaction of Sulphur-di-oxide, emitted from neighbouring industries, with the limestone has slowly, started turning yellow. As a result, on Court's directives, a number of measures

have been taken to protect our national heritage monument, e.g. closure of neighbouring heavy polluting industries, operation of only non-polluting vehicles like battery buses, tonga, in the vicinity of Taj Mahal.

- ii) **Soil, vegetation and Animal Life:** The presence of gaseous pollutants in the air and deposition of particulates on to the soil can effect plants. It can effect the cattle and animals too as they have been found to develop breathing difficulties and suffer from low yield of milk, lameness and joint stiffness in a polluted environment.

Human beings: Smoke and SO₂ cause the general and most widespread effects of air pollution on people. Atmospheric smoke contains potentially carcinogenic organic compounds similar to those that occur in cigarette tobacco smoke. The CO affects the cardiovascular system, NO_xs affect the respiratory system, Ozone causes increased sensitivity to infections, lung diseases, irritation in eyes, nose and throat, etc.

Ambient air quality

4.9 Sulphur dioxide (SO₂)

Annual average concentration of SO₂ levels are within the prescribed National Ambient Air Quality Standards (NAAQS) at almost all the locations as per reports of the Central / States Pollution Control Board.. A decreasing trend has been observed in sulphur dioxide levels in many cities. A decreasing trend has been observed in sulphur dioxide levels in cities like Delhi, Mumbai, Lucknow, Bhopal, etc., during last few years. The decreasing trend in sulphur dioxide levels may be due to various measures taken such as reduction of sulphur in diesel etc. and use of LPG instead of coal as domestic fuel.

4.10 Nitrogen dioxide (NO₂)

Annual average concentration of NO₂ was also within NAAQS at most of the locations. A decreasing trend has also been observed in nitrogen dioxide levels in residential areas of Madurai, Bhopal, etc. during last few year. The decreasing trend in nitrogen dioxide levels may be due to various measures taken for vehicular pollution control such as stricter vehicular emission norms etc. Vehicles are one of the major sources of NO₂ in the country.

4.12 Particulate Matter

Annual average concentrations of RSPM and SPM exceeded the NAAQS in most of the cities. A decreasing trend has also been observed in RSPM levels in cities like Solapur, Lucknow etc, during last few years. Decreasing trend in RSPM levels may be due to various measures taken such as reduction of sulphur in diesel, use of premix 2-T oil dispenser, stringent standard of particulate matter in diesel vehicles etc. One of the major source of high RSPM levels is vehicles. The vehicle population is increasing exponentially in many cities. This is the single major factor for high RSPM levels. The reasons for high particulate matter levels may be vehicles, engine gensets, small scale industries, biomass incineration, boilers and emission from power plants, resuspension of traffic dust, commercial and domestic use of fuels, etc. Lower levels of RSPM and SPM were observed during monsoon months possibly due to wet deposition. Higher levels of RSPM and SPM were observed during winter months possibly due to lower mixing heights and more calm conditions. One of the reason for low levels of pollution in coastal cities like Chennai is that it has excellent ventilation effects due to sea and land breezes which reduces pollution levels.

4.13 Areas of Concern

- a) Air pollution is existing in major cities where vehicles are the major sources.
- b) There are 24 critically polluted areas where industrial pollution is predominant. Action plan have been formulated and implemented by the Central/ States Pollution Control Board in these problem areas.

4.14 Non-attainment Cities

CPCB has identified list of polluted cities in which the prescribed National Ambient Air Quality Standards (NAAQS) are violated. Action plans are being formulated and implemented to control air pollution in non-attainment cities by respective states.

Steps taken to Control Air Pollution

4.15 Measures taken for Control of Air Pollution from Vehicles

A) Vehicular Emission Norms

The vehicle emission norms in India are detailed below.

- a) During 1990-91 India for the first time notified mass emission norms for the vehicles at the manufacturing stage as well as for in-use vehicles. These norms were notified under EPA, more vehicles rules and Air Act.
- b) The emission norms introduced in 1996 have been crucial in controlling vehicular pollution because of stringency of emission norms along with specifications on fuel quality in 1996. for the first time crankcase emission norms and evaporative emission norms were introduced.
- c) From April 1995 passenger cars were allowed to register only if they are fitted with a catalytic converter in four metros-Delhi, Mumbai, Kolkata and Chennai. Emission norms for such vehicles were stricter by 50 percent compared to 1996 norms.
- d) The testing method for passenger car norms were changed from hot start to cold start, which is also a stringent measure, compared to the earlier one.
- e) More stringent norms were introduced for the year 2000. These norms were notified under Motor Vehicle Rules during 1997. Automobile manufacturers have to undergo major modification to meet these norms.
- f) As per Hon'ble Supreme Court's directions only private vehicles conforming to at least EURO-I norms are being registered. In Mumbai Euro-II norms for private vehicles (4 wheelers) was applicable from 2001. In Mumbai Euro-II norms for private vehicles (4 wheelers) was applicable from 2001. In Kolkata, India-2000 norms (Euro-I) have been made applicable from November 1999.
- g) From 1st October 1999, emission norms for agricultural tractors were introduced throughout the country. Bharat Stage-II and Bharat Stage-III emission norms for tractors have been scheduled to be implemented from 2003 and 2005 respectively.
- h) The Bharat Stage-II norms for new 4-wheeler private non-commercial vehicle were introduced in Mumbai from January 2001 and in Kolkata and Chennai from July 2001 to 24th October, 2001.

- i) Only those taxis are being registered in Delhi, which are meeting Bharat Stage-II norms.
- j) Bharat State-II norms for Diesel 4 wheeler transport vehicles were introduced in NCT from 24th October, 2001, in Greater Mumbai, Kolkata & Chennai from 31.10.2001.
- k) The expert committee on Auto Oil Policy was constituted during September 2001. The interim report of the committee was submitted to Govt. on 1.1.2000, recommending Bharat Stage-III emission norms for all category of 4-wheelers in 7 mega cities from 2005 and rest of the country by 2010. Final report of the committee has been submitted in September 2002 which includes road map for control of vehicular pollution up to 2010.

l) Final report of the inter-Ministerial Task Force constituted by Ministry of Petroleum & Natural Gases at the instance of the Committee of Secretaries to evolve a long term policy for vehicular emission and auto fuel policy has been submitted which recommended introduction of Bharat Stage-II norms for 4-wheelers and next stage emission norms for 2/3 wheelers throughout the country from 2005 and introduction of Bharat stage III norms for four wheelers in 7-mega cities from 2005.

B) Fuel Quality Specifications

For the first time diesel and gasoline fuel quality with respect to environment related parameters has been notified under EPA during April 1996.

C) Lubricants Quality:

Specifications of 2T oil for two stroke engine with respect to smoke has been notified under EPA during September 1998 for implementation from 1.4.1999 throughout the country. Pre-mix 2T oil dispenser has been installed at all petrol filling stations in Delhi so that excessive oil is not being used by the vehicle owners. Sale of loose 2T oil has been banned from December 1998 in Delhi.

D) Alternate Fuels:

- a) All Govt. vehicles were required to compulsorily fit CNG kit or catalytic converter by December 1996.

- b) Custom duty on CNG kit has been excepted for promotion of CNG vehicles.
- c) Emission norms for CNG vehicles have been notified under Motor Vehicles Rule Vide GSR 853 (E) dated 19.11.2001.
- d) LPG is now being used as alternate fuel for motor vehicles after making amendments in CMVR. Emission norms for LPG vehicles have been notified vide GSR 284 (E) dated 24.4.2001.
- e) Battery driven vehicles have been introduced in few corridors in Delhi

E) Restriction of Grossly polluting Vehicles

- a. Registration of new auto rickshaws with conventional engine has been banned from May 1996 from May 1996 and registration of Defense Service and Govt. auctioned vehicles has been banned from April 1994 in Delhi.
- b. 20 years old commercial vehicles were phased out from October 1998, 17 year old commercial vehicles has been phased out from November 1998 and 15 year old commercial vehicle from December 1998 in Delhi.
- c. Registration on alternation of vehicles by replacing petrol engine with diesel has been banned from 1.4.1998 in Delhi.

F) Traffic Management

- a. Restriction has been imposed on goods vehicles during day time from August 1999 in Delhi.
- b. Left lane has been made exclusive to buses and other HMV in Delhi.
- c. Time clocks have been installed in important red lights to enable the drivers to switch off their vehicles depending on the time left in the time clocks.
- d. More fly over and subways have been constructed and T-Junctions have been closed for better traffic flow.

G) Public Transport Systems:

- a. Number of buses has been increased to discourage use of individual vehicles

by allowing private sectors for operation.

- b. Metro Rail Project for Shahdara – Tri Nagar has been commissioned.

H) Technology

- a. Fitment of catalytic converter for new petrol passenger cars has been made compulsory from 1.4.1995 in four metros and 45 cities from 1.9.1998.
- b. Two wheeler scooters with four stroke engine are being introduced in the market from October 1998.
- c. Registration of only rear engine auto rickshaws is being allowed from May 1996 onwards.
- d. More four stroke two wheelers are being registered in Delhi.

I) Mass Awareness

- a. Messages/articles related to vehicular emissions are disseminated through newsletters, pamphlets, newspapers, magazines, Television, Radio, internet, Workshops and Summer Exhibitions.
- b. Display of ambient air quality data through display system near ITO, Newspapers, daily news and internet.
- c. NGOs working on vehicular pollution control are being encouraged for mass awareness companies.

Measures Taken for Controlling Air Pollution from Industries

4.16 The measures taken for controlling air pollution from industries are as follows:

- a. Emission standards have been notified under the Environment (Protection) Act, 1986 to check pollution
- b. Industries have been directed to install necessary pollution control equipment in a time bound manner and legal action has been initiated against the defaulting units.

- c. 24 critically polluted areas have been identified. Action Plan have been formulated for restoration of environmental quality in these areas.

- d. Environmental guidelines have evolved for siting of industries.

- e. Environmental clearance is made compulsory for 29 categories of development projects involving public hearing/NGO participation as an important component of Environmental Impact Assessment process.

- f. Environmental audit in the form of environmental statement has been made mandatory for all polluting industries.

- g. Preparation of zoning Atlas for setting of industries based on environmental considerations in various districts of the country has been taken up.

- h. Power plants (coal based) located beyond 1000 kms from the pit-head are required to use low ash content coal (not exceeding 34%) with effect from 1.6.2002. Power plants located in the sensitive areas are also required to use low ash coal irrespective of their distance from the pit head.

4.17 Up-coming initiatives

- a. Monitoring using automatic analysers is being initiated in 16 polluted cities identified by Hon'ble Supreme Court.

- b. Action Plan are being formulated and implemented by the Central/ States Pollution Control Boards in 16 cities identified by Hon'ble Supreme Court as polluted cities.

- c. Road map given by Auto fuel policy for vehicular pollution control is being implemented.

- d. Corporate Responsibility for Environmental protection (CREP) is being implemented by industries for controlling industrial pollution.

- e. Source apportionment studies have been initiated and it is planned to carry out such studies initially in six cities.

- f. Monitoring of hazardous air pollutants such as benzene, PAHs etc. has been initiated and it is proposed to carry out there monitoring in other cities also.

Major City Specific Action Plan in Delhi

4.18 a) Vehicular Pollution Control

- a. Public transport (buses, auto, taxis) in Delhi has been converted to CNG mode.
- b. Sulphur content in diesel has been reduced in a phased manner.
- c. The lead content in petrol has been progressively reduced to make it unleaded.
- d. Bharat Stage-III norms have been implemented in Delhi.
- e. Pre-mix 2T oil dispensers have been installed at all petrol filling stations.
- f. Grossly polluting old commercial vehicles have been phased out .
- g. Restriction has been made on plying of goods commercial vehicles during day time.
- h. Metro rail has been introduced to have a more efficient public transport system.

(b) Industrial Pollution Control

(i) Directions under Section 5 of E(P)A, 1986 have been issued on April 1996 and July 1996 to all the three power plants located in Delhi for completing the following in a time bound manner.

- Comply with emission and liquid effluent standard.
- Submission of action plan for switching over the beneficiated coal with an ash content of not more than 34%.
- Submission of action plan to achieve 20% utilization of fly-ash by Dec. 1997.
- Installation of opacity meter in all units to ensure compliance with the standards.
- Coverage of abandoned ash ponds with top soil.

(ii) All stone crushers have been closed down in Delhi and shifted to Pali in Rajasthan.

(iii) All the hot mix plants have been closed down and shifted to other states.

(iv) As per the directions of Hon'ble Supreme Court, 168 hazardous industries have been closed down in Delhi.

4.19 Major City Specific Action Plan in Mumbai

- Bhatart Stage-III norms have been implemented in Mumbai.
- Unleaded gasoline and low sulphur diesel are being supplied in Mumbai.
- Visits are made to petrol pump as per guidelines prescribed to check/inspect adulteration/malpractices in diesel and petrol under Central Govt. vide order The Motor Spirit and High Diesel (Regulation of Supply and Distribution and Prevention of Malpractices), 1998. Defaulter petrol pumps are legally prosecuted under Essential Commodities Act, 1955.
- Licence and 'End Use Certificate' is made compulsory to persons who store Naptha and Solvents which are also used as adulterants in petrol and diesel.
- Pollution under Control certificate has been made mandatory for every vehicle owner.
- Implementation of rigorous inspection and maintenance measures periodically for all types of vehicles, involving vehicle manufacturers.
- From 15.10.99 'No Pollution Under Certificate- No Petrol' scheme is launched in Mumbai Metropolitan Region (MMR)
- Buses, taxis, autos are on CNG mode.
- Mass awareness Programme are being organized for creating awareness in public.
- The Transport Commissioner's Office has increased vigilance in checking polluting vehicles in Mumbai by increasing number of exhaust monitors for petrol and diesel driven vehicles.
- Auto exhaust checking are also done at entry points to Maharashtra State to check compliance to norms fixed under Central Motor Vehicles Act, 1989.

Major City Specific Action Plan in Ahmedabad

4.20 a) Vehicular Pollution Control

The measures include following

- (i) Banning of old buses of more than 15 years old
- (ii) Bharat Stage- III norms have been introduced in Ahmedabad.
- (iii) Banning of diesel run rickshaw within city limits.
- (iv) Diversion of heavy vehicles such as trucks/luxury buses/trailers/tankers/tractors/lorries, etc. away from the city.
- (v) Improvement of road condition and making the roads pucca upto the footpath not leaving any uncovered space on either sides of the roads.
- (vi) Strict enforcement of smoke test/vehicle test protocol
- (vii) Surveillance of vehicles with higher black smoke emission
- (viii) Third party audits of PUC Centres including calibration audits
- (ix) To launch a drive to stop usage of kerosene in vehicles particularly three wheelers and commercial vehicles.

(b) Industrial Pollution Control

The measures include following

- (i) Intensifying monitoring by special vigilance squad under the Air Act, 1981.
- (ii) Determining efficacy of APC system & taking remedial action(s) including upgradation of existing Air Pollution Control Measures wherever needed.
- (iii) Implementation of CREP Action Plan for highly pollution industries as decided by MOEF.
- (iv) Ban on burning of off specification materials/wastes by scrap traders.

4.21 Major City Specific Action plan in Bangalore

- To reduce traffic congestion, 108 roads have been converted to one way, 5 flyovers

completed, 3 railway under pass on Outer ring road (ORR) limit completed, 2 railway over bridges completed and 206 Km of road has been asphalted.

- Low sulphur diesel (Green Diesel) and Green Petrol (Sulphur 0.05%) is being supplied in Bangalore ORR area from 1.4.2003.
- Bharat Stage – III norms have been introduced in Bangalore.
- Out of 70,131 (as on 31.07.2003) auto rickshaws registered in Bangalore city, 35000 auto rickshaws are running on LPG
- 6 Auto LPG dispensing stations (ALDS) are operating
- Transport department has approved Bajaj 4 stroke (rear engine) LPG auto rickshaw in Bi- fuel mode
- 5% ethanol blended petrol is being supplied in all districts from 01.10.2003.
- Regular check on adulteration of fuel is being conducted by Food and Civil Supplies Department.
- Goods vehicles carrying construction materials are allowed within ORR only during 10 PM to 6AM for unloading.
- Modernization of Emission testing Centers for issue of “Pollution Under Control” Certificate bearing photograph of the tested vehicle using Web camera by the Transport Department.
- Karnataka State Pollution Control Board to take action to promote use of cleaner fuels used by major industries in Generator sets and boilers.

4.22 Major City Specific Action Plan in Chennai

- Bharat Stage – III norms have been introduced in Chennai.
- Unleaded gasoline and low sulphur diesel are being supplied in Chennai.
- Pollution Under Control Certificate has been made mandatory.

- Pre mixed 2T oil dispensers have been installed in most of the retail outlets in Chennai City.
- The Motor Spirit and High Speed Diesel (Regulation & Supply and Distribution and Prevention of malpractices) order 1998 has been republished by the Government of Tamilnadu with the intention to curb malpractices such as adulteration, pilferation etc.,
- LPG supply is being implemented by oil companies, Oil companies have promised to setup 28 Auto ALP dispensing station (ALDS). Presently five ALDS are functioning.
- Mass Rapid Transit System (MRTS) and electric trains are operated by Southern Railways.
- Power plants have been insisted to provide scrubber for the control of emissions
- For all the process emission sources and boiler of higher capacity air pollution control measures such as dust collectors and wet scrubbers are insisted by Tamil Nadu Pollution Control Board.
- The industrial units are also insisted to switch over to cleaner fuels such as LSHS, LDO etc., to control the SO₂ emission.

Major City Specific Action Plan in Kolkata

4.23 a) Vehicular Pollution Control

- i. Bharat State –III norms have been introduced in Kolkata
- ii. Supply, Distribution and Selling of Loose 2T oil in Kolkata Metropolitan Area (KMA) has been Banned from 01.10.2001 and Selling of Premixed Fuel oil made Mandatory within KMA from 15.11.2001.
- iii. Unleaded Petrol and Low Sulphur Petrol and Diesel made available within Kolkata and Howrah and adjoining agglomeration.
- iv. Availability of Cleaner Automotive Fuel like LPG ensured in Kolkata.
- v. Introduced Upgraded Auto Emission Testing Centre (PUC Centre)

b) Industrial Pollution Control

- i. Stricter Locational Policy for New Industrial Units
- ii. Ensuring Regulatory Compliance by Grossly Polluting Industries
- iii. Introduction of Stricter Emission Standard for Boilers, Ceramic, Kilns, Foundries and Rolling Mills operating within Kolkata Metropolitan Areas.
- iv. Mandatory Use of Cleaner Fuel in Small Boilers, Ceramic Kilns and Rolling Mills operating within Kolkata Metropolitan Area.
- v. Discontinuance of Coal Supply to the industries which have been ordered to discontinue the use of coal.
- vi. Environmental compliance by Cluster of Small Scale Industries is also ensured

Major City Specific Action Plan in Hyderabad

4.24 The measures include following

- Upgradation of existing Pollution under Control (PUC) centers with computer testing facility
- Unleaded gasoline and low sulphur diesel are being supplied in Hyderabad
- Introduction of mobile task forces to monitor the visibly polluting vehicles.
- Bharat Stage-III norms have been introduced in Hyderabad
- Ban on sale of loose 2T oil. Shall be dispensed through premixed dispensing stations
- Establishment of LPG dispensing stations
- Constitution of task forces to check the adulteration of oil and fuel
- Introduction of multi model transport system
- Urban Greening by Hyderabad Urban Development Authority (HUDA) is being carried out

- Open space plantation by Municipal Corporation of Hyderabad (MCH) is being carried out

Noise Pollution

4.25 Of late, noise has been recognized as a pollutant which until recently was considered only as a nuisance. The Central Pollution Control Board (CPCB) has notified the ambient noise standards in 1987 under section 20 of the Air (Prevention and Control of Pollution) Act, 1981. The noise standards specify limits as 55dB(A) and 45dB(A) as limits for day and night time, respectively, for residential areas, 75 dB(A) and 70 dB(A) in the day and night time for industrial areas, and 50 dB (A) and 40 dB(A) in the day and night for silence zones. Special campaign for reduction in use of fire crackers in Delhi have resulted in reduced pollution levels during Diwali.

Green House Gases and Their Effects

4.26 The greenhouse effect plays a crucial role in regulating the heat balance of the earth. It allows the incoming short-wave solar radiation to pass through the atmosphere relatively unimpeded; but the long-wave terrestrial radiation emitted by the earth's surface is partially absorbed and then re-emitted by a number of trace gases in the atmosphere. These gases known as Greenhouse Gases (GHGs) are: water vapor, carbon dioxide, methane, nitrous oxide and ozone in the troposphere and in the stratosphere. This natural greenhouse effect warms the lower atmosphere.

4.27 If the atmosphere were transparent to the outgoing long wave radiation emanating from the earth's surface, the equilibrium mean temperature of the earth's surface would be considerably lower and probably below the freezing point of water. Mere incidence of GHG's in the atmosphere, by itself, is no concern. What is more important is that their concentration should stay within reasonable limits so that global ecosystem is not unduly affected. However, by increasing the concentrations of natural GHG's and by adding new GHG's like chloroflouro carbons, the global average and the annual mean surface-air temperature (referred to as the global temperature) can be raised, although the rate at which it will occur is uncertain. This is the enhanced greenhouse effect, which is over and above that occurring due to natural greenhouse concentration. Such a rise in the atmospheric concentration of GHG's has led to an upward trend in global temperature.

4.28 While it is required to follow the general commitments under the Framework Convention on Climate Change, India is not required to adopt any GHG reduction targets. Irrespective of international commitments, it seems prudent to be ready with

- Inventory of sinks and sources of GHG emission
- Predict the cumulative impact of national and international GHG emissions to plan for temperature and sea level rise
- Devise land use plans for the coastal areas likely to be affected
- Devise water and land management strategies especially agricultural sector.

TABLE 4.1.1 : AVERAGE GASEOUS COMPOSITION OF DRY AIR IN THE TROPOSPHERE

Sl. No.	Gas	Percent by Volume	Parts Per Million (ppm)
1	2	3	4
1	Nitrogen	78.080000	780840.00
2	Oxygen	20.950000	209500.00
3	Argon	0.930000	9300.00
4	Carbon dioxide	0.034500	345.00
5	Neon	0.001800	18.00
6	Helium	0.000520	5.20
7	Methane	0.000140	1.40
8	Krypton	0.000100	1.00
9	Hydrogen	0.000050	0.50
10	Xenon	0.000009	0.09
11	Ozone	Variable	Variable

Source : Ministry of Environment & Forests

TABLE 4.1.2 : NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS)

Sl. No.	Pollutant	Sulphur Dioxide (SO ₂)		Oxides of Nitrogen (NO ₂)		Suspended Particulate Matter (SPM)		Respirable Particulate Matter (RPM) (size less than 10 µm)		Lead		Carbon Monoxide (CO)		Ammonia #	
		3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Time Weighted Average	Annual * Average (µg/m ³)	24 hours** Average (µg/m ³)	Annual * Average (µg/m ³)	24 hours** Average (µg/m ³)	Annual * Average (µg/m ³)	24 hours** Average (µg/m ³)	Annual * Average (µg/m ³)	24 hours** Average (µg/m ³)	Annual * Average (µg/m ³)	24 hours** Average (µg/m ³)	8 hours** Average (µg/m ³)	1 hours Average (µg/m ³)	Annual * Average (mg/m ³)	24 hours** Average (mg/m ³)
2	Industrial Area	80	120	80	120	360	500	120	150	1.00	1.50	5.00	10.00	0.10	0.40
3	Residential, Rural and Other Area	60	80	60	80	140	200	60	100	0.75	1.00	2.00	4.00	0.10	0.40
4	Sensitive Area	15	30	15	30	70	100	50	75	0.50	0.75	1.00	2.00	0.10	0.40
5	Methods of Measurement	1. Improved West & Gaeke Method 2. Ultraviolet Fluorescence		1. Jacob & Hochheiser Modified (Na- arsenic) Method 2. Gas phase Chemiluminiscence		High volume sampling (Average flow rate not less than 1.1 m ³ /minute)		Respirable particulate matter sampler		AAS Method after sampling using EPM 2000 or equivalent filter paper		Non- Dispersive infra-red Spectroscopy		-----	

91

Source : Central Pollution Control Board

* : Annual Arithmetic 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 time, it may exceed but not on two consecutive days.

µm : Micrometer µg : Microgram

Note :

1. National Ambient Air Quality Standards : The level of air quality necessary with an adequate margin of safety necessary to protect the public health, vegetation and property
2. Whenever and wherever two consecutive values exceed the limits specified above for the respective category, it would be considered adequate reason to institute regular/continuous monitoring and further investigations.
3. The standards for H₂s and CS₂ have been notified seperately vide GSR No. 7, dated December 22, 1998 under Rayon Industry. continuous monitoring and further investigations.

The primary aim of the ambient air quality standards is to provide a basis for protecting public health from adverse effects of air pollution and for eliminating or reducing to a minimum, those contaminants of air that are known or likely to be hazardous to human being, animals, vegetation and historical monuments.

TABLE 4.1.3 : AMBIENT AIR QUALITY STATUS IN SOME CITIES/TOWNS DURING 2006

Pollution Level	Annual Mean Concentration Range ($\mu\text{g}/\text{m}^3$)					
	(microgram per cubic meter)					
	Industrial			Residential		
	SO ₂ & NO ₂	SPM	RSPM	SO ₂ & NO ₂	SPM	RSPM
Low (L)	0-40	0-180	0-60	0-30	0-70	0-30
Moderate (M)	40-80	180-360	60-120	30-60	70-140	30-60
High (H)	80-120	360-540	120-180	60-90	140-210	60-90
Critical (C)	>120	>540	>180	>90	>210	>90

Sl. No.	State/City Area class	Sulphur Dioxide		Nitrogen Dioxide		RSPM		SPM	
		I	R	I	R	I	R	I	R
1	2	3	4	5	6	7	8	9	10
1	Andhra Pradesh								
	Hyderabad	L	L	L	M	M	C	M	C
	Vishakhapatnam	L	L	L	M	M	C	M	C
	Vijayawada	L	L	L	M	M	H	M	H
	Patencheru	-	L	-	L	-	M	-	M
	Kurnool	-	L	-	L	-	H	-	H
2	Assam								
	Guwahati	-	L	-	L	-	C	-	H
	Bongaigaon	-	L	-	L	-	M	-	L
	Tezpur	-	L	-	L	-	M	-	M
3	Bihar								
	Patna	-	L	-	M	-	C	-	C
4	Chhattisgarh								
	Bhilai	L	L	L	L	H	C	M	H
	Korba	-	L	-	L	-	C	-	C
	Raipur	L	L	L	M	C	C	M	C
5	Chandigarh								
	Chandigarh	L	L	L	L	H	C	M	C
6	Delhi								
	Delhi	L	L	M	M	C	C	H	C
7	Gujarat								
	Ahmedabad	L	L	L	L	H	C	M	C
	Ankaleshwar	L	L	L	L	H	C	L	H
	Jamnagar	-	L	-	L	-	C	-	H
	Rajkot	L	L	L	L	H	H	M	M
	Surat	L	L	L	M	H	C	L	H
	Vadodara	L	L	L	L	H	C	M	C
	Vapi	L	L	L	M	H	C	L	H
8	Goa								
	Panjim	-	L	-	L	-	M	-	M
	Vasco	L	-	L	-	M	-	L	-
9	Himachal Pradesh								
	Damtal	-	L	-	L	-	C	-	C
	Parwanoo	L	L	L	L	M	H	M	H
	Paonta Sahib	L	L	L	L	M	C	M	C
	Shimla	-	L	-	L	-	H	-	M
	Baddi	L	-	L	-	-	-	H	-
	Kala Amb	L	L	L	L	-	-	H	H
10	Haryana								
	Faridabad	L	L	L	L	H	C	H	C
	Yamuna Nagar	L	-	L	-	H	-	M	-
	Hissar	-	L	-	L	-	C	-	C
11	Jharkhand								
	Dhanbad	-	L	-	M	-	C	-	H
	Jharia	L	-	M	-	H	-	M	-
	Sindri	L	-	M	-	M	-	L	-
	Jamshedpur	L	-	M	-	H	-	M	-
12	Karnataka								
	Bangalore	L	L	L	M	H	M	H	H
	Mysore	L	L	L	L	L	M	L	M
	Hubli-Dharwad	L	L	L	L	L	H	L	C
	Belgaum	L	-	L	-	L	-	L	-
	Hassan	-	L	-	L	-	H	-	H
	Mangalore	L	-	L	-	L	-	L	-

TABLE 4.1.3 : AMBIENT AIR QUALITY STATUS IN SOME CITIES/TOWNS DURING 2006-- Concl.

Sl. No.	State/City Area class	Sulphur Dioxide		Nitrogen Dioxide		RSPM		SPM	
		I	R	I	R	I	R	I	R
1	2	3	4	5	6	7	8	9	10
13	Kerala								
	Kochi	L	L	L	L	M	M	L	M
	Kottayam	L	L	L	L	L	M	L	L
	Kozhikode	L	L	L	L	L	L	L	M
	Thiruvananthapuram	L	L	L	L	M	H	L	M
	Palakad	L	-	L	-	H	-	L	-
14	Maharashtra								
	Mumbai	L	L	L	M	M	H	M	C
	Chandrapur	L	L	M	M	M	C	L	H
	Dombivali	L	-	M	-	M	-	-	-
	Kolhapur	-	L	-	M	-	-	-	-
	Nagpur	L	L	L	M	H	C	M	H
	Nasik	L	M	L	M	M	H	L	H
	Pune	L	L	M	M	H	C	M	C
	Solapur	L	L	L	M	M	C	M	C
	Thane	L	L	L	L	L	M	-	-
	Aurangabad	-	L	-	L	-	H	-	C
	Navi Mumbai	-	L	-	L	-	-	-	-
	Lote	L	-	L	-	L	-	L	-
	Tarapur	L	-	L	-	M	-	L	-
15	Madhya Pradesh								
	Bhopal	L	L	L	L	L	C	L	C
	Indore	L	L	L	L	H	C	M	H
	Jabalpur	-	L	-	L	-	H	-	H
	Nagda	L	L	L	M	M	C	L	M
	Satna	L	L	L	L	C	C	H	C
	Gwalior	-	L	-	L	-	C	-	C
16	Meghalaya								
	Shillong	-	L	-	L	-	M	-	L
	Mizoram								
	Aizwal	-	L	-	L	-	M	-	M
17	Nagaland								
Dimapur	-	L	-	L	-	H	-	H	
18	Orissa								
	Angul	L	L	L	L	M	H	M	M
	Bhubaneswar	-	L	-	L	-	C	-	H
	Cuttak	-	L	-	M	-	H	-	C
	Rourkela	-	L	-	L	-	C	-	H
	Talcher	L	-	L	-	M	-	M	-
	Rayagada	L	L	L	L	L	H	L	M
	Sambalpur	-	L	-	L	-	M	-	M
Berhampur	-	L	-	L	-	H	-	H	
19	Pondicherry								
Pondicherry	L	L	L	L	L	-	L	M	

TABLE 4.1.3 : AMBIENT AIR QUALITY STATUS IN SOME CITIES/TOWNS DURING 2006-- Concl.d.

