Health Impacts of Air Pollution in Ahmedabad

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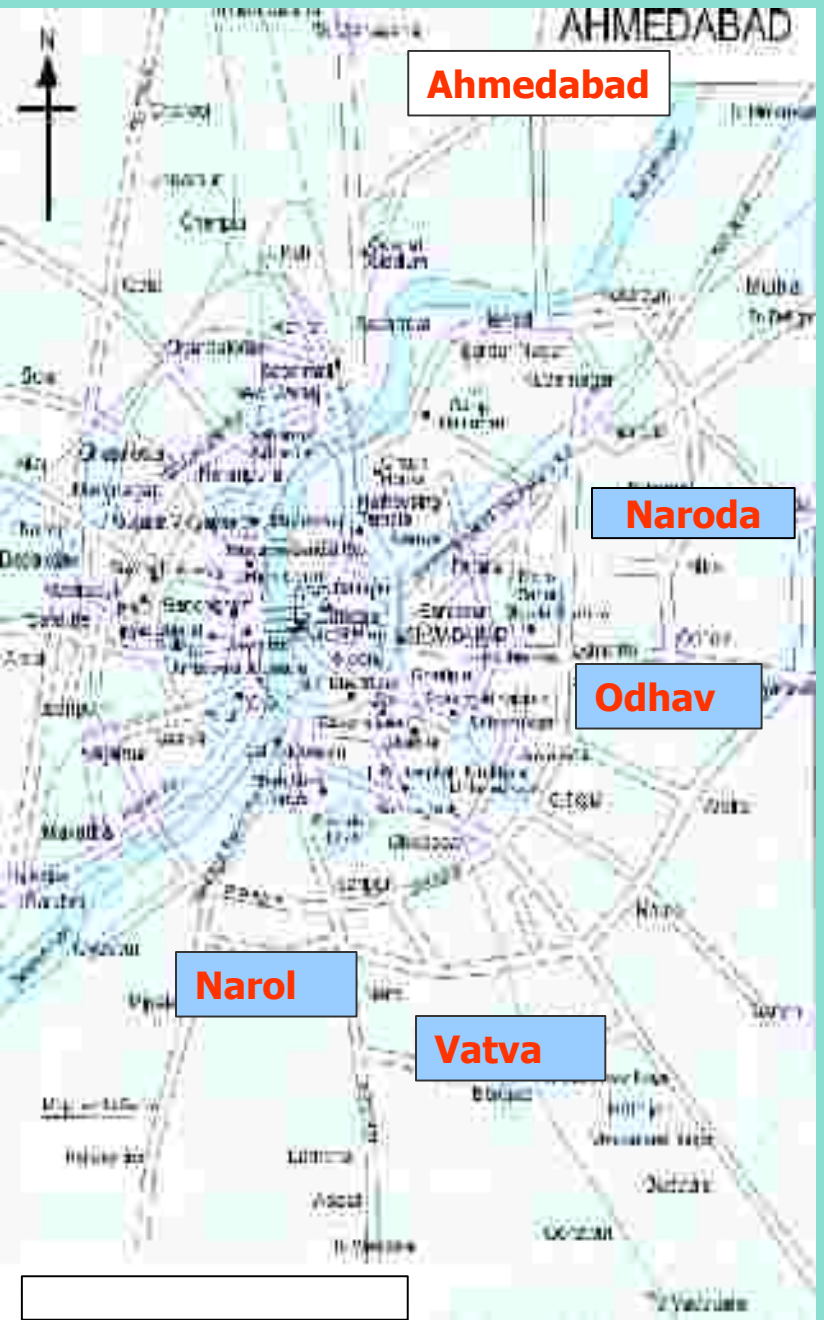
City Profile : Ahmedabad



- Area : 190.84 sq.km. (AMC)
  350 sq.km.(incl. Outgrowth)
- Population : 45.19 lakhs
  (city & outgrowth fig., census 2001)
- Growth Rate
  - Per decade : 28.86 %
  - Last decade : 22.20 %
- City Roads:
  - Length : 1286.4 Km
  - Area : 8 to 10 % of city area
- Number of Vehicles : 16.82 Lakhs as on 31st August 2005 in the District (RTO data)
- Industrial Units covered under the Air Act : 1800 nos.

