

**Malé Declaration on Control and Prevention of Air Pollution
and its Likely Transboundary Effects for South Asia**

Proceedings



Fourteenth Session of the Intergovernmental Meeting (IG14)

**25 November 2015
Bangkok, Thailand**

PROCEEDINGS

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**I. Report of the Fourteenth Session of
the Intergovernmental Meeting
(IG14)**



Malé Declaration on Control and Prevention of Air Pollution and its Likely Transboundary Effects for South Asia

The Fourteenth Session of the Intergovernmental Meeting (IG14)
25 November 20015, Bangkok, Thailand

Malé Declaration/IG14/6
Page 1

REPORT OF THE SESSION Final

I. Introduction

1. The Fourteenth Session of the Intergovernmental Meeting (IG14) of the Malé Declaration on Control and Prevention of Air Pollution and its Likely Transboundary Effects for South Asia (Malé Declaration) was held in Bangkok, Thailand on 25 November 2015.
2. Representatives of the eight participating countries, namely: Bangladesh, Bhutan, India, Iran, Maldives, Nepal, Pakistan, and Sri Lanka participated in the Session. Experts from the following organizations: Asian Institute of Technology, South Asia Cooperative Environment Programme (SACEP), Stockholm Environment Institute (SEI), United Nations Environment Program, Regional Office for Asia and the Pacific (UNEP ROAP), and the Secretariat, the Regional Resource Centre for Asia and the Pacific (RRCAP) also attended the Session. The list of participants is attached as Annex I.

Opening of the Session

3. The Session was opened by the Secretariat. Mr. Osamu Mizuno, Director, RRC.AP delivered the Opening Remarks. He highlighted the current problems on air pollution regionally and globally and pointed out that improvement in air quality need to be considered as part of a larger sustainable development context. He mentioned that the Malé Declaration will play great roles on the international calling to combat air pollution, as set forth at the decisions of the United Nations Environment Assembly (UNEA) Resolution which was adopted in June 2014 for protecting air quality and the newly adopted global United Nations Sustainable Development Goals (UN SDGs) in September 2015.
4. Mr. Kaveh Zahedi, Regional Director and Representative, United Nations Environment Programme, Regional Office for Asia and the Pacific (UNEP ROAP) gave the Welcome Remarks. He stressed that the biggest agenda, currently is the SDGs where the 3 goals pertain to air pollution. He pointed out that targets at SDGs have been set up in terms of eliminating health impacts of air pollution by

2030, reduce the adverse per capita environmental impact of cities, and access to affordable, reliable and modern energy services.

5. Dr. Muhammad Khurshid, Director General, South Asia Co-operative Environment Programme (SACEP) made the remarks. He stressed that controlling air pollution could be of considerable benefit to South Asian economies, environment and population. By controlling emissions, damage could be reduced and major societal benefits will accrue for individual countries, the region at large and beyond.

Introduction of the Regional Facilitator

6. Mr. Jatinder Singh Kamyotra, Director, Central Pollution Control Board (CPCB), Ministry of the Environment, Forest and Climate Change, India was introduced as the newly appointed Regional Facilitator of Malé Declaration. He gave the Introduction to the Meeting. He requested the Session for a one-minute prayer and silence for the soul of Mr. Raghunathan Rajamani, the former Regional Facilitator Malé Declaration who passed away in this year.

II. Review on the progress of implementation of the Malé Declaration at the national level (Agenda Item 1)

7. Each country made a presentation on the progress of implementation of the Malé Declaration (15 minutes per country) at the national level. The presentation included: 1) updates on country activities regarding Malé Declaration; 2) identification of gaps in meeting the targets and possible solutions to overcome the constraints; 3) updates on the country specific information (e.g. list of experts, list of institutions working in the area, environmental concerns and success stories); and, 4) the financial contribution updates in the participating countries.
8. The following points summarized the presentations:

Bangladesh

9. Mr. Farid Ahmed, Deputy Director, Department of Environment, Bangladesh reported that the country has benefitted from the health and crop impact studies and awareness-raising activities implemented under the Malé Declaration. People have now become more aware on the impact of air pollution to human health. They are continuously doing the monitoring activities, but faced some challenges on maintenance and calibration of equipment, replacement and procurement of materials, and analysis of data due to lack of funds. They have identified further studies on health and crop impacts and development of more awareness raising materials as priority activities once funding is available.

Bhutan

10. Mr. Tenzin Khorlo, Chief Environment Officer, National Environment Commission Secretariat, Bhutan reported that they are continuously monitoring PM₁₀ and initiating an upgrade towards automatic online monitoring system. He also briefed about the country's Air Action Plan highlighting the inclusion of PM_{2.5} in the monitoring system, increasing the number of monitoring stations and improvement of vehicular emission system, as among the priority areas. He suggested that improved networking and information sharing among member countries are key factors for the sustainability of Malé Declaration.

India

11. Dr. Sanjeev Agrawal, Scientist 'D', Central Pollution Control Board, India reported that they have been actively implementing Malé Declaration activities, including monitoring, impact studies on health, crop, corrosion & ecosystems, emissions inventory, among others. They had identified inadequate monitoring network and infrastructure as among the gaps and suggested for an expansion of monitoring in smaller cities. They also recommended the development of appropriate softwares for data management and reporting, capacity building, and strengthening of the network. As the Regional Centre for Wet and Dry Deposition Monitoring, CPCB in India is keen to provide capacity building, demonstration and training to other member countries, if requested.

Iran

12. Mr. Masood Zandi, Deputy of Air Pollution Office, Department of Environment, Iran reported that eight megacities in Iran have faced tremendous air pollution problems, the major source being the transport sector. He highlighted the eleven goals of Iran's Clean Air Action plan to reduce air pollution which include phasing out of old vehicles and standardization of new vehicles, improving fuel quality, promoting public transportation, among other priorities. Under Malé Declaration, he reported that the main activity is emission inventory.

Maldives

13. Mr. Ahmed Murthaza, Director General, Waste Management and Pollution Control, Ministry of Environment and Energy, Maldives reported that monitoring stations of Malé Declaration have been decommissioned due to machine defects but a new government-supported project to establish new monitoring stations with fully automated monitoring systems is underway. He also informed about the ongoing process of formulating the national policy on pollution in Maldives. They had identified capacity-building and proper budget allocation as crucial to an efficient and continuous implementation of air quality monitoring and other Malé Declaration activities.

Nepal

14. Mr. Shankar Prasad Paudel, Senior Divisional Chemist (Under-Secretary), Department of Environment, Nepal, reported that six monitoring stations in the capital have not been operational although government tried to re-establish some of them. He informed of the recent emission inventory which showed that transport sector has been the largest contributor of the emission loads. He also highlighted that the plan for Nepal's Air Pollution Monitoring Network has been initiated suggesting the establishment of 56 new and upgraded air quality monitoring systems. With the increasing challenge on vehicle emissions, measures to regulate and control vehicular emissions by improving fuel quality, and on-road monitoring of vehicle mass emission needs to be in place.

Pakistan

15. Mr. Zia Ul Islam, Director, Pakistan Environmental Protection Agency, Government of Pakistan conveyed that the implementation of Malé Declaration activities in Pakistan had been hampered due to lack of capacity, unavailability of funds and some institutional issues. Malé Declaration monitoring stations have not been functional. They recommended that capacity building and improvement of the monitoring systems are priority areas for ensuring continuity of air quality monitoring.

Sri Lanka

16. Mr. H.L. Kamal Priyantha, Assistant Director, Air Resource Management and Monitoring Unit, Central Environmental Authority, Sri Lanka reported that they are continuously conducting the ambient air quality monitoring activities in Sri Lanka but the wet deposition monitoring has been temporarily suspended due to instrument failure. He mentioned the difficulty in continuously implementing monitoring and other Malé Declaration activities due to financial constraints. He also informed that air quality network involving all stakeholders in Sri Lanka has now been established and good emission control programs being set up with full support from the government.

