



Presentation on

Malé Declaration activities in Bangladesh

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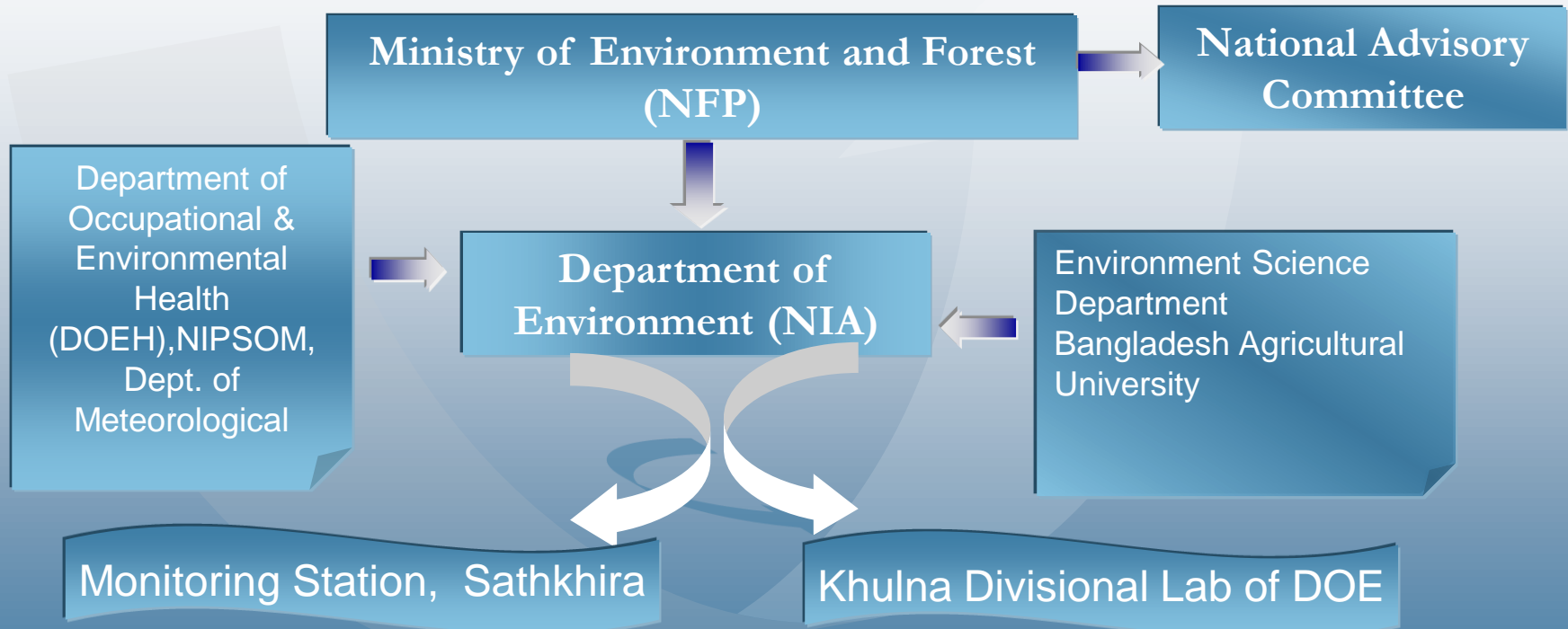
Outline of the Presentation

- **National implementing agency and institutional arrangement**
- **Monitoring activities**
- **Trans-boundary air quality monitoring data**
- **Health Impact study**
- **Regional Center for Health Impact Assessment at NIPSOM, Dhaka**
- **Awareness Materials**
- **Challenges**
- **Success stories**



