

# Scenario

- Population – 1210 million (2011)
- 51 million plus cities / Urban Agglomerates (2011)
- The largest City / UA is Greater Mumbai (18.4 millions)  
Delhi (16.3 millions) & Kolkata (14.1 millions)
- Registered motor vehicles in India – 159 million  
(2012-13).
- Registered motor vehicles in Delhi 7.75 million  
(2012-13)
- 95 Non-attainment cities to PM10
- Auto Fuel Policy, 2003 (roadmap up to 2010)  
Implemented

# Transport Modes

- **Waterways:** 12 mega ports- 187, smaller ports, Navigational length-14500km
- **Railways:** track length-11500km
- **Airways:** Airport with paved runway-253, unpaved -93
- **Roadways:** 2<sup>nd</sup> largest network, Length -4.689m km
- **Metro Rail:** Delhi, Kolkata, Chennai, Mumbai, Bangalore, Gurgaon
- **BRTS:** Delhi, Ahmedabad, Pune, Surat, Mumbai, Jaipur
- **Others:** Buses, Battery buses, e-rickshaw, 2-3 wheelers, cycling/biking

# Challenges

- Urban centres are severely congested and poor quality of roads
- Rural areas having poor access to reliable & efficient transport
- Public Transport is comparatively costly
- Last mile connectivity is weak
- Accident rates are high at 0.39m and deaths at 0.15m
- Inadequate infrastructure for NMT (cycling/biking)
- Personalized transport causing high level of pollution
- Huge cost (USD 13 billion) for conversion to Euro V/VI norms

# Auto Fuel Policy

## Roadmap for Vehicular Emission Norms

Coverage	Passenger Cars, Light Commercial Vehicles, & Heavy Duty Diesel Vehicles	2/3 Wheelers
Entire Country	Bharat Stage II - 1-4-2005 (Euro II equivalent)	Bharat Stage II - 1-4-2005
	Bharat Stage III - 1-4-2010 (Euro III equivalent)	Bharat Stage III - preferably from 1-4-2008 but not later than 1-4-2010
11 major cities* (Delhi/NCR, Mumbai, Kolkata, Chennai, Bangalore, Hyderabad Ahmedabad, Pune, Surat, Kanpur and Agra)	Bharat Stage II - 1-4-2003 (Euro II equivalent)	
	Bharat Stage III - 1-4-2005 (Euro III equivalent )	
	Bharat Stage IV * - 1-4-2010 (Euro IV equivalent)	

## **Auto Fuel Policy - Implementation Status**

- Recommendations w.r.t. BS-III/IV auto fuels achieved
- Refineries invested over Rs 35,000 crore (US \$ 6 billion) in upgrading facilities for producing BS-III/IV fuels.
- CNG extended to more than 60 cities and Auto LPG expanded to 270 cities
- Minimum 5 % blending of Ethanol in gasoline has been made mandatory
- Development of bio fuels / diesel from non-edible oil (Jatropha) has been taken up in big way

## **STRICTER NORMS FOR EMISSIONS FROM VEHICLES**

<b>Norms</b>	<b>Year of Implementation</b>
<b>Lead free gasoline introduced</b>	<b>In 1995</b>
<b>Cat. Convertor Norms</b>	<b>1995</b>
<b>Bharat Stage I (Euro I)</b>	<b>1999</b>
<b>Bharat Stage II (Euro II)</b>	<b>2001</b>
<b>Bharat Stage III (Euro III)</b>	<b>2005</b>
<b>Bharat Stage IV (Euro IV)</b>	<b>2010</b>

**ACTIONS.....**

## **FUEL QUALITY IMPROVEMENT**

<b>Norms</b>	<b>Year of Implementation</b>
<b>0.5% S – Diesel</b>	<b>1996</b>
<b>0.25% S – Diesel</b>	<b>2000</b>
<b>0.05% S – Diesel</b>	<b>2003</b>
<b>0.035% S – Diesel</b>	<b>2005</b>
<b>0.005% S – Diesel</b>	<b>2010</b>
<b>Unleaded Petrol</b>	<b>2000</b>

