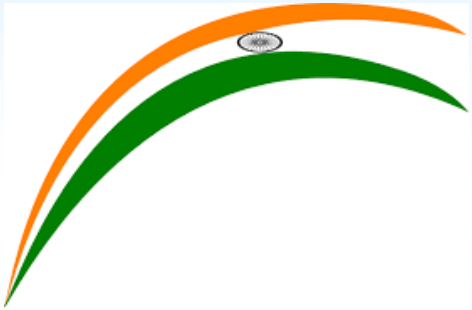
WELCOME DELEGATES
& COUNTRY REPRESENTATVES



COUNTRY PRESENTATION
INDIA

Air Pollution Prevention, Monitoring & Implementation of Activities in India

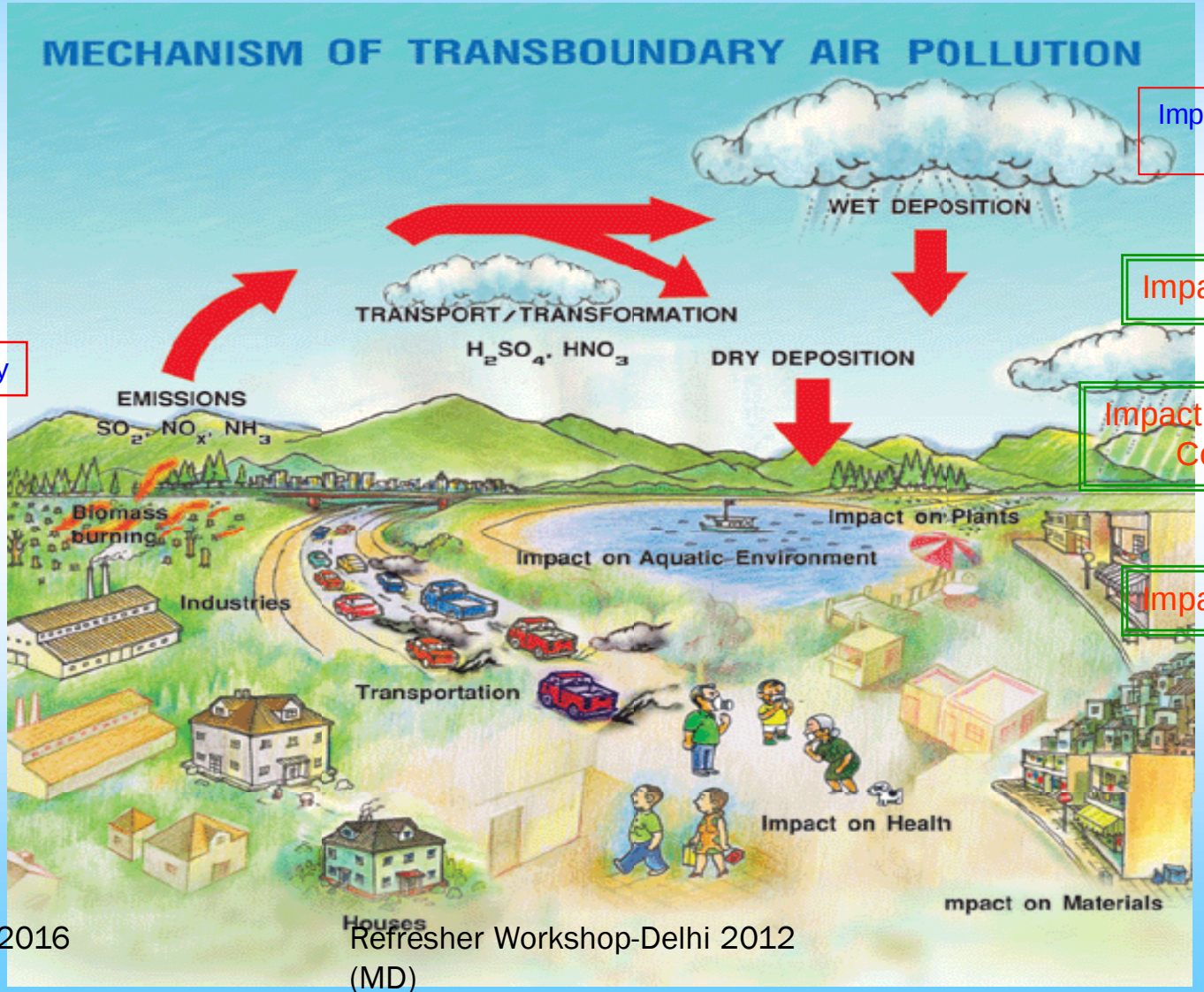
National Implementation Agency: Central Pollution Control Board
National Focal Point: Ministry of Environment & Forests, Govt. of India

