



Malé Declaration - UNEP

Data Analysis Report

December 2012



MONITORING REQUIREMENTS

- **Dry Deposition Monitoring**
 - Air Concentration Sampling
 - Diffusive (Passive) Sampling
- **Wet Deposition Monitoring**
 - Wet(Wet) Method
 - Wet(Bulk)Method
- **Meteorological data collection**



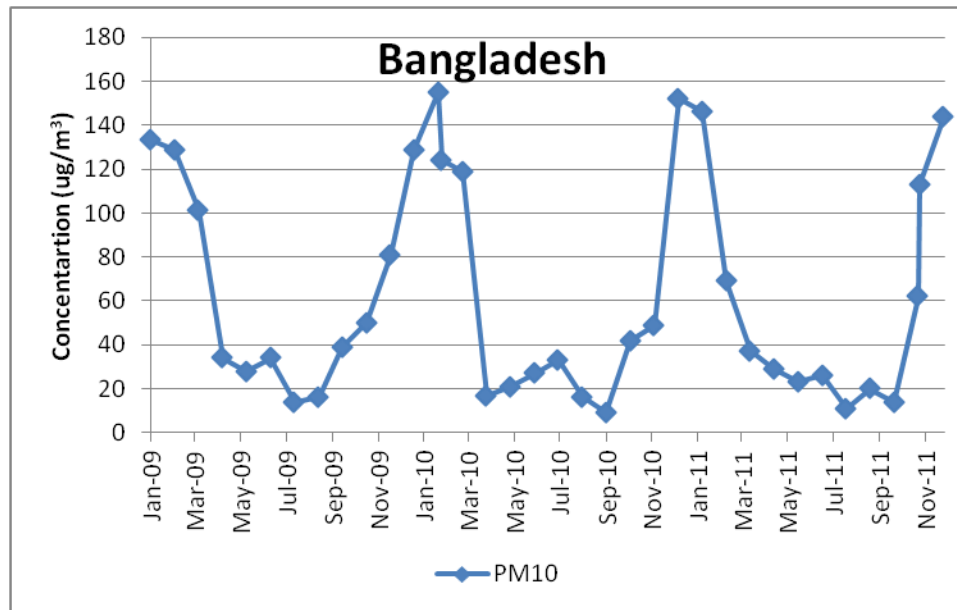
AIR CONCENTRATION MONITORING Requirements

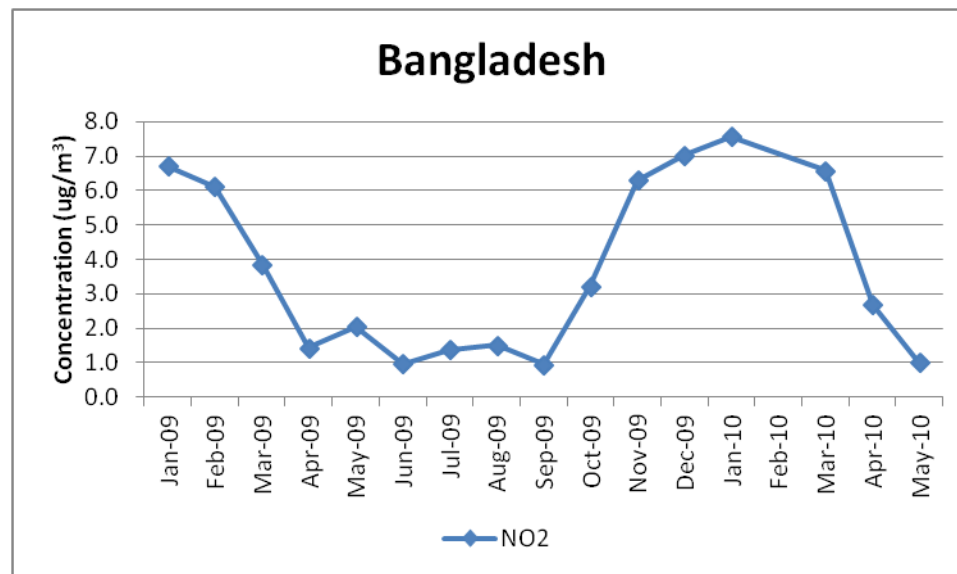
- **Frequency :**
 - 24hr composite (two samples – 9am to 9pm and 9pm to 9am)
 - 10days in a month between 5th and 25th of each month
- **Parameters:**
 - PM10
 - TSP/SPM
 - SO₂
 - NO₂