Presentation on Implementation of Male' Declaration

National implementing agencies and Institutional Arrangement

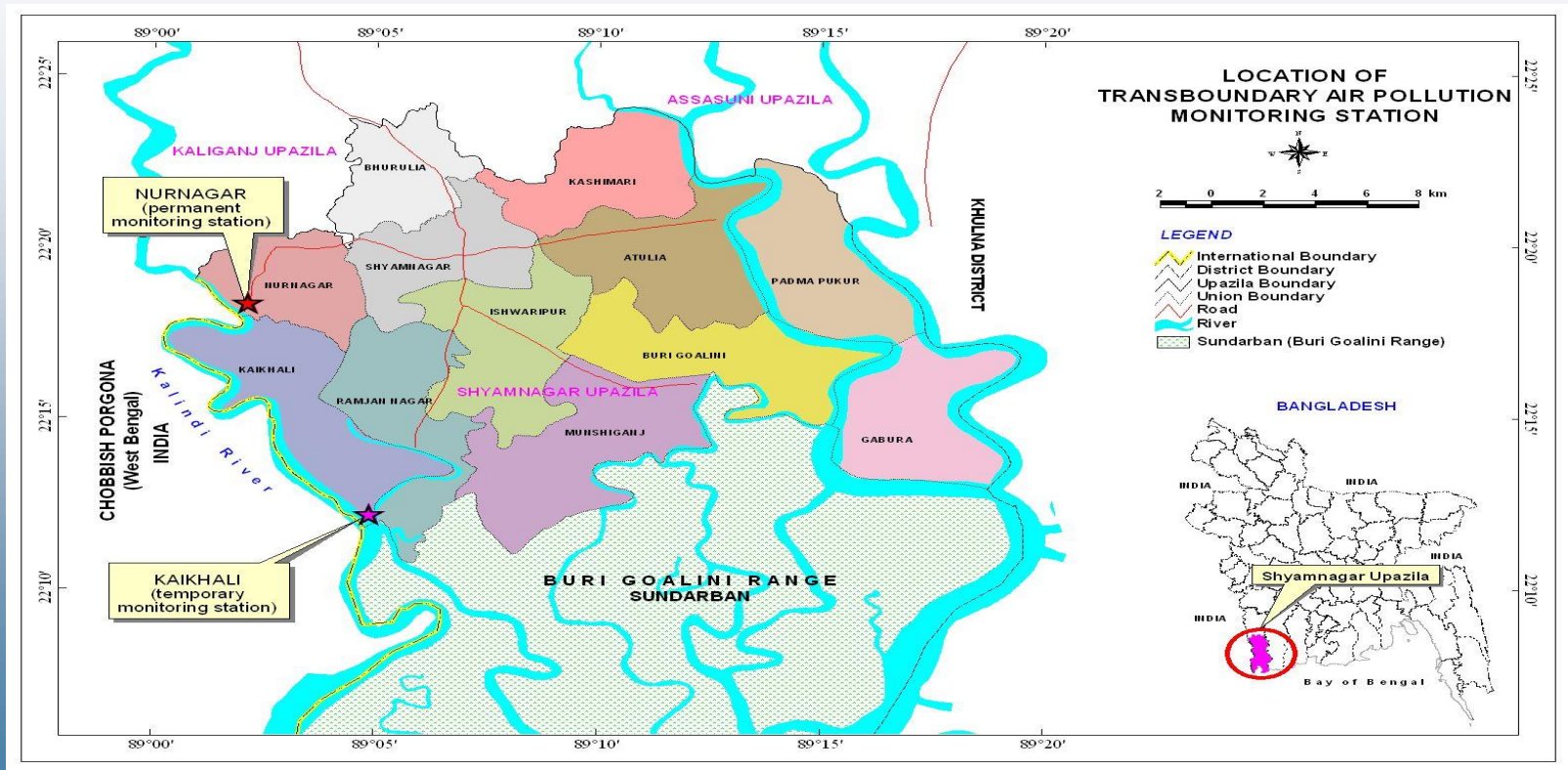




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Monitoring activities

Location of Transboundary Air Pollution Monitoring Station





Monitoring Activities of Malé declaration Project

- **Two types of monitoring**

- Dry Deposition Monitoring
- Wet Deposition Monitoring

In Dry Deposition Monitoring

- o Meteorological Data
- o Field Temperature
- o Air Quality Monitoring

In Wet deposition Monitoring

- o Rain water Quality Test
- o Precipitation Amount



Dry Deposition monitoring

■ **Meteorological Data**

➤ Meteorological Parameters are

- ❖ Wind Direction
- ❖ Wind Speed
- ❖ Solar Radiation
- ❖ Av. Rain Fall

➤ All Meteorological Parameters have been being monitored by Meteorological Dept, Shatkhira

➤ Male' station personnel has been collecting data from Meteorological Dept by monthly basis.