III. Consideration on the implementation of Malé Declaration at the regional level, including financial status and updates (Agenda Item 2)

17. Ms. Adelaida B. Roman, Senior Programme Specialist, RRCAP, Malé Declaration Secretariat presented the "Report on the Progress of Malé Declaration after the Thirteenth Session of the Intergovernmental Meeting (IG13) (Malé Declaration/IG14/2/1)" and the "Updates on Status of Financial Contribution to the Malé Declaration (Draft) (Malé Declaration/IG14/2/2)". The Session discussed, reviewed and provided guidance on the activities of the Malé Declaration, including strengthening the financial contribution for continuous operation of the network.

18. Major discussions during the Session included:

- Air pollution is a global issue and Malé Declaration is the only initiative and network in South Asia tackling transboundary air pollution, therefore, the network needs to continue its future development and the way forward.
- It was suggested that Secretariat shall find a way of getting more financial support and work with the UN agencies.
- The Secretariat explained, with appreciation that four countries, namely: Bangladesh, India, Maldives and Pakistan have made contributions to Malé Declaration and the total contributions have been increasing over the years. However, it was stressed that still the total financial contribution received was well below the level of the committed amount and it did limit the possible activities of the network.
- Other countries which had not yet done so were encouraged to make the financial contributions.
- It was also highlighted that for the proper function of the regional monitoring under the Malé Declaration, it is essential that each country should fulfil their own responsibility to finance and manage their own monitoring systems in addition to the contributions to the Malé Declaration, as decided by the IG13.

19. The Session acknowledged the Progress Report and the Updates on Status of Financial Contribution to the Malé Declaration, Malé Declaration/IG14/2/1 and Malé Declaration/IG14/2/2, respectively.

IV. Consideration on strengthening the framework on air pollution reduction in South Asia (Agenda Item 3)

20. The Secretariat presented the Terms of Reference (TOR) of Expert Group on Strengthening the Framework of the Male' Declaration (Draft). The Session was invited to review and adopt the TOR.

21. Major discussions on this topic included:

- It was commented that timeframe for emission standards setting and activities is too short for such a tough job.
- It was requested for a week to internally deliberate and give feedback.
- It was suggested to let the expert group prioritize the activities. TOR can be revised according to the requirements.
- Standards are important and countries shall not only rely to World Health Organization (WHO) standards. For countries, it is good to have air quality standards, though challenging to set up.

- It was stressed that harmonization of emission standards could be done in the future.

22. The Secretariat shall compile all member countries air quality emission standards, consolidate and circulate to member countries and let countries decide on the priorities.
23. The TOR was endorsed, in principle with the suggestion that it will be circulated to the participants for further comments, in a one week period, if any.

V. Consideration on the Work Programme and Budget of Malé Declaration in 2016 and the Future Development (Agenda Item 4)

24. The Secretariat made a presentation on the draft Work Programme and Budget in 2016 of Malé Declaration. The emphasis covered the needs and areas relevant for the member countries utilizing the resources, for future development. The Session was requested to discussed, reviewed and approved the Work Programme and Budget in 2016.
25. Major recommendations on the agenda items included:
 - Strengthen networking and information sharing among member countries;
 - Improve emission inventory;
 - Replicate success stories in the region;
 - Monitoring facilities should be upgraded;
 - Capacity building on air quality management;
 - Financial constraint is a concern, need for innovative financial solutions; and
 - Necessity for developing emission standards.
26. Participants noted the explanations of the Secretariat that there is no ambiguity of the current institutional arrangement of the Malé Declaration such that the RRC.AP, which is an independent entity of UNEP, is the Secretariat of the Malé Declaration as it was so decided at IG13. At the same time, participants stressed the importance of partnership with UNEP ROAP and SACEP for the future of Malé Declaration and requested the Secretariat to have close communication with them to find a way of further cooperation.
27. SACEP confirmed that it will keep providing support, as appropriate, to the implementation of Malé Declaration under the close collaboration with the Secretariat.
28. The operation of the established Regional Technical Centers shall be pursued, and consider mobilizing and generating resources. It was suggested to generate funds locally and making use of local resources and experts.

29. Good project proposals will be developed depending on the request of the countries.
30. It was urged that regular updates on the status of monitoring shall be done not only during meetings.
31. The Session approved the Work Programme and Budget in 2016.

VI. Other Issues (Agenda Item 5)

32. The SEI representative highlighted that the Short-Lived Climate Pollutant (SLCP) is presently a global concern and he advised to look at good practices and opportunities on SLCPs since the funding schemes are available. Furthermore, he pointed out that the Malé Declaration shall look for opportunities and chances to link to new funding regarding air pollution and SLCPs.

VII. Closing of the Session

33. Mr. J. S. Kamyotra, Regional Facilitator, summed up the session. He expressed his appreciation to the IG14 and emphasized that the Malé Declaration shall go forward. He expressed his appreciation to the member countries for taking steps to make financial contributions to the network. Finally, he thanked all the participants, Secretariat, and experts for the active participation and contribution during the Session.
34. The Regional Facilitator closed the Session.

Annex 1

List of Participants

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II. Meeting Documents



Malé Declaration on Control and Prevention of Air Pollution and its Likely Transboundary Effects for South Asia

**The Fourteenth Session of the Intergovernmental Meeting (IG14)
25 November 2015, Bangkok, Thailand**

Agenda

09:00-9:30 Opening of the Session

- Opening Remarks
Mr. Osamu Mizuno, Director, Regional Resource Center for Asia and the Pacific (RRCAP), on behalf of the Secretariat
- Welcome Remarks
Mr. Kaveh Zahedi, Regional Director and Representative, United Nations Environment Programme, Regional Office for Asia and the Pacific (UNEP ROAP)
- Remarks
Dr. Muhammad Khurshid, Director General, South Asia Co-operative Environment Programme (SACEP)
- Introduction of the Regional Facilitator

09:30-10:30 Agenda Item 1: Review on the progress of implementation of the Malé Declaration at the national level

The presentation could include: 1) updates on country activities regarding Malé Declaration; 2) identification of gaps in meeting the targets and possible solutions to overcome the constraints; and 3) upgrade on the country specific information (e.g. list of experts, list of institutions working in the area, environmental concerns and success stories); and 4) the financial contribution updates in the participating countries.

Each country will make a presentation on the progress of implementation of the Malé Declaration (15 minutes per country), as follows:

- Bangladesh
- Bhutan
- India
- Iran
- Maldives

10:30-11:00 *Coffee/Tea Break*

11:00-12:30 Continuation on the presentation of the following countries:

- Nepal

- Pakistan
- Sri Lanka

The Session will discuss and make consideration on the progress of activities at the national level.

12:3-14:00 *Lunch Break*

14:00-14:30 Agenda Item 2: Consideration on the implementation of Malé Declaration at the regional level, including financial status and updates

The Secretariat will make presentation on the “Report on the Progress of Malé Declaration after the Thirteenth Session of the Intergovernmental Meeting (IG13)”, including financial status and updates.

The Session will discuss, review and provide guidance on the activities of the Malé Declaration, including strengthening the financial contribution for continuous operation of the network.

14:30-15:00 Agenda Item 3: Consideration on strengthening the framework on air pollution reduction in South Asia

The Secretariat will present the draft Terms of Reference (TOR) of Expert Group on Strengthening the Framework of the Male’ Declaration.

The Session will be invited to review and adopt the TOR.

15:00-15:30 *Coffee/Tea Break*

15:30-16:00 Agenda Item 4: Consideration on the Work Programme and Budget of Malé Declaration in 2016 and the Future Development

The Secretariat will make a presentation on the draft Work Programme and Budget in 2016 of the Malé Declaration. The emphasis should be to cover the needs and areas relevant for the member countries utilizing the resources, for future development.

The Session will discuss, review and approve the Work Programme and Budget in 2016.

16:00-16:30 Agenda Item 5: Other Issues

The meeting will discuss and consider other issues to be raised by the participants and the Secretariat, if there is any.