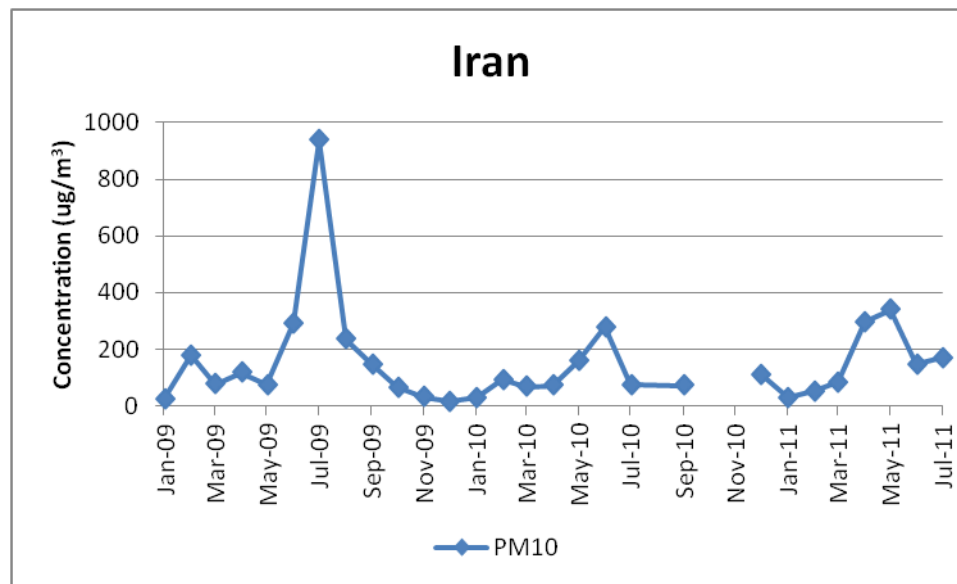


Reporting – Air (H)

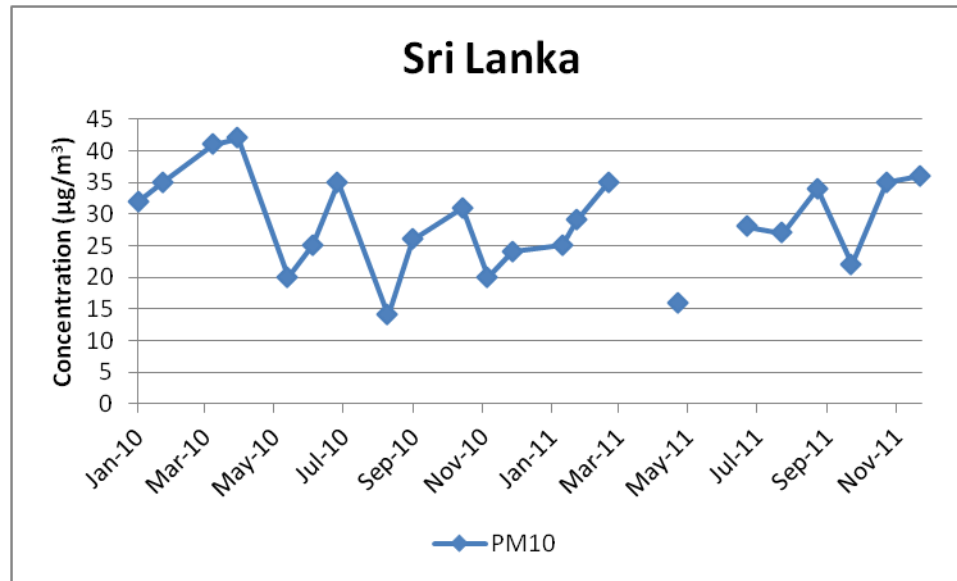
- **Bangladesh & Iran:2009-2011only PM10,**
- **Nepal and Sri Lanka reporting all**