Sources Contributing to Air Pollution in Ahmedabad

Vehicular:

- **Rapid increase in vehicles**
- **Adulterated Fuel**
- **Poor Maintenance**
- **Road Borne Dust**

Miscellaneous :

- Open burning of leaves, waste etc
- Road Side Dust
- Construction Activities
- Soil Condition
- Effect of desertification
- Meteorological Conditions
- Festivals & fireworks
- Domestic Chulas

Industrial :

- **Textile Process House**
- **Foundries, Crushing and Grinding Units**
- **Thermal Power Plant**
- **Coal Yards and Ash Yards/ Ponds**
- **Dyes, Dyes Intermediates and Chemical Industries**
- **Dairy, Flour Mills, Bakeries, Gram and Ground Nut Roasting Units**
- **Precious Metal Refining Units**
- **Brick Kilns and Incinerators**

AIR POLLUTANTS AND THEIR EFFECTS ON HUMAN HEALTH

Particulate matter :	Respiratory diseases.
Sulphur dioxide :	Irritates respiratory system, causes bronchitis.
Nitrogen dioxide :	Burning of eyes, nose etc., Severe irritation of respiratory system.
Carbon monoxide:	Deprive body cells of oxygen, causes unconsciousness.
Hydro carbons:	Affects central nervous system.
Chlorine:	Severe lung irritation, irritates the eyes.
Hydrogen Sulphide:	Respiratory paralysis, causes immediate unconsciousness.
Asbestos:	Lung cancer
Lead:	Brain damage, Muscular paralysis, convulsions.

Health Impacts of Air Pollution in Ahmedabad

- The Centre for Environmental Planning and Technology had undertaken a project called “Comparative Health Risk Assessment of Ahmedabad” under the sponsorship of Ahmedabad Municipal Corporation in September, 1996.
- Study reveals that air pollution has contributed to increased levels of Asthma, Bronchitis, Cough an Cold in the city particularly during the winter months.
- The occurrence of these diseases was noticed more in Central Zone particularly Asthma and Bronchitis and it is assumed that high air pollution level is the cause for this. In the West zone of the city, high level of cough and cold was noticed in winter months.
- This report, however, does not give focused information on the health consequences of air pollution. As a matter of fact, the report discloses that of all the reported cases of diseases, 29% happen to be Malaria. In fact, 77.7% who participated in the survey felt that Malaria is going to remain the gravest problem in the city.

Health Impacts of Air Pollution in Ahmedabad

- **A medical study was conducted by National Institute of Occupational Health (NIOH) in 2003 in three different areas of Ahmedabad, viz. Residential area (L.D.Engg. College), Commercial area (Nehru Bridge), Industrial area (Naroda). Distribution of % morbidity is as follows:**

(Total families covered: 679 – Residential:200, Commercial:242, Industrial:237)

Morbidity	Industrial area		Commercial area		Residential area	
	No.	%	No.	%	No.	%
Chronic Cough	35	3.7	16	1.6	15	2.0
Breathlessness while walking	53	5.5	50	4.6	27	3.3
Wheezing	36	3.7	9	0.8	19	2.3
Hemoptysis	6	0.6	4	0.4	4	0.5
Asthma	23	2.4	8	0.7	14	1.8
T.B.	6	0.6	5	0.5	2	0.2
Nausea	56	5.8	11	1.0	11	1.4
Eye Irritation	234	24.3	32	3.5	49	6.7
Cataract	32	3.5	64	5.9	17	2.1

Observations of NIOH

- The study showed that symptoms like cough, breathlessness while walking, haemoptysis have been more in industrial area. Asthma, Tuberculosis and chronic bronchitis was also higher in industrial area. Wheezing has been significantly higher in industrial area.

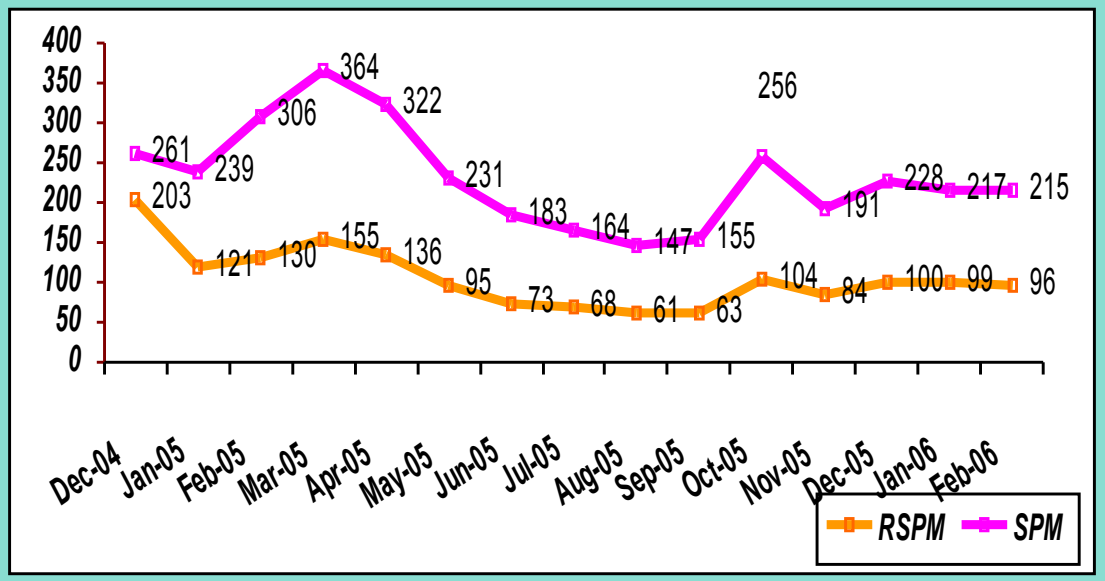
- The medical data from the different hospitals from Ahmedabad were also collected; however correct database regarding disease pattern w.r.to air pollution was not available. Amongst air borne disease pattern, max. cases of T.B. were reported in 1997 to 2003. While cases of Pneumonia, Diphtheria and Measles were comparatively less reported. High RSPM levels probably enhance chest disease pattern.