➤ Data is sent to UNEP

➤ The Meteorological Data is very important for measurement of Air Quality Parameters by Passive Sampler



Dry Deposition Monitoring

■ Field Temperature

- Field Temperature is monitored by Station Personnel every day basis.
- The recorded temperature is sent to UNEP
- The Field Temperature is very important for measurement of air Quality



Dry Deposition Monitoring

■ Air Quality

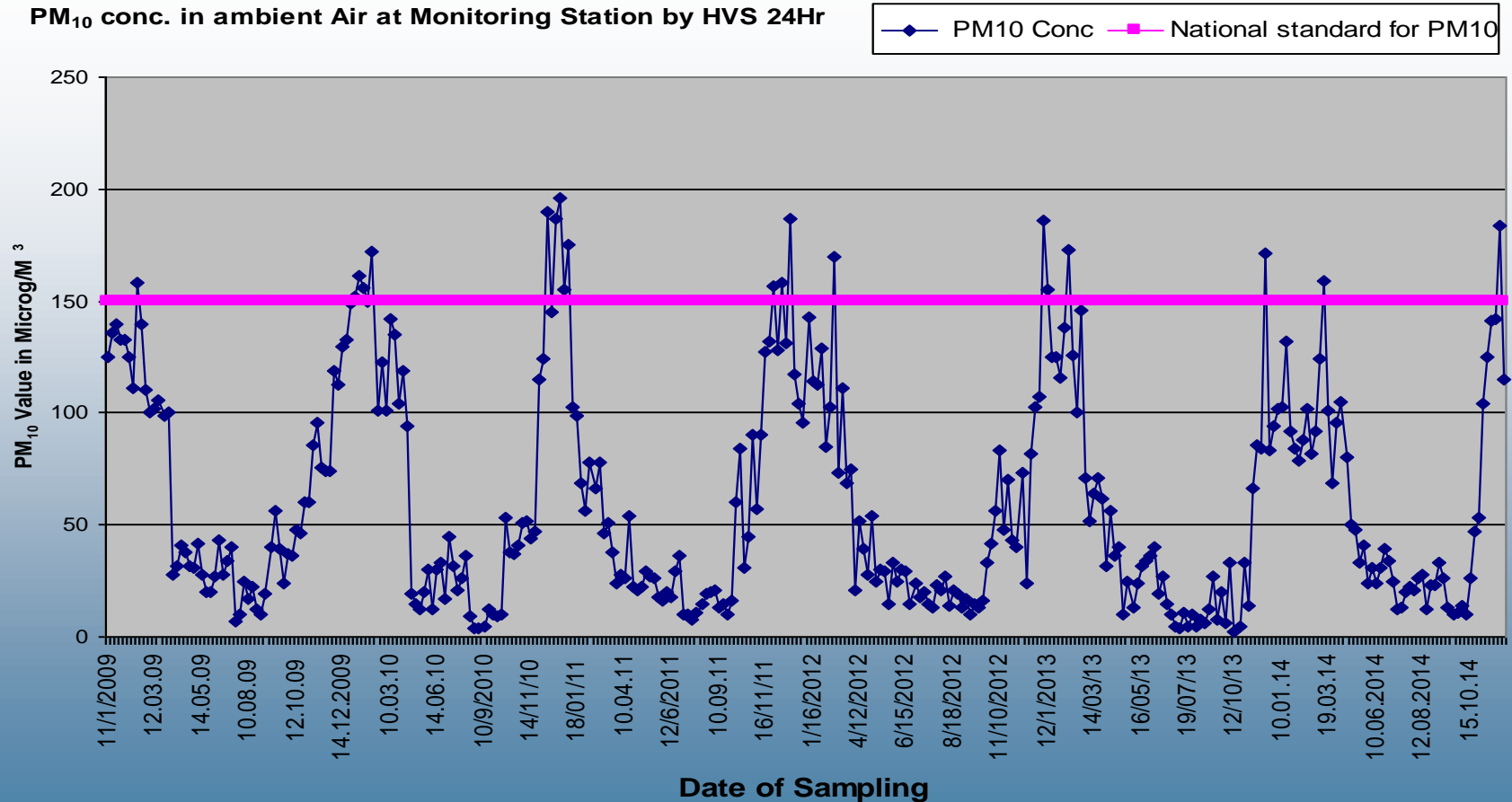
- The parameter are :
 - ❖ PM10 (Particulate Matter 10micron)
 - ❖ SOX (Oxides of Sulfure)
 - ❖ NOX (Oxides of Nitrogen)
 - ❖ O3 (Ozone)
- PM10 is monitored by High Volume sampler (HVS) and measured in Khulna Male' Lab
- SO_x, NO_x and O₃ are Monitored by passive sampler and samples are sent IVL (Swedish Environmental Lab) for analysis
- Require Instruments are:
 - ❖ High Volume Sampler (HVS)
 - ❖ Electric Balance(Four Digits)
 - ❖ Desiccators