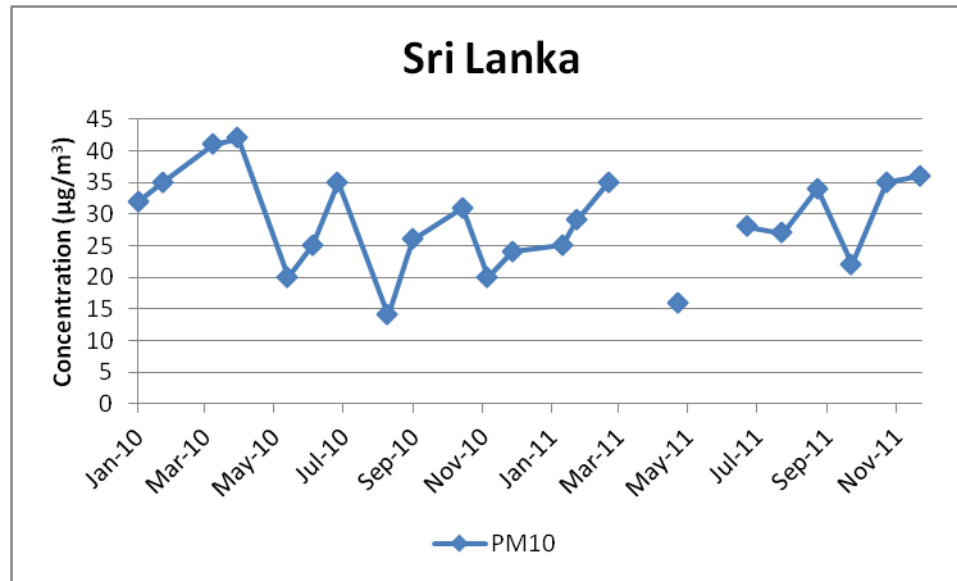




Doramadalawa



Doramadalawa





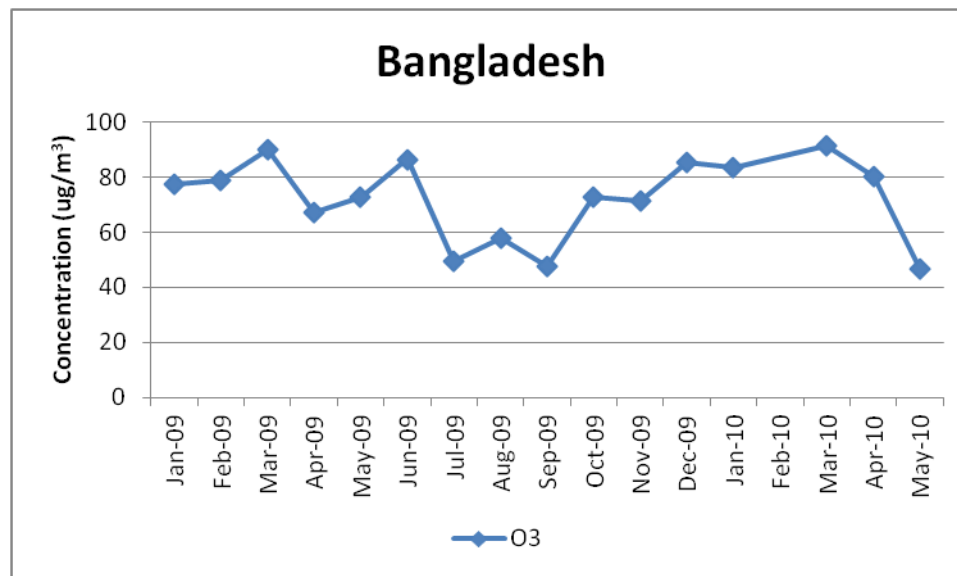
Comments

- **Countries still reporting NRSPM**
- **10 days data in a month not available-sometimes only 2-3 values, thus, the average is not representative.**
- **Results and trends not correlated to sources of emission/emission inventory**
- **Remarks related to site conditions not given to explain the odd results.**



AIR PASSIVE MONITORING Requirements

- **Frequency :**
 - Monthly composite
- **Parameters:**
 - SO_2
 - NO_2
 - O_3





Comments

- **Field blanks not being run in parallel / not being run.**
- **Very high values of field blanks.**
- **Contamination of field blank.**
- **Improper labeling of samples.**
- **Samples sent to IVL after long gaps.**
- **Temperature generally missing**
- **Frequency 1 month to three months exposure.**

