

Malé Declaration Implementation in India



**Central Pollution Control Board
(National Implementing Agency)
Ministry of Environment & Forests
(National Focal Point)
Govt. of India
New Delhi**

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Presentation in Regional Stakeholders cum Regional Coordination Meeting and Ninth Session of the Intergovernmental Meeting held on 2-3 Oct 2007 at Malé , Maldives.

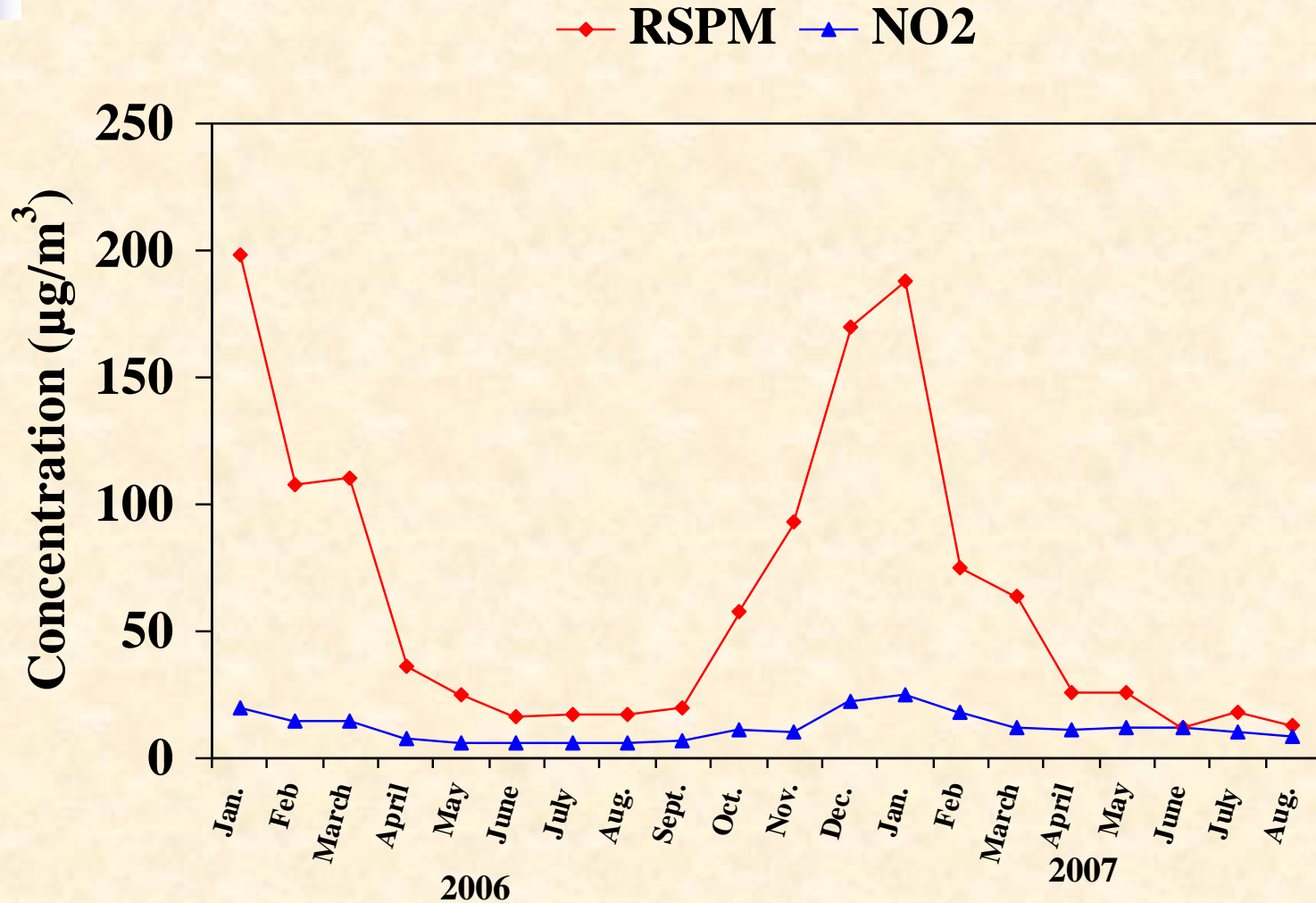


PROGRESS

☐ MONITORING ACTIVITIES

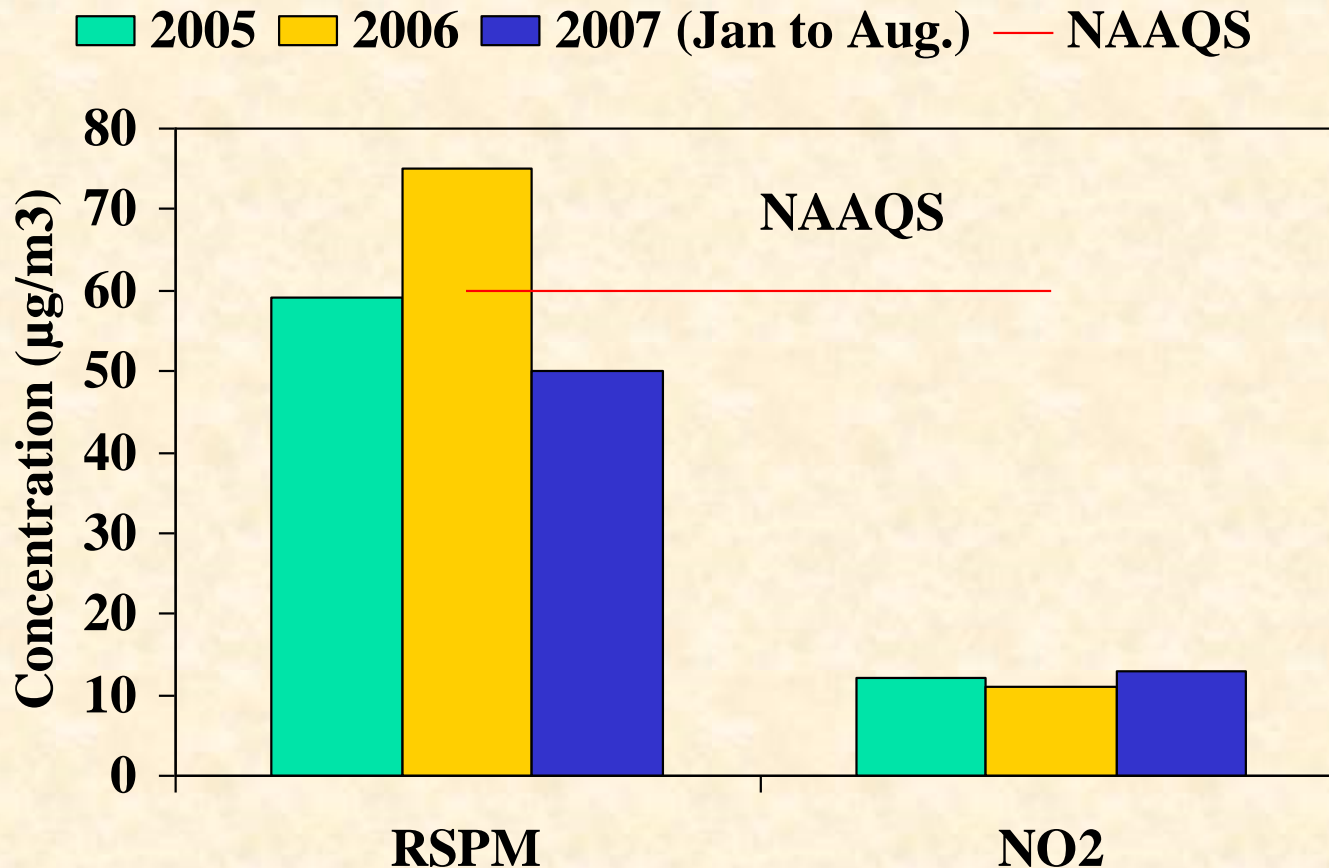
- **Location:** Port Canning, Sunderban
Located in South 24 Paraganas district of West Bengal, bordering Bangladesh on the Western bank of Matla river of Sunderban delta.
- **Commenced from:** September 2004
- **Parameters:** SO₂, NO₂, RSPM
- **Frequency:** Thrice a week