16:30 Closing



Presentation on
Malé Declaration activities in Bangladesh

The Fourteenth Session of the Intergovernmental Meeting (IG14)
25 November 2015, Bangkok, Thailand

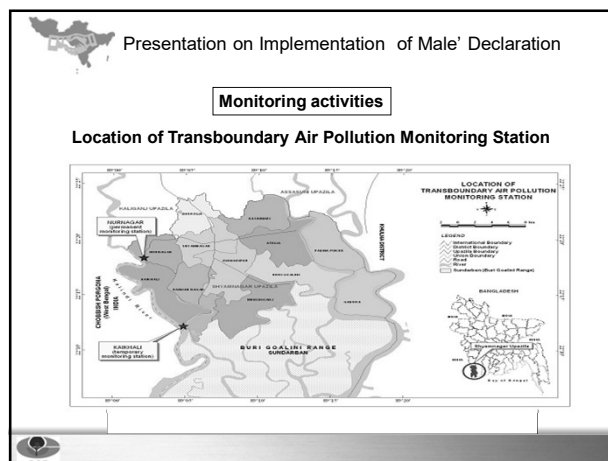
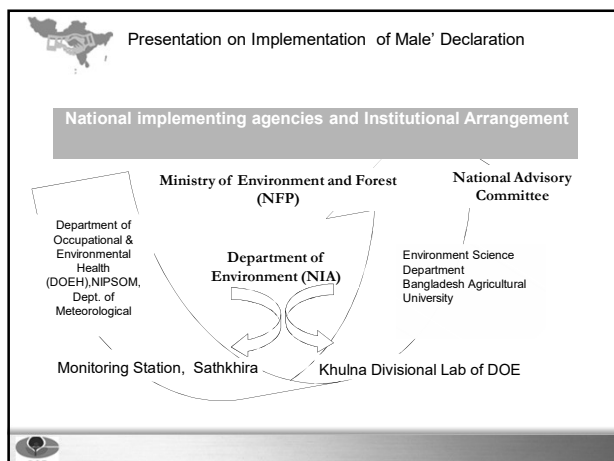
Farid Ahmed
Deputy Director, Department of Environment, Bangladesh




Presentation on Implementation of Male' Declaration

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

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




Presentation on Implementation of Male' Declaration

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, Sathkhira
 - 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





Presentation on
Malé Declaration activities in Bangladesh

The Fourteenth Session of the Intergovernmental Meeting (IG14)
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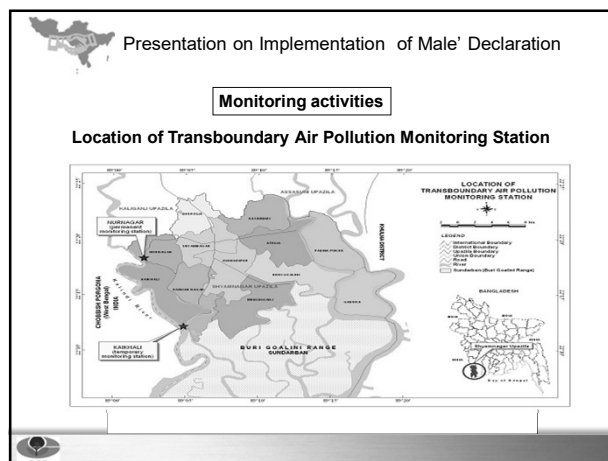
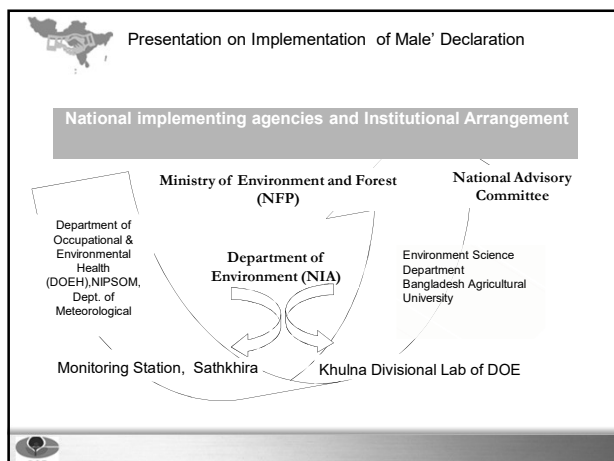
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Presentation on Implementation of Male' Declaration

Monitoring Activities of Malé declaration Project

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 - Dry Deposition Monitoring
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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




Presentation on Implementation of Male' Declaration

Dry Deposition monitoring

- **Meteorological Data**
 - Meteorological Parameters are
 - ❖ Wind Direction
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 - All Meteorological Parameters have been being monitored by Meteorological Dept, Sathkhira
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 - Data is sent to UNEP
 - The Meteorological Data is very important for measurement of Air Quality Parameters by Passive Sampler



 Presentation on Implementation of Male' Declaration

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

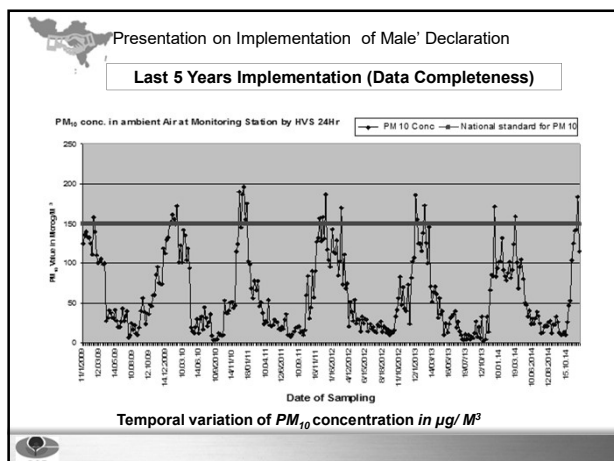


 Presentation on Implementation of Male' Declaration

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





 Presentation on Implementation of Male' Declaration

Data Completeness

Observation About Gaseous Pollutants

- SO₂ and NO₂ 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.
- O₃ 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.



 Presentation on Implementation of Male' Declaration

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



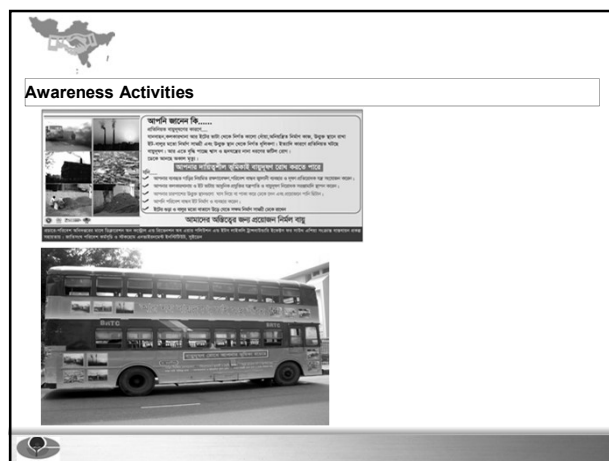
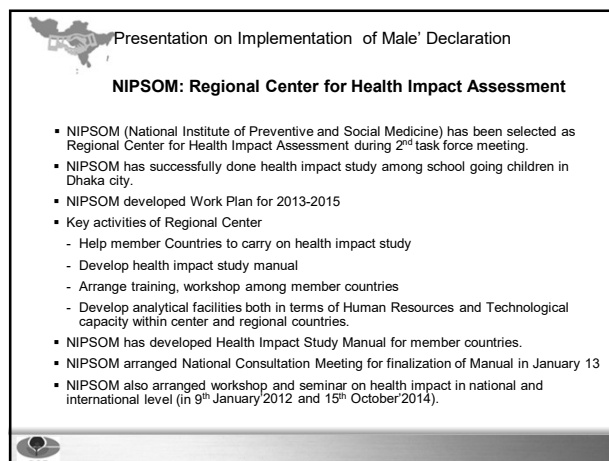
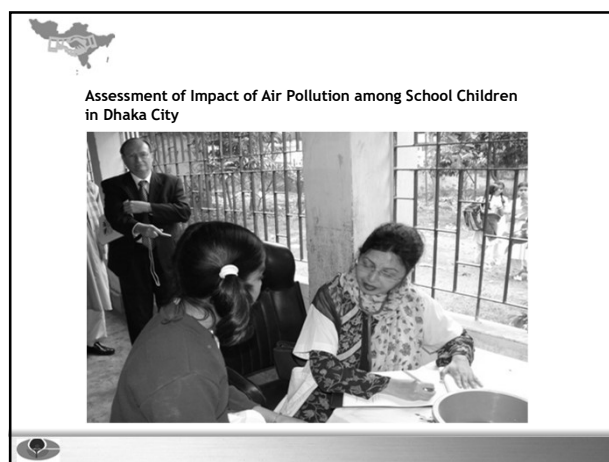
 Presentation on Implementation of Male' Declaration

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







Awareness Activities






Presentation on Implementation of Male' Declaration

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



Page 20



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.....