PREVENTION & CONTROL OF TRANS-BOUNDARY AIR POLLUTION

Modeling

Emission Inventory

Monitoring



Impact Assessment Studies

Impact on Crops

Impact on Materials Corrosion

Impact on Health

Implementation Status

S. No.	Activity	Summary Status
1	Ambient Air Quality Monitoring and wet deposition monitoring	▪ Ambient air quality monitoring and wet deposition monitoring is being carried out at Sunderban bordering Kolkata. ▪ Discussions initiated with concerned SPCBs/PCCs to set up monitoring stations in other bordering areas. ▪ 6 Transboundary Monitoring are in operation
2	Corrosion Study	▪ Corrosion study has been completed at TajMahal, Agra ▪ Awarded one project to National Metallurgical Laboratory at Jamshedpur for carrying impact on materials at 9 cities in India including one virgin area
3	Health Impact Study	▪ Two studies completed through Chittaranjan National Cancer Institute (CNCI), Kolkata. ▪ Impact on Benzene exposure on Petrol pump workers has been initiated ▪ Development of Protocol Monitoring & Instrumentation is in progress.
4	Emission Inventory	▪ Completed National Emission Inventory in 2009 and the is being regularly up-dated.
5	Advisory committee	▪ Advisory committee is being revised
6	Awareness	▪ CPCB is maintaining a very dynamic website along with list of publications, soft copy of almost all documents, online air quality data, data of Environmental Data Bank including Trans-boundary ambient air quality stations.

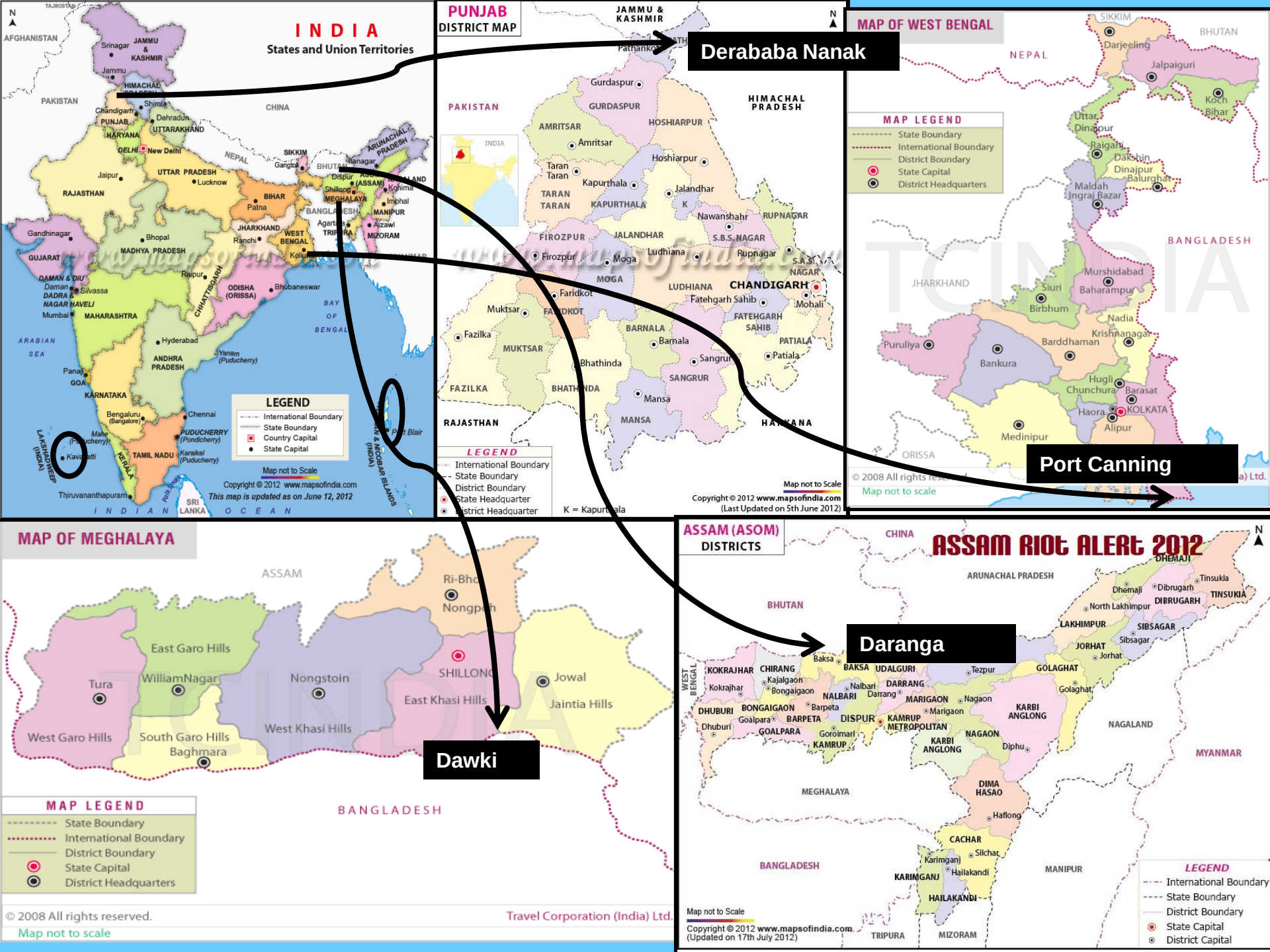
Trans-boundary Ambient Air Quality Monitoring