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Last 5 Years Implementation (Data Completeness)

PM₁₀ conc. in ambient Air at Monitoring Station by HVS 24Hr



Temporal variation of PM₁₀ concentration in $\mu\text{g}/\text{M}^3$



Data Completeness

Observation About Gaseous Pollutants

- SO_2 and NO_2 are monitored since 2005 to Still now by Passive sampler.
- SO_x and NO_x Monitoring by active sampler is not done due to very low conc. of SO_x and NO_x which is below detection limit.
- O_3 monitoring has been started from 2006 which is still carrying on.
- IVL has been doing the analysis with the help of SIDA but recently SIDA postponed their financial support.



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Impact Assessment

- Crop Impact Study was done by Bangladesh Agriculture University
- Health Impact Study was done by NIPSOM, Dhaka
- National Air Pollution Reduction strategy has been formulated in partnership with Bangladesh University of Engineering and technology



Health Impact Assessment

Assessment of Impact of Air Pollution among School Children of selected school of Dhaka City

3 schools of Dhaka City

Survey: 1680 Students (Class V-IX),

Duration: 7 Days

Main Study: 180 Students (120 Asthma=60 Non-Asthma),

Duration: 42 Days



Assessment of Impact of Air Pollution among School Children of selected school of Dhaka City





Assessment of Impact of Air Pollution among School Children in Dhaka City





Assessment of Impact of Air Pollution among School Children of selected school of Dhaka City

Findings:

- The observation of the study is that the air pollution especially the particulate matters (PM_{10} and $PM_{2.5}$) are causing respiratory health problems particularly of the children in Dhaka, who are suffering from asthma.
- The air pollution is not only affecting the health of the children but also causing adverse economic implication in the family and as well as in the nation



NIPSOM: Regional Center for Health Impact Assessment

- NIPSOM (National Institute of Preventive and Social Medicine) has been selected as Regional Center for Health Impact Assessment during 2nd task force meeting.
- NIPSOM has successfully done health impact study among school going children in Dhaka city.
- NIPSOM developed Work Plan for 2013-2015
- Key activities of Regional Center
 - Help member Countries to carry on health impact study
 - Develop health impact study manual
 - Arrange training, workshop among member countries
 - Develop analytical facilities both in terms of Human Resources and Technological capacity within center and regional countries.
- NIPSOM has developed Health Impact Study Manual for member countries.
- NIPSOM arranged National Consultation Meeting for finalization of Manual in January 13
- NIPSOM also arranged workshop and seminar on health impact in national and international level (in 9th January'2012 and 15th October'2014).



Awareness Activities

Awareness material for print and electronic media developed

Print Material:

- a .Posters-20,000
- b. Leaflets-20,000
- c. Stickers-10,000


Electronic Media Material:

- a. TV spots- 4 Nos.
- b.Docodramas-3 Nos.
- C. Folksongs- 2 Nos.

Bus Sticker- 6 Nos.