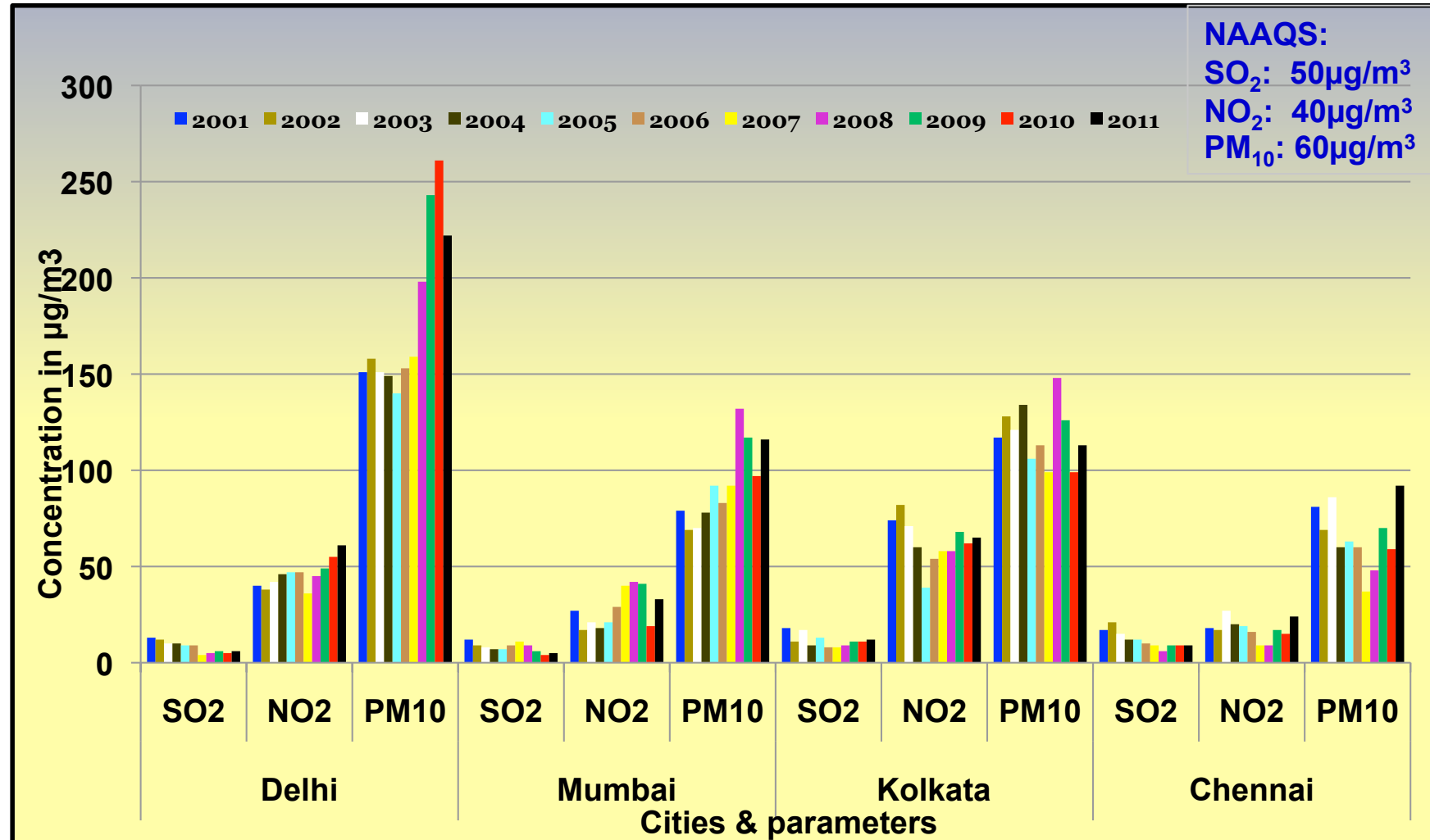
## ACTIONS.....

### AIR QUALITY MONITORING

- National Air Quality Monitoring Network
- 560 operating stations covering 175 cities/towns – 700 stations sanctioned
- Parameters monitored – SO<sub>2</sub>, NO<sub>2</sub>, TSP, RSPM (at all the locations); PM<sub>2.5</sub>, BTX, PAH, O<sub>3</sub>, CO, NH<sub>3</sub> (Selected locations)
- Characterization of PM<sub>10</sub>
- Continuous monitoring initiated in 16 cities – 50 stations
- Dissemination of data – Annual Reports, Trend Analysis, Environmental Data Bank; Real-time data from Continuous Air Quality Monitoring Stations of Delhi



# AIR QUALITY TRENDS IN FOUR MEGA CITIES



# Proposed Roadmap

- An Expert Committee on “Auto Fuel Vision & Policy 2025” was constituted by Ministry of Petroleum & Natural Gas in December 19, 2013 .T
- Committee submitted its recommendations in May 2014.
- The recommendations are however still to be approved by the cabinet.
- The following recommendations pertaining to emission standards for new vehicles have been proposed:

Vehicle Category	BS-IV	BS-V	BS-VI
2- wheelers	1 <sup>st</sup> April 2016	1 <sup>st</sup> April 2020	1 <sup>st</sup> April 2024
3- wheelers	1 <sup>st</sup> April 2016	1 <sup>st</sup> April 2020	1 <sup>st</sup> April 2024
4-wheelers	1 <sup>st</sup> April 2017	1 <sup>st</sup> April 2020 ( New Models) 1 <sup>st</sup> April 2021 ( Continuing Models)	1 <sup>st</sup> April 2024

# Other Recommendations

- Special fuel upgradation cess @ 75 paise per liter
- Equalization of BS III retail price with BS IV
- Ensuring Stringent Inspection and Maintenance
- Policy on phasing out of in-use commercial vehicles ( presently 15 yrs. Old)
- Time-bound retrofitting devices for Nox, PM
- Vapor recovery system for controlling Benzene
- Recommended studies on environmental impact, health impact and toxicology related periodic source apportionment studies

# Future Plans

- Strengthening of Network of Metro/BRTS
- Development of 100 smart cities
- Construction of more Expressways/ dedicated rail freight corridors
- Delhi-Mumbai corridors with gas highway
- Augmenting infrastructure for NMT
- Strengthening of air quality monitoring stations

**Thanks**