Establishment & operation of Trans-boundary Ambient monitoring stations, viz.;

1. Port Canning-West Bengal (India & Bangladesh);
2. Dera Baba Nanak ,Pathankot-Punjab (India & Pakistan);
3. Lakshadweep (India & Maldives);
4. Daranga-Assam (India & Bhutan) and
5. Dawki-Meghalaya (India & Bangladesh)
6. Andaman & Nicobar

Status of ambient air quality monitoring stations in Male' Declaration under NAMP

	Monitoring stations at (city)					
	Dawki	Port Canning	/Pathankot	Daranga	Kavaratti	Andaman & Nicobar
State	Meghalaya	West Bengal	Punjab	Assam	Lakshadweep	Andaman & Nicobar Islands
No. of stations	1	1	1	1	2	5
Name of monitoring station	Terrace Building, Dawki, Jaintia Hills District	Port Canning, Sunderban	C-PYTE Building, Dera Baba Nanak	BATAD, Baska district,	Kavaratti	Port Blair, Brookshabd, Rangat, Campbell Bay
Bodering	Bangladesh	Bangladesh	Pakistan	Bhutan	Maldives	South East Asia
Lat & long	26°47´06″ N	22°19´8″ N	32°1´60″ N 75°1´0″	26°48´ N	10° 0´ N 73° 0´	
Sanction date	23.06.2008	2004	23.06.2008	August 2008	10.09.2010	10.09.2010
Operating since	August 2009	2004. Stopped monitoring from December 2011	January 2010	January 2009	Yet to operate	Yet to operate
Monitored by	Meghalaya SPCB	Jadavpur University, Kolkata	Punjab SPCB	Assam SPCB	Lakshadweep PCC	Andaman & Nicobar PCC
Parameters monitores	SO_2, NO_2, PM_{10}, SPM	SO_2, NO_2, PM_{10}, SPM	SO_2, NO_2, PM_{10}, SPM	SO_2, NO_2, PM_{10}, SPM	NA	NA