Awareness Activities



আপনি জানেন কি.....
প্রতিনিয়ত বায়ুদূষণের কারণে....
যানবাহন, কলকারখানা আর ইটের ভাটা থেকে নির্গত কাগো ধোঁয়া, অনিয়ন্ত্রিত নির্মাণ কাজ, উন্মুক্ত স্থানে রাখা ইট-বালুর মতো নির্মাণ সামগ্রী এবং উন্মুক্ত স্থান থেকে নির্গত ধূলিকণা। ইত্যাদি কারণে প্রতিনিয়ত ঘটছে বায়ুদূষণ। আর এতে বৃদ্ধি পাচ্ছে শ্বাস ও হৃদযন্ত্রের নানা ধরনের জটিল রোগ।
ডেকে আনছে অকাল মৃত্যু।

আপনার দায়িত্বশীল ভূমিকাই বায়ুদূষণ রোধ করতে পারে

যদি.....

- ✓ আপনার ব্যবহৃত গাড়ির নিয়মিত রক্ষণাবেক্ষণ, পরিবেশ বান্ধব জ্বালানী ব্যবহার ও দূষণ প্রতিরোধক যন্ত্র সংযোজন করেন;
- ✓ আপনার কলকারখানায় ও ইট ভাটায় আধুনিক প্রযুক্তির যন্ত্রপাতি ও বায়ুদূষণ নিরোধক সরঞ্জামাদি স্থাপন করেন;
- ✓ আপনার চরপাশের উন্মুক্ত স্থানগুলো ঘাস দিয়ে বা পাকব করে ঢেকে দেন এবং প্রয়োজনে পানি ছিটান;
- ✓ আপনি পরিবেশ বান্ধব ইট নির্মাণ ও ব্যবহার করেন;
- ✓ ইটের গুড়া ও বালুর মতো বাতাসে উড়ে যেতে সক্ষম নির্মাণ সামগ্রী ঢেকে রাখেন

আমাদের অস্তিত্বের জন্য প্রয়োজন নির্মল বায়ু

প্রচার-পরিবেশ অধিদপ্তরের মাসে ডিক্লোরেশন অন কন্ট্রোল এন্ড প্রিভেনশন অব এয়ার পলিউশন এন্ড ইটস লাইকলি ট্রান্সবায়ুভারি ইফেক্টস ফর সাউথ এশিয়া সংক্রান্ত বাস্তবায়ন প্রকল্প সহায়তায় : জাতিসংঘ পরিবেশ কর্মসূচি ও স্টকহোম এনভায়রনমেন্ট ইনস্টিটিউট, সুইডেন





Awareness Activities



Male Declaration on Control and Prevention of Air Pollution and
Its Likely Transboundary Effects For South Asia

আর নয় বায়ুদূষণ, চাই সুস্থ জীবন
No to Air Pollution, it's time to go healthy

বায়ুদূষণ নিয়ন্ত্রণ ও প্রতিরোধ বিষয়ে জনসচেতনতামূলক
টিভি স্পট, ডকুড্রামা ও লোকসঙ্গীত

পরিবেশ অধিদপ্তর
পরিবেশ ও বন মন্ত্রণালয়

DOE

UNEP SEI Sida



Challenges

- **Monitoring**
 - Maintenance and calibration of High Volume Sampler;
 - Maintenance of Atomic absorption Spectrophotometer;
 - Replacement of Hollow cathode Lamp of AAS;
 - Swedish Air Laboratory (IVL) has stopped providing services for analysis of SO₂, NO_x and O₃ since Sept 2015 in absence of fund.
- **Further Studies**
 - Health Impact– In absence of financial flow further studies on Health Impact could not be undertaken.
 - At the same reason further studies of ozone on agriculture could not be undertaken.
- **Awareness Building Activities**
 - In absence Financial Resources no new materials could be produced and disseminated



Presentation on Implementation of Male' Declaration

▪ Success stories

- Personnel capacity building.
- A trans-boundary Air Quality database has been developed.
- Two major studies (Health impact and O₃ impacts on crops) were done under this project.
- All protocols and manuals have been translated into Bangla.
- A good number of awareness materials were produced under male declaration project
- National Air Pollution Reduction Strategy has been formulated with the financial support from UNEP
- More people aware on air pollution and its health impact



Thank you.....