Page 22



Progress on implementation of the Malé Declaration at the national level



The Fourteenth Session of the Intergovernmental Meeting 25 November 2015, Bangkok, Thailand

9/28/2016 National Environment Commission 1



Outline of the Presentation



- Country Profile;
- Implementation of national activities related to MD;
- Relevant air work plan as per our 11th FYP;
- Gaps and Needs; and
- Issues and Challenges.

9/28/2016 National Environment Commission 2

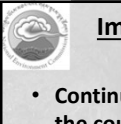


Country Profile



- Area: about 38,394 square km;
- Population: 745,153 (M: 387,520; F:357,633);
- Districts: 20;
- Capital: Thimphu ;
- Forest cover: >70%;
- Major Economy: Hydropower and subsistence agriculture practice; and
- No major anthropogenic air pollution sources in the country.

9/28/2016 National Environment Commission 3



Implementation of national activities



- Continue to monitor PM10 levels for 5 locations in the county;
- Initiated to upgrade toward automatic online monitoring system -Thimphu, Pasakha and few other selected location in the country;
- Continue to use manpower from industries and academic institutions;
- Started to reinforce data collection for vehicular emission; and
- Trained relevant officials from Road Safety to enhance vehicle emission inspection.

9/28/2016 National Environment Commission 4



Air work plan - 11th FYP



- Increase number of automated online air quality system –atleast 4 online station;
- Include PM 2.5 in the monitoring system;
- Build robust air quality data base;
- Improve vehicular emission testing system and database;
- Review ambient air quality standard –end of current 11 FYP; and
- Review vehicular emission standards –end of 11 FYP reflecting national circumstance .

9/28/2016 National Environment Commission 5



Gaps and Needs



- More impact study is needed –e.g. build from Sherubtse College;
- Need to improve and refine air quality inventory;
- Need robust air pollution dispersion modeling; and
- Impact of air pollution critical to draw policy attention.

9/28/2016 National Environment Commission 6



Issues and Challenge

- Improve network and information sharing among the member countries;
- More high level political engagement on Male Declaration;
- Strengthen ownership; and
- Secretariat to be more proactive.

9/28/2016 National Environment Commission 7



THANK U

Tenzin Khorlo,
Chief Environment Officer,
Environment Services Division,
National Environment Commission Secretariat.
www.nec.gov.bt
Ph.no. 323384/324323

9/28/2016 Environment Service Division, National Environment Commission 8

WELCOME DELEGATES & COUNTRY REPRESENTATIVES



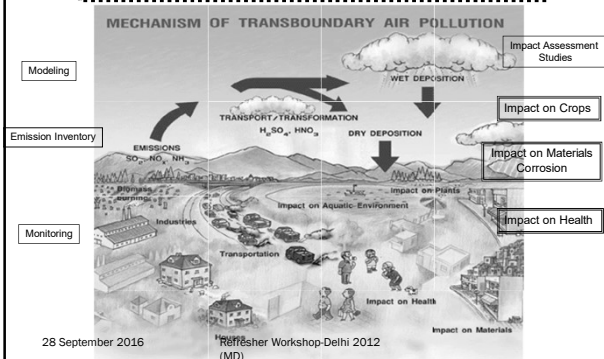
COUNTRY PRESENTATION INDIA

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



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/PCBs 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 (CNCT), 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

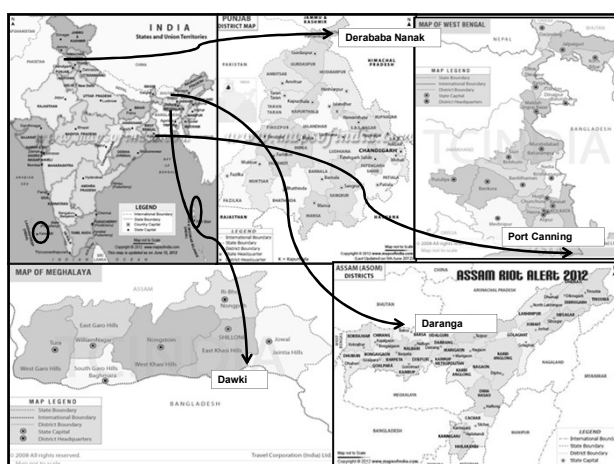
Establishment & operation of Trans-boundary Ambient monitoring stations, viz.;

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

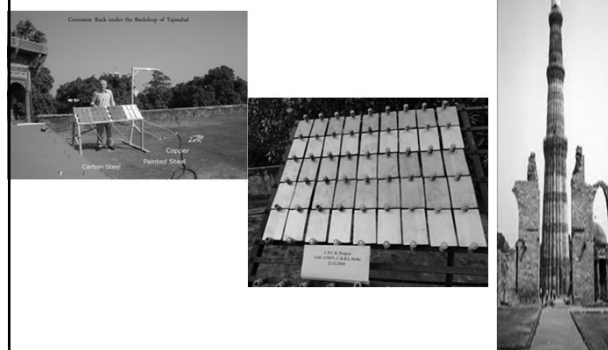


Status of ambient air quality monitoring stations in Male' Declaration under NAMP

	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	BATAID, Baska district,	Kavaratti	Port Blair, Brookhabd, Rangat, Campbell Bay
Bodering	Bangladesh	Bangladesh	Pakistan	Bhutan	Maldives	South East Asia
Lat & long	26°47' 06" N	22°59' 8" N	32°5' 60" N 75°5' 0"	26°48' N	10°0' 0" N 73°0' 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 monitors	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



Corrosion Studies



Source Monitoring

CPCB Series / MTRC / 2010-18

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:

- Falling of dust per unit area
- Presence of heavy metals
- Analysis of components in dust
- 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 ($\mu\text{m/year}$)			
	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

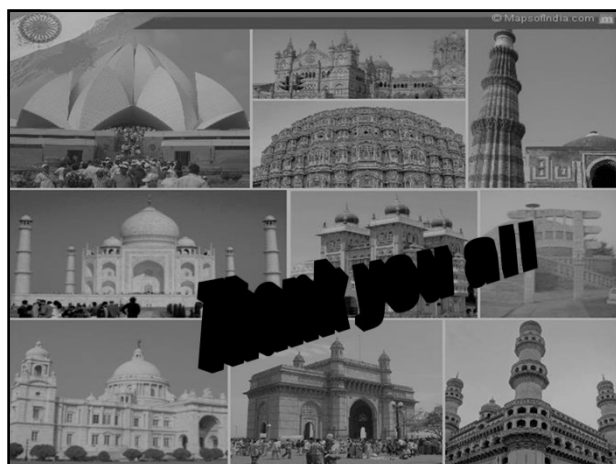
- Base line data not available
- Control samples
- Expertise not available
- Infrastructures

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).