Monthly Average Concentrations at Port Canning, Sunderbans

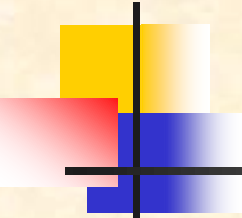


Seasonal variations. Higher levels during winter

Trends in Annual Average Concentration at Port Canning, Sunderbans



No violation of SO₂ and NO₂ levels with respect to NAAQS (Annual as well as 24 hourly average)



Percentage Violation of NAAQS (24 Hourly Avg.) at Port Canning, Sunderbans

Parameter	2005	2006	2007 (Jan to Aug)
RSPM	23	28	15
NO₂	0	0	0
SO₂	0	0	0



PROGRESS

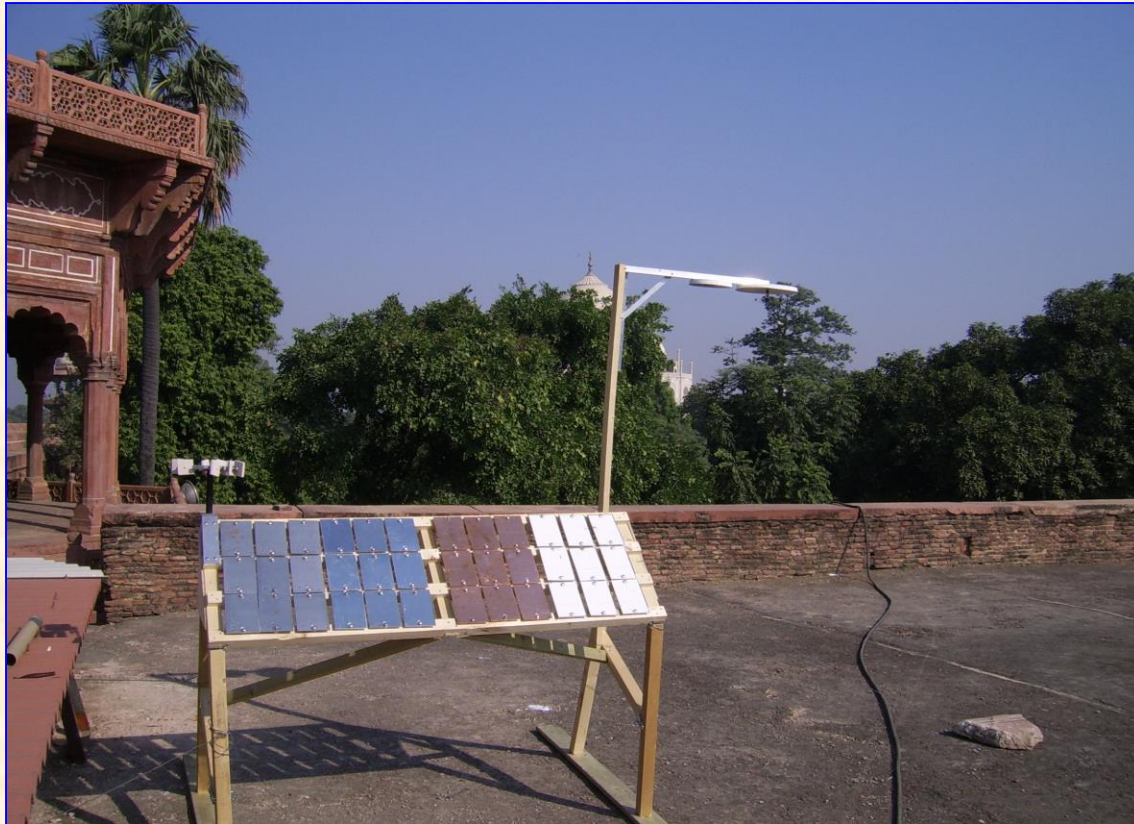
□ IMPACT ASSESSMENT ACTIVITIES

- **Source apportionment studies:** An integrated approach involving emission inventories, air quality measurements, dispersion & receptor modeling; initiated for six cities; focus on PM_{10} & $PM_{2.5}$; will address many air quality management issues
- **Epidemiological studies:** Two studies on impacts of ambient air pollution in Delhi (Adult and Children); One study on effect of biomass burning in rural households (indoor air pollution) initiated

