

Malé Declaration

on Control and Prevention of Air Pollution
and Its Likely Transboundary Effects for South Asia



INDIA

An overview of progress
within the last decade...



INDIA

Status of Implementation 2008



Background

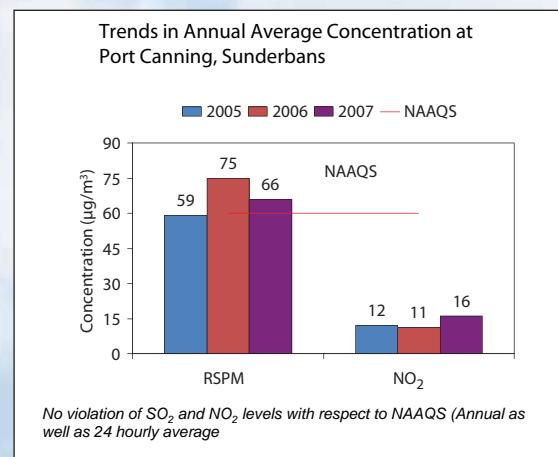
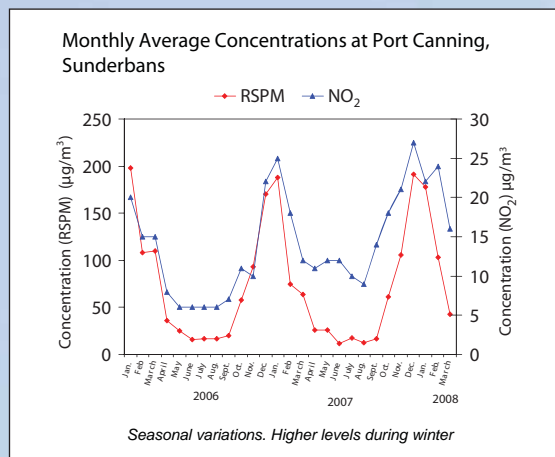
In order to arrest air quality deterioration, Government of India has enacted Air (Prevention and Control of Pollution) Act in 1981. The responsibility has been further emphasized under Environment (Protection) Act, 1986. It is necessary to assess the present and anticipated air pollution through regular air quality survey/monitoring programs. Therefore, Central Pollution Control Board started National Air Quality Monitoring Programme (NAMP) in 1984. The number of operating monitoring stations under NAMP has increased, steadily, to 339 by 2007 covering various cities and towns in the country.



Participants of the IG7 Meeting and Regional Stakeholders cum Coordination Meeting, India, 2005

Air Quality Trends

- Decreasing trend has been observed in ambient sulphur dioxide (SO_2) 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 SO_2 over the years and decrease in percentage of cities with low levels of SO_2 .
- Mixed trend has been observed in ambient nitrogen dioxide (NO_2) and respirable suspended particulate matter (RSPM). In some cities ambient NO_2 and RSPM levels are decreasing whereas in some cities the trend is fluctuating.
- Although various interventions have taken place to mitigate ambient NO_2 and RSPM levels but at the same time number of vehicles have increased exponentially. The vehicles are one of the major sources of NO_2 and RSPM.



The Malé Declaration in India

Monitoring station

A monitoring station under Malé Declaration was established at Port Canning, Sunderban. The station located in south 24 Paraganas district of West Bengal, bordering Bangladesh on the Western bank of Matla river of Sunderban delta. The monitoring results show that the SO_2 levels are below detection limit and NO_2 and RSPM show higher values during winter. Only RSPM exceeds standards, primarily during winter months.