Sl. No.	State/City	Sulphur Dioxide		Nitrogen Dioxide		RSPM		SPM	
	Area class	I	R	I	R	I	R	I	R
1	2	3	4	5	6	7	8	9	10
20	Punjab								
	Gobindgarh	L	L	L	M	C	C	-	-
	Jalandhar	L	L	L	M	C	C	-	-
	Ludhiana	L	L	L	M	C	C	-	-
	Naya Nangal	-	L	-	L	-	-	-	C
	Amritsar	L	L	L	M	-	-	H	C
	Khanna	L	L	L	M	C	C		
	Derabassi	L	-	L	-	-	-	M	-
Bhatinda	L	-	L	-	-	-	M	-	
21	Rajasthan								
	Alwar	L	L	L	L	M	C	M	C
	Jaipur	L	L	L	M	C	C	H	C
	Kota	L	L	L	L	H	C	M	C
	Udaipur	L	L	M	M	M	H	H	H
	Jodhpur	L	L	L	L	M	C	M	C
22	Tamil Nadu								
	Chennai	L	L	L	L	M	H	L	H
	Coimbatore	L	L	M	M	M	M	M	M
	Madurai	L	L	L	L	L	M	L	M
	Salem	-	L	-	M	-	M	-	L
	Tuticorin	L	L	L	L	M	H	L	M
23	Uttaranchal								
	Dehradun	-	L	-	L	-	C	-	C
24	Uttar Pradesh								
	Anpara	L	-	L	-	H	-	M	-
	Gajraula	L	-	L	-	M	-	M	-
	Kanpur	L	L	L	L	C	C	H	C
	Firozpur	L	L	L	L	-	-	H	C
	Lucknow	L	L	L	M	C	C	H	C
	Noida	L	L	M	M	H	-	H	C
	Varanasi	-	L	-	L	-	C	-	C
	Ghaziabad	L	-	L	-	C	-	H	-
	Jhansi	-	L	-	L	-	C	-	C
25	West Bengal								
	Asansol	L	-	M	-	H	-	M	-
	Durgapur	L	L	M	M	C	H	H	H
	Haldia	L	-	M	-	M	-	M	-
	Howrah	L	L	H	H	H	C	M	C
	Kolkata	L	L	M	H	H	C	M	C

Source :Central Pollution Control Board

I : Industrial Area

R : Residential Area

-- : Data not available/Inadequate

RSPM - Respiratory Suspended Particulate Matter

SPM - Suspended Particulate Matter

**Table 4.1.4(a) : Annual Mean Concentrations of Suspended Particulate Matter (< 10 µm)
(SPM10) in Ambient Air**

(µg/m³)

States/Union Territories	Station				
		2003	2004	2005	2006
Urban	Residential				
Andhra Pradesh					
	i Tarnka, Hyderabad	139	148	113	164
	ii ABIDS, Hyderabad	155	171	197	170
	iii Police Banacks , Hyderabad	201	-		
	iv Banjara Hills, Hydrabad/Jublee Hills	146	126	294	140
	v Panchayat Raj Office, Vishakhapatnam	180	-		
	vi Civil Defence Bldg., Vishakhapatnam	-	-		
	vii Charminar	-	266		276
	viii Police Barracks	-	186	201	203
	ix Mindi	-	195	215	209
	x Seerhammadhara	-	162	164	186
	xi Paradise		298	309	284
	xii Ganapuram, Vishakhapatnam				283
	xiii Benz Circle, Vijaywada			191	178
	xiv Police Station, Patancheru				113
	xv Mourya Inn, Kurnool				192
Assam					
	i Head Office, Bamuninaidam, Guwahati	174	176	196	201
	ii Paltan Bazar, Guwahati	229	221	192	
	iii Fire Brigade Station			190	202
	iv ITI Building Goiphnath Nagar				153
	v Near Pargiyotish College				224
	vi Borpara Boards Regional Office			52	59
	vii Dibrugarh Office Building				98
	viii Golaghat Office Building				98
	ix Sivasagar Office Building				91
	x Tezpur Office Building				108
	xi CISF Campus				72
Bihar					
	i Beltron Bhavan, Shastri Nagar, Patna	258	186	218	243
	ii Gandhi Maidan, Test Centre, Patna	147	231	338	353
Chhattisgarh					
	i Visak Hostel, Sec. 4, Bhillai	231	234	238	200
	ii Regional Office, Bhillai	179	193	169	162
	iii Gitanjali Bhavan, Old Bus Stand, Korba	243	209		
	iv Pragati Nagar, NTPC Colony, Korba	134	139	167	158
	v New HIG-9, Hirapur, Raipur	366	402	317	259
	vi HIG 21,22 MP Nagar		264		205
	vii ITI Rampur	-	210	185	210
	viii Yatayat Thane			259	210
Chandigarh					
	i Sector 17 C, Chandigarh		224	219	189
	ii Punjab Engg. College		165	186	189
	iii IMTECH, Sector 39			229	215
	iv Kaimbwala Village			198	211
Delhi					
	i Sarojini Nagar		356	335	374
	ii Town Hall, Delhi	478	508	516	464
	iii Nizamuddin, Delhi	315	345	268	350
	iv Pitam Pura				401
	v Siri Fort, Delhi	281	334	333	335
	vi Janakpuri, Delhi	291	328	320	380
	vii Ashok Vihar, Delhi	356	315	318	
	viii N. Y. School, Sarojini Nagar, Delhi	352			
	ix ESI Dispensary, Najafgarh Road, Delhi	-	-		

Source: Central Pollution Control Board

BDL :Below Detection Limit

Table 4.1.4(a) : Annual Mean Concentrations of Suspended Particulate Matter (< 10 µm) (SPM10) in Ambient Air-Cont.

States/Union Territories	Station	(µg/m ³)				
		2003	2004	2005	2006	
Goa						
Gujarat	i	Head Office, Ponda, Goa	-	-		99
	ii	Infront of Old GSPCB, Patto, Panaji	129	131	105	
	i	L D Engineering College/A & L	180	176	232	164
	ii	R. C. High School, Ahemdabad			203	223
	iii	R.O.G.P.C.B. Race Course, Vadodra	180	170	158	153
	iv	Citi Dondia Bazar, Vadodra	278	269	270	243
	v	Shubhanpura, Vadodara				202
	vi	SVR Engg. Collge, Surat	154	135	176	165
	vii	Air India Building, Surat	195	167	188	172
	viii	RO, Rajkot			159	106
	ix	Vapi Nagar Palika, Vapi	166	163	186	155
	x	Cadilla Bridge, Narol	278	286	345	271
	xi	Durga Traders	164	151	183	168
xii	AZL Behrampur			196	207	
xiii	Fisheries Office	319	245	232	181	
Haryana	i	Near SBI, Chawla Cottege	-	-		
	ii	Kothi No. 266, Sec. 9, Faridabad	-	-	317	
	iii	Regional Office, Haryana State Pollution	408	335		
	iv	RO, Faridabad				353
	v	Urban Estate II, Hissar			194	248
	vi	Guru Jambeshwar Uni.			226	164
Himachal Pradesh	i	Bus Stand, Winterfield, Shimla	69	64	52	126
	ii	Paonta Sahib	272	276	243	230
	iii	Regional Office, Damtal	145	147	150	152
	iv	Old Road, Damtal	274	214	209	220
	v	R.O. HPSEP, PCB, Sector-4 Parwanoo	145	129	108	152
	vi	Kala Amb				146
Jammu & Kashmir		MA Stadium			167	
		MA Stadium			197	
Jharkhand						
	i	Regional Office, Dhanbad	275	347	225	167
	ii	Sakchi Water Tower, Jamshedpur	239	216	167	
Karnataka						
	i	Anand Rao Circle, Bangalore	198	173		
	ii	K.R. Circle, Visvesvaraya Bldg. Mysore	98	99	90	91
	iii	Rani Chennamma Circle	-	420	236	214
	iv	Amco Batteries			138	128
	v	Yeshwantpura			110	158
vi	KSRTC Bus Stand Building, Hassan			279	161	
Kerala						
	i	M. G. Road, Cochin				
	ii	CSIR Complex, (Ernakulam North) Cochin	122	-		
	iii	Town Hall, Cochin	-	-		
	iv	SMV School, Thiruvananthpuram	138	-	102	
	v	Pattor R. O. Thiruvananthpuram	-	-		
	vi	Kottayam, Kottayam	NA	-	54	61
	vii	Palayam, Kozihakode	109	89		87
	viii	Cochin Port Trust Circle (M. G. Road),	-	-		
	ix	S.M.V. Raja School, Thiruvananthpuram	138	134		87
	x	Palmoode, Thiruvananthpuram				
	xi	Mavoor, Kozhilode			126	
	xii	PHED, Cochin				
xiii	Sasthamangalam, Thiruvananthpuram	NA	86	69	65	
	Ernakulam South	122	100	97	95	

Table 4.1.4(a) : Annual Mean Concentrations of Suspended Particulate Matter (< 10 µm) (SPM10) in Ambient Air-Cont.

States/Union Territories	Station	(µg/m ³)			
		2003	2004	2005	2006
Madhya Pradesh					
	i Hamida Road, Bhopal	232	227	247	250
	ii T. T. Nagar, Bhopal	44	66	82	85
	iii Kothari Market, Indore	453	336	245	194
	iv Arera Colony				265
	v Metal Section				107
	vi Vikas Nagar				96
	vi Joint Township				384
	vii NTPC Vidhyanagar				286
	viii Waidhan				290
	viii Pt. Deendayal Nagar				192
	ix Deendayal Nagar				230
	x Maharaj Bada				185
	xi R.O. Ujjain				118
	xii Telephone Nagar, Indore	302	205	177	157
	xiii Vijay Nagar, Jabalpur	204	179	190	173
	xiv Grasim Kalayan Kendra Nagda	156	166	149	107
	xv Vipra Niwas Pushpraj Colony, (Civil Lines)Satna	-	-		
	xvi RO, Madhya Pradesh, PCB, Dharwari Gali No.5, Satna	195	234	212	213
	xvii BCI Labour Club, Nagda	160	166	138	98
Maharashtra					
	i Vinoba Bhawan, Bandra/worli, Mumbai	219	247	242	222
	ii Kalbadevi, Mumbai	225	256	223	237
	iii Kopri Ward Office, Thane (E), Mumbai	NA	-		
	iv Sahu Market Naupada, Thane, Mumbai	NA	-		
	v Maskasath, Nagpur	260	-		
	vi NEERI, Nagpur	139	150	185	145
	vii Institute of Engeeres , Nagpur	190	211	202	173
	viii Govt. Poly College, Sadar, Nagpur	181	195	198	180
	ix Administrative Bldg., Chanderpur	-	212		
	x Airoli TTC, Navi Mumbai				211
	xi CADA Office				162
	xii SRO/Gram Panchayat Ghugus				170
	xiii Nagar Parishad, Chandarpur			161	157
	xiv Bibi ka Maqbara				210
	xv MESB Power Station, Taloja				265
	xvi Nerul TTC				242
	xvii Panvel, Taloja				281
	xviii Chalke Wadi				110
	xix Sub Regional Office, B. Nagar,	203	178	158	
	xx VIP Ind. Area, MIDC Satpura	-	-		
	xxi RTO Colony Tank, Nasik	167	192	176	131
	xxii Nashik Muni. Council Bldg.	214	197	210	154
	xxiii Mandai/Swargate, Pune	465	342	243	263
	xxiv Nagpur Corporation Building, Maskasath,		264	261	185
	xxv Nalstop, Pune	521	337	227	259
	xxvi Poud Phata (Kothrud)/Nal Stop	-	-		
	xxvii Chitalae Clinic, Solapur	398	364	341	336
	xxviii WIT Campus, Solapur	398			
Meghalaya					
	i Board Office Permises, Motinagar	44	48	55	63
	ii State Tuberculosis Hospital	93	92		
	iii MUDA Complex Bazar			97	113
Mizoram					
	i Bawongkawn			129	128
	ii Khatla			100	92
	iii Laipuitlang			51	68
Nagaland					
	i Bank Colony	85	125	146	129
	ii Hong Kong Market	122	-	210	
	iii Dhobinala			194	141

Table 4.1.4(a) : Annual Mean Concentrations of Suspended Particulate Matter (< 10 µm) (SPM10) in Ambient Air-Cont.

States/Union Territories	Station	(µg/m ³)				
		2003	2004	2005	2006	
Orissa	i	Nalco, Angul	110	113	116	131
	ii	IDL Police Outpost	180	188	169	185
	iii	Regional Office, Rourkela	150	165	170	185
	iv	Municipality Office, Rourkela	10	-	-	-
	v	Rayagada, Raourkela	89	-	138	114
	vi	Regional Office, Angul	-	-	-	-
	vii	Regional Office	-	100	-	-
	viii	SOPCB Building, Bhubaneshwar	-	107	124	117
	ix	IRC Village	-	-	101	120
	x	RO, Cuttak office	-	-	154	159
	xi	Capital Police Station	-	-	137	191
	xii	Roof of Trafice Tower	-	-	172	271
	xiii	Roof of the Filter Plant PHD Off.	-	-	108	115
	xiv	R.O. Behrampur	-	-	-	156
Punjab	i	Office of PPCB	-	-	-	-
	ii	Regional Office, Jalandhar	303	-	-	-
	iii	Municipal Council Tubewell No. 27	397	-	-	-
	iv	Clock Tower, Ludhiana	-	-	-	-
	v	Beat all Sports, Jalandhar	-	-	-	-
	vi	PPCB Office Building, Viishwakarma chowk, Lud.Ludhiana	NA	-	-	-
	vii	Punjab Alkalis & Chemicals Ltd	-	-	187	231
	viii	NFL Gust House	-	-	198	220
	ix	A-1, Platters	-	-	-	366
Rajasthan	i	Town Hall, Udaipur	260	239	240	190
	ii	Municipal Corporation Bldg., Kota	283	256	266	255
	iii	Salnor Glass, Kota	-	-	-	-
	iv	Regional Office, Jodhpur	-	-	-	-
	v	Sojati Gate, Jodhpur	371	336	308	351
	vi	RSPCB Office, Jodhpur	206	157	-	-
	vii	Ajmeri Gate, Jaipur	270	265	-	270
	viii	RSPCB Office, Jaipur	-	-	-	233
	ix	RO (North) RSPCB Vidaya Nagar, Jaipur	-	-	246	245
	x	Malviya Nagar, Jaipur	312	307	-	-
	xi	Tripolia Bazar, Jaipur	370	375	-	-
	xii	Regional Office, Alwar	410	332	285	280
	xiii	RIICO Pump House, Alwar	-	-	-	-
	xiv	PHED, Gandhi Nagar, Jaipur	-	-	-	-
	xv	Barkhera, Kota, (<i>Sensitive</i>)	-	-	-	-
	xvi	Veternary Hospital, Kota	-	-	-	-
	xvii	D.I.C. Udaipur	-	-	-	-
	xviii	Regional Office, Udaipur	-	-	-	-
	xix	Maha Mandir Police Thane, Jodhpur	304	310	304	347
	xx	Samcore Glass, Kota	233	-	-	-
	xxi	Ambamata, Udaipur	223	-	-	-
	xxii	Amabmata	-	245	229	174
	xxiii	Maha Mandir Police Thana	-	310	-	-
	xxiv	Samcore Glass	-	237	-	-
	xxv	Office of District Education Officer,	-	-	421	447
	xxvi	Ajmeri Gate, Jaipur	-	-	255	-
	xxvii	Shastri Nagar Police Thane	-	-	384	441
	xxviii	Office Houseing Board	-	-	336	370
	xxix	KVK Bhorkhara	-	-	233	254
Tamil Nadu	i	Distt. Collector Office, Coimbatore	98	147	92	88
	ii	Poniarajapuram, Coimbatore	97	124	77	83
	iii	Sai baba Colony, Coimbtore	-	-	-	-
	iv	Madras Medical College, Chennai	149	103	121	176
	v	Zoological Survey of India	-	-	-	-
	vi	MK Evening College Highway Bldg. ,	138	110	96	-
	vii	NEERI CSIR Campus	95	89	106	104
	viii	Kunnathur Chatram (E), Madurai	393	397	226	126
	ix	Sowdeswari College, Salem	61	70	72	69
	x	AVM Building, Tutkorin	43	65	107	101
	xi	Fishries College, Tuticorin	35	56	67	75
	xii	Chemical Research Centre, Tuticorin	-	-	-	-
	xiii	Santhome, Chennai	-	-	-	-
	xiv	Highway, Maduai	-	-	105	106

Table 4.1.4(a) : Annual Mean Concentrations of Suspended Particulate Matter (< 10 µm) (SPM10) in Ambient Air-Cont.

States/Union Territories	Station	(µg/m ³)			
		2003	2004	2005	2006
Uttaranchal					
	i Clock Tower, Dehradun	371	296	363	269
Uttar Pradesh					
	i Tajmahal, Agra	-	-	-	-
	ii Regional Office, Bodala, Agra	440	363	-	-
	iii Indira Chowk, Gajroula	-	184	241	194
	iv Deputy Ka Porao, Kanpur	394	428	368	409
	v Agriculture University, Kanpur	-	-	-	-
	vi Head Post Office, Kanpur	-	-	-	-
	vii F & Training Centre, Kanpur	410	-	-	-
	viii Kapoor Hotel, Hozratganj, Lucknow	337	342	408	399
	ix Mahanagar, Lucknow	340	339	400	387
	x R. O. Jawahar Nagar, Varanasi	302	379	334	296
	xi Kotwali, Kanpur	-	-	-	-
	xii Jaipur House, Agra	-	-	-	-
	xiii Aminabad	-	406	426	408
	xiv Aliganj Garden	-	477	412	401
	xv Sjarda Nagar	-	-	-	414
	xvi Kidwai Nagar	-	413	424	400
	xvii Dabauli	-	398	341	-
	xviii RO Noida	-	412	-	-
	xix Tilak Nagar	-	420	382	360
	xx Raza ka Tal	-	332	362	401
	xxi Vikas Nagar	-	-	-	349
	xxii Shivpur	-	-	263	348
	xxiii R.O. Noida	-	-	429	453
	xxiv Jail Chauraha	-	-	-	348
	xxv Veerangna Nagar	-	-	-	223
West Bengal					
	i Bator, Howrah	145	185	171	187
	ii Lal Bazar, Dalhousie, Kolkata	244	265	270	281
	iii Kasba, Kolkata	188	218	238	237
	iv Calcutta CESE. Mandeville Garden	-	-	-	-
	v PCBL Club	-	129	129	155
	vi Baishabghate	-	-	-	174
	vii Salt Lake	-	-	-	173
	viii Minto Park	-	-	-	151
	ix Maulali	-	-	-	212
	x Ghuseri	-	272	214	220
Chandigarh					
	i Sector 17 C	208	224	-	-
	ii Punjab Engg. College	-	165	-	-
Pondicherry					
	i Housing Boadd's Office	-	-	-	-
	ii Agriculture Department	-	-	-	-
	iii FRENCH, Institute	-	-	-	-
	iv DSTE Office	80	78	86	130
	v Chamber of Commerce	59	59	89	103

Table 4.1.4(a) : Annual Mean Concentrations of Suspended Particulate Matter (< 10 µm) (SPM10) in Ambient Air-Cont.

(µg/m³)

States/Union Territories	Station					
			2003	2004	2005	2006
Andhra Pradesh	<i>Industrial</i>					
	ii	Nacharam, Hyderabad	108	111	122	133
	i	C.I.T.D., Balanagar, Hyderabad	240	247	306	279
	iii	UPPAL, Hyderabad	196	199	246	273
Chhattisgarh	iv	Industrial Estate, Marripalem, Auto Nagar	184	185	195	187
	i	Laghu Udyog Nigam, Bhillai	261	264	275	265
	iii	M/S Wool Worth (I) Ltd	-	416	352	289
Delhi	ii	MPCB Sub Station, Birgaon, Raipur	357			
	iv	Maya Puri Industrial Area	425	484	523	484
Goa	i	Shahzada Bagh, Delhi	354	338	308	406
	ii	Shahadra, Delhi	343	357	300	408
	iii	ESI Disp. Najafgarh Road	-	-		
Goa	i	Vasco			224	
	ii	Fuse call Office, Ele. Dept.Vasco	146	156		159
	iii	Mormugao Port Trust	-	176	122	84

100

Table 4.1.4(a) : Annual Mean Concentrations of Suspended Particulate Matter (< 10 µm) (SPM10) in Ambient Air-Cont.

States/Union Territories	Station	(µg/m ³)			
		2003	2004	2005	2006
Gujarat	<i>Industrial</i>				
	i C. E. T. P. Nandseri, Vadodara	335	278	359	350
	ii B. R. C. Udhna, Surat	167	170	198	179
	iii Shardaben Hospital, Ahemdabad	318	343	324	305
	iv Rallis India Ltd., Ankleshwar	167	167	202	178
	v G. E. B., GIDC, Surat	176	182	197	172
Haryana	vi Naroda, G.I.D.C, Ahmedabad	311	271	357	
	i Shivalic Global, Industries, Faridabad	402	400	400	409
	ii Ballarpur Industries, Yamuna Nagar	291	181	219	230
Himachal Pradesh	iii Escorts Medical Centre, Faridabad	-	-		
	i Asstt. Commissioner Office Building, Gondhpur Industrial Area, Paonta Sahib	246	256	224	231
	ii Industry Dept. Office Building, Baddi	382	386		356
	iii Kala Amb			233	428
	iv Tekka Bench Bridge, Shimla	46	-		482
	v V. Farm Indl. Area, Sec. 1, Parwanoo	-	-		
	vi P. S. Industrial Area, Paonta Sahib	-	-	336	
Jharkhand	ii Sakchi Water Tower, Jamshedpur	239	-		
	i M.A.D.A. Jharia	284	508	300	229
	ii BIT Sindri	244	347	182	151
	iii Bistupur Vehicle Testinh Centre	289	405	337	280
	iv Golmuri Vehicle Testing Centre	286	434	356	279
	v Burmamines Water Tower, Jamshedpur	233	-		
	vi Near P-Station (FCI Main Hospital) Sindri	-	-		
Karnataka	vii AMCO Batteries, Bangalore	162	166		
	i Graphite India, Bangalore	130	154	155	408
	ii KHB Industrial Area	-	146	132	163
	iii Peenya Rao Circle	-	150	188	241
	iv Hebbal Industrial Area, Mysore	95	92	79	79
	v Lakkamanahalli Industrial Area	-	83	86	98
	vi Baikampady Indl. Area, Mangalore			279	151
	vii KSPCB Building			64	59
	viii K. R. Circle, Visw Bldg, Mysore	-	-		
	ix K. I. A. D. B. Bldg, Mysore	-	-		
Kerala	x Vadavathor	57	-	35	36
	xi Velli, Thiruvananthapuram	-	-		
	i Eloor, Cochin	126	122	117	129
	ii Irumpanem, Cochin	107	113	114	118
	iii Hi-Tech Chakkai, Thiruvananthapuram	158	134	122	105
	iv Mavoor, Nallalam, Kozhikode	105	75	103	99
	v SEPR Refractories India Ltd. Kanijikode			173	178
	vi M/S Carhurandum Universal Ltd.	207	191		
	viii FACT/Udyog Mandal	-	-		
	ix Chingavanam, Kottayam	-	-		
	x CRL Guest, House, Cochin	-	-		

Table 4.1.4(a) : Annual Mean Concentrations of Suspended Particulate Matter (< 10 µm) (SPM10) in Ambient Air-Cont.

States/Union Territories	Station	(µg/m ³)				
		2003	2004	2005	2006	
Madhya Pradesh	<i>Industrial</i>					
	i	Govindpura, Akun, Bhopal	169	191		164
	ii	Chem. Div. Labour Club, Nagda	185	175	157	114
	iii	Industrial Area SD (office), Satna	253	344	412	460
	iv	Association of I. Pologround, Indore	-	-	288	215
	v	EID Perry (I) Ltd				103
	vi	Distt. Office, Ujain				123
	vii	M. P. Laghu Udyog, Indore	437			
Maharashtra	viii	BCI Labour Club, Nagda				
	i	Parel, Mumbai	227	237	219	232
	ii	WIT, Campus, Solapur	396	356	325	323
	iii	MIDC Office, Hingma Rd. Nagpur	219	207	281	241
	iv	Hingna Road, Nagpur	209	239	206	185
	v	Bhosari, Pune	199	149	184	250
	vi	VIP Ind. Area, MIDC satpura, Nasik	170	177	193	139
	vii	M. I. D. C. Chanderpur	305	265	182	144
	viii	MIDC Taloja, Navi Mumbai				231
	ix	MPCB Central Lab, TTC				239
	x	Pump House. Lote				92
	xi	MIDC Compound Tarapur				123
	xii	Police Chowki, Tarapur				134
	xiii	Sport Stadium, Tarapur				126
Orissa	xiv	MIDC Phase-II, Dombivali		207		
	i	TTPS Colony, Talcher	154	163	140	192
	ii	Coal Field, Talcher				166
	iii	Industrial Estate, Angul	164	203	218	228
	iv	Jaykaypur, Rourkela	119	132	169	103
	v	IDL-Post (Sonaparbat), Rourkela	-	-		
	vi	NALCO, Angul	-	-		
Punjab	vii	Municipality Office, Rourkela	-	-		
	i	M/S Bhandinda Dist. Coop Milk Procedures Union Ltd, Bathinda				242
	ii	M/S Punjab Chemicals and Crop Protection Ltd., Derabassi				233
	iii'	M/S Winsome Yarns Ltd.				252
	iv	M. Steel, Gobindgarh	-	-		
	v	Chaudhary Diwan Chand Steel	-	-		
	vi	Milk Plant, Ludhiana	NA	-		
	vii	Rita Sewing Machines, Ludhiana	NA	-		
viii	M/S Punjab Maltee, Jalandhar	392	-			

Table 4.1.4(a) : Annual Mean Concentrations of Suspended Particulate Matter (< 10 µm) (SPM10) in Ambient Air-Cont.

(µg/m³)

States/Union Territories	Station					
			2003	2004	2005	2006
Rajasthan	ix	M/S Hargobing Steel Industries/Raj Steel	317	-		
	x	M/S Modi Oils GT Road, Mandi	308	-		
	xi	Jalandhar (Inderson's Leather Pvt. Ltd.)	-	-		
	xii	Focal Point, Jalandhar	NA	-		
	i	RIICO Pump House, Alwar	324	197	161	196
	ii	Gaurav Solvex, Alwar	340	203	171	222
	iii	VKIA, Jaipur	403	312	313	478
	iv	RIICO Office, MIA			246	176
	v	RIICO/RO Office		341	304	348
	vi	DIC Office Jodhpur			342	247
	vii	R. O. Anantpura, Kota	304	279	301	329
	viii	Regional Office, Udaipur	384	386	304	399
Tamil Nadu	ix	Jothwara Indl. Area, Jaipur	283	361		
	x	Basni Indl. Area, Jodhpur	346	-		
	xi	D. I. C. Udaipur	-	-		
	xii	RICCO, Chittor	-	341		
	i	SIDCO Office, Coimbtore	158	167	141	214
	ii	Kalhivakkam, Chennai	164	134	151	132
		Industrial				
	iii	Govt. Higher Secondary School, Chennai	222	-		
	iv	Thiruvottiyur Municipal Office, Chennai	137	163	166	166
	v	Fenner (I)nLtd., Madurai	158	144	110	113
	vi	Municipal K. Mandapa, Chennai	-	134		
	vii	Manali Police Station, Chennai	-	192	162	152
viii	Chemical Research Centre, Tuticorin	-	-			
ix	Thiruvottiyur, Chennai	160	136	133	147	
x	Raja Agencies	391	55	85	108	
Uttaranchal						
i	Raipur Road, Dehradun	371	-			
Uttar Pradesh	i	Nunhai, Agra	479	431		
	ii	Anpara Colony, Anpara	289	272	287	282
	iii	Ranusagar Colony, Anpara	286	261	238	256
	iv	Indira Chowk, JP Nagar, Gajroula	228	366		
	v	Raunag Auto Ltd., Gajroula	395	-	363	348
	vi	M/S Associated Chem. Pvt., Kanpur	439	-		
	vii	Lajpat Nagar, Kanpur	-	-		
	viii	Talkatora, Luknow	423	408	441	420
	ix	Bulandshahar Road Indl. Area,	-	374	573	404
	x	Shahibabad Industrial Area, Ghaziabad	-	385	563	449
	xii	S. P. Engg. Works, Fazalganj, Kanpur	439	-		
	xiii	Fazalganj		438	489	393
	xiv	Jajmau		414	404	434
	xv	M/S GEE PEE Electroplating and Engg. Work Noida	431	379	390	447
	West Bengal	xv	Center for Development of Glass Industry	-	474	394	458
i		Howrah Municipal Corp., Howrah	249	301	266	287
ii		Bandhaghat, Howrah	152	167	165	195
iii		Cossipore Police Station, Kolkata	320	315	312	325
iv		WBIIIDC, Haldia	105	132	200	213
v		Super Market, Haldia	134	155	193	195
vi		Behala Chowrasta				232
vii		Dunlop Bridge				247
viii		Dew India Ltd		293	377	440
ix		Kwality Hotel		245	268	285
x	Asansol Municipal Corp.		255	264	280	
Chandigarh						
i	Modern Food Indl. Area	341	369	310	291	
Pondicherry						
i	PIDC I. Estate, Metropolym	90	91	86	111	

Source: Central Pollution Control Board

BDL :Below Detection Limit (<4 µg/m³ for SO₂, <9 µg/m³ for NO₂ and 5< µg/m³ for SPM

NA :Not available

* : Data up to March 2005.