PROGRESS

- o **Corrosion Study:**

Corrosion Rack at Tajmahal





Corrosion Study Materials at Tajmahal

- **Copper, Zinc, Painted Steel, Carbon Steel and Stone samples (total three sets of nine each) are being exposed**
- **One set (total 12 samples) of each sample (of three each) shall be studied for corrosion on completion of first, second & fourth years (due in Nov. 07, Nov. 08 & Nov. 10 respectively)**
- **Passive sampling being carried out for monitoring of HNO_3 , SO_2 , NO_2 , O_3 and particulates**
- **Exposed samples being forwarded regularly (every two months with temperature & Humidity data) to Corrosion & Metal Research Institute, Sweden for analysis**



CROP IMPACT

- **Study on impact of surface level ozone pollution on major crops like rice, wheat and maize, being carried out by IARI.**
- **Experiments are also being carried out to study the interactive effect of elevated ozone and carbon dioxide on the crop growth, productivity and soil fertility.**
- **Different exposure indices are being evaluated for ascertaining the damaging concentrations of surface level ozone and developing dose response relationships**



MAJOR INITIATIVES AND ACTIONS

AIR QUALITY MANAGEMENT

☐ VEHICULAR POLLUTION CONTROL

- **Auto Fuel Policy:** Better technology and Improved Fuel Quality
 - ❖ Bharat Stage –II – throughout the country
 - ❖ Bharat Stage – III in 11 cities
- **Fuel quality standard:** Fuel quality specifications notified
- **Gasoline Lead Phase Out:** Entire country
- **Diesel Sulphur Reduction:** (0.035% S in major cities)
- **Gasoline Benzene Reduction:** (1% - major cities)



☐ **VEHICULAR POLLUTION CONTROL**

- **Lubricants Quality: Improved**
- **Use of Pre-mix 2T oil dispenser: To avoid use of low quality**
- **Alternate Fuels: CNG, LPG, Ethanol blending in gasoline**
- **Restriction of Grossly Polluting Vehicles:**
- **Better Traffic Management: Flyovers, Count down timer**
- **Public Transport System: MRTS**



MAJOR INITIATIVES AND ACTIONS

AIR QUALITY MANAGEMENT

□ INDUSTRIAL POLLUTION CONTROL

- **Emission standards:** Notified for major industrial sectors; regularly upgraded; inclusion of HAPs; bubble limits.
- **Environmental Impact Assessment:** also involves public consultations for development projects.
- **Corporate Responsibility for Environmental Protection (CREP):** Voluntary initiative for improvement beyond regulatory requirements in respect of 17 highly polluting industrial sectors.
- **Small-scale industries:** Demonstration plant/pollution prevention technology set-up



MAJOR INITIATIVES AND ACTIONS

AIR QUALITY MANAGEMENT

□ OTHER STEPS

- **Non-attainment areas:** Action plan formulation & implementation in 16 cities and 24 critically polluted areas
- **Fly ash utilization:** Enhanced from 2 to 45 million tons per annum during 2006 – 2007. Present generation of fly ash is about 112 million tons.
- **Environmental audit:** Mandatory for all polluting industries.
- **Clean coal initiatives:** Power plants (coal based) located beyond 1000 km from the pit-head & in sensitive areas required to use low ash content coal (not exceeding 34%) with effect from 1.6.2002.



MAJOR INITIATIVES AND ACTIONS

AIR QUALITY MANAGEMENT

□ OTHER STEPS

- **Remote monitoring of industrial emissions:** Pilot system for online data transmission of industry to Central Server of CPCB for better enforcement.
- **Revision of National Ambient Air Quality Standards**
- **Development of Emission Factors for vehicles**
- **Development of Emission profiles for vehicular and non-vehicular sources**