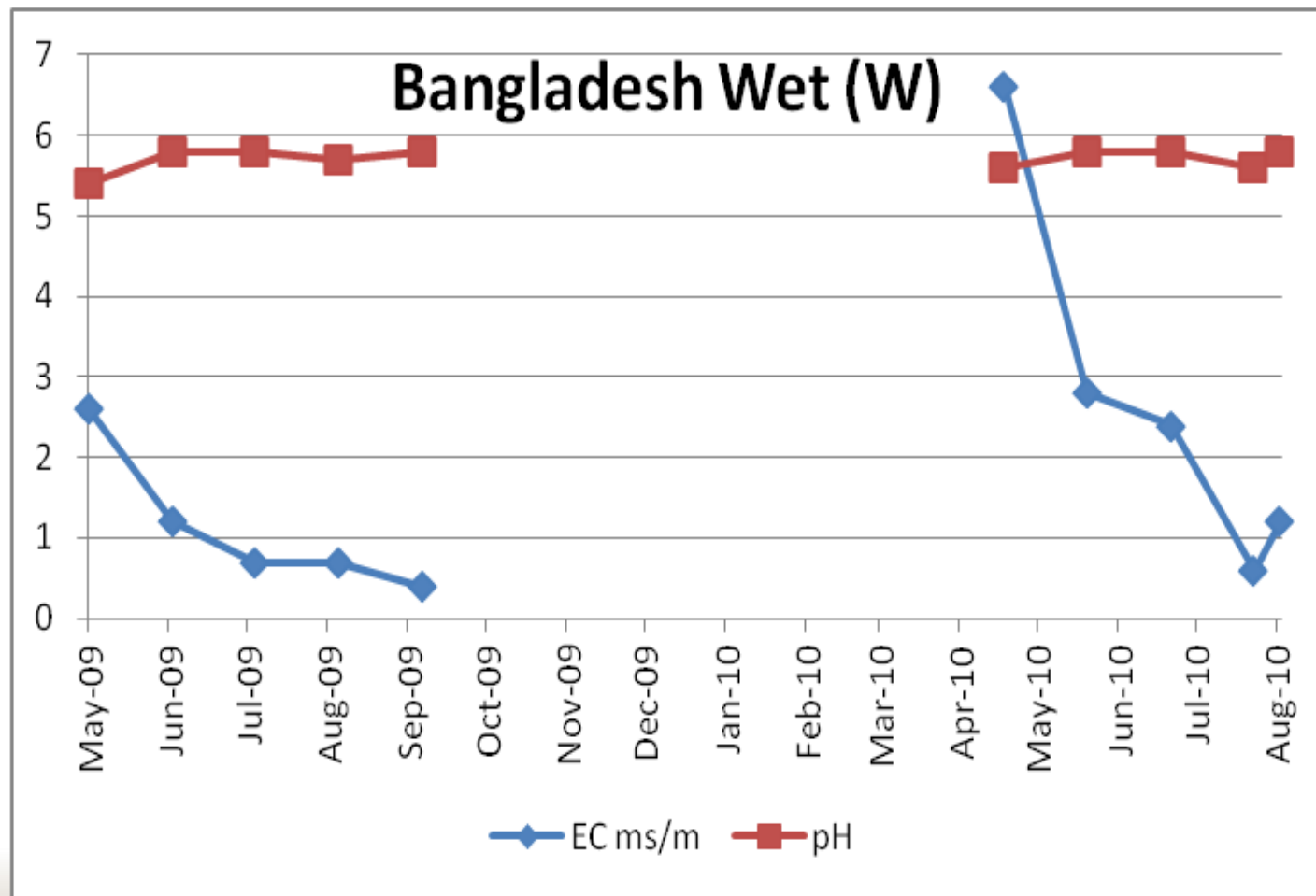


WET (Wet) and WET (Bulk) MONITORING Requirements

- **Frequency :**
 - Weekly composite
- **Parameters:**
 - $\text{H}^+(\text{pH})$,
 - Electrical conductivity(EC)
 - Concentration of NH_4^+ , Na^+ , K^+ , Mg^{2+} , Cl^- , SO_4^{2-} , NO_3^-
 - Precipitation

Monitoring Months

S No	Country	Year	Months
Wet Bulk Deposition			
1	Bangladesh	2009	May – Jun
		2010	Apr - Jun, Aug
2	Nepal	2009	Feb –Dec
		2010	Jan – Aug
Wet Wet Deposition			
1	Bangladesh	2009	May , Jun
		2010	Apr - Aug



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Comments

- **Precipitation and amount of sample not reported by all.**
- **Reporting forms wrongly named.**
- **Reporting months and periods random no set pattern.**
- **Reporting formats have not been understood properly as most of the columns remain blank.**



RECOMMENDATIONS

- **Regular reporting of data essential – not after 3yrs or in bits sometimes with different data for same date**
- **No need of NRSPM and TSP**
- **For the results to be useful, the site selection, monitoring (sampling), analysis and reporting need to be standardised – provide relevant information with pictures.**
- **Adequate & capable manpower must be provided**
- **Frequent change in staff must not take place. Not more than 25% of the staff must be changed at a time/overlap of atleast one month**
- **Longer hands-on training must be provided within the countries followed by frequent visits (refresher courses) by trainers/experts – atleast once in six months**

Recommendations

- **Regular instrument care, maintenance, must be ensured**
- **Proper maintaining of site records and observations**
- **SOP's to be followed strictly, in-house QA/QC capability must be developed within each country**
- **The project Incharges of the respective countries must scrutinise the data and take corrective measures. Incorrect data must not be reported.**
- **Above all, the importance of following a uniform protocol must be realised.**

**Most important:
Ownership of the programme**