Table 4.1.4 (b) : Annual Mean Concentrations of Nitrogen Dioxide (NO₂) in Ambient Air

States/Union Territories	Station	(µg/m ³)			
		2003	2004	2005	2006
	Residential Station				
Andhra Pradesh	i Tarnka, Hyderabad	19.5	29.0	22.0	20.0
	ii ABIDS, Hyderabad	34.3	46.0	43.0	36.0
	iii Police Banacks , Hyderabad	29.4	32.0	35.0	15.0
	iv Banjara Hills, Hyderabad/Jublee Hills	13.4	17.0	20.0	17.0
	v Panchayat Raj Office, Vishakhapatnam	28.5	-	-	-
	vi Civil Defence Bldg., Vishakhapatnam	-	-	-	31.0
	vii Charminar	-	25.0	35.0	31.0
	viii Police Barracks	-	32.0	-	33.0
	ix Mindi	-	33.0	35.0	33.0
	x Seethammadhara	-	32.0	33.0	31.0
	xi Paradise	-	27.0	37.0	34.0
	xii Zoo Park	-	-	-	17.0
	xiii Ganapuram	-	-	-	34.0
	xiv Regional Science Centre	-	-	-	9.0
	xv Benz Circle	-	-	29.0	32.0
	xvi Mourya Inn	-	-	-	22.0
Assam	i Head Office, Bamunaidam, Guwahati	20.2	13.0	18.0	20.0
	ii Paltan Bazar, Guwahati	25.1	16.0	17.0	-
	iii Fire Brigade Station	-	-	18.0	19.0
	iv ITI Building Goiphnath Nagar	-	-	-	14.0
	v Near Pargiyotish College	-	-	-	17.0
	vi Borpara Boards Regional Office	-	-	9.0	9.0
	vii Dibrugarh Office Building	-	-	-	15.0
	viii Golaghat Office Building	-	-	-	BDL
	ix Sivasagar Office Building	-	-	-	9.0
	x Tezpur Office Building	-	-	-	9.0
	xi CISF Campus	-	-	-	15.0
Bihar	i Beltron Bhavan, Shastri Nagar, Patna	38.9	21.0	25.0	25.0
	ii Gandhi Maidan, Test Centre, Patna	19.2	31.0	50.0	56.0
Chandigarh	i Sector 17 -C	-	26.0	17.0	14.0
	ii Punjab Engg. College	-	26.0	14.0	12.0
	iii IMTECH, Sector 39	-	-	15.0	11.0
	iv Kaimbwala Village	-	-	11.0	9.0
Chhattisgarh	i Visak Hostel, Sec. 4, Bhillai	26.6	26.0	27.0	27.0
	ii 5/32, Bungalow Office Building, Bhillai	20.8	19.0	19.0	-
	iii Gitanjali Bhavan, Old Bus Stand, Korba	-	-	-	-
	iv Pragati Nagar, NTPC Colony, Korba	18.9	19.0	20.0	20.0
	v New HIG-9, Hirapur, Raipur	37.8	37.0	36.0	34.0
	vi M/S Wool Worth India Pvt. Ltd, Urla, Raipur	38.7	-	-	-
	vii ITI Rampur	-	21.0	21.0	21.0
	viii HIG 21,22 MP Nagar	20.3	21.0	21.0	21.0
	ix Regional Office Bunglow Office Building	-	-	-	18.0
	x Yatayat Thane	-	-	36.0	33.0

Table 4.1.4 (b) : Annual Mean Concentrations of Nitrogen Dioxide (NO₂) in Ambient Air-Contd

States/Union Territories	Station	(µg/m ³)				
		2003	2004	2005	2006	
Delhi	Residential Station					
	i	Nizamuddin, Delhi	43.3	45.0	45.0	49.0
	ii	Ashok Vihar, Delhi	32.2	39.0	49.0	-
	iii	Janakpuri, Delhi	44.2	41.0	48.0	51.0
	iv	Siri Fort, Delhi	31.8	35.0	35.0	38.0
	v	N. Y. School, Sarojini Nagar, Delhi	46.4	53.0	54.0	51.0
	vi	ESI Dispensary, Najafgarh Road, Delhi	-	-	-	-
	vii	Town Hall, Delhi	58.9	60.0	64.0	56.0
	viii	Pritam Pura				36.0
Goa	i	Head Office, Ponda, Goa	-	-	-	-
	ii	Infront of Old GSPCB, Patto, Panaji	12.0	11.0	BDL	10.0
Gujarat	i	L D Engineering College/A & L Behrampur, Ahemdabad	18.5	19.0	22.0	19.0
	ii	R. C. High School, Ahemdabad	-	-	25.0	22.0
	iii	R.O.G.P.C.B. Race Course, Vadodra	19.2	19.0	17.0	18.0
	iv	Citi Dondia Bazar, Vadodra	28.3	28.0	31.0	28.0
	v	SVR Engg. Collge, Syrat	18.3	24.0	23.0	28.0
	vi	Air India Building, Surat	24.9	34.0	27.0	30.0
	vii	Vapi Nagar Palika, Vapi	34.4	38.0	36.0	31.0
	viii	Cadilla Bridge, Narol	27.5	27.0	29.0	25.0
	ix	Durga Traders	28.7	29.0	27.0	28.0
	x	Fisheries Office	24.0	22.0	22.0	23.0
	xi	AZL Behrampur	-	-	24.0	22.0
	xii	Shubhanpura	-	-	-	15.0
	xiii	Regional Office	-	-	13.0	14.0
Haryana						-
	i	Near SBI, Chawla Cottege	-	-	-	BDL
	ii	Kothi No. 266, Sec. 9, Faridabad	-	-	20.0	BDL
	iii	Urban Estate II	-	-	BDL	-
	iv	Guru Jambhswar Uni.	-	-	BDL	-
v	Regional Office, Haryana State Pollution Control Board, Faridabad	28.8	21.0	-	22.0	
Himachal Pradesh						
	i	Bus Stand, Winterfield, Shimla	20.8	19.0	BDL	16.0
	ii	Paonta Sahib	9.1	9.0	15.0	15.0
	iii	Regional Office, Panwanoo	12.7	9.0	20.0	12.0
	iv	Regional Office, Damtal	14.5	15.0	19.0	20.0
	v	Old Road, Damtal	18.8	18.0	22.0	24.0
vi	Kala Amb	-	-	-	14.0	
Jharkhand	i	Regional Office, Dhanbad	65.9	58.0	47.0	52.0
	ii	Saachi Water Tower, Jamshedpur	59.8	36.0	30.0	-
Karnataka	i	Annad Rao Circle, Bangalore	44.9	61.0	26.0	-
	ii	K.R. Circle	18.7	20.0	32.0	26.0
	iii	Rani Chennamma Circle	-	12.0	BDL	BDL
	iv	Amco Batteries	-	-	44.0	37.0
	v	Yeshwantpura	-	-	37.0	37.0
	vi	KSRTC Bus Stand	-	-	-	23.0

Table 4.1.4 (b) : Annual Mean Concentrations of Nitrogen Dioxide (NO₂) in Ambient Air-Contd

States/Union Territories	Station	(µg/m ³)				
		2003	2004	2005	2006	
Kerala	i	PHED, Cochin	-	-	-	-
	ii	CSIR Complex, (Ernakulam North) Cochin	BDL	-	-	BDL
	iii	Ernakulam (South)	BDL	11.0	9.0	-
	iv	Town Hall, Cochin	-	-	-	-
	v	SMV School, Thiruvananthpuram	20.0	28.0	28.0	27.0
	vi	Pattor R. O. Thiruvananthpuram	-	-	-	-
	vii	Kottayam, Kottayam	15.9	21.0	23.0	23.0
	viii	Palayam, Kozhikode	BDL	-	-	BDL
	ix	Cochin Port Trust Circle (M. G. Road), Cochin	-	-	-	-
	x	S. V. Raja School, Thiruvananthpuram	-	-	-	-
	xi	Palmood, Thiruvananthpuram	-	-	-	-
	xii	Mavoor, Kozhilode	-	BDL	BDL	-
	xiii	PHED, Cochin	-	-	-	-
	xiv	Sasthamangalam, Thiruvananthpuram	16.4	18.0	22.0	22.0
Madhya Pradesh	i	Hamida Road, Bhopal	17.4	15.0	16.0	16.0
	ii	T. T. Nagar, Bhopal	9.0	10.0	9.0	9.0
	iii	Kothari Market, Indore	32.5	25.0	20.0	15.0
	iv	Telephone Nagar, Indore	27.6	20.0	13.0	10.0
	v	Vijay Nagar, Jabalpur	14.6	13.0	18.0	22.0
	vi	Grasim Kalayan Kendra, Nagda	34.7	41.0	37.0	32.0
	vii	Vipra Niwas Pushpraj Colony, (Civil Lines) Satna	BDL	BDL	-	-
	viii	Arera Colony	-	-	-	21.0
	ix	RO, Satna	-	7.0	BDL	BDL
	x	BCI Labour Club, Nagda	36.2	40.0	36.0	27.0
	xi	Metel Section	-	-	-	23.0
	xii	Vikas Nagar	-	-	-	25.0
	xiii	Jaint Township	-	-	-	34.0
	xiv	NTPC Vidhyanagar	-	-	-	35.0
	xv	Waidhan	-	-	-	28.0
	xvi	Pt. Deendayal Nagar	-	-	-	9.0
	xvii	Deendayal Nagar	-	-	-	11.0
	xviii	Maharaj Bada	-	-	-	11.0
	xix	R.O. Ujjain	-	-	-	10.0
Maharashtra	i	Vinoba Bhawan, Bandra/worli, Mumbai	18.7	16.0	23.0	28.0
	ii	Kalbadevi, Mumbai	23.1	21.0	19.0	30.0
	iii	Kopri Ward Office, Thane (E), Mumbai	14.9	11.0	11.0	11.0
	iv	Sahu Market Naupada, Thane, Mumbai	-	13.0	-	-
	v	Maskasath, Nagpur	21.3	17.0	12.0	16.0
	vi	NEERI, Nagpur	18.9	25.0	13.0	18.0
	vii	Institute of Engeeres, Nagpur	16.4	20.0	34.0	31.0
	viii	Govt. Poly College, Sadar, Nagpur	18.2	23.0	33.0	29.0
	ix	Administrative Bldg., Chanderpur	-	33.0	-	-
	x	Sub Regional Office, B. Nagar, Chanderpur	36.4	25.0	32.0	34.0
	xi	VIP Ind. Area, MIDC Satpura	-	-	-	25.0
	xii	RTO Colony Tank, Nasik	22.4	28.0	27.0	30.0
	xiii	Nashik Muni. Council Bldg.	23.9	30.0	31.0	-

Table 4.1.4 (b) : Annual Mean Concentrations of Nitrogen Dioxide (NO₂) in Ambient Air -contd.

States/Union Territories	Station	(µg/m ³)			
		2003	2004	2005	2006
	xiv Mandai/Swargate, Pune	69.5	51.0	36.0	42.0
	xv Naw Pada, Thane West, Thane	19.0	-	-	-
	xvi Nalstop	-	-	37.0	41.0
	xvii Nagar Parishad	-	-	31.0	34.0
	xviii SBES College	-	-	29.0	21.0
	xix CADA Office	-	-	29.0	20.0
	xx Unniversity Campus, Shivaji University	-	-	9.0	10.0
	xxi Ruikar Trust Dabholkar Corner	-	-	40.0	43.0
	xxii Mahadwar Road, New Mahalaxmi	-	-	26.0	25.0
	Residential Station				
	xvi Poud Phata (Kothrud)/Nal Stop	75.8	55.0	-	-
	xvii Chitalae Clinic, Solapur	45.9	41.0	39.0	36.0
	xviii IWWA, Nagpur	-	-	-	-
	xix Gram Panchayat, Kanhan, Nagpur	-	-	-	-
	xx M/s Chemiquip Ltd., Ambernath,	-	-	-	-
	xxi Pune University, Pune	-	-	-	-
	xxii WIT Campus, Solapur	45.9	-	-	-
	xxiii Naupada	-	-	12.0	11.0
	xxiv Airoli, TTC	-	-	-	31.0
	xxv MESB Power Station, Talaja	-	-	-	30.0
	xxvi Neruli, TTC	-	-	-	29.0
	xxvii Panvel, Talaja	-	-	-	31.0
	xxviii Chalke Wadi	-	-	-	9.0
Meghalaya					
	i State Board Office premises, Shilong	BDL	BDL	BDL	12.0
	ii State Tuberculosis Hospital	13.6	19.0	-	-
	MUDA Complex, Police Bazar	-	-	12.0	17.0
Mizoram					
	i Bawongkawn	-	-	-	11.0
	ii Khatla	-	-	-	10.0
Nagaland					
	iii Laipuitlang	-	-	-	BDL
	i Bank Colony	-	-	16.0	14.0
	ii Dhobinala	-	-	13.0	15.0
	iii Hong Kong Market	-	-	17.0	-
Orissa					
	i Nalco, Angul	15.5	17.0	20.0	21.0
	ii Municipality Office, Rourkela	-	-	-	-
	iii Rayagada, Raourkela	BDL	-	-	-
	iv Regional Office, Angul	100.0	-	-	-
	v IDL Police Outpost, Rourkela	BDL	BDL	10.0	10.0
	vi RO, Rourekela	-	9.0	11.0	11.0
	vii RO, Rayagada	BDL	7.0	11.0	11.0
	viii SPCB Building, Bhubaneshwar	-	11.0	14.0	13.0
	ix IRC Village	-	-	14.0	13.0
	x Capital Police Station	-	-	17.0	17.0
	xi R.O. Cuttak Office	-	-	24.0	17.0
	xii Roof of Trafice Tower	-	-	39.0	38.0
	xiii Roof of the Filter Plant PHD Off.	-	-	BDL	10.0
	xiv R.O. Behrampur	-	-	-	15.0

Table 4.1.4 (b) : Annual Mean Concentrations of Nitrogen Dioxide (NO₂) in Ambient Air -contd.

States/Union Territories	Station		($\mu\text{g}/\text{m}^3$)			
			2003	2004	2005	2006
Punjab	i	Office of PPCB	-	-	-	27.0
	ii	Regional Office, Jalandhar	25.4	27.0	29.0	30.0
	iii	Municipal Council Tubewell No. 27	27.1	30.0	32.0	-
	iv	Clock Tower, Ludhiana, PPCB Post Office	40.0	-	-	-
	v	Jalandhar (Beat all Sports)	-	-	-	-
	vi	Vishwakarma Chowk	-	61.0	44.0	39.0
	vii	Modi Oil & General Mills	-	39.0	30.0	30.0
	viii	United Rolling Machine	-	-	-	30.0
	ix	Punjab Alkalis & Chemicals Ltd	-	-	22.0	29.0
	x	NFL Gust House	-	-	17.0	29.0
	xi	A-1, Platters	-	-	-	31.0
	xii	AS School	-	-	-	31.0
Rajasthan	i	Town Hall, Udaipur	44.6	48.0	41.0	43.0
	ii	Municipal Corporation Bldg., Kota	19.0	24.0	19.0	23.0
	iii	Salnor Glass, Kota	-	-	-	-
	iv	Regional Office, Jodhpur	-	-	35.0	-
	v	Sojati Gate, Jodhpur	16.3	19.0	20.0	21.0
	vi	RSPCB Office, Jodhpur	-	18.0	17.0	24.0
	vii	Ajmeri Gate, Jaipur	41.4	38.0	21.0	43.0
	viii	Malviya Nagar, Jaipur	13.6	18.0	-	-
	ix	Tripolia Bazar, Jaipur	14.9	18.0	-	-
	x	Regional Office, Alwar	34.2	12.0	10.0	15.0
	xi	RIICO Pump House, Alwar	-	-	-	-
	xii	PHED, Gandhi Nagar, Jaipur	-	-	-	-
	xiii	Barkhera, Kota, (<i>Sensitive</i>)	-	-	-	-
	xiv	Veternary Hospital, Kota	-	-	-	-
	xv	Office of Housing Board	-	-	20.0	20.0
	xvi	D.I.C. Udaipur	-	-	-	-
	xvii	Office of District Education Officer, Chandpole	-	-	38.0	45.0
	xviii	Regional Office, Udaipur	-	-	-	46.0
	xix	Maha Mandir Police Thane , Jodhpur	16.0	19.0	20.0	20.0
	xx	Shastri NaGAR Police Thane	-	-	20.0	21.0
	xxi	Samcore Glass, Kota	18.5	24.0	-	-
	xxii	Amabmata, Udaipur	35.9	35.0	41.0	36.0
	xxiii	SPCB Building, Jaipur	21.1	-	-	17.0
	xxiv	KVK Bhorkhara	-	-	22.0	23.0
Tamil Nadu	i	Distt. Collector Office, Coimbatore	19.0	45.0	43.0	35.0
	ii	Sai baba Colony, Coimbatore	49.7	-	-	-
	iii	Madras Medical College, Chennai	BDL	BDL	11.0	10.0
	iv	Zoological Survey of India	-	-	-	-
	v	MK Evening College Highway Bldg. , Madurai	23.1	20.0	-	-
	vi	Kunnathur Chatram (E), Madurai	29.3	24.0	23.0	27.0
	vii	Sowdeswari College, Salem	33.5	35.0	33.0	31.0
	viii	AVM Building, Tutkorin	18.5	18.0	18.0	20.0

Table 4.1.4 (b) : Annual Mean Concentrations of Nitrogen Dioxide (NO₂) in Ambient Air -contd.

States/Union Territories	Station	(µg/m ³)			
		2003	2004	2005	2006
	Residential Station				
	ix Fishries College, Tuticorin	16.9	18.0	19.0	20.0
	x Chemical Research Centre, Tuticorin	46.0	-	-	-
	xi Madrass (Santhome)	-	-	-	-
	xii NEERI, CSIR Campus	NA	BDL	9.0	9.0
	xiii Poniarajapuram	46.0	43.0	38.0	32.0
	xiv Highways	-	20.0	22.0	26.0
Uttaranchal					
	i Clock Tower, Dehradun	22.5	24.0	26.0	28.0
Uttar Pradesh					
	i Tajmahal, Agra	-	-	-	-
	ii Regional Office, Bodla, Agra	10.0	BDL	-	-
	iii Indira Chowk, Gajroula	-	-	12.0	-
	iv Deputy Ka Porao, Kanpur	18.8	19.0	19.0	21.0
	v Agriculture University, Kanpur	-	-	-	-
	vi Head Post Office, Kanpur	-	-	-	-
	vii F & Training Centre, Kanpur	17.3	-	-	-
	viii Kapoor Hotel, Hozratganj, Lucknow	27.4	30.0	31.0	29.0
	ix Mahanagar, Lucknow	27.4	30.0	30.0	28.0
	x R. O. Jawahar Nagar, Varanasi	15.4	17.0	18.0	19.0
	xi Kanpur (Kotwali)	-	-	-	-
	xii Jaipur House, Agra	-	-	-	-
	xiii Aminabad	-	35.0	31.0	30.0
	xiv Aliganj Garden	-	37.0	31.0	29.0
	xv Kidwai Nagar	-	20.0	18.0	21.0
	xvi Dabauli	-	21.0	18.0	-
	xvii RO Noida	-	41.0	51.0	-
	xviii Tilak Nagar	-	26.0	29.0	28.0
	xix Raza ka Tal	-	34.0	28.0	29.0
	xx Sharda Nagar	-	-	-	20.0
	xxi Vikas Nagar	-	-	-	22.0
	xxii Shivpur	-	-	19.0	18.0
	xxiii Regional Office, Noida	-	-	-	55.0
	xxiv Jail Chauraha, Janshi	-	-	-	18.0
	xxv Veeranga Nagar	-	-	-	16.0
West Bengal					
	I Bator, Howrah	-	83.0	98.0	54.0
	ii Lal Bazar, Dalhousie, Kolkata	-	63.0	40.0	44.0
	iii Kasba, Kolkata	-	43.0	25.0	34.0
	iv Calcutta, CESE, Mandevitli Garden (Gariohat)	-	-	-	-
	v PCBL Club	-	38.0	39.0	41.0
	vi JD Park	-	-	-	35.0
	vii Baishabghate	-	-	-	42.0
	viii Salt Lake	-	-	-	60.0
	ix Minto Park	-	-	-	62.0
	x Moulali	-	-	-	73.0
	xi Ghuseri	-	-	89.0	69.0
Chandigarh					
	i Sector 17 C, Chandigarh	18.8	26.0	-	-
	ii Punjab Engg. College	-	26.0	-	-
Pondicherry					
	i Housing Boadd's Office	-	-	-	-
	ii Agriculture Department	-	-	-	-
	iii FRENCH, Institute	-	-	-	-
	iv DSTc Office	13.9	16.0	14.0	12.0
	v Chamber of Commerce	12.2	16.0	13.0	BDL

Table 4.1.4 (b) : Annual Mean Concentrations of Nitrogen Dioxide (NO₂) in Ambient Air -contd

States/Union Territories	Station	Annual Mean Concentration (µg/m ³)			
		2003	2004	2005	2006
Industrial City Andhra Pradesh	Industrial Station				
	i C.I.T.D., Balanagar, Hyderabad	39.3	42.0	31.0	36.0
	ii Nacharam, Hyderabad	15.0	18.0	17.0	14.0
	iii UPPAL, Hyderabad	34.1	38.0	32.0	32.0
	iv Industrial Estate, Marripalem, Vishakhapatnam	23.1	32.0	35.0	32.0
v Auto Nagar	-	-	-	31.0	
Chandigarh	Industrial Area	-	37.0	20.0	17.0
Chhattisgarh	i Laghu Udyog Nigam, Bhillai	31.0	29.0	31.0	31.0
	ii MPCB Sub Station, Birgaon, Raipur				
	iii M/S Wood worth India Pvt. Ltd, Sarira, Raipur	38.7	38.0	36.0	33.0
Delhi	i Shahzada Bagh, Delhi	39.3	47.0	46.0	48.0
	ii Shahadra, Delhi	32.6	39.0	36.0	43.0
	iii ESI Disp. Najafgarh Road	-	-	-	-
	iv Maya Puri Industrial Area	45.2	56.0	49.0	47.0
Goa	i Vasco	10.1	10.0	10.0	10.0
	ii Mormugao Port Trust	-	10.0	BDL	BDL
Gujarat	i Shardaben Hospital, Ahemdabad	27.4	-	25.0	-
	ii Rallis India Ltd., Ankleshwar	33.0	32.0	30.0	33.0
	iii C. E. T. P. Nandseri, Vadodara	36.2	30.0	37.0	39.0
	iv B. R. C. Udhna, Surat	24.5	-	-	-
	v G. E. B., GIDC, Surat	39.6	40.0	42.0	35.0
	vi Naroda GIDC	28.0	27.0	29.0	-
	vii Udhha	-	34.0	28.0	32.0
	viii Sardhara Industrial Corporation	-	25.0	24.0	23.0
Haryana	i Shivalic Global, Industries, Faridabad	29.4	25.0	23.0	23.0
	ii Ballarpur Industries, Yamuna Nagar	19.6	20.0	31.0	31.0
	iii Escorts Medical Centre, Faridabad	-	-	-	-
Himachal Pradesh	i Gondhpur Industrial Area, Paonta Sahib	BDL	BDL	11.0	15.0
	ii Asstt. Commissioner Office Building, Sector 1, Parwanoo	14.4	12.0	23.0	15.0
	iii Tekka Bench Bridge, Shimla	12.0	-	-	-
	iv V. Farm Indl. Area, Sec. 1, Parwanoo	-	-	-	15.0
	v Paonta Sahib Industrial Area	-	BDL	18.0	15.0
Jharkhand	i M.A.D.A. Jharia	63.4	67.0	49.0	55.0
	ii BIT Sindri	62.0	61.0	47.0	51.0
	iii Burmamines Water Tower, Jamshedpur	53.0	-	-	-
	iv Near P-Station (FCI Main Hospital) Sindri	-	-	-	-
	v Bistapur Vehicle Testing Center	58.3	56.0	54.0	54.0
	vi Golmuri Vehicle Testing Center	53.5	51.0	50.0	50.0
	vii Sakchi Water Tower	59.8	-	-	-
Karnataka	i K. R. Circle, Visw Bldg, Mysore	-	-	-	-
	ii K. I. A. D. B. Bldg, Mysore	-	-	-	-
	iii Graphite India, Bangalore	33.1	54.0	49.0	39.0
	iv AMCO Batteries, Bangalore	26.3	52.0	-	-

Table 4.1.4 (b) : Annual Mean Concentrations of Nitrogen Dioxide (NO₂) in Ambient Air -contd

States/Union Territories	Station	Annual Mean Concentration (µg/m ³)			
		2003	2004	2005	2006
Kerala	Industrial Station				
	v KHB Industrial Area	-	52.0	44.0	37.0
	vi Peenya Industrial Area	-	42.0	46.0	35.0
	vii Hebbal Industrial Area	18.2	20.0	32.0	26.0
	viii Baikampady Indl. Area	-	-	31.0	BDL
	ix KSPCB Building	-	-	17.0	14.0
	x Lakkamanahalli Industrial Area	-	BDL	BDL	BDL
	I M/S Carhurandum Universal Ltd. Kanjakode	10.1	BDL	BDL	BDL
	ii Eloor, Cochin	17.0	15.0	15.0	11.0
	iii Irumpanem, Cochin	BDL	BDL	BDL	BDL
	iv FACT/Udyog Mandal	-	-	-	-
v Hi-Tech Chakkai, Thiruvananthapuram	17.6	18.0	19.0	18.0	
vi Chingavanam, Kottayam	-	-	-	15.0	
vii Mavoor, Kozhikode	-	-	-	-	
viii CRL Guest, House, Cochin	-	-	-	-	
ix Velli, Thiruvananthapuram	-	-	-	-	
x Nallalam	BDL	BDL	BDL	BDL	
xi Vadavathoor	BDL	BDL	14.0	-	
Madhya Pradesh	i Govindpura, Akun, Bhopal	12.2	13.0	11.0	9.0
	ii M. P. Laghu Udyog, Indore	NA	-	-	-
	iii Chem. Div. Labour Club, Nagda	17.6	20.0	21.0	20.0
	iv BCI Labour Club, Nagda	-	-	-	-
	v Industrial Area SD (office), Satna	BDL	BDL	9.0	BDL
	vi Association of I. Pologround, Indore	-	-	20.0	17.0
	vii EID Perry (I) Ltd	-	-	-	23.0
	viii Distt. Office	-	-	-	15.0
Maharashtra	i Thane (E) Balkum/Kolshet, Mumbai	-	14.0	-	-
	ii Parel, Mumbai	22.5	18.0	21.0	29.0
	iii Hingma Road, Nagpur	16.6	19.0	35.0	30.0
	iv MIDC Office, Hingma Rd. Nagpur	20.8	-	13.0	23.0
	v M. I. D. C. Chanderpur	38.4	22.0	38.0	40.0
	vi Bhosari, Pune	39.8	35.0	29.0	42.0
	vii WIT Campus, Solapur	45.3	40.0	38.0	35.0
	viii MIDC Phase-II, Dombivali	-	35.0	40.0	46.0
	ix VIP Ind. Area, MIDC satpura, Nasik	21.4	26.0	29.0	27.0
	x PCMC Chingawad, Pune	-	-	-	-
	xi Poud Phata (Kothrud, Pune)	-	-	-	-
	xii Balkum/Kolshet, Thane West, Thane	21.5	-	13.0	12.0
	xiii Ambeernath Municipal Council Office	-	-	41.0	51.0
	xiv MIDC, Taloja	-	-	-	33.0
	xv MPCB Central Lab, TTC	-	-	-	30.0
	xvi Pump House	-	-	-	11.0
	xvii MIDC Compound	-	-	-	23.0
	xviii Police Chowki	-	-	-	25.0
	xix Sport Stadium	-	-	-	23.0
Orissa	i Industrial Estate, Angul	12.8	BDL	12.0	14.0
	ii IDL-Post (Sonaparbat), Rourkela	-	-	-	-
	iii Jaykaypur, Rourkela	9.4	9.0	14.0	-
	iv TTPS Colony, Talcher	21.9	20.0	18.0	19.0
	v NALCO, Angul	-	-	-	-
	vi Municipality Office, Rourkela	-	-	-	-
	vii Coal Field	-	-	-	19.0
	viii Jaykaypur	-	9.0	-	11.0

Table 4.1.4 (b) : Annual Mean Concentrations of Nitrogen Dioxide (NO₂) in Ambient Air- conclud.

States/Union Territories	Station	(µg/m ³)				
		2003	2004	2005	2006	
Punjab	Industrial Station					
	i	M. Steel, Gobindgarh	33.6	-	-	
	ii	Chaudhary Diwan Chand Steel	-	-	-	
	iii	Milk Plant, Ludhiana	31.4	32.0	34.0	36.0
	iv	Rita Sewing Machines, Ludhiana	35.9	37.0	38.0	37.0
	v	M/S Punjab Maltee, Jalandhar	26.1	-	-	30.0
	vi	P. Steel, Gobindgarh	-	39.0	31.0	-
	vii	M/s Zed Sporto, Jalandhar	-	-	-	-
	viii	Jalandhar (Inderson's Leather Pvt. Ltd.)	-	-	-	-
	ix	M/S Modi Oils GT Road Mandi, Gobindgarg	33.4	-	-	29.0
	x	Focal Point, Jalandhar	28.0	31.0	33.0	32.0
	xi	Nagia Soap Facotry	-	-	-	32.0
	xii	Bhantinda Dist. Coop Milk Procedures Union Ltd	-	-	-	-
	xiii	Markfed Vanaspati	-	-	-	31.0
	xiv	Punjab Chemical and Crop Protection Ltd.	-	-	-	31.0
xv	Winsome Yarns Ltd.	-	-	-	30.0	
Rajasthan	i	RIICO Pump House, Alwar	32.3	10.0	BDL	15.0
	ii	Gaurav Solvex, Alwar	31.7	14.0	9.0	18.0
	iii	Jothwara Indl. Area, Jaipur	15.1	18.0	-	-
	iv	VKIA, Jaipur	39.2	34.0	30.0	29.0
	v	Basni Indl. Area, Jodhpur	16.4	-	-	-
	vi	R. O. Anantpura, Kota	19.0	25.0	23.0	-
	vii	RIICO Office, MIA	-	20.0	16.0	17.0
	viii	D. I. C. Udaipur	-	-	20.0	-
	ix	Regional Office, Udaipur	68.6	64.0	59.0	24.0
	x	RICCO Office, Jodhpur	-	20.0	23.0	21.0
TamilNadu	i	SIDO Office, Coimbotore	55.8	51.0	49.0	41.0
	ii	Kathhivakkam, Chennai	35.2	32.0	28.0	24.0
	iii	Govt. Higher Secondary School, Chennai	36.6	-	-	-
	iv	Thiruvottiyur Municipal Office, Chennai	NA	BDL	26.0	10.0
	v	Fenner (I)nLtd., Madurai	25.3	25.0	24.0	28.0
	vi	Municipal K. Mandapa, Chennai	-	-	-	23.0
	vii	Manali Police Station, Chennai	-	35.0	29.0	20.0
	viii	Chemical Research Centre, Tuticorin	-	-	-	-
	ix	Thiruvottiyur, Chennai	31.6	34.0	11.0	20.0
	x	Raja Agencies	-	19.0	18.0	20.0
Uttaranchal	i	Rai Pur Road, Dehradun	23.4	-	-	-
Uttar Pradesh	i	Nunhai, Agra	10.2	BDL	-	-
	ii	Anpara Colony, Anpara	31.3	29.0	31.0	31.0
	iii	Ranusagar Colony, Anpara	30.7	30.0	30.0	31.0
	iv	Raunag Auto Ltd., Gajroula	15.8	16.0	16.0	16.0
	v	M/S Associated Chem. Pvt., Kanpur	17.9	-	-	-
	vi	Lajpat Nagar, Kanpur	-	-	-	-
	vii	Talkatora, Lucknow	29.2	32.0	14.0	30.0

Table 4.1.4 (b) : Annual Mean Concentrations of Nitrogen Dioxide (NO₂) in Ambient Air- conclud.