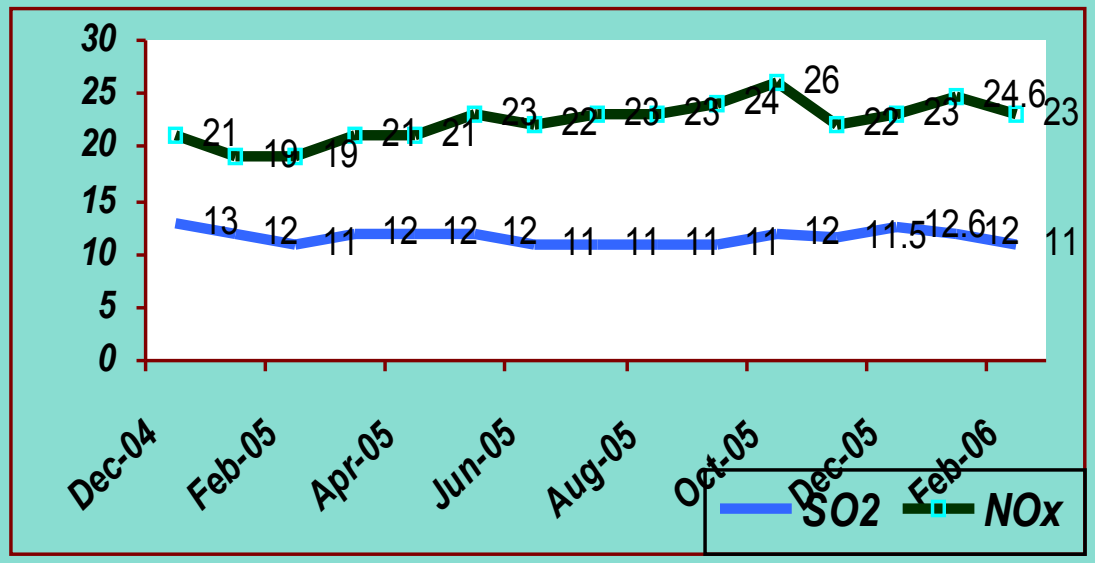
AIR POLLUTION CONTROL : ACTION PLAN

Highlights of implementation

- Action Plan under implementation for 18 months
- 26 CNG stations made operational
- 500 CNG buses on road in Ahmedabad
- 18,000 CNG auto rickshaws on road movement of pre-1991 rickshaws banned
- 112 newly registered PUC centers
- Bharat Stage –III norms for new vehicles
- Bharat Stage –III specification fuel supplied in the city
- Industries with major boilers : 150 wet scrubbers installed, ESPs under installation in two units
- 190 industrial units switched over to NG as fuel
- Ban / Restriction on movement of 6-seater diesel rickshaws, heavy vehicles
- Projects of Ring Road, flyovers, bridges, carpeting of roads.

What the latest trend indicates ?





AAQM AT L. D. Engineering College (NAMP project)

PARAMETER (LIMIT)	POSITION ON FEB-06 (UG/M³)	
SPM (200)	215	7.5 % HIGH
RSPM (100)	96	WITHIN LIMIT
SO2 (80)	11	WITHIN LIMIT
NOX (80)	23	WITHIN LIMIT

RESIDENTIAL

Fall in Air Pollution Levels

MONTH	AVERAGE RSPM OF 11 STATIONS	AVERAGE SPM OF 11 STATIONS
December/04	185	374
January/05	160	389
February/05	148	390
March/05	134	389
April/05	166	427
May/05	144	366
June/05	121	302
July/05	107	255
August/05	93	220
September/05	101	242
October/05	131	331
November/05	147	356
December/05	146	363
January/06	144	361
February/06	152	364
AVERAGE OF ALL MONTHS	135	340

THANKS