MALE' DECLARATION ON CONTROL AND PREVENTION
OF AIR POLLUTION AND ITS LIKELY TRANSBOUNDARY EFFECTS
FOR SOUTH ASIA

Progresses in Iran

(COUNTRY REPORT)

BANGKOK

25 NOV 2015

Masood zandi

1

IRAN (Islamic Republic)



Location: 26 - 38 N, 44 - 63 E

Population > 70 million

Total Area: 165,000,000 ha

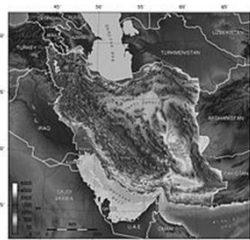
-26.6m ≤ Altitude ≤ 5671m MSL

0 ≤ Precipitation ≤ 1800mm

Coastline length: 3500 km

2

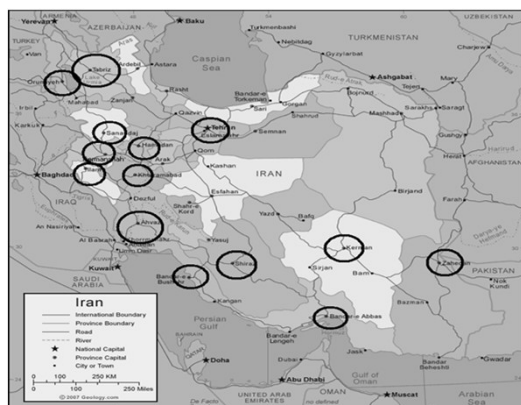
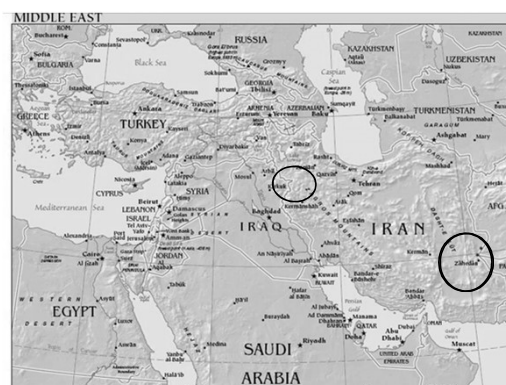
Topographic Map



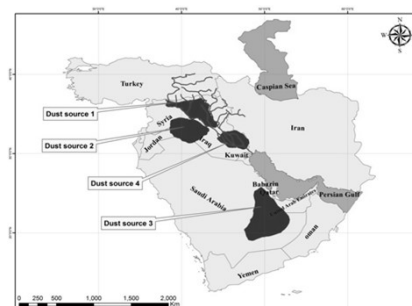
Climate Map



3

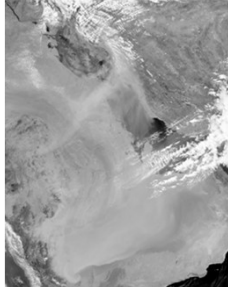


Regional dust chains (UT-GRC, 2012)

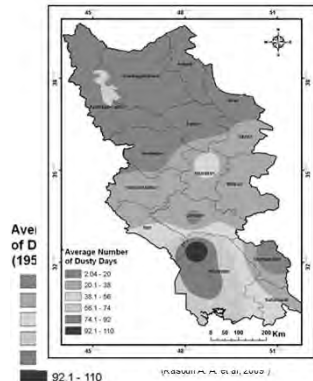


Major Naturally Caused Pollution Episodes

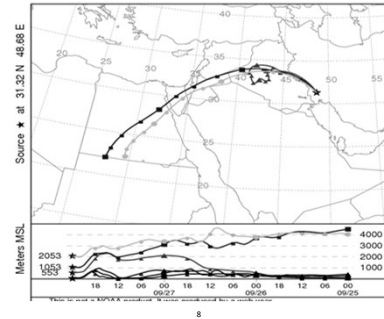
* Desert Dust Intrusion



visibleearth.nasa.gov



Backward trajectory of HYSPLIT model



Major Naturally Caused Pollution Episodes

● Inversion Episodes

Several episodes in cold season



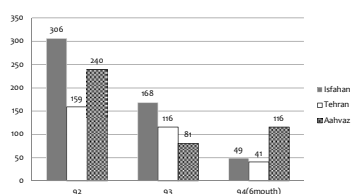
Tehran view from mountains

9

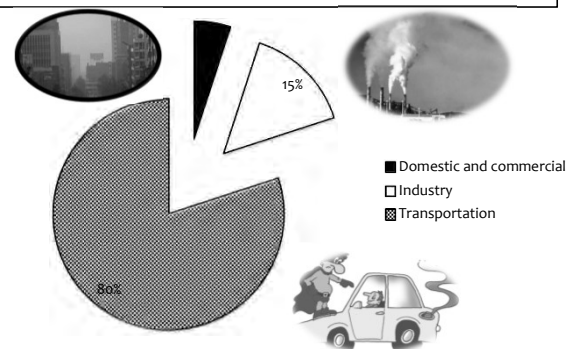
8 Megacities with Major Air Pollution Problems



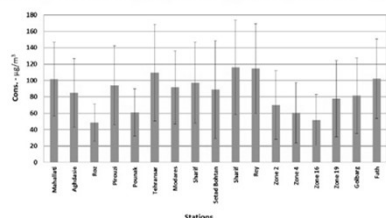
Number of unhealthy days 2013-2014



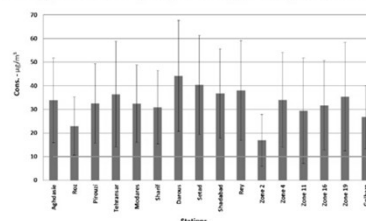
Contribution of various sources of air pollution in Tehran



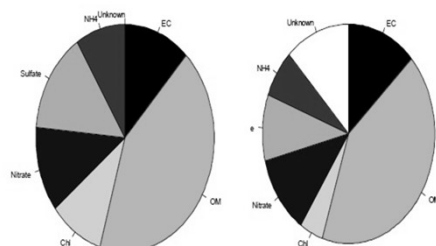
PM10 annual average of Tehran air quality monitoring stations, March 2013-Feb 2014



PM2.5 annual average of Tehran air quality monitoring stations, March 2013-Feb 2014



نتایج آنالیز شیمیایی
PM2.5 هوای تهران
ایستگاه تهرانسر - زمستان ۱۳۹۲



15

Eleven goals of the second Clean Air Action plan to reduce air pollution

1. Phase out of the old vehicles
2. Standardization for New vehicles
3. Improving fuel quality
4. Development of Public transportation
5. Inspection and maintenance vehicle

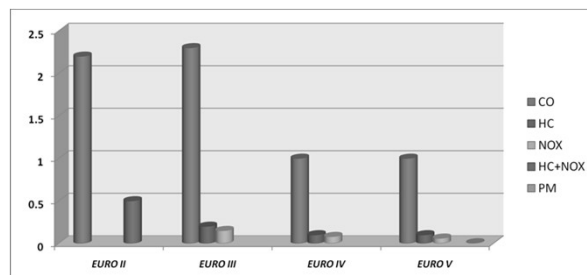
Eleven subjects of the comprehensive programs to reduce air pollution in country

- 6-Traffic Management
- 7-Controlling of Industrial and Other sources
- 8-Development of green spaces
- 9-Monitoring pollutants and health
- 10-General Education and Culture

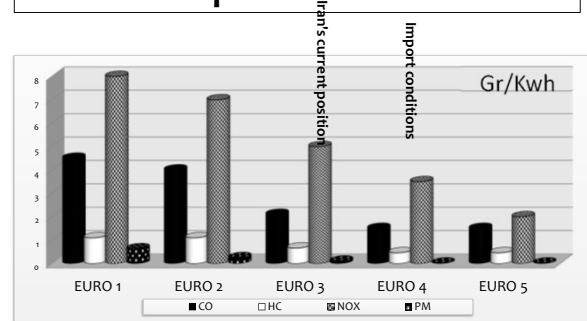
Public transportation

- Main priority of transportation for Tehran is subway
- The first metro line was opened in 1999
- Metro of Tehran is currently about 200 km and will - reach to length of 705 km in 14 line
- number of daily trips in Tehran is about 17 million that 3 million have done by subway

comparing emissions from gasoline-powered vehicles based on environmental standards EuroIV and EuroV



Compare Standards



Road Map for Future

period	2014	2015	2016	2017	2018	2019	2019	2020	2021	2022
LDV (petrol)	EURO IV + EOBD					EURO V				
HDV (Diesel)	EURO 2	EURO 3+ DPF		EURO 4+DPF			Europe Union standard			
Motorcycle	EURO 3				Europe Union standard					

Expected outcomes

- Improvement of fuel standard in all of country
- To prevent the release of fuel vapors (ministry of oil ministry of industry)
- Requirement to replace the catalyst convertor (ministry of industry)
- Phasing out of old vehicle
- Installing particle filters(DPF) on diesel vehicles
- * -Production of electric and hybrid vehicle
- * -Production of electric motorcycle

Expected outcomes(cont.)