States/Union Territories	Station	(µg/m ³)			
		2003	2004	2005	2006
West Bengal	Industrial Station				
	viii Bulandshahar Road Indl. Area, Ghaziabad	-	24.0	14.0	18.0
	ix Shahibabad Industrial Area, Ghaziabad	-	26.0	12.0	17.0
	x S. P. Engg. Works, Fazalganj, Kanpur	-	18.0	-	-
	xi Fazalganj	-	18.0	19.0	21.0
	xii Jajmau	-	22.0	20.0	21.0
	xiii M/S GEE PEE Electorplating and Engg. Works	NA	55.0	50.0	56.0
	xiv Centre for Development of Glass Industry		33.0	31.0	35.0
	xv Indira Chowk, J.P. Nagar, Gajraula	NA	-	-	-
	i Howrah Municipal Corp., Howrah	82.7	95.0	102.0	79.0
	ii Bandhaghat, Howrah	67.2	97.0	96.0	82.0
	iii Cossipore Police Station, Kolkata	83.3	73.0	52.0	58.0
	iv WBIIIDC, Haldia	22.3	25.0	39.0	44.0
	v Super Market, Haldia	27.4	28.0	36.0	43.0
	vi Dew India Ltd.	-	46.0	52.0	55.0
vii Kwalitiy Hotel	-	43.0	50.0	55.0	
viii Asansol Municipal Corporation	-	46.0	50.0	54.0	
ix Behala Vhowrasta	-	-	-	70.0	
x Dunlop Bridge	-	-	-	66.0	
Chandigarh					
i Modern Food Indl. Area	30.5	37.0	-	-	
Pondicherry					
i PIDC I. Estate, Metropolyam	21.5	21.0	17.0	12.0	

Source: Central Pollution Control Board

BDL : Below detection limit

Table 4.1.4 (c) : Annual Mean Concentrations of Sulphur Dioxide (SO₂) in Ambient Air

($\mu\text{g}/\text{m}^3$)

States/Union Territories	Station	Annual Mean Concentrations of Sulphur Dioxide (SO ₂) in Ambient Air ($\mu\text{g}/\text{m}^3$)				
		2003	2004	2005	2006	
Andhra Pradesh	Residential Station					
	i	Tarnka, Hyderabad	9.7	10	6	5
	ii	ABIDS, Hyderabad	10.7	11	8	6
	iii	Police Banacks , Hyderabad	6.0	10	12	
	iv	Banjara Hills, Hyderabad/Jublee Hills	BDL	BDL	5	4
	v	Panchayat Raj Office, Vishakhapatnam	7.0	-	-	-
	vi	Civil Defence Bldg., Vishakhapatnam	-	-	-	-
	vii	Charminar	-	4	5	5
	viii	Mindi	-	11	12	12
	ix	Seethammadhara	-	10	11	11
	x	Police Barracks ,Visakhapatnam	-	10	-	11
	xi	Paradise	-	4	5	5
	xii	Ganapuram	-	-	-	12
	xiii	Benz Circle	-	-	BDL	5
	xiv	Police Station, Patancheru	-	-	-	13
xv	Mourya Inn	-	-	-	4	
Assam	i	Head Office, Bamuninaidam, Guwahati	BDL	BDL	5	7
	ii	Paltan Bazar,Guwahati	BDL	4	5	
	iii	Fire Brigade Station, Guwahati	-	-	6	7
	iv	ITI Building Goipnath Nagar, Guwahati	-	-	-	6
	v	Near Pragyotish College	-	-	-	9
	vi	Borpara Boards RO, Bongaigaon	-	-	5	4
	vii	Dibrugarh Office Building	-	-	-	6
	viii	Golghat Office Building	-	-	-	5
	ix	Sivasagar Office Building	-	-	-	5
	x	Tezpur Office Building	-	-	-	4
	xi	CISF Campus	-	-	-	7
Bihar	i	Beltron Bhavan, Shastri Nagar, Patna	16.5	11	11	9
	ii	Gandhi Maidan, Test Centre, Patna	11.9	13	14	11
Chandigarh	i	Sector 17 C	BDL	5	BDL	BDL
	ii	Punjab Engg. College	-	6	BDL	BDL
		IMTECH, Dector 39			BDL	BDL
Chhattisgarh		Kaimbwala Village			BDL	BDL
	i	Visak Hostel, Sec. 4, Bhillai	22.1	21	23	23
	ii	5/32, Bungalow Office Building, Bhillai	BDL	BDL	BDL	BDL
	iii	Gitanjali Bhavan, Old Bus Stand, HIG 21,22 MP Sector, Korba	13.3	13		
	iv	Pragati Nagar, NTPC Colony, Korba	12.5	13	12	13
	v	New HIG-9, Hirapur, Raipur	8.4	10	13	12
	vii	ITI Rampur	-	14	13	13
	viii	HIG 21-22, MP Nagar			11	13
	ix	Yatayat Thane			11	12

Source: Central Pollution Control Board

BDL : Below detection limit

Table 4.1.4 (c) : Annual Mean Concentrations of Sulphur Dioxide (SO₂) in Ambient Air - Contd.

States/Union Territories	Station	(µg/m ³)			
		2003	2004	2005	2006
	Residential Station				
Delhi					
	i Sarojini Nagar		7	5	7
	ii Town Hall, Delhi	11.5	11	8	10
	iii Nizamuddin, Delhi	12.2	11	10	10
	iv Pritam Pura				9
	v Siri Fort, Delhi	9.0	8	9	6
	vi Janakpuri, Delhi	11.7	10	11	9
	vii Ashok Vihar, Delhi	6.1	10	8	
	viii N. Y. School, Sarojini Nagar, Delhi	7.2	-		
	ix ESI Dispensary, Najafgarh Road, Delhi		-		
Goa					
	i Head Office, Ponda, Goa				
	ii Infront of Old GSPCB, Patto, Panaji	BDL	BDL	BDL	BDL
Gujarat					
	i L D Engineering College/A & L Behrampur, Ahemdabad	10.4	11	12	9
	ii R. C. High School, Ahemdabad	-	-	12	10
	iii R.O.G.P.C.B. Race Course, Vadodra	10.7	11	10	9
	iv Citi Dondia Bazar, Vadodra	19.1	18	19	18
	v SVR Engg. Collge, Surat	13.4	18	18	21
	vi Air India Building, Surat	17.3	24	21	23
	vii Vapi Nagar Palika, Vapi	20.4	25	23	22
	viii Candilla Bridge, Narol	19.1	18	15	12
	ix Ankaleshwar	18.0	23		
	x AZL Behrampur			11	10
	xi Regional Office, Rajkot			10	11
	xii Shubhanpura				10
	xiiiiv Durga Traders			21	21
	xiv Fisheries office, Jamnagar	9.8	10	9	11
Haryana					
	i Near SBI, Chawla Cottege	-	-		
	ii Kothi No. 266, Sec. 9, Faridabad	-	-		
	iii Regional Office, Haryana State Pollution	9.5	8	8	10
	iv Urban Estage II			11	9
	v Guru Jambheshwar Uni.			9	8
Himachal Pradesh					
	i Bus Stand, Winterfield, Shimla	5.7	6	BDL	7
	ii Paonta Sahib	BDL	BDL	BDL	BDL
	iii Regional Office, Parwanoo	BDL	BDL	BDL	BDL
	iv Regional Office, Damtal	BDL	4	5	BDL
	v Old Road, Damtal	4.3	5	6	4
	Kala Amb				BDL
Jharkhand					
	i Regional Office, Dhanbad	15.9	12	16	19
	ii Sakchi Water Tower, Jamshedpur	-	16.00	19	

Table 4.1.4 (c) : Annual Mean Concentrations of Sulphur Dioxide (SO₂) in Ambient Air - Contd.

States/Union Territories	Station	(µg/m ³)				
		2003	2004	2005	2006	
Karnataka	Residential Station					
	i Anand Rao Circle, Bangalore	10.8	7			
	ii K.R. Circle, Visvesvaraya Bldg. Mysore	11.2	11	20	18	
	iii Rani Chennamma Circle, Hubli	-	15	5	BDL	
	iv Amco Batteries			9	20	
	v Yeshwantpura			7	18	
	vi Narsimha raja Circle			6		
vii KSRTC Bus Stand Building				6		
Kerala	i S. V. Raja School, Thiruvananthpuram	-	-			
	ii CSIR Complex, (Ernakulam North) Cochin	-	-			
	iii Town Hall, Cochin	-	-			
	iv SMV School, Thiruvananthpuram	13.7	9	8	7	
	v Pattor R. O. Thiruvananthpuram	-	-			
	vi Kottayam, Kottayam	BDL	BDL	5	6	
	vii Palayam, Kozhikode	BDL	BDL	BDL	BDL	
	viii Cochin Port Trust Circle (M. G. Road), Cochin	-	-			
	xi PHED, Cochin	-	-			
	xii Palmood. Thiruvananthpuram	-	-			
	xiii Mavoor, Kozhikode	-	-			
	xiv Ernakulum south	BDL	5	6	BDL	
	xv Sasthamangalam	12.0	6	6	6	
	Madhya Pradesh	i Hamida Road, Bhopal	9.0	7	7	5
		ii T. T. Nagar, Bhopal	4.3	5	4	4
iii Kothari Market, Indore		14.9	14	10.00	7	
iv Telephone Nagar, Indore		11.2	10	6.00	4	
v Vijay Nagar, Jabalpur		BDL	BDL	BDL	BDL	
vi Grasim Kalayan Kendra, Nagda		22.1	20	23	21	
vii Vipra Niwas Pushpraj Colony, (Civil Lines)Satna		-	-			
viii BCI Labour Club, Nagda		18.0	19	20	18	
ix RO, Satna		BDL	BDL	4	BDL	
x Areara Colony, Bhopal					BDL	
xi Meta; Section, Dewas					11	
xi Vikas Nagar, Dewas					14	
xii Jayant Township , Singrauli					25	
xiii* NTPC Vidhyanagar					26	
xiv Waidhan					19	
xv Pt. Deendayal Nagar, Sagar					7	
xvi Dindayal Nagar, Gwalior					6	
xvii Maharaj Bada					6	
xviii Regional Office, Ujjain				10		
Maharashtra	i Vinoba Bhawan, Bandra/worli, Mumbai	7.7	8	8	9	
	ii Kalbadevi, Mumbai	8.0	6	7	9	
	iii Kopri Ward Office, Thane (E), Mumbai	8.1	7	6	11	
	iv Sahu Market Naupada, Thane, Mumbai	9.4	8	6	11	
	v Maskasath, Nagpur	6.3	4	BDL	4	
	vi NEERI, Nagpur	6.5	5	BDL	5	
	vii Institute of Engeeres , Nagpur	8.8	9	10	10	
	viii Govt. Poly College, Sadar, Nagpur	9.5	9	10	10	
	ix Administrative Bldg., Chanderpur	-	21	22		
	x Sub Regional Office, B. Nagar, Chanderpur	18.2	16		25	
	xi VIP Ind. Area, MIDC Satpura	-	-			
	xii RTO Colony Tank, Nasik	26.6	32	33	30	
	xiii Nashik Muni. Council Bldg.	29.6	35	39	38	

Table 4.1.4 (c) : Annual Mean Concentrations of Sulphur Dioxide (SO₂) in Ambient Air - Contd.

States/Union Territories	Station	($\mu\text{g}/\text{m}^3$)			
		2003	2004	2005	2006
	Residential Station				
	xiv Mandai/Swargate, Pune	33.9	30	23	26
	xv Poud Phata (Kothrud)/Nal Stop	35.8	31		
	xvi Chitalae Clinic, Solapur	19.8	18	18	15
	xvii Nalstop			24	24
	xviii Nagar Parishad			21	26
	xix SBES Colleague			10	5
	xx CADA Office			10	5
	xxi University campus , Shivaji Uni. Kolhapur			4	5
	xxii Ruikar Trust Dabholkar Corner			10	12
	xxiii Mahadwar Road, Near Mahalaxmi temple			7	8
	xxiv Airoli TTC, Navi Mumbai				18
	xxv MESB Power Station Taloja				13
	xxvi Nerul TTC				16
	xxvii Panvel Taloja				11
	xxviii Cjhalke Wadi, Lote				15
Nagaland					
	i Bank Colony, Dimapur	NA	-	BDL	BDL
	ii Hong-Kong Market, Dimapur	NA	69	BDL	BDL
Meghalaya					
	i Board Office Permisses, Motinagar	BDL	BDL	BDL	BDL
	ii State Tuberculosis Hospital	BDL	5	BDL	
	MUDA Complex Police Bazar				4
Mizoram					
	i Bawonglawn				BDL
	ii Khatla				BDL
	iii Laipuitlang				BDL
Orissa					
	i Nalco, Angul	BDL	BDL	4	5
	ii Municipality Office, Rourkela	4.9	4		
	iii RO, SOCB, Rourkela	BDL	BDL		
	iv Regional Office, Angul, RO	-	-		
	v RO , Rourkela	-	5	5	5
	vi Capital Police Station, Bhubneswar	-	BDL	BDL	BDL
	vii IDL Police out-post, sonaparbat, Roukela	4.5	-	5	5
	viii RO, Rayagada		BDL	BDL	BDL
	ix SPCB Building			BDL	BDL
	x IRC Village, Bhubneswar			BDL	BDL
	xi RO, Cuttak			BDL	BDL
	xii Roof Traffic Tower, Cuttak			BDL	BDL
	xiii Roof of Filter Plant PHD Off, Sambalpur			BDL	BDL
	xiv RO, Behrampur				BDL

Table 4.1.4 (c) : Annual Mean Concentrations of Sulphur Dioxide (SO₂) in Ambient Air - Contd.

($\mu\text{g}/\text{m}^3$)

States/Union Territories	Station	Annual Mean Concentrations (2003-2006)			
		2003	2004	2005	2006
Punjab	Residential Station				
	i Municipal Council Tubewell No. 27	10.7	11	11	11
	ii PPCB Building, Ludhiana	12.4	-		
	iii Jalandhar (Beat all Sports)	-	10	10	
	iv Bharat Nagar Chowk				15
	v Vishwakarma Office Building		24	22	16
	vi M/s Modi Oil & General Mills		13	16	11
	vii United Rolling Machine				11
	viii Punjab Alkalis & Chemicals			8	10
	ix NFL Guest House, Amritsar			5	10
	x A-1 Platters, Amritsar				12
xi AS School, Khana				14	
Rajasthan	i Town Hall, Udaipur	6.0	6	8	7
	ii Municipal Corporation Bldg., Kota	5.7	6	7	8
	iii Salnor Glass, Kota	-	6		
	iv Regional Office, Jodhpur	-			
	v Sojati Gate, Jodhpur	9.5	7	9	7
	vi RSPCB Office, Jaipur	BDL	4	5	5
	vii Ajmeri Gate, Jaipur	5.4	5	6	4
	viii Malviya Nagar, Jaipur	10.2	12.00		
	ix Tripolia Bazar, Jaipur	10.2	12.00		
	x Regional Office, Alwar	11.5	6	8	7
	xi RIICO Pump House, Alwar	-	-		
	xii PHED, Gandhi Nagar, Jaipur	-	-		
	xiii Barkhera, Kota	-	-		
	xiv Veterinary Hospital, Kota	-	-		
	xv D.I.C. Udaipur	-	-		
	xvi Regional Office, Udaipur	-	-		
	xvii Amabmata	4.6	5	5	7
	xviii Maha Mandir Police	9.0	6	8	7
	xix Sancire Glass, Kota	5.8	6		
	xx Office District Edu. Officer, Chandploe			6	5
	xxi Rajasthan SPCB Office			4	BDL
	xxii Shastri Nagar Police Thane			8	7
	xxiii Office of Housing Board			8	6
	xxiv KVK Bhorkhara			8	8
Tamil Nadu	i Distt. Collector Office, Coimbatore	9.5	8	7	11
	ii Sai baba Colony, Coimbatore	-	-		
	iii Madras Medical College, Chennai	6.6	5	7	7
	iv Zoological Survey of India	-	-		
	v MK Evening College Highway Bldg., Madurai	6.7	10	9	10
	vi Kumathur Chatram (E), Madurai	7.2	10	10	10
	vii Sowdeswari College, Salem	7.8	7	7	8
	viii AVM Building, Tutkorin	17.8	20	19	17
	ix Fishries College, Tuticorin	15.8	20	19	17
	x Chemical Research Centre, Tuticorin	-	-		
	xi Santhome, Chennai	-	-		
	xii NEERI CSIR Campus	6.1	4	7	6
	xiii Ponnnyarajapuram	8.9	8	7	10

**Table 4.1.4 (c) : Annual Mean Concentrations of Sulphur Dioxide (SO₂) in Ambient Air -
Contd.**

($\mu\text{g}/\text{m}^3$)

States/Union Territories	Station	Annual Mean Concentrations of Sulphur Dioxide (SO ₂) in Ambient Air			
		2003	2004	2005	2006
	Residential Station				
Uttaranchal	i Clock Tower, Dehradun	18.0	19	22	25
Uttar Pradesh	i Tajmahal, Agra (<i>Sensitive</i>)	-	-		
	ii Regional Office, Bodala, Agra	7.2	8		
	iii Indira Chowk, Gajroula	-	-	23.00	24
	iv Deputy Ka Porao, Kanpur	7.2	9	9	7
	v Agriculture University, Kanpur	-	-		
	vi Head Post Office, Kanpur	-	-		
	vii F & Training Centre, Kanpur	7.1			
	viii Kidwai Nagar, Kanpur	-	10	8	7
	ix Dabauli, Kanpur	-	9	8	
	x Kapoor Hotel, Hozratganj, Lucknow	17.6	15	13	10
	xi Mahanagar, Lucknow	17.7	14	12	10
	xii Aminabad, Lucknow	-	16	13	11
	xiii Aliganj garden, Lucknow	-	19	13	10
	xiv R. O. Jawahar Nagar, Varanasi	14.4	16	16	16
	xv Kotwali, Kanpur	-	-		
	xvi Jaipur House, Agra	-	-		
	xvii RO, Noida	-	28		
	xviii Tilak Nagar, Firozabad	-	19	21	18
	xix Raza ka Tal, Firozabad	-	21	20	18
	xx Vikas Nagar				4
	xxi Shivpur, Varanasi			17	15
	xxii RO, Noida		28	29	22
	xxiii Jail Chauraha, Firozabad				7
	xxiv Veerangna Nagar				7
West Bengal	i Bator, Howrah	4.2	6	9	6
	ii Lal Bazar, Dalhousie, Kolkata	18.0	10	11	11
	iii Kasba, Kolkata	15.6	8	6	9
	iv Calcutta CESE. Mandeville Garden (Gariohat)	-	-		
	v JD Park				6
	vi Baishabgate				5
	vii Salt Lake, Kolkata				6
	viii Minto Park				6
	ix Moulali				8
	x Ghuseri		26	26	12
	xi PCBL, Durgapur	-	4	4	5
Pondicherry	i Housing Board's Office	-	-		
	ii Agriculture Department	-	-		
	iii FRENCH, Institute	-	-		
	iv DSTE Office	18.9	21	12	8
	v Chamber of Commerce	17.2	22	14	7

**Table 4.1.4 (c) : Annual Mean Concentrations of Sulphur Dioxide (SO₂) in Ambient Air -
Contd.**

(µg/m³)

States/Union Territories	Station	Annual Mean Concentrations (µg/m ³)			
		2003	2004	2005	2006
Industrial city	Industrial Station				
Andhra Pradesh					
	i C.I.T.D., Balanagar, Hyderabad	4.2	4	5	6
	ii Nacharam, Hyderabad	8.5	8	5	4
	iii UPPAL, Hyderabad	BDL	4		5
	iv Industrial Estate, Marripalem, Vishakhapatnam	4.9	10	12	12
	Auto Nagar, Vijawada				6
	ii MPCB Sub Station, Birgaon, Raipur	-	-		
	iii M/S Wool Worth India Pvt. Ltd, Urla,	8.1	11	11	11
Chattisgarh					
	i Laghu Udyo Nigam I.A		24	26	
	ii M/s Wool worth (I) Ltd		11		
Delhi					
	i Shahzada Bagh, Delhi	6.9	10	8	9
	ii Shahadra, Delhi	11.4	10	9	10
	iii ESI Disp. Najafgarh Road	-	-		
	iv Maya Puri Industrial Area	13.4	12	14	13
Goa					
	i Vasco	BDL	BDL	4	BDL
	ii Mormugao	-	BDL	4	BDL
Gujarat					
	i Naroda GIDC	18.7	18	15	13
	ii Shardaben Hospital, Ahemdabad	11.6	-	12	11
	iii Rallis India Ltd., Ankleshwar	21.6	24	23	26
	iv C. E. T. P. Nandseri, Vadodara	26.5	20	24	26
	v Udhna	21.6	25		25
	vi Sardhara Industrial Corp. Rajkot	-	12	11	12
	vii GEB, GIDC, Vapi	26.8	-	27	25
	viii B. R. C. Udhna, Surat	-	-	22	
	ix G. E. B., GIDC, Surat	-	27		
Haryana					
	i Shivalic Global, Industries, Faridabad	9.5	10	11	12
	ii Ballarpur Industries, Yamuna Nagar	28.2	29	19	17
	iii Escorts Medical Centre, Faridabad	-	-		
Himachal Pradesh					
	i Gondhpur Industrial Area, Paonta Sahib	BDL	-	BDL	BDL
	ii Asstt. Commissioner Office Building, Sector 1,	BDL	BDL	8	
	iii Tekka Bench Bridge, Shimla	BDL	-		
	iv V. Farm Indl. Area, Sec. 1, Parwanoo	-	-		
	v P. S. Industrial Area, Paonta Sahib	-	BDL		4
	vi Indl. Area, Kala Amb				BDL
Jharkhand					
	i M.A.D.A. Jharia	16.1	14	18	20
	ii BIT Sindri	14.5	12	16	19
	iii Burmamines Water Tower, Jamshedpur	40.0	-		
	iv Near P-Station (FCI Main Hospital) Sindri	14.5	-		

Table 4.1.4 (c) : Annual Mean Concentrations of Sulphur Dioxide (SO₂) in Ambient Air - Contd.

($\mu\text{g}/\text{m}^3$)

States/Union Territories	Station		Annual Mean Concentrations of Sulphur Dioxide (SO ₂) in Ambient Air			
			2003	2004	2005	2006
Karnataka	Industrial Station					
	v	Bistupur Vehicle Testing Centre	46.8	44	42	39
	vi	Golmuri Vehicle Testing Centre	41.7	40	38	37
	vii	Sakchi water Tower, Jamshedpur	48.0	-		
	i	K. R. Circle, Visw Bldg, Mysore	-	-		
	ii	K. I. A. D. B. Bldg, Mysore	-	-		
	iii	Graphite India, Bangalore	18	9	9	23
	iv	AMCO Batteries, Bangalore	7.6	8		
	v	KHB Industrial Area	-	10	9	21
	vi	Lakkamanahalli Industrial Area	-	8	4	BDL
Kerala	vii	Peenya Industrial Area, Bangalore	-	9	9	18
	viii	Hebbal Industrial Area	11.2	11	20	17
	ix	Baikampady Indl. Area, Mangalore			13	8
	x	KSPCB Building, Belgam			4	BDL
	i	M/S Carhurandum Universal Ltd. Kanjakode	4.2	BDL		
	ii	Eloor. Cochin	23.4	32	31	26
	iii	Irumpanem. Cochin	BDL		6	6
	iv	FACT/Udyog Mandal	-	4		
	v	Hi-Tech Chakkai, Thiruvananthapuram	19.8	22	20	
	vi	Chingavanam, Kottayam	-	-		
Madhya Pradesh	vii	Mavoor, Kozhikode	-	-		
	viii	CRL Guest, House, Cochin	-	-		
	ix	Velli, Thiruvananthapuram	-	-		
	x	Vadavathoor	BDL	BDL	4	5
	xi	Nallalam	BDL	BDL	BDL	BDL
		SEPR Refractories India Ltd. Kanjikode, Palakkad			BDL	BDL
	i	Govindpura, Akun, Bhopal	5.9	6	5	4
	ii	M. P. Laghu Udyog, Indore	NA			
	iii	Chem. Div. Labour Club, Nagda	36.5	37	33	28
	iv	BCI Labour Club, Nagda	-	-		
Maharashtra	v	Industrial Area SD (office), Satna	BDL	5	4	4
	vi	Association of I. Pologround, Indore	-	14	10	8
	vii	EID Perry (I) Ltd. Dewas				19
	viii	District Office, Ujjain				18
	i	Thane (E) Balkum/Kolshet, Mumbai	-	-		
	ii	Parel, Mumbai	7.4	6	7	9
	iii	Hingna Road, Nagpur	9.4	4	10	10
	iv	MIDC Office, Hingma Rd. Nagpur	6.5	10	BDL	25
	v	M. I. D. C. Chanderpur	20.4	25	27	5
	vi	Bhosari, Pune	-	-		26
Maharashtra	vii	WIT Campus, Solapur	19.9	18	18	16
	viii	MIDC Phase-II, Dombivali	-	10	43	33
	ix	VIP Ind. Area, MIDC satpura, Nasik	25.7	32	35	34
	x	PCMC Chingawad, Pune	-	-		
	xi	Poud Phata (Kothrud, Pune)	-	-		
	xii	Balkum/Kolshe, Thane	11.2	9	7	12
	xiii	Bhosari, Pune	32.0	28	22	
	xiv	Ambernath Municipal Council Office			32	23
	xv	MIDE Taloja				25
	xvi	MPCB Centre lab, TTC				32
xvii	Police Chowki, Tarapur				14	
xviii	Sport Stadium, Tarapur				14	

Table 4.1.4 (c) : Annual Mean Concentrations of Sulphur Dioxide (SO₂) in Ambient Air - Contd.