INDIA
States and Union Territories
PUNJAB
DISTRICT MAP
MAP OF WEST BENGAL
MAP OF MEGHALAYA
ASSAM (ASOM)
DISTRICTS
ASSAM RIOT ALERT 2012
Derababa Nanak
Port Canning
Daranga
Dawki
LEGEND
MAP LEGEND
International Boundary
State Boundary
District Boundary
State Capital
District Headquarters
Country Capital
Map not to Scale
Map not to scale
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This map is updated as on June 12, 2012
(Last Updated on 5th June 2012)
(Updated on 17th July 2012)
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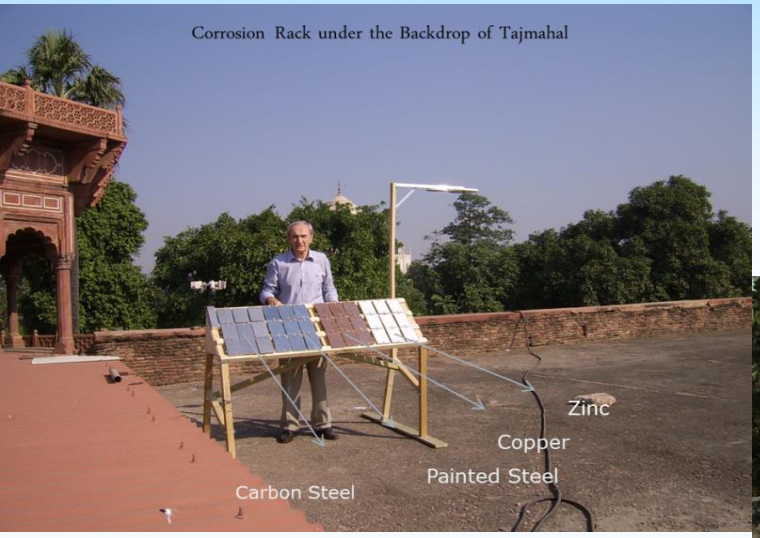
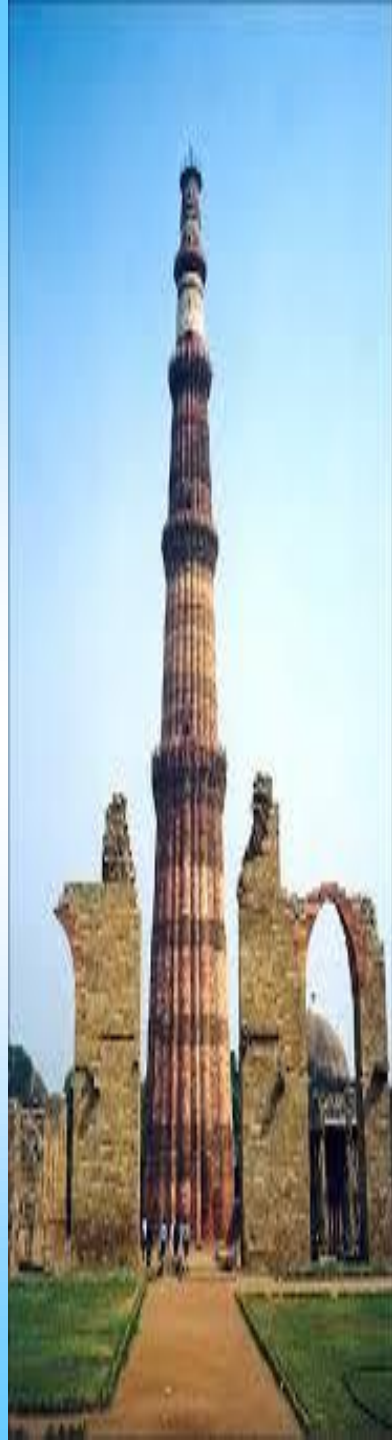
Travel Corporation (India) Ltd.
K = Kapurthala

Corrosion Studies

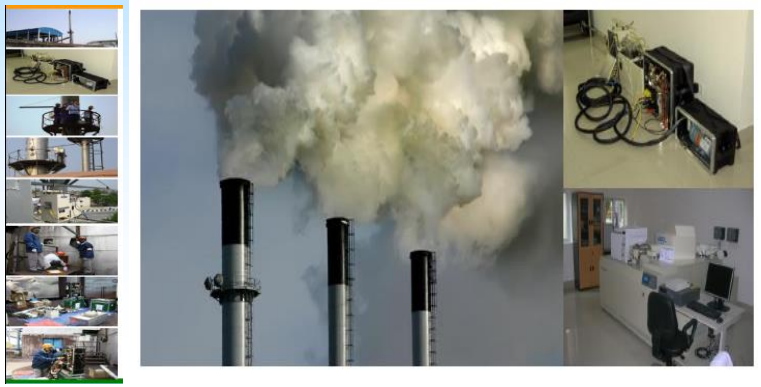




Source Monitoring

CPCB Series / LATS/……. / 2012-13

Guidelines on Methodologies for Source Emission Monitoring



CENTRAL POLLUTION CONTROL BOARD

(MINISTRY OF ENVIRONMENT & FORESTS)