- * Completion of environmental data bank for province industrial zones (DOE, Ministry of industry)
- * Minimizing energy consumption in industrial zones (Ministry of industry)
- * Development urban green space (Ministry of agriculture-municipality of Tehran)
- * Monitoring centers(DOE)
- * Operation of On-line monitoring system in industrial unit(DOE)
- * Developing environmental education programs (DOE)
- Development of public transportation



Review on the Progress of Implementation of Male' Declaration at the National Level

Ahmed Murthaza
Director General
Ministry of Environment and Energy, Maldives

Current Activities

- * Current Focal Point – Environment Department at MEE
- * New department formed as WMPC at MEE
 - * Preparing to takeover from January 2016
- * Monitoring stations in Male' have been decommissioned – Machines defect
- * Formulation of a national policy on Pollution underway (first time)
- * A new project to establish new monitoring stations is being implemented
 - * Procurement of fully automated monitoring systems is underway
 - * Training will be provided to both EPA and MEE staff

Gaps Identification

- * Lack of capacity mainly in terms of human resource
- * Lack of financial resources to access the modern technologies
- * Not considered in the development process (not a priority)

Possible Solutions

- * Political will to incorporate into the development process
- * Provide training to staffs involved
- * Budget allocation for continuous monitoring and equipment maintenance
- * International support to the sector like in other sectors

Country Specific Information

- * Institutions;
 - * MEE
 - * EPA
 - * MMS
- * Expertise, None
- * Environmental Concerns;
 - * Open burning due to inappropriate waste management (plumes of smoke into the air)
 - * Dependent on fossil fuel for electricity
- * Maldives submitted its INDC to UNFCCC
 - * Aiming of 10% reduction of GHG by 2030

Planned Activities

- * A national policy on Pollution endorsed
- * Establishment of new monitoring systems in Male;
- * Establish an ambient air pollution baseline
- * Reducing the air pollutants (GHG emission) through the establishment of regional waste management system (environmentally sound)
- * Seek international assistance
- * Incorporate into the development process

Thank you

Malé Declaration on Control and Prevention of Air Pollution and its Likely Transboundary Effects for South Asia

Overview of national level implementation of the Malé Declaration in Nepal

The Fourteenth Session of the Intergovernmental Meeting (IG14) 25 November 2015, Bangkok, Thailand

25 November 2015, Bangkok, Thailand

Shankar Prasad Paudel
 Senior Divisional Chemist (Under-Secretary, Tech)
 Department of Environment
 Ministry of Science, Technology and Environment (MoSTE)
 Kathmandu, Nepal

Presentation Outline

- Introduction
- Issues on Air Pollution
- Existing Legal Framework on Air Quality Management
- Organizations involved in Air Quality Management in Nepal
- Air Quality Status and Pollution Sources
- Energy Consumption Status
- No. of Registered Vehicles
- Impacts
- Achievements
- AQ Monitoring Station and other related ongoing program
- Challenges on Air Quality
- Major other Studies/ programs Related to Air Pollution

Introduction

- Area- 147,181 sq. km.
- Country of the Mt. Everest, birth place of Lord Buddha
- Population 26.6 m, growth rate: 1.35%,
- 45th biggest in population, 95th in terms of Area
- Borders with India in the South, East and West; with China in the North
- Urban population: 18%, Life expectancy 65 yrs
- Percent Urbanization by 2050: 36%
- Nepal ranks twenty-fifth globally in biodiversity,
- Forest covers approximately 39.5% of the total area,
- 23.23% of the country has been delineated as national park and conservation areas,
- Only 27 per cent of the country is potentially arable and only 20 per cent is under cultivation,
- Per capita income is US\$ 729 with a gross domestic product (GDP) growth rate at 5.1 per cent in 2013-14
- 25 per cent of Nepalese living below the poverty line

Issues on Air Pollution

- Rapid Urbanization
- Brick kilns in operation in Kathmandu Valley
- Growing Numbers of Vehicles
- Traffic Congestion and Increasing Demand of Fossil Fuel
- Industrialization
- Widening of road (dust)



Existing Legal Framework on Air Quality Management

- ✓ Constitution of Nepal, 2015
- ✓ Environment Protection Policy, 1987
- ✓ Industrial Policy, 1992
- ✓ Nepal Environmental Policy and Action Plan (NEPAP I), 1993
- ✓ National Transport Policy, 2002
- ✓ Industrial Enterprises Act, 1992
- ✓ Transport Management Act, 1992 and Regulation 1997
- ✓ Environment Protection Act and Rule, 1997
- ✓ Ozone Depleting Substances Consumption (Control) Rules, 2001

Contd....

- Standard on Emission and Chimney Height for Brick Kilns, 2008
- National Indoor Air Quality Standard and Implementation Guidelines, 2009
- National Ambient Air Quality Standard, 2012
- Nepal Vehicle Mass Emission Standard, 2012
- Standard on Emission and Chimney Height for Industrial Boiler, 2012
- Standard on Emission for Diesel Generator, 2012
- Standard on Emission for Cement and Crusher Industries, 2012
- Environmental Standards for Incinerators

Organizations involved in Air Quality Management in Nepal

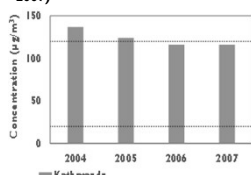
- Ministry of Science, Technology and Environment, lead organization and national focal point of Male Declaration.
- Department of Environment, implementing agency of MoSTE in all environmental issues
- ICIMOD, (International Centre for Integrated Mountain Development) national implementation agency for Male Declaration
- Members:
 - Institute of Agriculture and Animal Science (IAAS) TU, Chitwan ; now it is Agriculture and Forestry University
 - Clean Air Network Nepal-representing from NGOs
 - Center for Pollution Studies, Institute of Engineering (IoE-TU) representing from academic institutions
 - Department of Hydrology & Meteorology, GoN

Air Quality Status and Pollution Sources

- Annual average PM_{10} concentrations in Kathmandu Valley from 2004 to 2007 was slightly decreased
- These were above the WHO air quality guideline value
- A more recent emission inventory showed that transport sector generated approximately 98% of total PM_{10} emissions in 2010 and 69% of total emission loads
- Unfortunately, the six monitoring stations in the capital have not been operational since 2007
- MoSTE re-established three previous station to measure PM_{10} during the period of Oct. 2013 to May 2014. They are ultimately closed.
- Government plan to establish different AQM stations

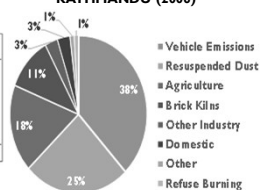
Contd.....

ANNUAL AVERAGE PM_{10} LEVELS IN KATHMANDU (2004-2007)



*No annual PM_{10} national standard

EMISSION PROFILE PM_{10} IN KATHMANDU (2006)



Energy Consumption Status

Year 2013/14

Energy Source		Tons of Oil Equivalent	% Contribution
Traditional	Firewood	8,154	72.60
	Agricultural residues	403	3.57
	Animal Residue	426	3.79
	Total	8,983	76.97
Commercial	Coal	320	2.84
	Petroleum Products	1,264	11.25
	Electricity	374	3.32
	Total	1,958	20.52
Renewable	Total	291	3.03
Grand Total		11,232	100

Source: Economic Survey 2013/14, MoF

No. of Registered Vehicles

Types	Fiscal Year		
	1989/90 to 2013/14	2013/14	Up to mid- March 2015
Bus	32,914	2,776	2,375
Minibus/ Mini truck	14,719	1,412	1,288
Crane/ Dozer/Excavator	52,981	2,789	2,467
Car/ Jeep/Van	150,107	11,372	9,054
Pickup	23,839	5,668	3,703
Microbus	2,814	178	611
Tempo	7,527	17	914
Motorcycle	1,371,206	163,945	142,241
Tractor/Power Tiller	73,173	10,070	6,911
Others	6,543	116	49
Total	1,755,821	198,343	169,613

Source: Economic Survey 2013/14, MoF

Impacts

- Incidences of Air Pollution-Related Deaths (Mortality Estimates) in thousands (2012)

Respiratory infections: 13.1	Respiratory diseases: 23.7
Cardiovascular diseases: 41.4	Trachea, bronchus, lung cancers: 2.2

- Health impact study
 - A report in 2011 on cooking with biomass fuels indicated an association between acute exposure to smoke of women with restrictive lung disease and blood de-oxygenation, showing that fine particulate matter can worsen pre-existing lung diseases



Achievements

- 1991 - Ban on import of three wheelers
- 1992 - Banned entrance of two stroke vehicles in Katmandu valley
- 1995 - Introduction of Vehicle Emission Standards & Testing
- 1996 - Provision of Financial incentives for electric three wheelers
- 1997 - Promulgation of Environment Protection Act & Regulations
- 1999 - Ban on Vikrams (diesel 3-wheelers) in Katmandu Valley



Contd....