States/Union Territories	Station	(µg/m ³)			
		2003	2004	2005	2006
Orissa	Industrial Station				
	xix Pump House, Lote				38
	i Industrial Estate, Angul	6	5	6.0	7
	ii IDL-Post (Sonaparbat), Rourkela	-	-		
	iii Jaykaypur, Rourkela	4.8	BDL	BDL	BDL
	iv TTPS Colony, Talcher	6.3	5	6	9
	v NALCO, Angul	-	-		
Punjab	vi Municipality Office, Rourkela	-	-		
	vii Coal Field				9
	i M. Steel, Gobindgarh	11.6	-		
	ii Chaudhary Diwan Chand Steel		-		
	iii Milk Plant, Ludhiana	10.4	15	20	16
	iv Rita Sewing Machines, Ludhiana	11.8	20	21	16
	v M/S Punjab Maltee, Jalandhar	10.0	-		12
	vi R. Steel, Gobindgarh	-	13	17	11
	vii M/s Zed Sporto, Jalandhar	-	-		
	viii Jalandhar (Inderson's Leather Pvt. Ltd.)	-	-		
	ix M/S Modi Oils, GT Road, Mandi, Gobindgarh	10.7	-		
	x Focal Point, Jalandhar	11.1	12	12	12
	xi Nagina Soap Factory				12
	xii Bhantinda Dist., Coop Milk Procedures Union Ltd				11
xiii Punjab Chemical and Crop Protection Ltd				11	
xiv Winsome Yarns Ltd, Derabessi				11	
Rajasthan	i RIICO Pump House, Alwar	10.2	6	7	6
	ii Gaurav Solvex, Alwar	12.4	7	8	7
	iii Jothwara Indl. Area, Jaipur	10.6	12		
	iv VKIA, Jaipur	11.9	11	11	16
	v Basni Indl. Area, Jodhpur	9.7	-		
	vi R. O. Anantpura, Kota	5.6	7	9	9
	vii D. I. C. Udaipur	-	-		
	viii Regional Office, Udaipur	9.8	9	10	8
	ix RICCO, Chittor	-	6		
	x RIICO Office, MIA			5	4
	xi RIICO, RO, Jodhpur			8	7
	xii DIC Office, Jodhpur			8	7
Tamil Nadu	i SIDCO Office, Coimbtore	11.9	10	9	13
	ii Kalhivakkam, Chennai	26.3	19	16	13
	iii Govt. Higher Secondary School, Chennai	23.0	-		
	iv Thiruvottiyur Municipal Office, Chennai	7.3	6	8	7
	v Fenner (I) Ltd., Madurai	18.8	19	17	13
	vi Municipal K. Mandapa, Chennai	-	-		
	vii Manali Police Station, Chennai	-	20	18	13
	viii Chemical Research Centre, Raja Agencies	-	23		
	ix Thiruvottiyur	22.5	19	16	12
	x Raja Agencies	-	-	19	18
Uttaranchal					
i Rai Pur Road, Dehradun	18.2	-			
Uttar Pradesh	i Nunhai, Agra	7.0	7		
	ii Anpara Colony, Anpara	18.7	18	18	21
	iii Renusagar Colony, Anpara	18.7	18	18	21
	iv Raunag Auto Ltd., Gajroula	39.3	36	33	32

Table 4.1.4 (c) : Annual Mean Concentrations of Sulphur Dioxide (SO₂) in Ambient Air - Concl'd

States/Union Territories	Station	($\mu\text{g}/\text{m}^3$)			
		2003	2004	2005	2006
West Bengal	Industrial Station				
	v M/S Associated Chem. Pvt., Kanpur	7.1	-		
	vi Lajpat Nagar, Kanpur		-		
	vii Talkatora, Luknow	19.7	16	14	11
	viii Bulandshahar Road Indl. Area, Ghaziabad	-	17	14	11
	ix Shahibabad Industrial Area, Ghaziabad	-	18	11	12
	x S. P. Engg. Works, Fazalganj, Kanpur	-	10	10	7
	xi Jajmau	-	9	8	7
	xii M/S GEE PEE Electroplating and Engg, works	NA	24	29	23
	xiii Centre for Development of Glass Industry	-	25	22	22
	xiv Indira Chowk, JP Nagar, Gajraula	NA	-		
	i Howrah Municipal Corp., Howrah	7.9	12	16	8
	ii Bandhaghat, Howrah	10.2	13	12	9
	iii Cossipore Police Station, Kolkata	18.1	10	11	11
iv WBIIDC, Haldia	5.0	7	8	9	
v Super Market, Haldia	6.8	7	7	8	
vi Dew India Ltd	-	13	13	11	
vii Kquality Hotel	-	6	5	6	
viii Asansol Municipal Corporation	-	6	6	5	
ix Behala Chowrasta				7	
x Dunlop Bridge				9	
Chandigarh					
i Modern Food Indl. Area	4.2	7	BDL	BDL	
Pondicherry					
i PIDC I. Estate, Metropolyam	25.3	24	21	14	

Source: Central Pollution Control Board

BDL : Below detection limit

TABLE 4.1.5 (a) : NUMBER OF MOTOR VEHICLES REGISTERED IN INDIA (TAXED AND TAX-EXEMPTED)
(As on 31st March, 2004) Provisional

Sl. No.	Year/State/UT	(Number)								
		Two-Wheelers	Auto-Rickshaws	Jeeps	Cars	Taxis	Buses	Goods Vehicles #	Miscellaneous ##	Total No. of Vehicles
1	2	3	4	5	6	7	8	9	10	11
1	1992-93	17183224	720364	512602	2550286	297941	363962	1752536	2124433	25505348
2	1993-94	18898701	771117	552038	2654232	362622	392148	1828117	2200903	27659878
3	1994-95	20831428	897383	614567	2875651	350331	423383	1938422	2769990	30294656
4	1995-96	23252287	1010344	671682	3150951	381011	448415	2030728	2966042	33911460
5	1996-97	25728982	1175283	727965	3527303	417013	484099	2343000	2927887	37331532
6	1997-98	28642351	1360151	824525	3829209	484374	537237 (b)	2535930	3154263	41368040
7	1998-99	31327607	1495200	837700	4201774	516449	539819 (b)	2553689	3403087	44875325
8	1999-2000	34117662	1583561	919067	4647969	575612	562308	2715005	3735620	48856804
9	2000-01	38556026	1777130	1126148	5297219	634357	633900	2948300	4017946	54991026
10	2001-02	41581058	1881085	1168868	5717456	688204	518658	3044976	4219191	58819496
11	2002-03	47525161	2114668	1196058	6597325	825638	727109	3487538	4559535	67033032
12	2003-04	51921973	2167324	1282113	7267174	901889	767593	3748484	4661385	72717935
2003-2004										
State:										
1	Andhra Pradesh	4543283	263325	58114	397738	81627	52047	210038	113748	5719920
2	Arunachal Pradesh	10605	1430	2260	2340	299	665	2878	667	21144
3	Assam	418780	29806	14266	106063	10368	10286	97506	39744	726819
4	Bihar	469751	9507	21726	27508	14000	14220	62812	131179	750703
5	Chhattisgarh	991022	7474	7302	43572	22005	2043	57099	85228	1215745
6	Goa	309488	9375	@	71516	8273	4868	28326	4274	36120
7	Gujarat	5162167	276908	110943	572414	40100	47014	386640	491304	7087490
8	Haryana	1526404	37841	87203	272895	14990	12134	205992	390451	2547910
9	Himachal Pradesh	152286	2783	12331	51918	14970	4916	43984	5625	288813
10	Jammu & Kashmir	253611	14255	10693	74187	10325	20139	42230	13156	438596
11	Jharkhand	937745	36257	23419	92171	21814	9539	62566	33447	1216958
12	Karnataka	2732674	190362	41024	418181	40839	66223	192351	294930	3976584
13	Kerala	1595808	294244	71656	378912	114245	97694	209496	30019	2792074
14	Madhya Pradesh	2876191	45146	36282	148030	61424	24626	107208	504621	3803528
15	Maharashtra	6216794	493142	262741	924006	102475	61701	499195	408679	8968733
16	Manipur	75333	2521	7872	8030	363	2973	7169	2064	106325
17	Meghalaya	21050	2934	9401	14595	5030	2827	14028	3517	73382
18	Mizoram	19501	1145	6765	4850	3864	840	4470	710	42145
19	Nagaland	36741	8291	21649	33273	4448	3712	50262	13541	171917
20	Orissa	1223573	21893	26527	62553	24614	16204	86039	63579	1524982
21	Punjab	2587181	36838	32797	267379	11982	18579	110566	463778	3529100
22	Rajasthan	2692175	64580	128056	203991	32868	55936	187153	469047	3833806
23	Sikkim	4682	-	2863	1870	4947	893	1972	9	17236
24	Tamil Nadu	6734205	154192	53987	731380	116373	96864	480549	207691	8575241
25	Tripura	44241	12162	-	8672	257	1596	6916	1703	75547
26	Uttaranchal	391251	6799	6452	42220	13385	5413	15461	35001	515982
27	Uttar Pradesh	4922047	78067	97821	391443	30193	41173	152163	747291	6460198
28	West Bengal	1581326	38289	@	494505	67918	0	241035	124890	2547963
Union Territory:										
1	A & N Islands	21743	784	1033	1693	436	459	1519	789	28456
2	Chandigarh	416917	-	@	157612	1173	1239	9130	36	586107
3	Dadra & Nagar Haveli	17881	500	429	9270	108	160	6677	90	35115
4	Daman & Diu	30351	890	295	12278	43	399	3725	319	48300
5	Delhi	2665750	20893	122283	1192389	24712	44445	151548	14655	4236675
6	Lakshadweep	3978	408	85	78	-	5	270	547	5371
7	Pondicherry	235438	4283	3838	47642	1421	4376	9511	6441	312950
INDIA		51921973	2167324	1282113	7267174	901889	767593	3748484	4661385	72717935

Source: Transport Research Wing, Ministry of Road Transport & Highways.

: Includes trucks three and four wheelers used for carrying goods.

: Includes tractors and trailers.

(b) : Includes Omini Buses

@ : Included in cars

TABLE 4.1.5 (b) : TOTAL REGISTERED MOTOR VEHICLES IN INDIA BY STATES/UTs
(as on 31st March, 2004)- Provisional

Contd.

(Number)

SI. No.	States/UT	Transport					Total Transport
		Multi-axied/Articulated Vehicles Trucks & Lorries	Light Motor Vehicles (Goods)	Buses	Taxis	Light Motor Vehicles (Passengers)	
1	2	3	4	5	6	7	8
1	Andhra Pradesh	143147	66891	15498	81627	263325	570488
2	Arunachal Pradesh*	2323	555	665	299	1430	5272
3	Assam	83189	14317	10286	10368	29806	147966
4	Bihar	30516	32296	10961	14000	9507	97280
5	Chhattisgarh	40413	16686	2043	22005	7474	88621
6	Goa ©	28326	\$	4868	8273	9375	50842
7	Gujarat	182304	204336	45669	40100	276908	749317
8	Haryana	147667	58325	9369	14990	37841	268192
9	Himachal Pradesh	41644	2340	4872	14970	2783	66609
10	Jammu & Kashmir	29958	12272	20139	10325	14255	86949
11	Jharkhand	62566	\$	9539	21814	36257	130176
12	Karnataka	100596	91755	29710	40839	190362	453262
13	Kerala	73315	136181	67206	114245	294244	685191
14	Madhya Pradesh	77178	30030	24626	61424	45146	238404
15	Maharashtra	243113	256082	49092	102475	493142	1143904
16	Manipur	5963	1206	2403	363	2521	12456
17	Meghalaya***	14028	\$	2827	5030	2934	24819
18	Mizoram	3215	1255	840	3864	1145	10319
19	Nagaland	41019	9243	3505	4448	8291	66506
20	Orissa	50496	35543	13966	24614	21893	146512
21	Punjab	75921	34645	18579	11982	36838	177965
22	Rajasthan	173552	13601	55936	32868	64580	340537
23	Sikkim	1619	353	406	4947	-	7325
24	Tamil Nadu	276235	204314	76907	116373	154192	828021
25	Tripura	6321	595	1596	257	12162	20931
26	Uttaranchal	9799	5662	4626	13385	6799	40271
27	Uttar Pradesh	94482	57681	26437	30193	78067	286860
28	West Bengal	241035	\$	41385 ^{>}	67918	38289	388627
Union Territory:							
1	A & N Islands**	1519	\$	459	436	784	3198
2	Chandigarh	1671	7459	1239	1173	-	11542
3	Dadra & Nagar Haveli	5487	1190	154	108	500	7439
4	Daman & Diu	1896	1829	361	43	890	5019
5	Delhi	75601	75947	36059	24712	20893	233212
6	Lakshadweep	-	270	-	-	408	678
7	Pondicherry	6588	2923	1831	1421	4283	17046
Total (P)		2372702	1375782	594059	901889	2167324	7411756

Source : Motor Transport Statistics of India, Transport Research Wing, Ministry of Road Transport & Highways

(c) : LMV (passengers) includes 6063 Motorcycles on hire also.

- Not indicated

\$: Included in Multi-Axled/Articulated Vehicles/Trucks & Lorries.

(P) : Total are provisional -representing summation of available data.

> : Includes maxicab

* : Data relates to 1996-97

** :Data relates to 2001-02

*** : Data relates to 2002-03

TABLE 4.1.5 (b) : TOTAL REGISTERED MOTOR VEHICLES IN INDIA BY STATES/UTs
(as on 31st March, 2004)- Provisional

Concluded

(Number)

Sl. No.	States/UT	Non-Transport								Grand Total (Transport +Non- Tpt.)
		Two Wheelers	Cars	Jeeps	Omni Buses	Tractors	Trailers	Others	Total Non-Tpt.	
1	2	9	10	11	12	13	14	15	16	17
1	Andhra Pradesh	4543283	397738	58114	36549	62363	46885	4500	5149432	5719920
2	Arunachal Pradesh*	10605	2340	2260	-	333	155	179	15872	21144
3	Assam	418780	106063	14266	-	10280	8740	20724	578853	726819
4	Bihar	469751	27508	21726	3259	77848	50403	2928	653423	750703
5	Chhattisgarh	991022	43572	7302	-	44321	38804	2103	1127124	1215745
6	Goa	309488	71516	@	-	470	-	3804	385278	436120
7	Gujarat	5162167	572414	110943	1345	275543	199603	16158	6338173	7087490
8	Haryana	1526404	272895	87203	2765	373373	-	17078	2279718	2547910
9	Himachal Pradesh	152286	51918	12331	44	3898	62	1665	222204	288813
10	Jammu & Kashmir	253611	74187	10693	-	10969	561	1626	351647	438596
11	Jharkhand	937745	92171	23419	-	15136	12512	5799	1086782	1216958
12	Karnataka	2732674	418181	41024	36513	119340	120185	55405	3523322	3976584
13	Kerala	1595808	378912	71656	30488	9004	1913	19102	2106883	2792074
14	Madhya Pradesh	2876191	148030	36282	-	328380	164933	11308	3565124	3803528
15	Maharashtra	6216794	924006	262741	12609	201940	190628	16111	7824829	8968733
16	Manipur	75333	8030	7872	570	1263	580	221	93869	106325
17	Meghalaya ***	21050	14595	9401	-	441	2304	772	48563	73382
18	Mizoram	19501	4850	6765	-	209	254	247	31826	42145
19	Nagaland	36741	33273	21649	207	1827	696	11018	105411	171917
20	Orissa	1223573	62553	26527	2238	30592	24181	8806	1378470	1524982
21	Punjab	2587181	267379	32797	-	459014	410	4354	3351135	3529100
22	Rajasthan	2692175	203991	128056	-	407523	57013	4511	3493269	3833806
23	Sikkim	4682	1870	2863	487	9	-	-	9911	17236
24	Tamil Nadu	6734205	731380	53987	19957	90886	39910	76895	7747220	8575241
25	Tripura	44241	8672	-	-	147	1015	541	54616	75547
26	Uttaranchal	391251	42220	6452	787	31981	898	2122	475711	515982
27	Uttar Pradesh	4922047	391443	97821	14736	718082	10021	19188	6173338	6460198
28	West Bengal	1581326	494505	@	-	48341	#	35164	2159336	2547963
Union Territory:										
1	A & N Islands	21743	1693	1033	-	261	67	461	25258	28456
2	Chandigarh	416917	157612	@	-	36	-	-	574565	586107
3	Dadra & Nagar Haveli	17881	9270	429	6	44	46	-	27676	35115
4	Daman & Diu	30351	12278	295	38	165	124	30	43281	48300
5	Delhi	2665750	1192389	122283	8386	4851	99	9705	4003463	4236675
6	Lakshadweep	3978	78	85	5	44	-	503	4693	5371
7	Pondicherry	235438	47642	3838	2545	318	1582	4541	295904	312950
Total (P)		51921973	7267174	1282113	173534	3329232	974584	357569	65306179	72717935

Source : Motor Transport Statistics of India, Transport Research Wing, Ministry of Road Transport & Highways

(c) LMV (passengers) includes 6063 Motorcycles on hire also.

- Not indicated

\$: Included in Multi-axled/Articulated Vehicles/Trucks & Lorries.

(P) : Total are provisional -representing summation of available d

> : Includes maxicab

* : Data relates to 1996-97

** : Data relates to 2001-02

*** : Data relates to 2002-03

@ Included in car

TABLE 4.1.5 (c) : TOTAL REGISTERED MOTOR VEHICLES IN INDIA BY STATES/UTs
(as on 31st March, 2003)- Revised

Contd.

(Number)

Sl. No.	States/UT	Transport					Total Transport
		Multi-Axled/Articulated Vehicles Trucks & Lorries	Light Motor Vehicles (Goods)	Buses	Taxies	Light Motor Vehicles (Passengers)	
1	2	3	4	5	6	7	8
1	Andhra Pradesh	124691	58198	14130	66200	245935	509154
2	Arunachal Pradesh*	2323	555	665	299	1430	5272
3	Assam	79743	12651	9702	9646	24886	136628
4	Bihar	48212	16707	15493	21149	66316	167877
5	Chhattisgarh	36785	14726	1900	18979	6593	78983
6	Goa ©	26586	\$	4504	7720	8975	47785
7	Gujarat	174062	188510	44250	36917	275740	719479
8	Haryana	126109	49160	8091	12752	33258	229370
9	Himachal Pradesh	37880	1160	4672	13909	2611	60232
10	Jammu & Kashmir	28099	11239	19253	8918	13808	81317
11	Jharkhand	60601	\$	9098	20256	33261	123216
12	Karnataka	96144	87365	29239	36939	187262	436949
13	Kerala	70668	122393	62075	108503	276244	639883
14	Madhya Pradesh	72267	27421	23895	54949	43055	221587
15	Maharashtra	228198	228157	47351	94920	463550	1062176
16	Manipur	5812	1017	2358	357	2395	11939
17	Meghalaya***	14028	\$	2827	5030	2934	24819
18	Mizoram	2742	1206	794	3343	858	8943
19	Nagaland	39251	8891	3239	4228	7508	63117
20	Orissa	52301	25391	14734	14870	19667	126963
21	Punjab	73741	31767	17601	11180	34442	168731
22	Rajasthan	155932	10644	53036	27989	59125	306726
23	Sikkim	1486	228	255	4064	-	6033
24	Tamil Nadu	263221	195069	71111	110080	147087	786568
25	Tripura	5931	446	1498	241	10785	18901
26	Uttaranchal	8584	4392	4265	12486	6222	35949
27	Uttar Pradesh	92863	50433	25357	29522	74692	272867
28	West Bengal	239166	\$	35226	63390	42362	380144
	Union Territory:						0
1	A & N Islands**	1519	\$	459	436	784	3198
2	Chandigarh	1637	8866	1309	1173	-	12985
3	Dadra & Nagar Haveli	5200	1088	138	102	470	6998
4	Daman & Diu	1791	1619	324	42	782	4558
5	Delhi	75380	70401	34795	23145	15567	219288
6	Lakshadweep	-	224	-	-	402	626
7	Pondicherry	6799	1961	1837	1682	4775	17054
	Total	2259752	1231885	565481	825416	2113781	6996315

TABLE 4.1.5 (c) : TOTAL REGISTERED MOTOR VEHICLES IN INDIA BY STATES/UTs

(as on 31st March, 2003)- Revised

...Concluded

Sl. No.	States/UT	Non-Transport								Grand Total (Transport + Non- Transport)
		Two Wheelers	Cars	Jeeps	Omni Buses	Tractors	Trailers	Others	Total Non- Tpt.	
1	2	9	10	11	12	13	14	15	16	17
1	Andhra Pradesh	3985049	312096	54631	32394	60325	44489	3485	4492469	5001623
2	Arunachal Pradesh*	10605	2340	2260	-	333	155	179	15872	21144
3	Assam	372825	95063	13861	-	9801	8572	19913	520035	656663
4	Bihar	709213	61832	@	@	111200	66497	4779	953521	1121398
5	Chhattisgarh	881248	34365	7127	-	38598	33861	1869	997068	1076051
6	Goa ©	280787	64735	@	-	451	-	3688	349661	397446
7	Gujarat	4702529	504801	104263	1269	267113	194501	14415	5788891	6508370
8	Haryana	1356957	238816	69692	-	358983	-	24671	2049119	2278489
9	Himachal Pradesh	149286	34472	8777	23	11763	483	3656	208460	268692
10	Jammu & Kashmir	230577	64307	10579	-	10149	547	1006	317165	398482
11	Jharkhand	844973	82907	21756	-	12381	10328	5555	977900	1101116
12	Karnataka	2527674	405621	40944	36453	119040	119905	51815	3301452	3738401
13	Kerala	1449154	336540	70864	26793	8702	1823	18412	1912288	2552171
14	Madhya Pradesh	2600989	134045	35111	-	304760	151529	10967	3237401	3458988
15	Maharashtra	5587662	831261	244025	12599	194902	186100	15112	7071661	8133837
16	Manipur	68975	6560	7474	450	1186	549	213	85407	97346
17	Meghalaya***	21050	14595	9401	-	441	2304	772	48563	73382
18	Mizoram	16941	4146	6622	-	-	-	552	28261	37204
19	Nagaland	33806	30675	21174	187	1792	666	10514	98814	161931
20	Orissa	1074873	59296	28986	1205	29954	25176	12133	1231623	1358586
21	Punjab	2414928	239210	29791	-	450552	404	3988	3138873	3307604
22	Rajasthan	2429892	179969	120685	-	389489	55865	4053	3179953	3486679
23	Sikkim	4441	1176	2473	487	4	-	-	8581	14614
24	Tamil Nadu	6260093	690271	53142	19957	88117	38946	67888	7218414	8004982
25	Tripura	37557	7448	-	-	145	1055	574	46779	65680
26	Uttaranchal	346784	34877	6238	388	30563	708	1947	421505	457454
27	Uttar Pradesh	4488426	326604	86035	15637	709797	12367	16662	5655528	5928395
28	West Bengal	1429818	482429	@	-	43803	#	30222	1986272	2366416
	Union Territory:								0	0
1	A & N Islands**	21743	1693	1033	-	261	67	461	25258	28456
2	Chandigarh	399797	148959	-	-	34	-	-	548790	561775
3	Dadra & Nagar Haveli	15435	8356	410	6	32	17	-	24256	31254
4	Daman & Diu	28031	11356	156	4	146	104	30	39827	44385
5	Delhi	2517788	1096148	118545	4798	4808	99	9396	3751582	3970870
6	Lakshadweep	3656	17	83	5	40	-	497	4298	4924
7	Pondicherry	215927	47180	3919	2560	2239	1619	1978	275422	292476
	Total	47519489	6594166	1180057	155215	3261904	958736	341402	60010969	67007284

* : Data relates to 1996-97

** : Data relates to 2001-02

@' : Included in cars

: Included in tractors

-' : Not indicated

P : Totals are Provisional -representing summation of available data.

TABLE 4.1.6 (a) : TOTAL REGISTERED MOTOR VEHICLES IN METROPOLITAN CITIES OF INDIA
(as on 31st March, 2004)- Provisional Contd.

Sl. No.	Name of City	Transport					Total Transport	(Number)
		Multi-axied/Articulated Vehicles Trucks & Lorries	Light Motor Vehicles (Goods)	Buses	Taxies	Light Motor Vehicles (Passengers-Auto)		
1	2	3	4	5	6	7	8	
1	Ahmedabad	8870	10724	15291	4950	44290	84125	
2	Bangalore	30720	23772	12890	16589	75360	159331	
3	Bhopal	4424	4571	2664	7228	9877	28764	
4	Chennai	76820	56312	27457	38668	53804	253061	
6	Coimbatore	11649	6586	3119	4086	6509	31949	
7	Delhi	75601	75947	36059	24712	20893	233212	
8	Hyderabad	23600	23034	2703	5049	73738	128124	
9	Indore	27655	7367	4658	13719	10255	63654	
10	Jaipur	31698	3286	15787	8280	9832	68883	
11	Kanpur*	8253	3077	977	445	2816	15568	
5	Cochin *	5786	9826	12597	10173	8327	46709	
12	Kolkata	68331	\$	13648	33490	15403	130872	
13	Lucknow*	7557	5435	3359	5364	8324	30039	
14	Ludhiana	13918	12923	1537	2097	9046	39521	
15	Madurai	6340	3061	2469	4640	7294	23804	
16	Mumbai	16753	35490	11662	56459	102224	222588	
17	Nagpur	9790	9953	2793	750	10567	33853	
18	Patna*	15595	\$	4096	2998	32370	55059	
19	Pune	19833	16584	7704	4379	45308	93808	
20	Surat	3397	7129	991	1022	33767	46306	
21	Vadodara	6550	11325	3380	5541	27812	54608	
22	Varanasi*	5817	2266	1081	688	4972	14824	
23	Visakhapatnam	7815	4501	893	4123	18707	36039	
Total (P)		486772	333169	187815	255450	631495	1894701	

Source : Motor Transport Statistics of India 2001-02, Transport Research Wing, Ministry of Road Transport & Highways

* : Data relates to 1997-98

(-) : Nil

\$: Data relates to 1998-99

(a) : Included in cars

(b) : Included in tractors

*** : Data relates to 2000-01

TABLE 4.1.6 (a) : TOTAL REGISTERED MOTOR VEHICLES IN METROPOLITAN CITIES OF INDIA-Concl'd.**(as on 31st March, 2004) Provisional****(Number)**

Sl. No.	Name of City	Non-Transport								Grand Total (Transport +Non Transport)
		Two Wheelers	Cars	Jeeps	Omni Buses	Tractors	Trailers	Others	Total Non-Transport	
1	2	9	10	11	12	13	14	15	16	17
1	Ahmedabad	840285	137636	10969	-	109	172	1917	991088	1075213
2	Bangalore	1416317	257988	7161	17071	8877	7398	16549	1731361	1890692
3	Bhopal	317675	27886	3080	-	9756	3755	663	362815	391579
4	Chennai	135 3177	341425	12114	8769	2317	11607	32306	1761715	2014776
6	Coimbatore	522441	60923	4295	303	5974	83	4126	598145	630094
7	Delhi	2665750	1192389	122283	8386	4851	99	9705	4003463	4236675
8	Hyderabad	1010536	167689	29287	10464	348	-	9252	1227576	1355700
9	Indore	502691	54023	4324	-	10903	7507	1669	581117	644771
10	Jaipur	617195	86332	25136	-	22655	2861	653	754832	823715
11	Kanpur*	352698	44094	4397	2040	4238	425	1192	409084	424652
5	Cochin *	81783	27630	5745	3817	403	159	235	119772	166481
12	Kolkata	391051	327337	(a)	-	4821	(b)	21075	744284	875156
13	Lucknow*	491012	66881	11185	-	11737	911	3029	584755	614794
14	Ludhiana	595768	85155	3852	-	45628	311	549	731263	770784
15	Madurai	252404	18825	1214	77	3841	1262	2612	280235	304039
16	Mumbai	584180	358742	21580	3936	1403	991	5996	976828	1199416
17	Nagpur	458353	32872	9429	497	3703	3841	774	509469	543322
18	Patna*	227572	36651	-	-	8143	6609	1589	280564	335623
19	Pune	561955	83357	11529	616	1142	1103	1392	661094	754902
20	Surat	582893	57603	4233	-	263	285	535	645812	692118
21	Vadodara	463268	55011	6189	-	1603	3275	2484	531830	586438
22	Varanasi	304724	20694	2699	-	20705	1303	964	351089	365913
23	Visakhapatnam	340096	27731	3077	1204	2651	78	815	375652	411691
Total (P)		14933824	3568874	303778	57180	176071	54035	120081	19213843	21108544

Source : Motor Transport Statistics of India 2001-02, Transport Research Wing, Ministry of Road Transport & Highways

* : Data relates as on 31-3-2003

(a) : Included in cars

(b) : Included in tractors

\$: included in Multiaxied/Articulated vehicles

N. A. : Not Available

With the increasing urbanization and industrialization, the transport demand has also increased consequently. Out of the total number of more than 7 crores registered vehicles in India, including both transport and non-transport, more than 2 crores are concentrated in the 23 metropolitan cities. This has increased the vehicular pollution in manifold. The different factors of the pollution are the types of engines used, the age of the vehicles, poor road conditions and congested traffic. The principal vehicular pollutants are Carbon Monoxide, Oxides of Nitrogen, Hydrocarbons, suspended and particulate matters, a varying amount of Sulphur Dioxide depending on the Sulphur content of the fuel and lead compounds.

**TABLE 4.1.6 (b) : TOTAL REGISTERED MOTOR VEHICLES IN METROPOLITAN CITIES OF INDIA
(as on 31st March, 2003) Contd.**

Sl. No.	Name of City	Transport					Total Transport
		Multi-axied/ Articulated Vehicles Trucks & Lorries	Light Motor Vehicles (Goods)	Buses	Taxis	Light Motor Vehicles (Passengers- Auto)	
1	2	3	4	5	6	7	8
1	Ahmedabad	8809	10251	15016	4845	42354	81275
2	Bangalore	28482	21372	12330	16250	74160	152594
3	Bhopal	4241	4109	2637	6107	9566	26660
4	Chennai	75007	53416	26057	36835	51065	242380
6	Coimbatore	11290	6415	3018	3786	6405	30914
7	Delhi	75380	70401	34795	23145	15567	219288
8	Hyderabad	22505	21983	2618	4817	71988	123911
9	Indore	25212	6936	4231	12191	10186	58756
10	Jaipur	29176	2416	15424	7168	9068	63252
11	Kanpur*	8253	3077	977	445	2816	15568
5	Cochin *	5786	9826	12597	10173	8327	46709
12	Kolkata	67491	\$	10112	35669	15074	128346
13	Lucknow*	7557	5435	3359	5364	8324	30039
14	Ludhiana	13670	11916	1453	2097	8206	37342
15	Madurai	6048	2859	2208	3603	7090	21808
16	Mumbai	18405	37725	13148	54809	98527	222614
17	Nagpur	8899	9084	2746	711	10186	31626
18	Patna*	15595	\$	4096	2998	32370	55059
19	Pune	19639	15206	7597	3896	44960	91298
20	Surat	2982	6175	839	958	30138	41092
21	Vadodara	6438	10985	2771	5026	26252	51472
22	Varanasi	5817	2266	1081	688	4972	14824
23	Visakhapatnam	7471	3671	834	3939	18191	34106
Total (P)		474153	315524	179944	245520	605792	1820933

Source : Motor Transport Statistics of India 2001-02, Transport Research Wing, Ministry of Road Transport & Highways

* : Data relates as on 31-3-2003

** : Data relates to 1996-97

\$: Included in multiaxied/articulated vehicles

TABLE 4.1.6 (b) : TOTAL REGISTERED MOTOR VEHICLES IN METROPOLITAN CITIES OF INDIA (as on 31st March, 2003) Concluded

Sl. No.	Name of City	Non-Transport							(Number)	
		Two Wheelers	Cars	Jeeps	Omni Buses	Tractors	Trailers	Others	Total Non-Transport	Grand Total (Transport +Non Transport)
1	2	9	10	11	12	13	14	15	16	17
1	Ahmedabad	758412	125869	10113	-	109	172	1784	896459	977734
2	Bangalore	1325317	237988	7081	16471	8847	7383	15249	1618336	1770930
3	Bhopal	292522	24916	3044	-	9512	3548	651	334193	360853
4	Chennai	1265443	320641	12097	8769	2305	11597	31587	1652439	1894819
6	Coimbatore	477312	56379	4213	303	5868	83	2884	547042	577956
7	Delhi	2517788	1096148	118545	4798	4808	99	9396	3751582	3970870
8	Hyderabad	992415	162489	28466	10190	281	-	786	1194627	1318538
9	Indore	460131	49223	4305	-	10837	7443	1658	533597	592353
10	Jaipur	564419	77121	22621	-	21939	2745	548	689393	752645
11	Kanpur*	352698	44094	4397	2040	4238	425	1192	409084	424652
5	Cochin *	81783	27630	5745	3817	403	159	235	119772	166481
12	Kolkata	374409	312911	(a)	-	4821	(b)	21043	713184	841530
13	Lucknow*	491012	66881	11185	-	11737	911	3029	584755	614794
14	Ludhiana	562995	77687	3472	-	45333	311	524	690322	727664
15	Madurai	233171	18042	1200	77	3732	1194	2163	259579	281387
16	Mumbai	527108	341774	21081	3950	1392	1065	4578	900948	1123562
17	Nagpur	424379	29243	8957	497	3555	3780	543	470954	502580
18	Patna*	227572	36651	-	-	8143	6609	1589	280564	335623
19	Pune	517137	73520	11426	613	1115	1045	839	605695	696993
20	Surat	535765	51675	3685	-	145	209	469	591948	633040
21	Vadodara	429862	50832	6152	-	1582	3256	2468	494152	545624
22	Varanasi	304724	20694	2699	-	20705	1303	964	351089	365913
23	Visakhapatnam	326295	26665	2225	1185	2139	52	624	359185	393291
Total (P)		14042669	3329073	292709	52710	173546	53389	104803	18048899	19869832

Source : Motor Transport Statistics of India 2001-02, Transport Research Wing, Ministry of Road Transport - Not indicated (a) : Included in cars

* : Data relates as \$: Included in Multiaxled/Articulated vehicles

(b) : Included in tractors

** : Data relates to P : Provisional representing summation of available data.

TABLE 4.1.7 : WORKING OF STATE TRANSPORT UNDERTAKINGS

(As on 31st March 2005)