`Parivesh Bhawan', East Arjun Nagar

Delhi -110 032

Website: www.cpcb.nic.in

METHODOLOGY
(Corrosion Investigation)

•Exposure of the specimens of the appropriate sizes as per ASTM specification . G50-76 at the chosen sites, on the steel racks installed at appropriate places.

•The corrosion i.e. the deterioration of the materials is affected by (1) rain fall, (2) temperature, (3) salinity, (4) acidic gases and humidity surrounding the area besides collection of meteorological data for all selected location.

•Similarly dust collectors will be installed at different locations to collect the data for:

a) Falling of dust per unit area
b) Presence of heavy metals
c) Analysis of components in dust
d) pH of dust

•Finally the evaluation of the corrosion products formed on different samples exposed at various locations using various analytical techniques such as: XRD, Raman Spectroscopy, Scanning electron microscopy, X-ray photoelectron spectroscopy, etc. ; study the kinetics and mechanism of the degradation of materials.

Impact of air pollution in India on deterioration of metals and materials

Material	Corrosion rate (μm/year)			
	Locations			
	Jamshedpur	New Delhi	Lucknow	Mumbai
Weathering steel	24.96	18.57	11.68	26.19
Brass	1.07	4.19	1.40	3.76
Bronze	2.91	3.32	1.22	3.80
Copper	3.40	4.35	2.56	4.58
Aluminium	0	1.28	0	0.38
Zinc	1.53	1.70	-	2.62

Additional Activities

- **Source Apportionment study in six cities**
- **Emission inventory in six cities & initiation for other cities**
- **Emission factors for vehicles and Implementation Euro Norms**
- **Source profile for vehicular sources**
- **Source profiles for non-vehicular sources**
- **Routinely done: Development of Emission Standards & Revision of Standards**
- **Initiation for Pilot Project on Emission Trading Scheme for Particulate in Stationary Sources (Stack)**

Additional Activities (2)

- **Revision of National Ambient Air Quality Standard (November 2009)**
  - **Uniform ambient air quality for all**
  - **Special monitoring for Ecologically sensitive areas**
  - **Consideration of health related parameters viz. PM2.5, Benzene, Bezo(a)Pyrene.**
  - **Consideration of Signature metal analyses like Nickel, Arsenic and lead**
  - **593 ambient air quality stations are in operation. The data generated in these stations are regularly analyzed for Trend Analyses, special attention area, problem area**

- **Preparation of Criteria for Comprehensive Environmental Assessment for Industrial Clusters**
  - **Rational to characterize the environmental quality at a given location by means of algorithm of source, pathway and receptor.**

- **Regional Cooperation**
  - **Signed MoU with Royal Government of Bhutan & CPCB for capacity building, demonstration & training (completed six years)**

Components of Malé Declaration

- Monitoring Activities
- Human Health Impacts
- Crop Impacts
- Corrosion Impacts
- Ecosystem Impacts(based on modelling)
- Emissions Inventory

What are the Gaps ?

GAPS

- Inadequate Monitoring Network
- Importance of Monitoring in Smaller Cities
- Essential
- Inadequate Infrastructure
- Management Level
- Quality Control
- Reporting - For common man
- Reporting for policy makers- Cost to Society

Emission Inventory

- Cost intensive
- Time consuming
- Emission Factors not available
- If available not validation for site specific condition

Impact Studies

- Base line data not available
- Control samples
- Expertise not available
- Infrastructures

Modeling

- Validation of Model
- Uncertainty Factors

Recommendations

- **Development of software for data management and reporting**
- **Capacity Building for QA/QC, modelling studies, data management(including development of appropriate softwares), interpretation of results.**
- **Interlinking of monitoring results and policy decisions**
- **Strengthening the Malé Network to include all SAARC countries(better to strengthen an existing network rather than starting a new initiative).**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Thank you all