- 1999 - Ban on import of new 2 stroke vehicles and second hand vehicles
- 2000 -Introduction of Nepal Vehicle Mass Emission Standard (Euro I)
- 2002 - Establishment of Ambient Air Quality Monitoring System with six permanent stations in Katmandu valley (PM10, PM2.5, TSP, NOx, Pb, Benzene)
- 2003 - Introduction of National ambient air quality standards



Contd

- 2004/5 - Ban on running of moving Bull Trench Kiln in Kathmandu Valley. Promotion of Fixed Chimney and VSBK.
- 2006 -Preparation of Action Plan Report on AQM
- 2008 - Emission Standards for Brick Kilns
- 2012 - Up gradation of Vehicular mass emission Standard and national Ambient air Quality standard
- 2012 -Emission Standards of Cement industries, stone crusher industries, DG set and Industrial Boilers.
- 2012 - ban on Moving BTKs throughout the Nepal



AQ Monitoring Station and other related ongoing program

lists sites where long-term measurements are already taking place, or for which long-run resources have been committed by different agencies

Site	Status
Lobuche NCO-P	Nepal Climate Observatory – Pyramid site run by NAST/ EVK2CNR. Already measuring PM 2.5, PM10, ozone, as well as black carbon and aerosol size distribution and aerosol optical depth. Needs data transmission to DoEnv.
Jomsom	Temporary site started for PhD research work by ICIMOD affiliates, but with potential for conversion to long-term site. Currently measurements of CO, ozone, BC and aerosol optical depth.
Yala Glacier, Langtang	Site of ongoing ICIMOD-DHM collaboration to monitor glacier mass balance with plans to install black carbon measurements
Ichhyakamana	Site of full-scale climate observatory to be set up as a collaboration between DoEnv and ICIMOD.
Lumbini	Resources committed by ICIMOD for a full AQ station. Site approved by Lumbini Development Trust



Contd...

- DoEnv is prepared A Plan for Nepal's Air Pollution Monitoring Network (to be approved)
- DoEnv monitoring stations would be designed to eventually allow measurement of all the criteria pollutants listed in the National Ambient Air Quality Standards, 2012.
- The list of criteria pollutant are as follows: TSP, PM₁₀, PM_{2.5}, CO, NOx, SOx, ozone, benzene and lead
- This Plan suggested 56 AQM stations to be establish and operate within the country
- They are prioritized from 1 to 56 using different selection criteria



Contd.....

- Letter of Intent (LoI) signed between Department of Environment, Nepal and International Centre for Integrated Mountain Development (ICIMOD) intending to build up new collaborations in the area of atmospheric monitoring and analysis through the establishment and operation of air Quality stations and environment observatories in Nepal

Challenges on Air Quality Management

- To regulate the fuel quality for vehicle
- On road monitoring of the vehicle mass emission
- Protest (Burning of tire)
- Rapid and haphazard urbanization
- Sustainability of program
- Public health
- Maintaining the rule of law
- To channelize the monitoring data from other organization who have already run the AQ station
- Laboratory facilities for analysis of the criteria pollutants

Major other Studies/ programs Related to Air Pollution

Government announcement of “Clean Cooking Solution for All by 2017 (CCS 2017)” thereby ensuring Indoor Air Pollution free Nepal. (AEPCC)

AEPCC is promoting renewable energy sources in the country (ICS, Biogas, micro-hydro etc.)

Government of Nepal is prepared in-use vehicle emission standard (Draft) to regulate and control the vehicular emission

Reducing Impact of Black Carbon & other Short Lived Climate Pollutants (ICIMOD)

A Plan for Nepal's Air Pollution Monitoring Network is prepared (to be approved) - DoEnv

Research on diesel power generation and emission in Kathmandu valley by Clean Air Network Nepal

Contd.....

- Promotion of safer cycling infrastructure in Kathmandu valley- Report on assessment of cycle track in Kathmandu Valley by Clean Air Network Nepal
- Pokhara Sustainable Urban Transport Conference organized together with Pokhara Sub-metropolitan City by Clean Air Network Nepal
- LEADERS Nepal is conducting a program of Investigation of the effectiveness of national clean cook-stove program in Nepal in reducing Acute Respiratory Infection in ≤ 5 children project with the support of PEER Health Project of National Academic of Science, USA and USAID (ongoing)
- Evaluation of the impact of major disaster on air pollution and children's health in Nepal by LEADERS Nepal (ongoing)

Glimpses of Nepal



Glimpses of Nepal



23

Glimpses of Nepal



Author: Jay Ram Acharya, PhD



14th Session of the Intergovernmental Meeting of the Malé Declaration

Country Report: Pakistan

By:
Zia Ul Islam
Director, Pak-EPA
Government of Pakistan

IG14 1





Basic Facts

Pakistan: Key Statistics	Islamic Republic of Pakistan
Official name	Islamic Republic of Pakistan
Capital	Islamabad
Area (Thousands of km ²)	796
Total population	191.71 million
Population growth rate	1.92 %
Life expectancy for males**	64 years
Life expectancy for females**	66 years
Gross Domestic Product (GDP) growth	4.24 %
Agriculture Growth	2.9 %
Manufacturing Posted Growth	2.5 %
Total revenues collected	Rs 2682.6 billion
Per capita income	\$1512

Source: Economic Survey 2014-15 3

IG14

Environmental Governance in Pakistan

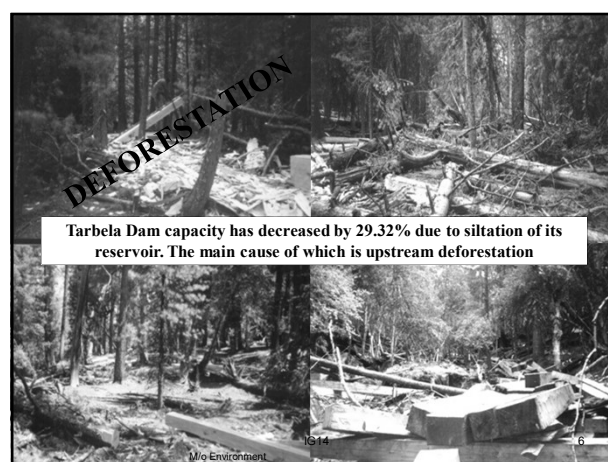
- Originally the authority vests with the Federal Government, through the Pakistan Environmental Protection Act (PEPA) 1997
- Environmental Protection Tribunals are functional in Punjab, Sindh, Balochistan and KPK, whereas Pak EPA is dependent on the Punjab Tribunal for adjudication.
- The technical and financial support of the federal government (Ministry of Environment) through foreign funded projects has enabled the provincial governments to establish Environmental Protection Agencies in Punjab, Sindh, Balochistan, KPK, GB and AJK fully empowered to implement environmental regulations (following Section 8, PEPA 97)