Sl. No.	Year/State/UT	Fleet Strength (Buses) (no.)	Vehicles in Bus Scheduled Service (no.)	Passenger Kilometres Performed (Mill km.)	Gross Revenue Receipts (Rs. Mill)	Current Expenditure (Total Operating Cost) (Rs. Mill)	Net Revenue (Rs. Mill)
1	2	3	4	5	6	7	8
	1990-91	100182	85481	376603	5094	57103	-616
	1996-97	88479	78896	381636	6325	7357	-1032
	1997-98	101514	91916	406793	8311	9420	-1109
	1998-99	105336	95092	424314	9026	10807	-1781
	1999-2000	115034	103392	460882	11027	13039	-2012
	2000-01	114970	104629	455305	15326	17272	-1946
	2001-02	114689	103328	441456	16041	18233	-2192
	2002-03	114875	99749*	428034	16618	18143	-1525
	2003-04	111369	103707*	448883	18112	19582	-1470
	2004-05	102526	95111	425490	14346	12078	2268
	2004-05 State:						
1	Andhra Pradesh	19208	19105	76255	.	.	.
2	Arunachal Pradesh	.	.	.	.	.	.
3	Assam	.	.	.	.	.	.
4	Bihar	637	495	1261	55	54	3
5	Goa	399	327	964	48	44	4
6	Gujarat	9023	7484	28291	1260	1199	61
7	Haryana	3255	3141	14663	644	468	176
8	Himachal Pradesh	1711	1664	6426	229	231	-2
9	Jammu and Kashmir	.	.	.	.	.	.
10	Karnataka	9379	9054	39889	1498	957	541
11	Kerala	.	.	.	.	.	.
12	Madhya Pradesh	.	.	.	.	.	.
13	Maharashtra	20698	19438	65652	3884	3162	722
14	Manipur	.	.	.	.	.	.
15	Meghalaya	55	28	19	1	10	-9
16	Mizoram	.	.	.	.	.	.
17	Nagaland	421	219	.	7	14	-8
18	Orissa	258	228	830	34	26	9
19	Punjab	1712	1444	4025	372	322	50
20	Rajasthan	4592	4409	20376	772	573	199
21	Sikkim	.	.	.	.	.	.
22	Tamil Nadu	18869	17426	129399	4094	3467	628
23	Tripura	96	61	101	4	11	-7
24	Uttar Pradesh	6715	6448	23289	918	695	223
25	West Bengal	1914	1130	3230	107	230	-123
	Union Territory:						
26	Delhi	3584	3010	10819	418	614	-195

Source: Central Institute of Road Transport

Table 4.1.8 : Ambient Air Quality in Major cities

(µg/m3)

Sulphur dioxide (SO ₂)										
City	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Ahmedabad	32.0	25.0	15.1	-	12.2	8.4	10	12.3	16	15.7
Banglore	-	20.7	27.9	20.3	38.2	20.7	20	13.4	12	8.5
Chennai	21.7	8.1	15.9	12.6	11.9	12.5	17	19.9	15	12.2
Delhi	23.5	17.3	16.3	15.4	17.5	15.2	13	11.3	10	9.89
Hyderabad	17.2	16.8	16.4	11.8	14	12.4	10	7.27	6	5.63
Kolkata	35.7	21.3	0	34.3	44.5	17.4	18	11.4	17	9.33
Mumbai	31.1	18	25.1	11.5	14.9	12.1	16	9.07	8	6.67

Table 4.1.8 : Ambient Air Quality in Major cities

(µg/m3)

Oxides of Nitrogen (NO _x)										
City	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Ahmedabad	18.8	14.8	20	-	33	28.6	39	31.8	25	24.3
Banglore	-	28	20.4	25	27.1	40.2	23	25.5	35	51.8
Chennai	17.5	9	13	16.7	10.7	14.4	18	18.4	26	16.8
Delhi	47.2	39.7	34	33.9	35.7	39.9	37	37.3	42	46.1
Hyderabad	37.8	25	30.7	30.8	24.3	25.2	31	25.5	26	30.3
Kolkata	29.9	29.3	0	32	30.5	34.8	74	81.7	71	59.7
Mumbai	64.2	35.3	34.3	19.5	29.6	25.5	23	17.4	21	18.3

Table 4.1.8 : Ambient Air Quality in Major cities

(µg/m3)

Suspended Particulate Matter (SPM)										
City	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Ahmedabad	251	254	235	-	351	393	343	281	256	244
Banglore	-	176	187	153	146	153	148	149	163	153
Chennai	127	115	107	127	88	92	98	132	155	136
Delhi	411	402	343	379	388	381	346	427	355	374
Hyderabad	178	177	144	213	209	163	157	161	164	196
Kolkata	354	498	0	279	308	315	251	256	251	266
Mumbai	210	213	298	187	221	252	231	225	224	247

Table 4.1.8: Ambient Air Quality in Major cities

(µg/m3)

Respirable Suspended Particulate Matter (RSPM)						
City	1999	2000	2001	2002	2003	2004
Ahmedabad	161	237	198	169	154	152
Banglore	0	89.7	68	64.3	76	69
Chennai	71.7	65	77.6	74.8	86	60
Delhi	172	155	146	158	151	149
Hyderabad	127	98	68.8	71	64	71
Kolkata	140	145	117	128	121	134
Mumbai	115	107	67.2	68.7	70	78

SPM : Suspended particulate matter;

RSPM : Respirable suspended particulate matter

SO₂ : Sulphur dioxide

Nox : Oxides of nitrogen

**TABLE 4.1.9 : PHASED TIGHTENING OF EXHAUST EMISSION STANDARDS
FOR INDIAN AUTOMOBILES**

Sl. No.	Category	1991	1996	2000 (Euro II)	2005 (Euro III)
1	2	3	4	5	6
1	Petrol Vehicles : (in grams/km)				
	I. Two wheelers				
	(a) CO	12-30	4.5	2.0	-
	(b) HC	8-12	-	-	-
	(c) (HC+NO _x)	-	3.6	2.0	-
	II. Three Wheelers				
	(a) CO	12-30	6.75	4.0	-
	(b) HC	8-12	-	-	-
	(c) (HC+NO _x)	-	5.40	2.0	-
	III. Cars with CC :				
	(a) CO	-	4.34-6.20	2.72	2.2
	(b) HC	-	-	-	-
	(c) (HC+NO _x)	-	1.5-2.18	0.97	0.5
	IV. Cars without CC :				
	(a) CO	14.3-27.1	8.68-12.4	2.72	2.2
	(b) HC	2.0-2.9	-	-	-
	(c) (HC+NO _x)	-	3.00-4.36	0.97	0.5
2	Diesel Vehicles :				
	A : Gross Vehicles Weight > 3.5 ton (Heavy Duty Vehicles)-in grams/kWh				
	(a) CO	14.0	11.2	4.5	4
	(b) HC	3.5	2.4	1.1	1.1
	(c) NO _x	18.0	14.4	8.0	7
	(d) PM > 85 KW/g/KWh	-	-	0.36	0.15
	(e) PM < 85 KW/g/KWh	-	-	0.61	0.15
	B : Gross Vehicles Weight < 3.5 ton (Light duty Vehicles)*-in grams/km				
	(a) CO	14.3-27.1	5.0-9.0	2.72-6.90	1.06
	(b) (HC+NO _x)	2.7-6.9	2.0-4.0	0.97-1.70	0.71
	(c) NO _x	-	-	-	0.566
	(d) PM	-	-	0.14-0.25	0.080

Source : The Energy Resources Institute.

CO : Carbon Monoxide

CC : Catalytic Converter

HC : Hydrocarbon

PM : Particulate matter

NO_x : Oxides of Nitrogen

* : The test cycle is as per 13 mode cycle or a chasis dynamometer.

Euro I w.e.f. 1-6-99 and Euro II w.e.f. 1-4-2000 for private (non-commercial) vehicles in NCR.

TABLE 4.1.10 (a) : PRODUCTION OF OZONE DEPLETING SUBSTANCES IN INDIA*(MT)*

SI. No.	ODS	1998	1999	2000	2001	2002	2003	2004
1	2	3	4	5	6	7	8	9
1	CFC-11	6291.0	6057.0	5634.0	4514.0	3689.0	2609.0	2429.0
2	CFC-12	13721.0	16442.0	14777.0	14164.0	13167.0	12373.0	10611.0
3	CFC-113	--	38.0	5.0	14.0	35.0	32.0	30.0
4	H-1211	--	-	-	-	-	-	-
5	H-1301	--	-	-	-	-	-	-
6	CTC	19225.0	20138.0	17509.0	16459.0	18957.0	18239.0	16631.0
7	MCF	11426	-	-	-	-	-	-
8	HCFC-22		15412	14061	14868	14606	19216	25592.0
9	MBr	-	-	107	85	37914.0	-	-
Total		50663.0	58087.0	51986.0	50019.0	50454.0	52469.0	55293.0

Source : Ozone cell, Ministry of Environment and Forests
 ODS: Ozone Depleting Substances

TABLE 4.1.10(b) TOTAL CONSUMPTION OF OZONE DEPLETING SUBSTANCES*(MT)*

SI. No.	ODS	2000	2001	2002	2003	2004
1	2	3	4	5	6	7
1	CFC-11	3002.0	2196	1680.0	829	426
2	CFC-12	2612.0	2315	2210.0	1777	1808
	CFC-113	-	5	29.0	4	10
3	CTC	11043.0	8471	9510.0	9798	6781
4	HCF-22	3583.0	2973	3207.0	3648	7228
5	HCF-123	20.0	25	25.0	0	60
6	HCF-141b	483.0	359	1401.0	952	1357
7	MBr	-	27	9510.0	-	-
Total		20743	16371	27572.0	17008	17670

Source : Ozone cell, Ministry of Environment and Forests
 ODS: Ozone Depleting Substances

TABLE 4.2.1 : INSTALLED CAPACITY OF POWER UTILITIES on 31st March, 2007*(Mega Watts)*

Sl. No.	State/Union Territory	Hydro	Thermal			Wind	Nuclear	Total
			Steam	Diesel	Gas			
1	2	3	4	5	6	7	8	9
I	Northern Region	13000.38	15914.50	14.99	3323.19	178.50	2230.20	36359.43
1	Haryana	1393.44	1102.50	3.92	532.04	0.00	76.16	3989.93
2	Himachal Pradesh	1636.94	0.00	0.13	60.89	0.00	14.08	1865.97
3	Jammu & Kashmir	1118.91	0.00	8.94	302.09	0.00	68.00	1709.21
4	Punjab	3025.84	2130.00	0.00	259.72	0.00	151.04	6248.16
5	Rajasthan	1477.40	2420.00	0.00	441.54	178.50	469.00	5967.88
6	Uttar Pradesh	1619.14	4102.00	0.00	541.16	0.00	203.72	9207.23
7	Uttaranchal	1694.41	0.00	0.00	68.25	0.00	16.28	2054.81
8	Chandigarh	47.19	0.00	2.00	15.07	0.00	4.84	95.61
9	Delhi	585.13	320.01	0.00	816.70	0.00	47.08	3689.31
10	Central sector	5498.00	5840.00	0.00	2311.99	0.00	1180.00	16039.99
11	Private sector	790.20		0.00	0.00		0.00	1355.70
II	Western region	6918.83	20691.50	17.48	5820.72	632.46	1840.00	38913.29
1	Gujarat	777.00	4819.00	17.48	2326.12	202.19	825.00	10490.79
2	Madhya Pradesh	2738.17	2157.50	0.00	252.91	22.65	92.88	6648.32
3	Chhatisgharh	125.00	1280.00	0.00	0.00	0.00	0.00	1897.55
4	Maharashtra	3278.66	8075.00	0.00	2969.28	407.40	852.06	18440.65
5	Goa	0.00	0.00	0.00	48.00	0.22	0.00	317.08
6	Dadra & Nagar Haveli	0.00	0.00	0.00	193.67	0.00	66.10	1060.12
7	Daman & Diu	0.00	0.00	0.00	4.13	0.00	1.98	17.15
8	Central sector	1000.00	4360.00	0.00	2772.00	0.00	1840.00	10972.00
9	Private sector	460.50		0.20	1658.00		0	6213.90
III	Southern region	11011.71	13492.50	939.32	3586.30	1671.66	1675.88	37561.38
1	Andhra Pradesh	3586.36	2952.50	36.80	1875.70	98.80	37.41	11483.56
2	Karnataka	3427.90	1730.00	234.42	220.00	209.20	136.78	8039.80
3	Kerala	1821.60	0.00	256.44	524.00	2.03	61.17	3523.21
4	Tamil Nadu	2175.85	3220.00	411.66	934.10	1361.63	547.39	13005.30
5	Lakshadweep	0.00	0.00	9.97	0.00	0.00	0.00	9.97
6	Pondicherry	0.00	0.00	0.00	32.50	0.00	13.13	259.64
7	Central sector	0.00	5590.00	0.00	350.00	0.00	880.00	9320.00
8	Private sector	55.45		576.80	2500.50		0.00	8056.80
IV	Eastern region	2496.53	14527.38	17.20	370.00	5.18	0.00	16900.37
1	Bihar	65.90	553.50	0.00	0.00	0.00	0.00	1767.59
2	Jharkhand	138.00	1500.00	0.00	0.00	0.00	0.00	2065.77
3	Orissa	1923.93	420.00	0.00	0.00	2.98	0.00	3533.31
4	West Bengal	178.70	4506.38	12.20	100.00	2.20	0.00	5300.39
5	D.V.C.	150.00	2637.50	0.00	90.00	0.00	0.00	3090.00
7	Sikkim	40.00	0.00	5.00	0.00	0.00	0.00	118.14
6	A. & N. Islands	5.25	0.00	60.05	0.00	0.00	0.00	70.55
8	Central sector	204.00	4910.00	0.00	90.00	0.00	0.00	7554.00
9	Private sector	204.00		0.14	90.00			1441.72
V	North-eastern region	1221.07	330.00	142.74	1115.00	0.16	0.00	2514.22
1	Assam	433.00	330.00	20.69	447.00	0.00	0.00	1230.80
2	Manipur	82.50	0.00	45.41	26.00	0.00	0.00	157.86
3	Meghalaya	258.52	0.00	2.05	26.00	0.00	0.00	288.08
4	Nagaland	78.50	0.00	2.00	19.00	0.16	0.00	102.67
5	Tripura	78.00	0.00	4.85	160.50	0.00	0.00	243.36
6	Arunachal Pradesh	124.50	0.00	15.88	21.00	0.00	0.00	188.12
7	Mizoram	38.05	0.00	51.86	16.00	0.00	0.00	119.33
8	Central sector	860.00	0.00	0.00	375.00	0.00	0.00	1235.00
9	Private sector	0.00		0.00	24.50			24.50
All-India		34653.77	64955.88	1201.75	13691.71	2487.96	3900.00	132329.21

Source : Central Electricity Authority

GENERATION

Electricity Generation **

Parameter	2004-05	2005-06	2006-07
1	2	3	4
Total (Utilities)	587416.10	617510.40	662523.00
Public sector	536752.70	563203.40	603643.70
Private sector	50663.40	54307.00	58879.30

Source : Central Electricity Authority

** : in gigawatts-hours

TABLE 4.2.2 (b) : GROWTH OF INSTALLED GENERATING CAPACITY IN INDIA

(Megawatt)

Sr. No.	As on	Hydro	Thermal			Total TherMal	Nuclear	RES	Total
			Coal \$	Gas	Diesal				
1	31..12.47	508	756	0	98	854	0	0	1362
2	31.12..50	560	1004	0	149	1153	0	0	1713
3	31.03.56 (End of the 1st Plan)	1061	1597	0	228	1825	0	0	2886
4	31.03.61 (End of the 2nd Plan)	1917	2436	0	300	2736	0	0	4653
5	31.03.66 (End of the 3rd Plan)	4124	4417	134	352	4903	0	0	9027
6	31.03.69 (End of the 3rd Annual Plans)	5907	6640	134	276	7050	0	0	12957
7	31.03.74(End of the 4th Plan)	6966	8652	165	241	9058	640	0	16664
8	31.03.79(End of the 5th Plan)	10833	14875	168	164	15207	640	0	26680
9	31.03.80 (End of the Annual Plan)	11384	15991	268	165	16424	640	0	28448
10	31.03.85 (End of the 6th Plan)	14460	26311	542	177	127030	1095	0	142585
11	31.03.90 (End of the 7th Plan)	18307	41236	2343	165	43764	1565	0	63636
12	31.03.92(End of the 2nd Annual PlanPlans)	19194	44791	3095	168	48054	1785	32	69065
13	31.03.97(End of the 8th Plan)	21658	54154	6562	2947	61010	2225	902	85795
14	31.03.02(End of the 9th Plan)	26269	62131	11163	1135	74429	2720	1628	105046
15	31.03.03 (End of the 1st Year of 10th Plan)	26767	63951	11633	1178	76762	2720	1628	107877
16	31.03.04(End of the 2nd Year of 10th Plan)	29507	64957	11840	1172	77969	2720	2488	112684
17	31.03.05(End of the 3rd Year of 10th Plan)	30942	67791	11910	1202	80903	2720	3811	118376
18	31.03.03 (End of the 4th Year of 10th Plan)	32326	68518	12690	1202	82410	3360	6191	124287
19	31.03.07 (End of 10 Plan)*	34654	71121	13692	1202	86015	3900	7760	132329

Source: Central Electricity Authority

RES: Renewable Energy Sources

*: Provisional, \$: Includes Lignite

CHART 4.2.2: ALL INDIA INSTALLED GENERATING CAPACITY (MW) AS ON 31.03.2007

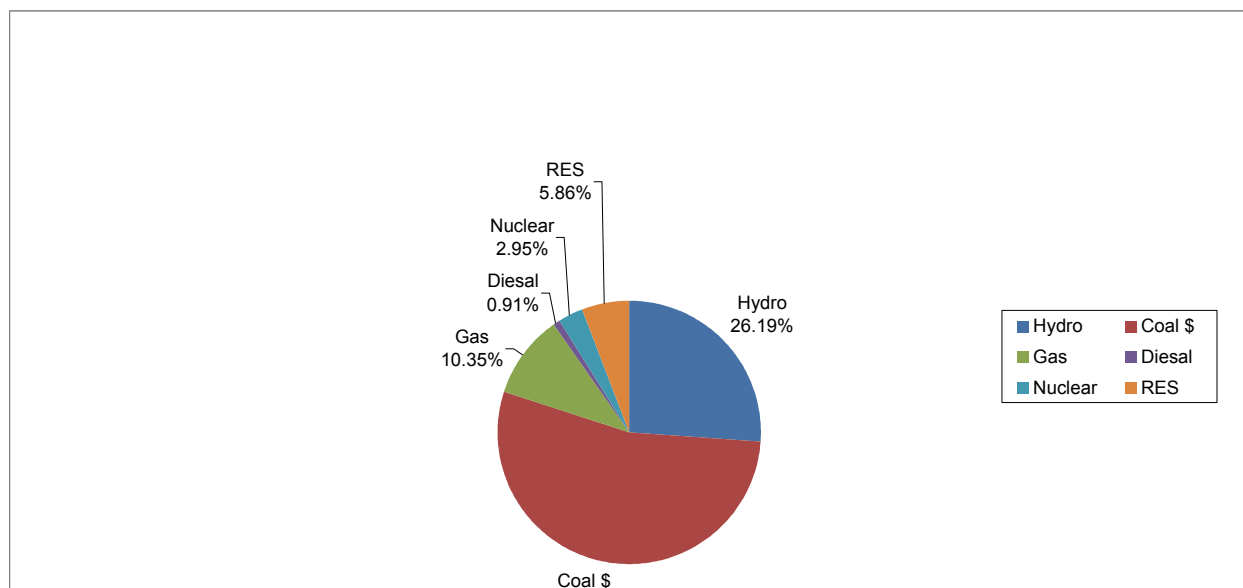


TABLE 4.2.3 : CUMULATIVE COMPARISON OF POWER SUPPLY POSITION

Sl. No.	Region/ State/ System	April 2006 to March 2007			
		Requirement (MU)	Availability (MU)	Supply Deficit (MU)	Shortage %
1	2	3	4	5	6
I.	Northern Region	202125			
1	Chandigarh	1343	1341	-2	-0.1
2	Delhi	22397	22012	-385	-1.7
3	Haryana	26249	23132	-3117	-11.9
4	Himachal Pradesh	5136	4996	-140	-2.7
5	Jammu & Kashmir	11725	7983	-3742	-31.9
6	Punjab	38641	34839	-3802	-9.8
7	Rajasthan	33236	31715	-1521	-4.6
8	Uttar Pradesh	57441	48370	-9071	-15.8
9	Uttaranchal	5957	5599	-358	-6.0
				0	
II.	Western Region	412507		-412507	-100.0
1	Chhatisgarh	14063	13169	-894	-6.4
2	Gujarat	62464	54083	-8381	-13.4
3	Madhya Pradesh	38710	32834	-5876	-15.2
4	Maharashtra	110005	89138	-20867	-19.0
5	Daman & Diu	1602	1408	-194	-12.1
6	Dadar Nagar Haveli	2923	2879	-44	-1.5
7	Goa	2624	2606	-18	-0.7
				0	
III.	Southern Region	180116		-180116	-100.0
1	Andhra Pradesh	60964	58280	-2684	-4.4
2	Karnataka	40797	39948	-849	-2.1
3	Kerala	15023	14716	-307	-2.0
4	Tamil Nadu	61499	60445	-1054	-1.7
5	Pondicherry	1808	1808	0	0.0
	Lakshadweep	25	25	0	0.0
				0	
IV.	Eastern Region	68438		-68438	-100.0
1	Bihar	8425	7741	-684	-8.1
2	D.V.C.	11542	11308	-234	-2.0
3	Jharkhand	4369	4154	-215	-4.9
4	Orissa	17101	16796	-305	-1.8
	West Bengal+ Sikkim	26538	25966	-572	-2.2
	Sikkim	223	218	-5	-2.2
	A&N Isnd	240	190	-50	-20.8
V.	North-Eastern Region	706151		-706151	-100.0
1	Arunachal Pradesh	286	259	-27	-9.4
2	Assam	4297	3984	-313	-7.3
3	Manipur	451	429	-22	-4.9
4	Meghalaya	1368	1063	-305	-22.3
5	Mizoram	235	221	-14	-6.0
6	Nagaland	343	328	-15	-4.4
7	Tripura	802	728	-74	-9.2
		7782	7012	-770	-9.9
	All India	690587	624495	-66092	-9.6

Source : Central Electricity Authority
 MU : Million Units

TABLE 4.2.3 : CUMULATIVE COMPARISON OF POWER SUPPLY POSITION

Sl. No.	Region/ State/ System	April 2005 to March 2006			
		Requirement (MU)	Availability (MU)	Supply/ Deficit (MU)	Shortage %
1	2	3	4	5	6
I.	Northern Region	188794	168611	-20183	-10.7
	1 Chandigarh	1260	1258	-2	-0.2
	2 Delhi	21602	21281	-321	-1.5
	3 Haryana	23791	21631	-2160	-9.1
	4 Himachal Pradesh	4302	4258	-44	-1.0
	5 Jammu & Kashmir	9268	7672	-1596	-17.2
	6 Punjab	35682	32591	-3091	-8.7
	7 Rajasthan	32052	30879	-1173	-3.7
	8 Uttar Pradesh	55682	44033	-11649	-20.7
	9 Uttaranchal	5155	5008	-147	-2.9
II.	Western Region	215983	186904	-29079	-13.5
	1 Chhatisgarh	13012	12540	-472	-3.6
	2 Gujarat	57137	52436	-4701	-8.2
	3 Madhya Pradesh	36846	31619	-5227	-14.2
	4 Maharashtra	102765	84117	-18648	-18.1
	5 Daman & Diu	1346	1323	-23	-1.7
	6 Dadar Nagar Haveli	2539	2531	-8	-0.3
	7 Goa	2338	2338	0	0
III.	Southern Region	157177	155790	-1387	9.3
	1 Andhra Pradesh	53030	52332	-698	-1.3
	2 Karnataka	34601	34349	-252	-0.7
	3 Kerala	13674	13578	-96	-0.7
	4 Tamil Nadu	54194	53853	-341	-0.6
	5 Pondicherry	1678	1678	0	0
	Lakshadweep				-0.9
IV.	Eastern Region	62347	60706	-1641	-2.6
	1 Bihar	7955	7218	-737	-9.3
	2 D.V.C.	10003	9891	-112	-1.1
	3 Jharkhand	4033	3868	-165	-4.1
	4 Orissa	15208	15010	-198	-1.7
	West Bengal+ Sikkim	25148	24719	-429	-2.6
	Sikkim				
	A&N Isnd				
V.	North-Eastern Region	7534	6888	-1271	-8.4
	1 Arunachal Pradesh	208	206	-2	-1
	2 Assam	4051	3778	-273	-6.7
	3 Manipur	510	489	-238	-4.1
	4 Meghalaya	1382	1144	-14	-6.1
	5 Mizoram	230	216	-19	-4.7
	6 Nagaland	408	389	-79	-10.6
	7 Tripura	745	666	-646	-8.6
	All India	631757	578819	-52938	-8.4

Source : Central Electricity Authority
 MU : Million Units

TABLE 4.2.4 (a) : ANNUAL GROSS GENERATION OF POWER BY SOURCE*(in MU units)*

SI. No.	Year	Hydro	Steam @	Diesel & Wind @	Gas	Nuclear	Thermal*	Total
1	2	3	4	5	6	7	8	9
1	1980-81	46541.8	60713.8	61.5	522.0	3001.3	-	110840.4
2	1985-86	51020.6	112540.1	50.6	1756.9	4981.9	-	170350.1
3	1990-91	71641.3	178321.7	111.3	8113.2	6141.1	-	264328.6
4	1991-92	72757.1	197163.2	134.0	11450.0	5524.4	-	287028.7
5	1992-93	69869.2	211123.5	162.3	13480.4	6726.3	-	301361.7
6	1993-94	70462.7	233150.7	310.9	14727.6	5397.7	-	324049.6
7	1994-95	82712.0	243110.2	545.2	18474.8	5648.2	-	350490.4
8	1995-96	72759.2	273743.5	714.4	24858.4	7981.7	-	380057.2
9	1996-97	68900.8	289378.3	1554.3	26984.9	9071.1	-	395889.4
10	1997-98	74581.7	300730.5	1929.3	34423.2	10082.6	-	421747.3
11	1998-99	82690.0	308056.0	2136.0	43480.0	12015.0	353662.0	448367.0
12	1999-00	80637.0	377814.0	3989.0	49773.0	13267.0	386776.0	480680.0
13	2000-01	74481.0	357006.0	3822.0	48311.0	16928.0	408139.0	499548.0
14	2001-02	73579.9	370883.5	6402.7	47098.6	19474.6	424385.8	517439.2
15	2002-03	64014.0	389550.3	7052.4	52686.6	19390.0	449289.3	532693.3
16	2003-04	75242.5	407283.8	6867.0	57928.4	17780.0	472079.2	565101.7
17	2004-05	84495.3	424083.2	2518.7	59473.6	16845.3	486075.5	587416.1
18	2005-06	103057.3	435096.6	1987.7	60128.0	17238.9	497214.3	617510.4
19	2006-07	116368.9	461340.0	2488.8	63718.6	18606.8	527547.4	662523.0

Source: Central Electricity Authority-2007

* : Including Coal, Lignite, Diesel & Gas based stations

@' : CEA are not monitoring Captioci Power Plants Wind & Generation of small stations i.e. mini & micro Hydel stations and thermal stations of less than 20 MW capacity.