Impact Assessment Activities

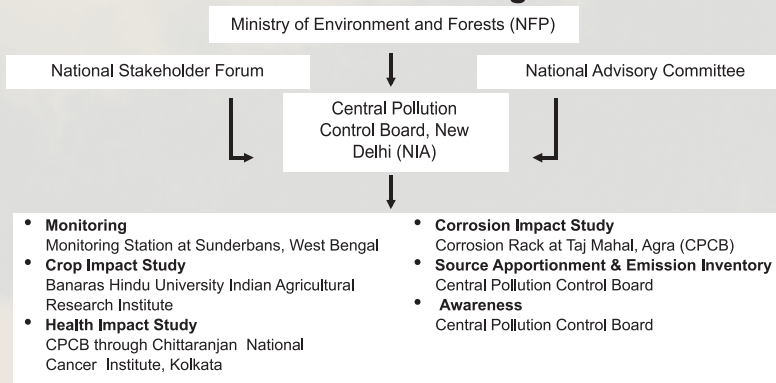
Source apportionment studies: An integrated approach involving emission inventories, air quality measurements, dispersion and source apportionment using CMB 8 model; initiated for six cities; focus on PM_{10} and $\text{PM}_{2.5}$; will address many air quality management issues.

Epidemiological studies: Two studies on impacts of ambient air pollution in Delhi (Adult and Children); One study on the effect of bio-mass burning in rural households (indoor air pollution) was initiated.



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The Institutional Arrangement



NFP : National Focal Point

NIA : National Implementing Agency

Status of Air Pollution

Pollutant	Status of problem
Particulate matter	Exceeding standards in many cities, mixed trend
SO ₂	Below standard, Decreasing trend
NO ₂	Below standard in many cities, mixed trend
O ₃	high in summer
CO	Exceeding standard, decreasing trend in Delhi
pH	Around neutral
Others	Ammonia below standard in many cities



Participants of Second Regional Training programme on Wet Deposition Monitoring, India, 2003

Summary of Baseline Information

	2000	2008
Nature of problem	Industrial and power sector, Urban vehicular	Major Cities (Vehicular Air Pollution) Industrial towns
Status of monitoring	Systematic for some industrial and some urban areas	Network expanded to cover more cities, Continuous monitoring being initiated in 16 cities
Pollutants monitored	SPM, RSPM, SO ₂ , NO ₂ , CO, Pb, PAH, H ₂ S, NH ₃	SPM, RSPM, SO ₂ , NO ₂ , H ₂ S, Additional Parameters- PM _{2.5} , BTX, PAH, O ₃ , CO, NH ₃ (Selected locations), Characterization of Particulate Matter (OC, EC, ions)
Number of monitoring stations	295 stations covering 92 cities/towns	Expanded to 339 stations covering 126 cities/towns
Capacity to study air pollution	CPCB, National Environmental Engineering Research Institute	CPCB, National Environmental Engineering Research Institute
AQ Standards	National Ambient Air Quality standard notified under Air Act 1981 for RSPM, SO ₂ , NO ₂ , CO, Pb, Emission standards: Notified for major industrial sectors, Fuel quality standard, Vehicular emission norms	Draft revised National Ambient Air Quality Standards displayed on website for comments, More stringent vehicular emission norms

Corrosion Study

Corrosion study has been initiated at Tajmahal in Agra. 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 and fourth years (due in Nov. 07, Nov. 08 and Nov. 10 respectively). Passive sampling being carried out for monitoring of HNO₃, SO₂, NO₂, O₃ and particulates. Exposed samples being forwarded regularly (every two months with temperature and humidity data) to Corrosion and Metal Research Institute, Sweden for analysis.



Corrosion Rack at Tajmahal



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Response

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)

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: Fly overs, Count down timer

Public Transport System: MRTS

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

Other Steps

Non-attainment areas: Action plan formulation & implementation in 16 cities and 24 critically polluted areas.

Fly ash utilisation: 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.

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



Third Regional Training programme, CPCB, India, 2004



Malé monitoring station, Canning, West Bengal, India

Recommendations:

- Continuing ongoing monitoring at Sunderban, data to be made available on Central Pollution Control Board (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 Continuous Ambient Air Quality Monitoring (CAAQM) Stations of other major cities to website
- Strengthening of National Air Quality Monitoring Programme (NAMP) with increased no. of stations & parameters
- Linkage of related resource websites.

Coordinating Agencies



UNEP Regional Resource Centre for Asia and the Pacific (UNEP RRC.AP) Bangkok, Thailand



South Asia Cooperative Environment Programme (SACEP) Colombo, Sri Lanka



Stockholm Environment Institute (SEI) Stockholm, Sweden



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India
NFP: Ministry of Environment and Forests
NIA: Central Pollution Control Board, New Delhi