MAJOR INITIATIVES AND ACTIONS

STRENGTHENING OF MONITORING & DATA DISSEMINATION

National Air Quality Monitoring Network

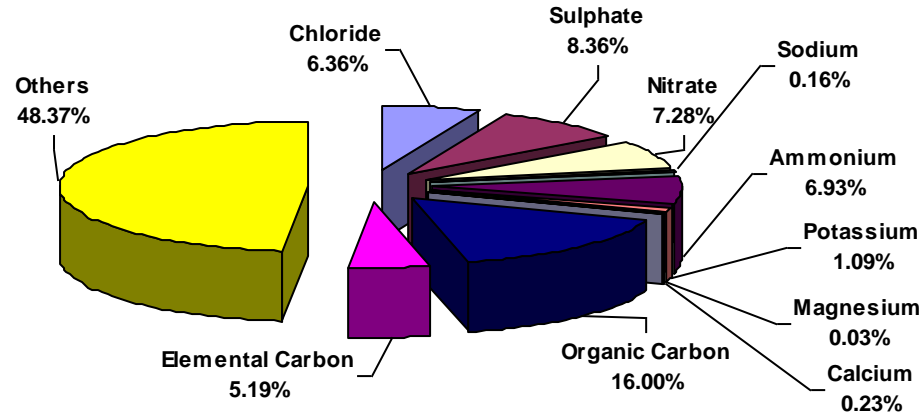
- Expanded to 339 stations covering 126 cities/towns
- Additional Parameters – PM_{2.5}, BTX, PAH, O₃, CO, NH₃ (Selected locations)
- Characterization of PM₁₀
- Continuous monitoring being initiated in 16 cities

Dissemination of data:

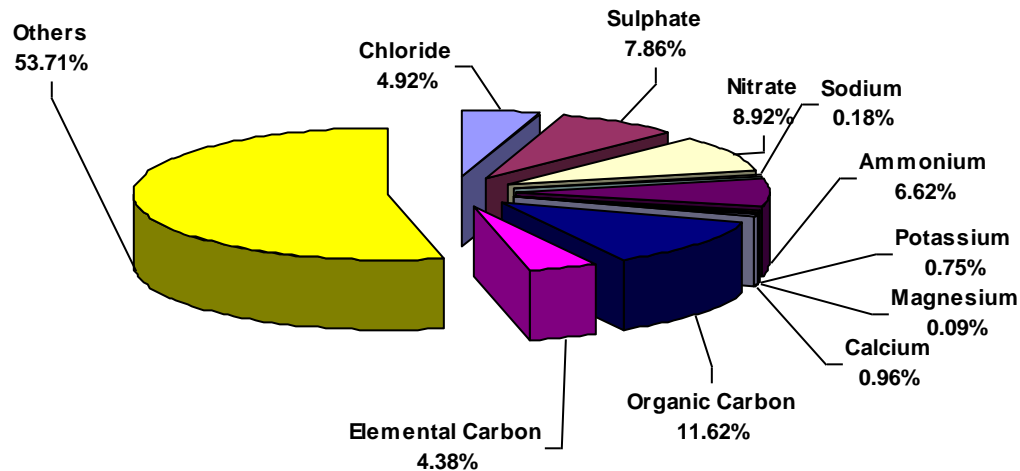
- Web-based systems
- Environmental Data Bank established
- Real-time data from Continuous Air Quality Monitoring Stations of Delhi

Characterization of RSPM

Composition of PM₁₀ at Shahadara



Composition of PM₁₀ at Ashok Vihar





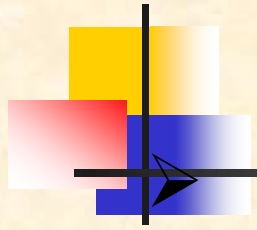
Trends

- **Decreasing trend has been observed in ambient sulphur dioxide levels in many cities like Delhi, Hyderabad, Kanpur, Lucknow, Mumbai etc, which may be due to various interventions that have taken place such as reduction of sulphur in diesel, use of cleaner fuel such as CNG in Delhi and Mumbai etc.**
- **This finding is corroborated by decrease in National mean Concentration of sulphur dioxide over the years and increase in percentage of cities with low levels of SO₂.**
- **Mixed trend has been observed in ambient nitrogen dioxide and Respirable Suspended Particulate Matter. In some cities ambient NO₂ and RSPM levels are decreasing whereas in some cities the trend is fluctuating.**
- **Although various interventions have taken place to mitigate ambient NO₂ and RSPM levels but at the same time number of vehicles have increased exponentially. The vehicles are one of the major sources of NO₂ and RSPM.**



PLAN FOR THE NEXT 3 YEARS

- Continuing ongoing monitoring at Sunderban, data to be made available on CPCB website**
- Urban Impact Assessment (SA studies) in a few cities – based on results of six cities.**
- More epidemiological studies to be taken up**
- Corrosion Study to continue**
- Real-time data transmission from CAAQM Stations of other major cities to website**
- Remote monitoring of industrial emissions to be extended to other major industries**
- Strengthening of NAMP with increased no. of stations & parameters**
- Linkage of websites**



Thanks