MU : Million Units

TABLE 4.2.4(b) : PLAN WISE GROWTH OF ELECTRICITY SECTOR IN INDIA

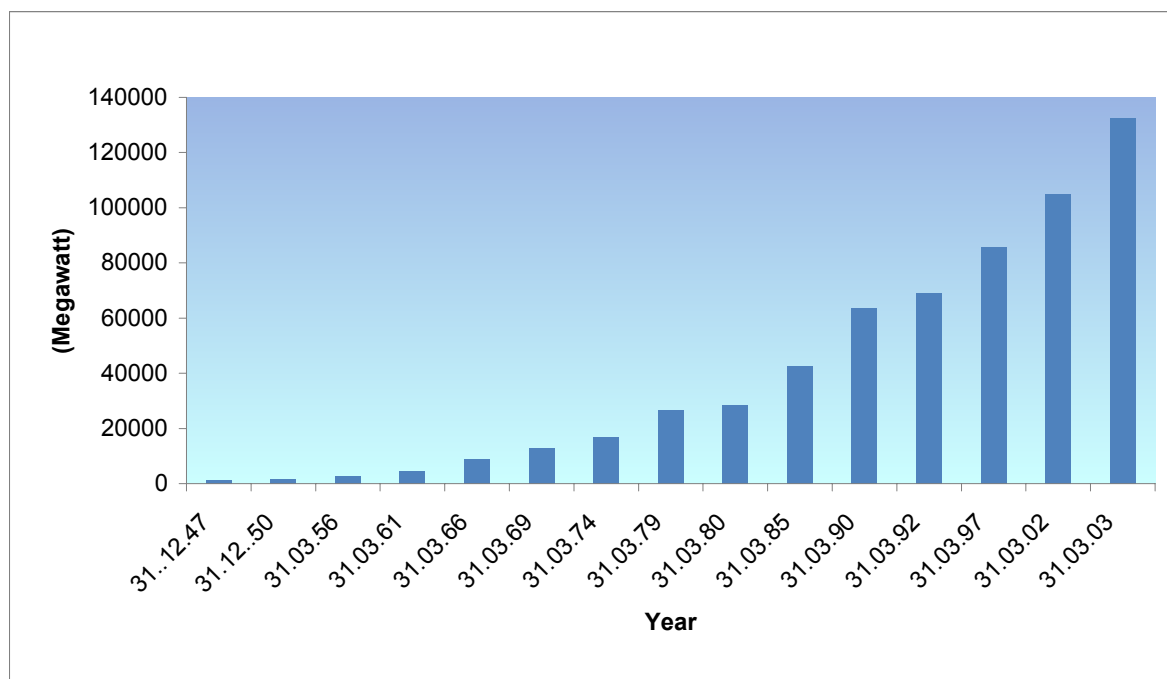
Sr. No.	As on/during financial year ending with	Installed capacity (MW)	No. of Villages electrified	Length of T & D lines (Ckt. Kms)	Annual Per capita consumption \$ (KWh)
1	2	3	4	5	6
1	31..12.47	1362	NA	23238	16.3
2	31.12..50	1713	3061	29271	18.2
3	31.03.56 (End of the 1st Plan)	2886	7294	85427	30.9
4	31.03.61 (End of the 2nd Plan)	4653	21754	157887	45.9
5	31.03.66 (End of the 3rd Plan)	9027	45148	541704	73.9
6	31.03.69 (End of the 3rd Annual Plans)	12957	73739	886301	97.9
7	31.03.74(End of the 4th Plan)	16664	156729	1518884	126.2
8	31.03.79(End of the 5th Plan)	26680	232770	2145919	171.6
9	31.03.80 (End of the Annual Plan)	28448	249799	2351609	172.4
10	31.03.85 (End of the 6th Plan)	42585	370332	3211956	228.7
11	31.03.90 (End of the 7th Plan)	63636	470838	4407501	329.2
12	31.03.92(End of the 2nd Annual PlanPlans)	69065	487170	4574200	347.5
13	31.03.97(End of the 8th Plan)	85795	498836	5151513	464.6
14	31.03.02(End of the 9th Plan)	105046	512153	6030148	559.2
15	31.03.07 (End of 10 Plan)*	132329	478665+	7030851*	664.8*

* Provisional

.+ As per revised difination of village electrification and 2001 census

\$ As per UN methodology (gross Electrical Energy Availability/population)

Chart 4.2.4: Planwise Growth of Installed capacity in India



Source : Central Electricity Authority

TABLE 4.2.5 : NUMBER OF TOWNS AND VILLAGES ELECTRIFIED IN INDIA*(As on 31.03.2007)*

Sl. No.	State/Union Territory	Towns		Villages	
		Total	Electrified	Total	Electrified (provisional)
1	2	3	4	5	6
I.	Northern Region	1470	1470	196591	167985
	1 Haryana	106	106	6764	6764
	2 Himachal Pradesh	57	57	17495	17169
	3 Jammu & Kashmir	75	75	6417	6304
	4 Punjab	157	157	12278	12278
	5 Rajasthan	222	222	39753	26676
	6 Uttar Pradesh	704	704	97942	83558
	7 Uttaranchal	86	86	15761	15055
	8 Chandigarh	1	1	23	23
	9 Delhi	62	62	158	158
II.	Western Region	1159	1159	131462	123507
	1 Gujarat	242	242	18066	17986
	2 Madhya Pradesh	394	394	52117	50213
	3 Chhatisgharh	97	97	19744	18830
	4 Maharashtra	378	378	41095	36038
	5 Goa	44	44	347	347
	6 Daman & Diu	2	2	23	23
	7 Dadra & Nagar Haveli	2	2	70	70
III.	Southern Region	1480	1480	70958	70602
	1 Andhra Pradesh	210	210	26613	26613
	2 Karnataka	270	270	27481	27125
	3 Kerala	159	159	1364	1364
	4 Tamil Nadu	832	832	15400	15400
	5 Pondicherry	6	6	92	92
	6 Lakshadweep	3	3	8	8
IV.	Eastern Region	807	807	154794	91580
	1 Bihar	130	130	39015	20620
	2 Jharkhand	152	152	29354	9119
	3 Orissa	138	138	47529	26535
	4 West Bengal	375	375	37945	34555
	5 A & N Islands	3	3	501	326
	6 Sikkim	9	9	450	425
V.	North-Eastern Region	245	245	39927	29190
	1 Assam	125	125	25124	19741
	2 Manipur	33	33	2315	1942
	3 Meghalaya	16	16	5782	3428
	4 Nagaland	9	9	1278	823
	5 Tripura	23	23	858	491
	6 Arunachal Pradesh	17	17	3863	2195
	7 Mizoram	22	22	707	570
Total (All India)		5161	5161	593732	482864

Source : Central Electricity Authority

TABLE 4.2.6 : STATEWISE PRODUCTION OF COAL AND LIGNITE

		(Million tonnes)								
Sl. No.	States	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
1	2	4	5	6	7	8	9	10	11	12
I.	Coal	300.4	296.5	304.1	313.7	327.8	341.2	563.2	382.6	407.0
1	Andhra Pradesh	28.9	27.3	29.6	30.3	30.8	33.2	33.9	35.3	36.1
2	Assam	0.7	0.6	0.6	0.7	0.6	0.6	0.7	0.6	1.1
3	Bihar	81.3	76.2	76.5	41.9	—	—	—	—	—
4	Chhatisgarh	—	—	—	22.8	53.6	56.8	61.5	69.3	76.4
5	Jharkhand	—	—	—	33.5	76.8	78.6	49.8	52.5	85.4
6	Madhya Pradesh	84.8	84.9	87.9	69.9	44.2	45.7	32.9	34.5	55.6
7	Maharashtra	26.2	25.3	27.7	28.8	30.8	31.4	5.4	5.3	36.1
8	Meghalaya	3.2	4.2	4.1	4.1	5.1	4.4	60.1	66.6	5.6
9	Orissa	42.2	43.5	43.6	44.8	47.8	52.2	15.8	16.8	70.5
10	Uttar Pradesh	15.8	15.6	16.2	16.9	16.5	17.8	21.5	23.6	15.7
11	West Bengal	17.4	18.8	18.0	20.1	21.4	20.5	281.6	304.5	24.5
II.	Lignite	23.2	23.4	22.5	24.2	24.8	26.0	28.0	30.3	30.1
1	Gujarat	4.9	5.0	4.7	5.9	6.2	6.9	6.7	8.2	NA
2	Rajasthan	0.2	0.2	0.2	0.2	0.3	0.5	0.7	0.5	NA
3	Tamilnadu	18.1	18.2	17.6	18.2	18.4	18.6	20.6	21.6	NA

ENERGY

Source : Indian Bureau of Mines

Coal is the most abundant source of commercial energy in India. Coal resources are continually assessed by the Geological Survey of India through regional mapping and exploratory drilling. Coal production increased rapidly after the nationalisation of coal mines. From about 72.9 million ton in 1970/71, it raised to 211.7 million ton in 1990/91 and to 407 million ton in 2005-2006 making India the world's fourth largest coal producer. The increase is predominantly in non-coking coal production. One of the major constraints on the profitability of the coal sector is the low productivity levels in underground mines. The underground mines employ 80% of manpower, but contribute to only 30% of the total output. Since the nationalisation of the coal industry, India's mine planners have chosen opencast mining over underground methods, to enhance productivity and meet production targets. The drawback of extracting the majority of the coal with opencast methods is that its quality is unavoidably affected by contamination of overburden mixes into the coal.

**TABLE 4.2.7 : PRODUCTION OF COAL FROM OPENCAST WORKING BY MECHANISATION
AND OVERBURDEN REMOVED DURING THE YEAR 2005**

Sl. No.	States	Total Opencast Output	Mechanisation		Overburden Removed (in '000 Cubic metres)
			Fully Mechanised	Manual	
1	2	3	4	5	6
I	COAL	329372484	319484580	206550	2400340
1	Andhra Pradesh	21797970	21797970	---	65657
2	Assam	637712	637712	---	6180
3	Chhattisgarh	64836451	64836451	---	472745
4	Jharkhand	68943909	59262703	6075	1074181
5	Madhya Pradesh	35820786	35820786	---	526127
6	Maharashtra	32355934	32355934	---	106614
7	Orissa	67749126	67749126	---	42216
8	Uttar Pradesh	22378700	22378700	---	57706
9	West Bengal	14851748	14645198	206550	48914

II	LIGNITE	27386185	25700424	5929	153567
1	Gujarat	8536312	6850551	5929	22575
2	Rajasthan	669758	669758	---	8215
3	Tamilnadu	18180115	18180115	---	122777

Source : Directorate General of Mines Safety, Dhanbad

TABLE 4.2.8 : PRODUCTIVITY IN COAL MINES IN THE YEAR 2005*(Tonnes)*

Sl. No.	State	Output Per Man Year			Output Per Manshift		
		Belowground	Opencast	Overall	Belowground	Opencast	Overall
1	2	3	4	5	6	7	8
I	COAL	312	5198	1023	1.00	15.92	3.24
1	Andhra Pradesh	301	4027	607	1.00	12.86	2.01
2	Assam	114	776	273	0.37	2.44	0.89
3	Jharkhand	214	286	676	0.70	8.79	2.17
4	Jammu & Kashmir	24	2	20	0.08	0.01	0.06
5	Madhya Pradesh	496	6713	1081	1.55	19.75	3.34
6	Maharashtra	368	4841	1260	1.12	14.51	3.79
7	Orissa	482	9978	4014	1.54	29.91	12.27
8	Uttar Pradesh	---	6498	3603	---	20.27	11.24
9	West Bengal	25	3115	350	0.71	9.63	1.11
II	LIGNITE	---	4387	1922	---	15.96	6.62
1	Gujarat	---	8485	4727	---	29.48	16.36
2	Rajasthan	---	3640	1930	---	11.89	6.32
3	Tamil Nadu	---	3599	1503	---	13.27	5.18

Source : Directorate General of Mines Safety, Dhanbad

TABLE 4.2.9 : STATEWISE INVENTORY OF GEOLOGICAL RESERVES OF COAL*(Million tonnes)*

SI No.	State	As on	Proved	Indicated	Inferred	Total
1	2	3	4	5	6	7
1	Andhra Pradesh (Gondawana)	1-1-2003	7944	6122	2518	16584
		1-1-2004	8091	6092	2514	16697
		1-1-2005	8263	6079	2584	16926
		1-1-2006	8403	6158	2584	17145
		1-1-2007	8475	6328	2658	17461
2	Arunachal Pradesh (Tertiary)	1-1-2003	31	40	19	90
		1-1-2004	31	40	19	90
		1-1-2005	31	40	19	90
		1-1-2006	31	40	19	90
		1-1-2007	31	40	19	90
3	Assam (Tertiary)	1-1-2003	279	27	34	340
		1-1-2004	279	27	34	340
		1-1-2005	279	24	34	337
		1-1-2006	315	24	34	373
		1-1-2007	315	24	34	373
	Assam (Gondawana)	1-1-2005	0	3	0	3
		1-1-2006	0	3	0	3
		1-1-2007	0	3	0	3
4	Jharkhand (Gondawana)	1-1-2003	35266	29552	6326	71144
		1-1-2004	35305	30211	6348	71864
		1-1-2005	35417	30438	6348	72204
		1-1-2006	36148	31411	6338	73898
		1-1-2007	36881	31094	6338	74313
5	Bihar (Gondawana)	1-1-2003	0	0	160	160
		1-1-2004	0	0	160	160
		1-1-2005	0	0	160	160
		1-1-2006	0	0	160	160
		1-1-2007	0	0	160	160
6	Madhya Pradesh (Gondawana)	1-1-2003	7100	7888	3217	18205
		1-1-2004	7503	8233	2924	18660
		1-1-2005	7513	8815	2904	19232
		1-1-2006	7566	9258	2934	19758
		1-1-2007	7584	9259	2934	19777
7	Chhatisgarh (Gondawana)	1-1-2003	8561	25410	4165	38135
		1-1-2004	8771	26419	4355	39545
		1-1-2005	9373	26191	4411	39975
		1-1-2006	9570	27433	4439	41442
		1-1-2007	9973	27035	4443	41450
8	Maharashtra (Gondawana)	1-1-2003	4508	2151	1534	8194
		1-1-2004	4652	2156	1605	8413
		1-1-2005	4652	2309	1620	8581
		1-1-2006	4652	2432	1992	9076
		1-1-2007	4856	2822	1992	9670
9	Meghalaya (Tertiary)	1-1-2003	118	41	301	459
		1-1-2004	118	41	301	460
		1-1-2005	118	41	301	459
		1-1-2006	118	41	301	460
		1-1-2007	118	41	301	459

ENERGY

10	Nagaland (Tertiary)	1-1-2003	3	1	15	20
		1-1-2004	4	1	15	20
		1-1-2005	4	1	15	20
		1-1-2006	4	1	15	20
		1-1-2007	4	1	15	20
11	Orissa (Gondawana)	1-1-2003	14301	29516	15285	59103
		1-1-2004	14613	31239	15135	60987
		1-1-2005	15161	30976	14846	60983
		1-1-2006	16944	30793	14296	62000
		1-1-2007	17464	30239	14296	61999
	Sikkim	1/1/2007	0	55	18	73
12	Uttar Pradesh (Gondawana)	1-1-2003	766	296	0	1062
		1-1-2004	766	296	0	1062
		1-1-2005	766	296	0	1062
		1-1-2006	766	296	0	1062
		1-1-2007	766	296	0	1062
13	West Bengal (Gondawana)	1-1-2003	11207	11570	4475	27252
		1-1-2004	11383	11523	4488	27394
		1-1-2005	11383	11876	4553	27813
		1-1-2006	11383	11879	4553	27815
		1-1-2007	11454	11810	5071	28335
	Tertiary Coalfields	1-1-2005	432	106	369	907
		1-1-2006	468	106	369	943
		1-1-2007	468	106	369	942
	India (Total)	1-1-2003	90085	112613	38050	240748
		1-1-2004	91516	116281	37901	245692
		1-1-2005	92960	117090	37796	247847
		1-1-2006	95867	119769	37666	253302
		1-1-2007	97920	119047	38278	255245

Source : Office of Coal Controller, Kolkata

Note: (i) Data may not add up to respective total due to rounding off.

(ii) Singrimari coalfield of Assam (Non- coking) is included in Gondawana coalfield, not considered in Tertiary coalfields.

TABLE 4.2.10 : INVENTORY OF GEOLOGICAL RESERVES OF COAL BY TYPE

(Million tonnes)

Sl. No	Types of Coal	As on	Proved	Indicated	Inferred	Total
1	2	3	4	5	6	7
1	Coking					
	I. Prime coking	1-1-2003	4614	699	0	5313
		1-1-2004	4614	699	0	5313
		1-1-2005	4614	699	0	5313
		1-1-2006	4614	699	0	5313
		1-1-2007	4614	699	0	5313
	II. Medium coking	1-1-2003	11325	11839	1889	25053
		1-1-2004	11325	11839	1889	25053
		1-1-2005	11417	11765	1889	25070
		1-1-2006	11445	11751	1881	25070
		1-1-2007	11774	11601	1880	25255
	III. Blendable/semi-coking	1-1-2003	482	907	222	1610
		1-1-2004	482	1003	222	1707
		1-1-2005	482	1003	222	1707
		1-1-2006	482	1003	222	1707
1-1-2007		482	1003	222	1707	
2	Non-coking (Including High Sulphur)	1-1-2003	73664	99168	35940	208772
		1-1-2004	75096	102736	35787	213619
		1-1-2005	76447	103623	35686	215756
		1-1-2006	79325	106316	35564	221205
		1-1-2007	81050	105744	36176	222970
Total	1-1-2003	90085	112613	38050	240748	
	1-1-2004	91517	116277	37898	245692	
	1-1-2005	92960	117090	37797	247847	
	1-1-2006	95866	119769	37667	253302	
	1-1-2007 *	97920	119047	38278	255245	

Source : Office of the Coal Controller, Kolkata

* Including Sikkim

TABLE 4.2.11 : ESTIMATED POTENTIAL FOR RENEWABLE ENERGY TECHNOLOGIES IN INDIA

Sl. No	Source/Systems	Approximate Potential
1	Biogas Plants	120 lakh W
2	Improved Chulhas	1200 lakh W
3	Wind	45000 MW
4	Small Hydro	15000 MW
5	Biomass	19500 MW
6	Biomass Gasifiers	--
7	Solar PV	20 MW/sq.km
8	Waste -to -Energy	2500 MW
9	Solar Water Heating	140 Million sq.m Collector Area.

Source: Ministry of Non-Conventional Energy Sources

The Ministry of Non-Conventional Energy Resources was created in 1992. The main responsibilities of the ministry include the development and utilization of new and renewable sources of energy such as biogas, biomass, solar energy, wind energy, small hydro power, ocean energy, geothermal energy, hydrogen and drought animal power.

TABLE 4.2.12 (a) : STATE-WISE WIND POWER INSTALLED CAPACITY**(Mw)**

SI No.	State	Wind Power Installed Capacity (Mw)					
		2001-02	2002-03	2003-04	2004-05	2005-06	2006-07
1	2	3	4	5	6	7	8
1	Andhra Pradesh	0.7	0.0	6.2	21.8	126.1	121.60
2	Gujarat	0.0	6.2	28.9	51.5	287.8	401.40
3	Karnataka	24.0	55.6	84.9	201.5	487.0	745.60
4	Kerala	0.0	0.0	0.0	0.0	2.0	2.00
5	Madhya Pradesh	0.0	0.0	0.0	6.3	35.1	54.90
6	Maharashtra	209.4	2.0	6.2	48.8	654.6	1283.70
7	Rajasthan	8.8	44.6	117.8	106.3	312.6	444.80
8	Tamil Nadu	44.0	133.6	371.2	675.5	2526.7	3216.10
9	West Bengal	0.6	0.0	0.0	0.0	1.1	1.10
9	Others	0.0	0.0	0.0	0.0	1.6	3.20
Total		287.5	242.0	615.2	1111.7	4434.6	6270.40

Source : Ministry of New Renewable Energy

Table 4.2.12(b) : Estimated potential and cumulative achievements as on 31.1.2007

No.	Sources / Systems	Estimated Potential	Cumulative Achievements
1	I. Power From Renewables		
A.	A. Grid-interactive renewable power		
1	Bio Power (Agro residues)	16,881 ¹ MWe	510.00 MW
2	Wind Power	45,195 ² MWe	6315.00 MW
3	Small Hydro Power (up to 25 MW)	15,000 ³ MWe	1905.00 MW
4	Cogeneration-bagasse	5,000 ⁴ MWe	602.00 MW
5	Waste to Energy	2,700 ⁵ MWe	40.95 MW
	Sub Total (in MW) (A)	84,776 ⁶ MWe	9372.95 MW
B	Distributed renewable power		
6	Solar Power	-	2.92 MW
7	Biomass Power / Cogen.(non-bagasse)	-	34.30 MW
8	Biomass Gasifier	-	75.85 MW
9	Waste-to- Energy	-	11.03 MW
	Sub Total (B)	-	124.10 MW
	Total (A + B)	-	9497.05 MW
II	Remote Village Electrification	-	2501 villages + 830 hamlets
III	Decentralised Energy Systems		
10	Family Type Biogas Plants	120 lakh	38.90 lakh
11	Solar Photovoltaic Programme	20 MW/sq.km.	
	i. Solar Street Lighting System	-	54659 nos.
	ii. Home Lighting System	-	301603 nos.
	Hi. Solar Lantern	-	463058 nos.
	iv. Solar Power Plants	-	1859.80 kW _p
12	Solar Thermal Programme		
	i. Solar Water Heating Systems	-	1.66 million sq.m. collector area
	ii. Solar Cookers	-	6.03 lakh
13	Wind Pumps	-	1141 nos.
14	Aero-generator /Hybrid Systems	-	572 kW
15	Solar Photovoltaic Pumps	-	7068 nos.
IV	Other Programmes		
16	Energy Parks	-	493 nos.
17	Akshay Urja Shops	-	104 nos.
18	Battery Operated Vehicle	-	255 nos.

Source: Annual Report 2006-07, Ministry of New Renewable Energy

Note: MWe = Megawatt equivalent;
kW_p = kilowatt peak;

MW = Megawatt; kW = kilowatt;
sq. m. = square meter

TABLE 4.2.12 (c) : STATEWISE GRID-INERTIVE BIOMASS POWER INSTALLED CAPACITY

(AS ON 31.12.2006)

Sr. No	State	Cumulative Installed Capacity (MW)
1	Andhra Pradesh	301.25
2	Chattisgarh	88.52
3	Gujarat	50.00
4	Haryana	6.00
5	Karnataka	254.28
6	Madhya Pradesh	1.00
7	Maharashtra	52.00
8	Punjab	28.00
9	Rajasthan	23.30
10	Tamil Nadu	215.50
11	Uttar Pradesh	121.50
	Total	1101.83

Source: Ministry of New Renewable Energy

TABLE 4.2.12 (d) : State wise Details of Small Hydro Power Projects (upto 25 MW) Setup & Under Implementation (as on 31.12.2006)

Sr. No	States	Projects set-up		Project under Implementation	
		No.s	Capacity (MW)	No	Capacity (MW)
1	Andhra Pradesh	57	178.81	9	13.90
2	Arunachal Pradesh	64	44.30	48	41.27
3	Assam	3	2.11	7	26.00
4	Bihar	7	50.40	7	9.50
5	Chhattisgarh	5	18.00	1	1.00
6	Gujarat	1	0.05	-	-
7	Goa	2	7.00	-	-
8	Haryana	5	62.70	-	-
9	Himachal Pradesh	57	132.73	6	28.10
10	Jammu & Kashmir	32	111.49	5	5.56
11	Jharkhand	6	4.05	8	34.85
12	Karnataka	63	383.63	9	23.99
13	Kerala	16	98.62	5	43.75
14	Madhya Pradesh	8	41.16	3	24.20
15	Maharashtra	28	208.58	4	24.25
16	Manipur	8	5.45	3	2.75
17	Meghalaya	3	30.71	9	3.28
18	Mizoram	16	14.76	3	15.50
19	Nagaland	9	20.67	5	12.20
20	Orissa	6	7.30	7	40.92
21	Punjab	29	122.55	1	2.00
22	Rajasthan	10	23.85	-	-
23	Sikkim	14	38.61	4	12.20
24	Tamil Nadu	12	77.70	2	7.90
25	Tripura	3	16.01	-	-
26	Uttranchal	9	25.10	-	-
27	Uttar Pradesh	76	75.45	37	23.01
28	West Bengal	23	98.40	5	3.80
29	Andaman and Nicobar Islands	1	5.25	-	-
	Total	573	1905.44	188	393.93

Source: Ministry of New Renewable Energy

TABLE 4.2.13 : DOMESTIC PRODUCTION OF PETROLEUM PRODUCTS IN INDIA - - - - Contd*(000' Tonne)*

Sl. No.	Year	Light Distillates			Middle Distillates			
		Liquified Petroleum Gas @	Motor Gasoline (Petrol)	Naphtha	Kerosene	Aviation Turbine Fuel	High Speed Diesel oil	Light Diesel Oil
1	2	3	4	5	6	7	8	9
1	1970-71	169	1526	1205	2896	710	3840	986
2	1971-72	195	1615	1217*	2995	808	4356	1065
3	1972-73	227	1581	1330*	2813	801	4598	1010
4	1973-74	259	1647	1438*	2613	875	5039	1079
5	1974-75	278	1298	1720	2052	837	6034	1084
6	1975-76	331	1275	1910	2439	925	6285	946
7	1976-77	363	1340	1986	2581	1001	6399	1047
8	1977-78	383	1423	2120	2450	1077	7129	1224
9	1978-79	403	1515	2262	2514	1177	7350	1227
10	1979-80	406	1512	2415	2539	1104	7975	1230
11	1980-81	366	1519	2115	2396	1001	7371	1108
12	1981-82	410	1614	3004	2907	1009	9042	949
13	1982-83	406	1797	2986	3393	1137	9761	1121
14	1983-84	514	1937	3578	3528	1195	10862	1081
15	1984-85	596	2144	3470	3364	1297	11086	1253
16	1985-86	867	2309	4955	4030	1519	14624	1177
17	1986-87	995	2515	5437	4912	1553	15450	1172
18	1987-88	1026	2662	5462	5104	1695	16296	1259
19	1988-89	1034	2822	5378	5201	1753	16656	1468
20	1989-90	1179	3328	5227	5700	1575	17737	1540
21	1990-91	1221	3552	4859	5471	1801	17185	1509
22	1991-92	1250	3420	4546	5339	1539	17404	1482
23	1992-93	1249	3709	4586	5199	1636	18289	1453
24	1993-94	1314	3843	4666	5270	1788	18809	1474
25	1994-95	1432	4129	5662	5261	1968	19593	1364
26	1995-96	1539	4462	5975	5267	2127	20661	1351
27	1996-97	1598	4704	6123	6236	2119	22202	1286
28	1997-98	1666	4849	6103	6701	2147	23354	1246
29	1998-99	1724	5573	6081	5341	2289	26716	1336
30	1999-00	2487	6232	8170	5735	2292	34793	1624
31	2000-01	4088	8070	9908	8714	2513	39052	1481
32	2001-02	4778	9699	9180	9681	2595	39899	1703
33	2002-03	4903	10361	9650	10028	3053	40207	2079
34	2003-04	5348	10999	11317	10187	4289	43316	1659
35	2004-05	5570	11057	14100	9298	5201	45903	1546
36	2005-06	5525	10502	14509	9078	6196	47572	923
37	2006-07(P)	6315	12539	16660	8491	7805	53465	803

P : Provisional

@ : Excludes LPG production from natural gas.

Source : Ministry of Petroleum & Natural Gas.

* : Estimated from calendar year figures

** : Includes those of light distillates, middle distillates and heavy ends.

TABLE 4.2.13 : DOMESTIC PRODUCTION OF PETROLEUM PRODUCTS IN INDIA - Concl'd.

(000' Tonne)

Sl. No.	Year	Heavy Ends				Others**	Total
		Fuel Oil	Lubricants	Petroleum Coke	Bitumen		
1	2	10	11	12	13	14	15
1	1970-71	4090	231	151	805	501	17110
2	1971-72	4098	140*	142*	1009*	999	18639
3	1972-73	3688	304*	132*	1109*	267	17830
4	1973-74	3931	318*	131*	1093*	1072	19495
5	1974-75	4243	387	137	873	668	19603
6	1975-76	5083	342	160	697	436	20829
7	1976-77	4728	368	163	945	471	21432
8	1977-78	5332	413	155	992	521	23219
9	1978-79	5644	490	122	962	527	24193
10	1979-80	6351	487	99	1103	573	25794
11	1980-81	6120	426	86	1082	533	24123
12	1981-82	6908	407	141	1298	493	28182
13	1982-83	7964	434	149	1397	528	31073
14	1983-84	8000	470	136	1069	556	32926
15	1984-85	7886	414	181	944	601	33236
16	1985-86	7955	501	192	1107	645	39881
17	1986-87	8011	491	264	1224	737	42761
18	1987-88	8466	478	257	1370	653	44728
19	1988-89	8171	497	275	1548	896	45699
20	1989-90	8952	547	275	1671	959	48690
21	1990-91	9429	561	229	1603	1142	48562
22	1991-92	9637	390	216	1710	1416	48349
23	1992-93	10403	533	221	1862	1219	50359
24	1993-94	10304	489	233	1874	1020	51084
25	1994-95	9822	504	259	1845	1088	52927
26	1995-96	9579	633	256	2032	1199	55081
27	1996-97	10298	619	246	2283	1291	59005
28	1997-98	11080	593	282	2158	1129	61308
29	1998-99	11030	586	286	2419	1163	64544
30	1999-00	11352	728	465	2485	3048	79411
31	2000-01	11392	684	2473	2721	4518	95614
32	2001-02	12227	651	2784	2561	4246	100004
33	2002-03	12167	684	2659	2941	5408	104140
34	2003-04	13372	666	2743	3397	6170	113463
35	2004-05	14970	646	3162	3349	3777	118579
36	2005-06	14305	677	3182	3576	3705	119750
37	2006-07(P)	15697	825	3779	3891	4990	135260

Source : Ministry of Petroleum & Natural Gas.

* : Estimated from calendar year figures

** : Includes those of light distillates, middle distillates and heavy ends.

P : Provisional

TABLE 4.2.14: AVAILABILITY OF CRUDE OIL AND PETROLEUM PRODUCTS IN INDIA*(000' Tonne)*

Sl. No.	Year	Crude Oil			Petroleum Products		
		Production	Net Imports	Gross Availability	Production @	Net Imports	Gross Availability
1	2	3	4	5	6	7	8
1	1970-71	6822	11683	18505	17110	752	17862
2	1971-72	7299	12951	20250	18639	2011	20650
3	1972-73	7321	12084	19405	17830	3399	21229
4	1973-74	7189	13855	21044	19495	3387	22882
5	1974-75	7684	14016	21700	19603	2473	22076
6	1975-76	8448	13624	22072	20829	2048	22877
7	1976-77	8898	14048	22522	21432	2550	23982
8	1977-78	10763	14507	25270	23219	2832	26051
9	1978-79	11633	14657	26290	24193	3834	28027
10	1979-80	11766	16121	27887	25794	4636	30430
11	1980-81	10507	16248	26755	24123	7253	31376
12	1981-82	16194	14460	30654	28182	4829	33011
13	1982-83	21063	12397	33460	31073	4233	35306
14	1983-84	26020	10445	36465	32926	2856	35782
15	1984-85	28990	7164	36154	33236	5159	38395
16	1985-86	30168	14616	44784	39881	1902	41783
17	1986-87	30480	15476	45956	42761	556	43317
18	1987-88	30357	17734	48091	44728	739	45467
19	1988-89	32040	17815	49855	45699	4200	49899
20	1989-90	34087	19490	53577	48690	3971	52661
21	1990-91	33021	20699	53720	48562	6012	54574
22	1991-92	30346	23994	54340	48349	6509	54858
23	1992-93	26950	29247	56197	50359	7564	57923
24	1993-94	27026	30822	57848	51084	8042	59126
25	1994-95	32239	27349	59588	52927	10697	63624
26	1995-96	35167	27342	62509	55081	16900	71981
27	1996-97	32900	33906	66806	59005	17103	76108
28	1997-98	33858	34493	68351	61308	20589	81897
29	1998-99	32722	39808	72530	64544	23052	87596
30	1999-00	31949	57805	89754	79411	15862	95273
31	2000-01	32426	74097	106523	95614	902	96516
32	2001-02	32032	78706	110738	100004	-3056	96948
33	2002-03	33042	81989	115033	104140	-3061	101079
34	2003-04	33373	90434	123807	113463	-6619	106844
35	2004-05	33981	95861	129842	118579	-9383	109196
36	2005-06	32190	99409	131599	119750	-9830	109920
37	2006-07(P)	33988	110858	144846	135260	-15428	119832

Source : Ministry of Petroleum & Natural Gas.

P : Provisional

'@ :Excludes LPG production form natual gas.

TABLE 4.2.15 : GROSS AND NET PRODUCTION & UTILISATION OF NATURAL GAS IN INDIA

(Million cubic metre)

Sl. No.	Year	Gross Production	Re-injected	Flarred	Net Production (Utilisation)
1	2	3	4	5	6
1	1970-71	1445	36	762	647
2	1971-72	1535	49	768	718
3	1972-73	1565	141	653	771
4	1973-74	1713	115	836	762
5	1974-75	2041	139	951	951
6	1975-76	2368	162	1082	1124
7	1976-77	2428	190	857	1381
8	1977-78	2839	184	1191	1464
9	1978-79	2812	148	953	1711
10	1979-80	2767	127	964	1676
11	1980-81	2358	67	769	1522
12	1981-82	3851	110	1519	2222
13	1982-83	4936	91	1888	2957
14	1983-84	5961	45	2517	3399
15	1984-85	7241	48	3052	4141
16	1985-86	8134	66	3118	4950
17	1986-87	9853	63	2718	7072
18	1987-88	11467	54	3445	7968
19	1988-89	13217	84	3883	9250
20	1989-90	16988	96	5720	11172
21	1990-91	17998	102	5130	12766
22	1991-92	18645	132	4072	14441
23	1992-93	18060	90	1854	16116
24	1993-94	18335	71	1924	16340
25	1994-95	19381	23	2020	17338
26	1995-96	22639	17	1437	21202
27	1996-97	23255	0	1760	21495
28	1997-98	26401	0	1879	24522
29	1998-99	27428	0	1712	25716
30	1999-00	28446	0	1560	26886
31	2000-01	29477	0	1617	27860
32	2001-02	29714	0	1677	28037
33	2002-03	31389	0	1425	29964
34	2003-04	31962	0	1056	30906
35	2004-05	31763	0	988	30775
36	2005-06	32202	0	877	31325
37	2006-07(P)	31747	0	956	30791

Source : Ministry of Petroleum & Natural Gas.

P : Provisional

TABLE 4.2.16 : INDUSTRY-WISE OFF-TAKE OF NATURAL GAS IN INDIA.

(Million Cubic Metre)

SI No.	Year	Energy Purposes				Non-Energy Purposes		Grand Total
		Power Generation	Industrial Fuel	Tea Plantation	Others*	Fertilizer Industry	Others @	
1	2	3	4	5	6	7	8	9
1	1970-71	261	116	15	68	187	-	647
2	1971-72	313	129	19	61	196	-	718
3	1972-73	339	148	20	63	201	-	771
4	1973-74	323	157	22	81	179	-	762
5	1974-75	354	164	29	86	318	-	951
6	1975-76	366	143	33	117	463	2	1124
7	1976-77	344	155	38	157	663	24	1381
8	1977-78	372	165	39	184	673	31	1464
9	1978-79	560	175	43	189	721	23	1711
10	1979-80	514	156	39	187	755	25	1676
11	1980-81	492	163	45	190	611	21	1522
12	1981-82	612	166	47	379	991	27	2222
13	1982-83	1025	185	51	513	1155	28	2957
14	1983-84	1209	230	56	588	1283	33	3399
15	1984-85	1454	250	62	739	1603	33	4141
16	1985-86	1299	223	78	816	2500	34	4950
17	1986-87	2041	257	93	1320	3335	26	7072
18	1987-88	2721	281	99	1347	3490	30	7968
19	1988-89	1823	526	87	1371	5334	109	9250
20	1989-90	2140	695	78	1567	6578	114	11172
21	1990-91	3634	827	89	1825	5612	779	12766
22	1991-92	4774	766	108	2237	5509	1047	14441
23	1992-93	4967	1450	105	2103	6672	819	16116
24	1993-94	4785	1794	121	2466	6499	675	16340
25	1994-95	5229	1927	134	2420	6936	693	17339
26	1995-96 \$	6836	2301	111	767	7602	474	18091
27	1996-97 \$	6935	2631	130	802	7625	509	18632
28	1997-98 \$	8114	3106	117	775	8752	649	21513
29	1998-99 \$	8714	3005	147	1104	8869	650	22489
30	1999-2000	8829	2329	140	5126	8592	1869	26885
31	2000-2001	8801	2870	151	5377	8480	2181	27860
32	2001-2002	9214	2979	147	5894	7957	1846	28037
33	2002-03	10510	2939	119	6199	7955	2242	29964
34	2003-04	11478	3099	142	6221	7889	2077	30906
35	2004-05	12099	3569	142	5518	8173	1274	30775
36	2005-06	11878	3780	151	6243	7762	1211	31025
37	2006-07(P)	11963	3205	170	5517	8497	2016	31368

Source : Ministry of Petroleum & Natural Gas.

P : Provisional \$:Excludes offtakes of natural gas by ONGC

* : Includes domestic fuel, captive use & LPG shrinkage.

@ : Includes petro-chemicals.

TABLE 4.2.17 : THE STATUS OF BIOMASS PROJECTS

Sl. No.	Project Status	Biomass Power		Cogeneration		Total	
		MW	Nos	MW	Nos	MW	Nos
1	2	3	4	5	6	7	8
1	Commissioned	290	52	437	57	727	109
2	Under implementation	284	41	323	35	607	76

Source :Ministry of New Renewable Energy

TABLE 4.2.18 : STATEWISE AND YEARWISE COMPOSITION OF COMMISSIONED BIOMASS POWER PROJECTS (as on 30-06.2007)

S.No	Source /System	Estimated potential	Achivement
1	Power from renewables		
A	Grid-interactive renewable power	(MW)	(MW)
1	Solar photovoltaic power	-	2.12
2	Wind power	45195	7230.99
3	Small hydro power (up to 25 MW)	15000	2013.17
4	Biomass power	16881	542.80
5	Bagasse cogeneration	5000	634.83
6	Energy recovery from waste (MW)	2700	43.45
	Sub total (A)	84776	10 467.36
B	Distributed renewable power		(MW)
7	Biomass/cogeneration (non-bagasse)	-	45.80
8	Biomass gasifier	-	86.53
9	Energy recovery from waste	-	19.76
	Sub total (B)	-	152.09
	Total (A+B)	-	10619.45
II	II Remote village electrification		3651 villages/hamlets
III	Decentralized energy systems		
10	Family-type biogas plants	120 lakh	38.90 lakh
11	Solar photovoltaic programme	20 MW/km ²	
	i. Solar street lighting system	-	61 321 nos
	ii. Home lighting system	-	313 859 nos
	iii. Solar lantern	-	565 658 nos
	iv. Solar power plants	-	1867.80 kW _p
12	Solar thermal programme		
	i. Solar water heating systems	140 million m ² collector area	1.95 million m ² collector area
	ii. Solar cookers		6.17 lakh
13	Wind pumps		1180 nos
14	Aero generator/hybrid systems		608.27 kW
15	Solar photovoltaic pumps		7068 nos
IV	Other programmes		
16	Energy parks		494 nos
17	Akshay Urja shops		165 nos
18	Battery operated vehicles		256 nos
19	Research, design, and development		600 projects
20	Renewable energy clubs		521 nos
21	District Advisory Committees		560 nos

Source: Akshay Urja, July-August 2007, Ministry of New Renewable Energy

MW - megawatt

MWp - megawatt peak;

kW - kilowatt;

m² - square metre;

km² - kilometre square

**TABLE 4.2.19 : DISTRIBUTION OF FAMILY -TYPE BIOGAS PLANTS
(NUMBER OF INSTALLATIONS)**

Sl. No.	State/UT	Estimated Potential	Cumulative Achievement as on (31-03-2006)	Target (2006-07)	Achievement till (31.01.2007)
1	2	3	4	5	6
1	Andhra Pradesh	1065000	400857	18000	9085
2	Arunachal Pradesh	7500	2210	150	-
3	Assam	307000	58667	50	-
4	Bihar	733000	124935	100	-
5	Goa	8000	3707	75	16
6	Gujarat	554000	378846	8000	4010
7	Haryana	300000	49190	1000	817
8	Himachal Pradesh	125000	44866	150	137
9	Jammu & Kashmir	128000	2122	110	-
10	Karnataka	680000	393236	4000	1504
11	Kerala	150000	108313	4500	2179
12	Madhya Pradesh	1491000	247566	15000	4519
13	Maharashtra	897000	719084	13000	7493
14	Manipur	38000	2128	100	-
15	Meghalaya	24000	4226	200	60
16	Mizoram	5000	3470	100	50
17	Nagaland	6700	2617	200	-
18	Orissa	605000	224373	4000	1273
19	Punjab	411000	80856	1500	1370
20	Rajasthan	915000	66941	25	-
21	Sikkim	7300	5574	200	155
22	Tamil Nadu	615000	210616	1500	727
23	Tripura	28000	2442	300	-
24	Uttar Pradesh	1938000	407966	4000	2259
25	West Bengal	695000	263587	8500	7560
	Union Territory				
26	Andaman and Nicobar Islands	2200	137	-	-
27	Chandigarh	1400	97	-	-
28	Dadra and Nagar Haveli	2000	169	-	-
29	Delhi	12900	677	-	-
30	Pondicherry	4300	573	-	-
31	Chhattisgarh	400000	18645	1500	1406
32	Jharkhand	100000	2083	200	-
33	Uttaranchal	83000	6603	400	255
34	KVIC and others	-	-	15000	7922
	Total	12339000	3837379	101860	52797

Source : Annual Report 2006-07, Ministry of New and Renewable Energy

KVIC : Khadi and Village Industries Commission

Table 4.2.20(a) : State-wise Break-up of The Energy Parks as on 31.01.2007

No.	State/UT	Energy Parks in Nos.	
		District Level	State Level
1	Andhra Pradesh	30	1
2	Arunachal Pradesh	6	1
3	Assam	15	1
4	Bihar	5	-
5	Chhattisgarh	11	1
6	Delhi	9	1
7	Goa	2	-
8	Gujarat	14	1
9	Haryana	22	1
10	Himachal Pradesh	12	-
11	Jammu & Kashmir	7	1
12	Jharkhand	15	1
13	Karnataka	26	1
14	Kerala	16	1
15	Madhya Pradesh	23	-
16	Maharashtra	52	1
17	Manipur	10	-
18	Meghalaya	7	1
19	Mizoram	7	1
20	Nagaland	6	1
21	Orissa	9	1
22	Punjab	19	1
23	Rajasthan	12	-
24	Sikkim	5	-
25	Tamil Nadu	45	1
26	Tripura	10	1
27	Uttar Pradesh	52	1
28	Uttarakhand	11	1
29	West Bengal	8	1
30	A&N Islands	8	1
31	Chandigarh	3	1
32	Pondicherry	2	1
	Total	476	25

Source : Annual Report 2007, Ministry of New and Renewable Energy

Table 4.2.20 (b) : State wise Renewable Energy Clubs

S. No	State	No. of Renewable Energy Clubs
1	Andhra Pradesh	40
2	Chandigarh Administration	4
3	Chhattisgarh	8
4	Haryana	9
5	Himachal Pradesh	2
6	Jammu & Kashmir	4
7	Karnataka	60
8	Madhya Pradesh	31
9	Maharashtra	67
10	Orissa	13
11	Pondicherry	5
12	Punjab	15
13	Rajasthan	12
14	Tamil Nadu	123
15	Uttar Pradesh	64
16	West Bengal	24
	Total	481

Source : Annual Report 2007, Ministry of New and Renewable Energy

TABLE 4.3.1 : NUMBER OF REGISTERED FACTORIES BY MANUFACTURING INDUSTRIES

Sl. No.	Year	Manufacturing	Electricity, Gas & Water	Repair Services & Cold Storage	All Activities
1	2	3	4	5	6
1	1987-88	98379	458	3759	102596
2	1988-89	99724	481	3872	104077
3	1989-90	103373	493	4126	107992
4	1990-91	105511	518	4150	110179
5	1991-92	107454	505	4327	112286
6	1992-93	113890	961	4643	119494
7	1993-94	116227	542	4825	121594
8	1994-95	117564	554	4892	123010
9	1995-96	125281	4013	5277	134571
10	1996-97	125166	4160	5230	134556
11	1997-98	126272	3856	5423	135551
12	1998-99 *	130222	143	1341	131706
13	1999-2000 *	130035	158	1365	131558
14	2000-01 *	127036	163	4069	131268
15	2001-02 *	124099	170	4279	128548
16	2002-03 *	123401	182	4374	127957
17	2003-04	124277	219	4578	129074
18	2004-05	131232	275	4846	136353

Source : Central Statistical Organisation

* : From 1998-99, all electricity undertakings other than Captive Units have been kept outside the purview of ASI

TABLE 4.3.2: STATE-WISE SUMMARY STATUS OF THE POLLUTION CONTROL IN MEDIUM AND LARGE SCALE UNITS OF 17 CATEGORIES OF INDUSTRIES

Sl. No.	State/UT	Total No. of Units	Status (No. of Units)		
			Closed	Comply [#]	Defaulters
1	2	3	4	5	6
	States				
1	Andhra Pradesh	269	29	240	0
2	Assam	16	3	12	1
3	Bihar	46	19	27	0
4	Chhattisgarh	25	2	21	2
5	Goa	8	0	8	0
6	Gujarat	283	10	273	0
7	Haryana	107	24	69	14
8	Himachal Pradesh	11	0	11	0
9	Jammu and Kashmir	10	3	7	0
10	Jharkhand	21	3	16	2
11	Karnataka	116	14	102	0
12	Kerala	43	6	37	0
13	Madhya Pradesh	78	15	61	2
14	Maharashtra	392	26	356	10
15	Meghalaya	1	0	1	0
16	Orissa	51	2	42	7
17	Punjab	102	17	58	27
18	Rajasthan	108	8	96	4
19	Sikkim	1	0	1	0
20	Tamil Nadu	216	2	187	27
21	Tripura	5	0	5	0
22	Uttarakhand	38	2	20	16
23	Uttar Pradesh	263	27	232	4
24	West Bengal	77	20	34	23
	Union territories				
25	Chandigarh	1	1	0	0
26	Delhi	5	1	4	0
27	Puducherry	8	1	7	0
	Total	2301	235	1927	139

Source : Ministry of Environment Forest, Annual Report 2004-05

: Adequate facilities to comply with the standards

TABLE 4.3.3 : SUMMARY STATUS OF POLLUTION CONTROL IN GROSSLY POLLUTING INDUSTRIES DISCHARGING THEIR EFFLUENTS INTO RIVERS AND LAKES*(As on 30.09.2003)*

Sl. No.	Name of the State/Union Territory	No. of Defaulters Units	No. of Units Closed	No. of Units Which Have Provided Requisite Treatment/Disposal Facilities after Issuance of Directions	No. of Defaulting Units
1	2	3	4	5	6
1	Andhra Pradesh	60	18	42	0
2	Assam	7	6	1	0
3	Bihar	14	4	10	0
4	Gujarat	17	3	14	0
5	Haryana	21	9	12	0
6	Karnataka	20	2	18	0
7	Kerala	36	4	32	0
8	Madhya Pradesh	2	1	0	1
9	Maharashtra	6	3	3	0
10	Orissa	9	3	4	2
11	Pondicherry	4	0	4	0
12	Punjab	18	1	16	1
13	Tamil Nadu	366	118	248	0
14	Uttar Pradesh	241	59	181	1
15	West Bengal	30	7	23	0
	Total	851	238	608	5

Source : Ministry of Environment & Forests, Annual Report 2003-2004

TABLE 4.3.4 : MAXIMUM PERMISSIBLE LIMITS FOR INDUSTRIAL EFFLUENT DISCHARGES*(mg/Litre)*

Sl. No.	Parameter	Into Inland Surface Waters Indian Standards 2490 (1974)	Into Public Sewers Indian Standards: 3306 (1974)	Onland for Irrigation Indian Standards: 3307 (1974)	Marine Coastal Area
1	2	3	4	5	6
1	pH	5.5-9.0	5.5-9.0	5.5-9.0	5.5-9.1
2	Biological oxygen demand (for 5 days at 20°C)	30.00	350.00	100.00	100.00
3	Chemical oxygen demand	250.00	-	-	250
4	Suspended solids	100.00	600.00	200.00	-
5	Total dissolved solids (inorganic)	2100.00	2100.00	2100.00	-
6	Temperature (°C)	40.00	45.00	-	45.00
7	Oil and grease	10.00	20.00	10.00	20.00
8	Phenolic Compounds	1.00	5.00	-	5.00
9	Cyanides	0.20	2.00	0.20	0.20
10	Sulphides	2.00	-	-	5.00
11	Fluorides	2.00	15.00	-	15.00
12	Total residual chlorine	1.00	-	-	1.00
13	Pesticides	-	-	-	-
14	Arsenic	0.20	0.20	0.20	0.20
15	Cadmium	2.00	1.00	-	2.00
16	Chromium (hexavalent)	0.10	2.00	-	1.00
17	copper	3.00	3.00	-	3.00
18	Lead	0.10	1.00	-	1.00
19	Mercury	0.01	0.01	-	0.01
20	Nickel	3.00	3.00	-	5.00
21	Selenium	0.05	0.05	-	0.05
22	Zinc	5.00	15.00	-	15.00
23	Chlorides	1000.00	1000.00	600.00	-
24	Boron	2.00	2.00	2.00	-
25	Sulphates	1000.00	1000.00	1000.00	-
26	Sodium (%)	-	60.00	60.00	-
27	Ammoniacal nitrogen	50.00	50.00	-	50
28	Radioactive materials				
29	Alpha emitters (milli curie/millilitre)	10 ⁻⁷	10 ⁻⁷	10 ⁻⁸	10 ⁻⁷
30	Beta emitters (μ curie/millilitre)	10 ⁻⁶	10 ⁻⁶	10 ⁻⁷	10 ⁻⁶

Source : Central Pollution Control Board

TABLE 4.3.5 : EFFLUENT STANDARDS FOR SUGAR INDUSTRY

Sl. No.	Parameter	Permissible Limits (mg/Litres)	
		Disposal on Land	Disposal in Surface Water
1	2	3	4
1	Biological Oxygen Demand (5 days at 20°C)	100	30
2	Suspended Solids	100	30

Source : Central Pollution Control Board

TABLE 4.3.6 : EFFLUENT STANDARDS FOR LARGE PULP AND PAPER INDUSTRIES

Capacity (Tonnes a year)	Parameter	Permissible Limits
1	2	3
Above 24,000	pH	7.0-8.5
	Biological Oxygen Demand at 20°C	30 mg/litre
	Chemical Oxygen Demand	350 mg/litre
	Suspended solids	50 mg/litre
	Total organic chloride	2.0 kg/tonne of paper produced
	Flow (total waste water discharge)	--
	Large pulp and paper ^a	200 m ³ /tonne of paper produced
	Large rayon grade newsprint	150 m ³ /tonne of paper produced

Source : Central Pollution Control Board

a : the standards with respect to total waste water discharge for large pulp and paper mills established from 1992 will meet the standards of 100 m³/tonne of paper produced

TABLE 4.3.7 : EFFLUENT STANDARDS FOR OIL REFINERIES

Sl. No.	Parameter	Permissible Limit	(Mg/Litre)
			Quantum (Kg/Thousand Tonnes of Crude Processed)
1	2	3	4
1	Oil and grease	10.0	7.00
2	Phenol	1.0	0.70
3	Sulphide	0.5	0.35
4	Biological Oxygen Demand (5 days at 20°C)	15.0	10.50
5	Suspended Solids	20.0	14.00
6	pH	--	6.00-8.50

Source : Central Pollution Control Board

TABLE 4.3.8 : EFFLUENT STANDARDS FOR ALUMINIUM INDUSTRY

Sl. No.	Plant	Parameters	Permissible Limits
1	2	3	4
1	Alumina Plant Raw material handling Precipitation area : calcination	Primary and secondary crusher particulate matter Particulate matter Carbon Mono-oxide Stack Height ^a	150 mg/m ³ 250 mg/m ³ 1 % maximum
2	Smelter plant Green anode shop Anode bake oven	Particulate matter Particulate matter Total fluoride	150 mg/m ³ 150 mg/m ³ 0.3kg/tonne at Al
3	Potroom	Particulate matter Total fluoride Vertical stud sodenberg Horizontal stud sodenberg Prebacked side worked Prebacked centre worked Stack Height ^a	150 mg/m ³ 4.7 kg/tonne of Al produced 6.0 kg/tonne of Al produced 2.5 kg/tonne of Al produced 1.0 kg/tonne of Al produced

Source : Central Pollution Control Board

a $H = 14 Q^{0.3}$, where Q is the emission rate of sulphur dioxide in Kg/h and H is the stack height in meters.

TABLE 4.3.9 : EFFLUENT STANDARDS FOR PETRO-CHEMICAL (BASIC & INTERMEDIATES) INDUSTRY

Sl. No.	Parameter	Permissible Limit
1	2	3
1	pH	6.5-8.5
2	Biological Oxygen Demand (5 days at 20°C) ^a	50.0
3	Phenol ^b	5.0
4	Sulphide (as S)	2.0
5	Chemical Oxygen Demand	250.0
6	Cyanide (as CN)	0.2
7	Fluoride (as F) ^c	15.0
8	Total Suspended Solids	1000.0
9	Hexavalent Chromium	0.1
10	Total Chromium (as Cr) ^d	2.0

Source : Central Pollution Control Board

- a :** The state board may prescribe the biological oxygen demand value of 30 mg/l if the recipient system so demands.
- b :** The limit for phenol shall be confirmed at the outlet of effluent treatment of phenol plant. However, at the final disposal point, the limit shall be less than 1 mg/l
- c :** The limit for fluoride shall be confirmed at the outlet of the chrome removal unit. However, at the disposal point, fluoride concentration shall be lower than 5 mg/l
- d :** The limits for total and hexavalent chromium shall be confirmed at the outlet of the chromate removal. This implies that in the final treated effluent total, and hexavalent chromium shall be lower than prescribed herein

TABLE 4.4.1 : CONTRIBUTION OF GREEN HOUSE GASES TO ATMOSPHERE

Sl. No.	Green Houses Gases	Contribution to atmosphere (%)
1	2	3
1	Carbondioxide	55
2	Methane	15
3	CFCs 11 & 12	17
4	Nitrousoxide	6
5	Others	7

Source : Central Pollution Control Board

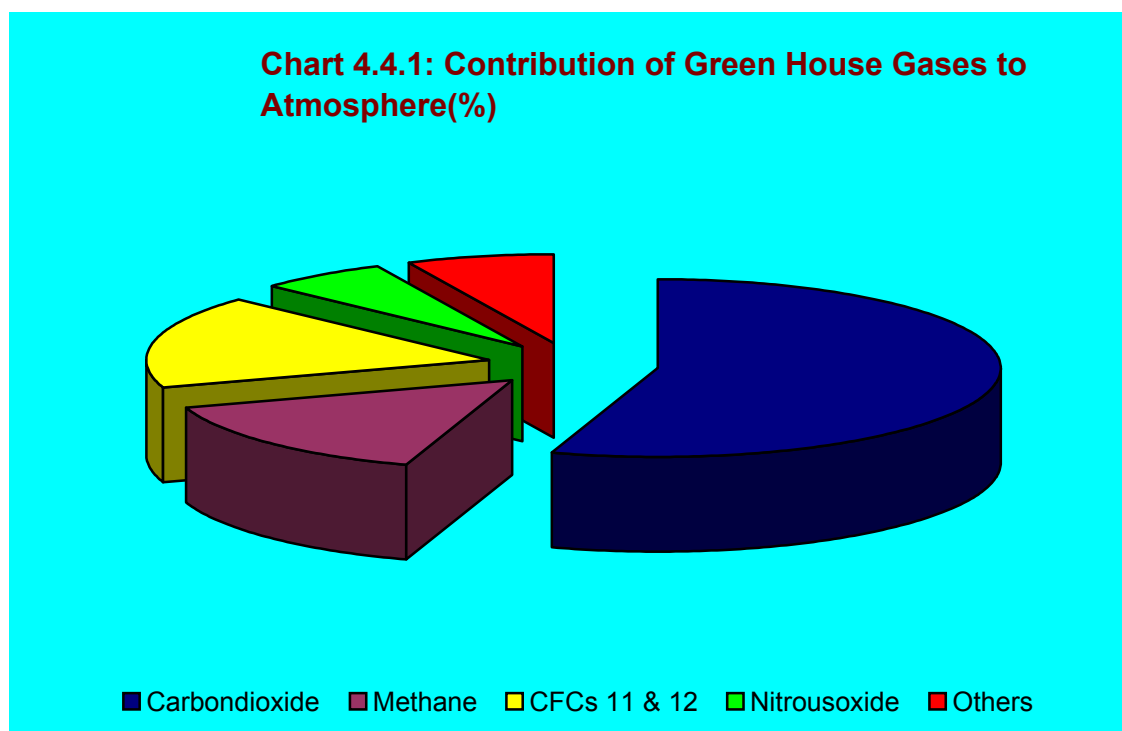


TABLE 4.4.2 (a): TOTAL ABSOLUTE EMISSIONS of CO₂ FROM THE POWER SECTOR BY REGION FOR 2000-01 TO 2006-07

(million t /year)

Region	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07
1	2	3	4	5	6	7	8
North	97.87	102.74	106.81	110.00	112.21	120.10	129.55
East	58.03	61.43	66.59	75.51	83.96	92.52	93.36
South	89.02	92.18	105.24	108.12	105.60	101.76	109.25
West	135.19	141.60	148.56	144.13	157.78	153.93	157.72
North - East	2.21	2.16	2.29	2.46	2.47	2.53	2.65
India	382.31	4000.11	429.48	440.22	462.02	470.85	495.54

TABLE 4.4.2 (b): EMISSION FACTORS* OF CO₂ FOR 2006-07

(t/MWh)

Region	Average	OM	BM	CM
1	2	3	4	5
North	0.72	0.99	0.63	0.81
East	1.03	1.13	0.93	1.03
South	0.72	1.00	0.71	0.85
West	0.85	0.99	0.59	0.79
North - East	0.39	0.69	0.23	0.46
India	0.80	1.01	0.68	0.85

Note: * : (Excluding Inter regional and cross sector power transfer)

OM: operating margin

BM: build margin

CM: combined margin

TABLE 4.4.2 (c): SPECIFIC EMISSIONS (WEIGHTED AVERAGE) FOR of CO₂ for FOSSIL FUEL-FIRED STATIONS IN 2006-07

(t/MWh)

Region	Coal	Diesel	Gas	Lignite	Naptha	Oil
1	2	3	4	5	6	7
North	1.09	-	0.44	-	-	-
East	1.13	-	-	-	-	-
South	1.01	0.06	0.49	1.43	0.66	0.61
West	1.10	-	0.45	1.36	0.61	0.82
North - East	-	0.64	0.69	-	-	-
India	1.09	0.62	0.47	1.42	0.61	0.71

Note: Stations for which assumptions had to be made are included in this analysis.

**TABLE 4.4.3 : GLOBAL AVERAGE TEMPERATURE AND
ATMOSPHERIC CONCENTRATIONS OF CO₂**

Sl. No.	Year	Temperature (°C)	Carbon Dioxide (Parts Per Million)	Emissions from Fossil Fuel Burning (Million Tonnes of Carbon)
1	2	3	4	5
1	1950	13.87	--	1612
2	1955	13.88	--	2013
3	1960	14.01	316.80	2535
4	1965	13.90	319.90	3087
5	1966	13.96	321.20	3222
6	1967	14.00	322.00	3334
7	1968	13.94	322.90	3501
8	1969	14.03	324.50	3715
9	1970	14.02	325.50	3997
10	1971	13.89	326.20	4143
11	1972	14.00	327.30	4305
12	1973	14.13	329.50	4538
13	1974	13.89	330.10	4545
14	1975	13.94	331.00	4518
15	1976	13.86	332.00	4776
16	1977	14.11	333.70	4910
17	1978	14.02	335.30	4962
18	1979	14.09	336.70	5249
19	1980	14.16	338.50	5177
20	1981	14.22	339.80	5004
21	1982	14.06	341.00	4961
22	1983	14.25	342.60	4944
23	1984	14.07	344.20	5116
24	1985	14.03	345.70	5277
25	1986	14.12	347.00	5439
26	1987	14.27	348.70	5561
27	1988	14.29	351.30	5774
28	1989	14.19	352.70	5882
29	1990	14.37	354.00	5953
30	1991	14.32	355.50	6023
31	1992	14.14	356.40	5907
32	1993	14.14	357.00	5904
33	1994	14.25	358.90	6055
34	1995	14.37	360.90	6187
35	1996	14.23	362.60	6326
36	1997	14.40	363.80	6422
37	1998	14.56	366.60	6407
38	1999	14.32	368.30	6239
39	2000	14.31	369.40	6315
40	2001	14.36	370.90	6378
41	2002(P)	14.52	372.90	6443

Source: The Energy and Resources Institute

P : Provisional

TABLE 4.5.1 : AMBIENT AIR QUALITY STANDARDS IN RESPECT OF NOISE

Sl. No.	Area	Limits in dB(A) L_{eq} *	
		Day Time	Night Time
1	2	3	4
1	Industrial Area	75	70
2	Commercial Area	65	55
3	Residential Area	55	45
4	Silence Zone	50	40

Source : Central Pollution Control Board

Notes :

- 1 Day Time -- 06.00 hour to 22.00 hour (16 hours)
- 2 Night time --22.00 hour to 06.00 hour (08 hours)
- 3 Areas upto 100 metres around certain premises like hospitals, educational institutions and courts, religious places or any other area which is declared as silence zones by the competent authority.
- 4 Mixed categories of areas may be declared as one of four aforesaid categories by the competent Authority.

- * dB (A) L_{eq} denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.
- A "decibel" is a unit in which noise is measured.
- "A", in dB (A) L_{eq} denotes the frequency weighting in the measurement of noise and corresponds to frequency response characteristics of the human ear.
- L_{eq} : It is an energy mean of the noise level over a specified period.

According to study on occupational hazards, even short exposures to intense noise can shift upward the hearing threshold while prolonged exposure or intermittent exposure over a long period produces a damaging effect on hearing resulting in a permanent threshold shift. Accordingly, the Central Pollution Control Board(CPCB) has prescribed norms for noise levels.

TABLE 4.5.2 : AVERAGE NOISE LEVELS IN VARIOUS METROPOLITAN CITIES

(dB[A])						
Sl. No.	Metropolitan Cities	Day/ Night	Industrial Area	Commercial Area	Residential Area	Silence Area
1	2	3	4	5	6	7
1	Kolkata	Day	78	82	79	79
		Night	67	75	65	65
2	Mumbai	Day	76	75	70	66
		Night	65	66	62	52
3	Chennai	Day	71	78	66	63
		Night	66	71	48	49
4	Bangalore	Day	78	76	67	67
		Night	53	57	50	--
5	Hardwar*	Day	-	77	66	71
		Night	-	75	58	66
6	Kanpur*	Day	-	79	75	75
		Night	-	78	72	66

Source : Central Pollution Control Board

* : 2003 Figures

The noise pollution has already reached at a high level in most of the metropolitan cities in all the residential, commercial, industrial and silence zones. The increasing noise pollution may be attributed to increase in no. of vehicles, urbanization and industrialization.

TABLE 4.5.3 : EFFECTS OF NOISE POLLUTION ON HUMAN HEALTH

A. Noise Hazards	
Stage : I Threat to Survival (a) Communication interference (b) Permanent hearing loss	Stage : II Causing Injury (a) Neural -humoral stress response (b) Temporary hearing loss (c) Permanent hearing loss
B. Noise Nuisances	
Stage III Curbing Efficient Performance (a) Mental Stress (b) Task Interference (c) Sleep Interference	Stage IV Diluting Comfort and Enjoyment (a) Invasion of Privacy (b) Disruption of Social Interaction (c) Hearing Loss

Source: West Bengal Pollution Control Board