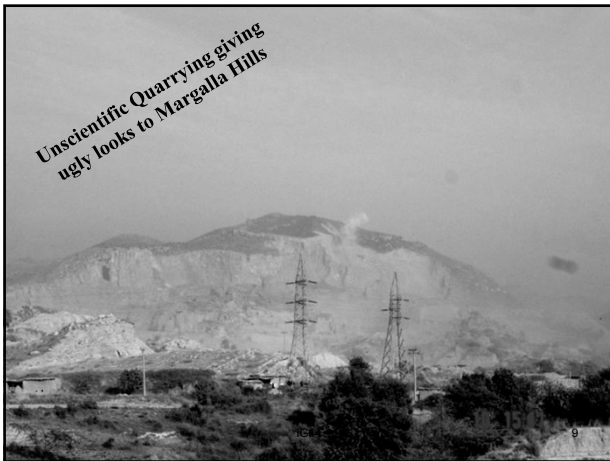
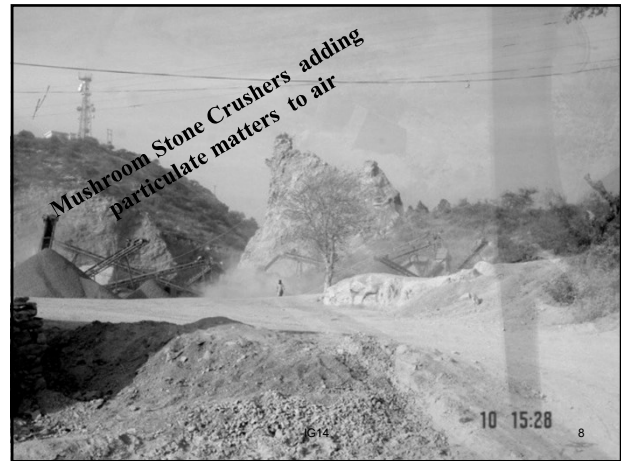
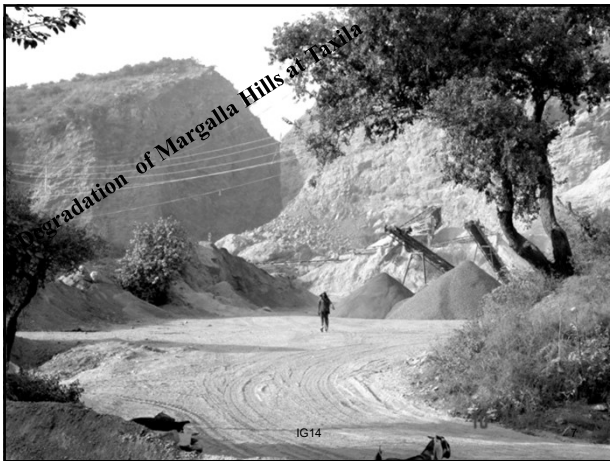
IG14 4



State of Environment

IG14 5

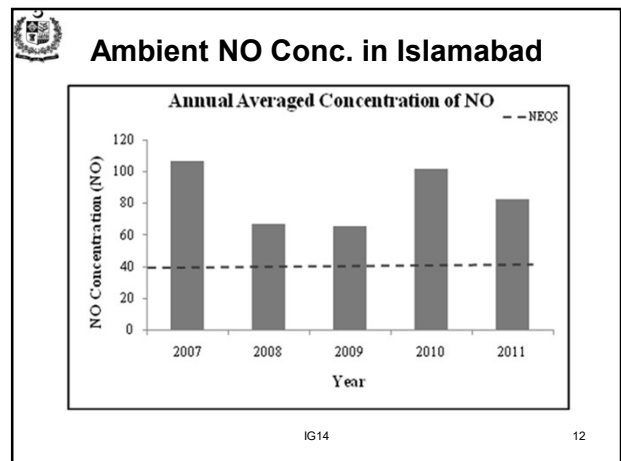
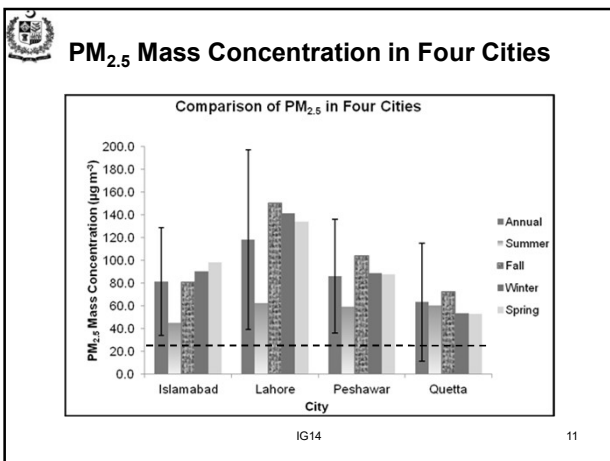


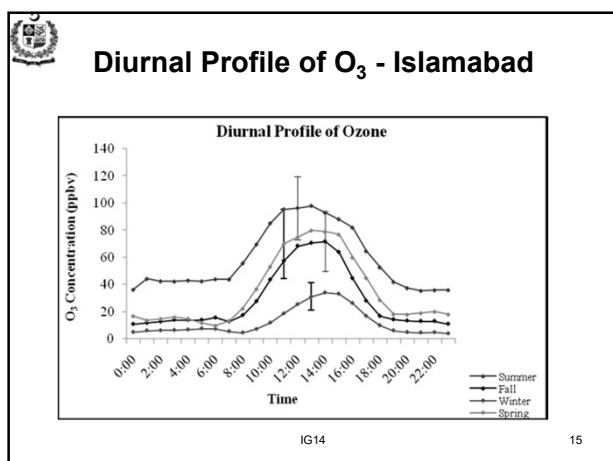
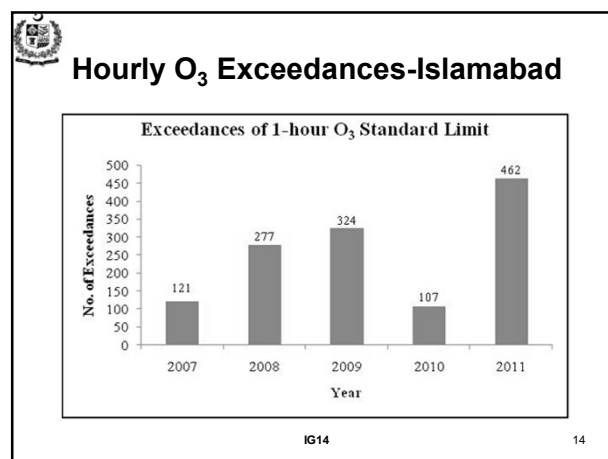
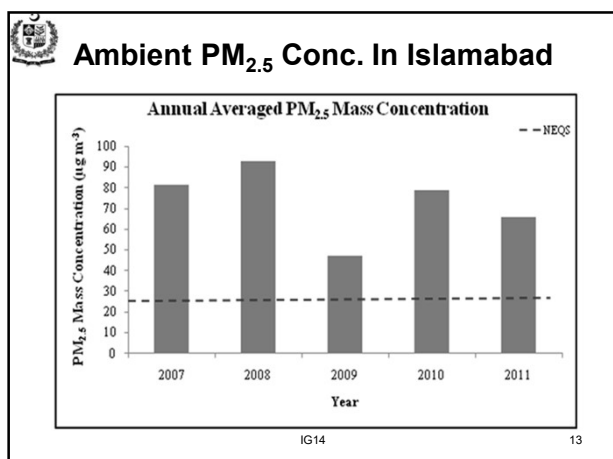


Sources of Air Pollution

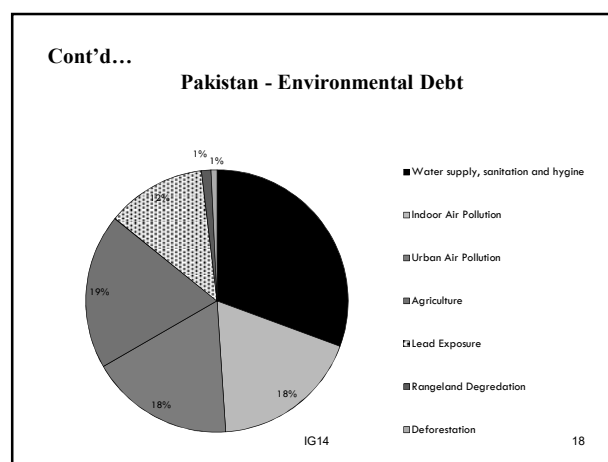
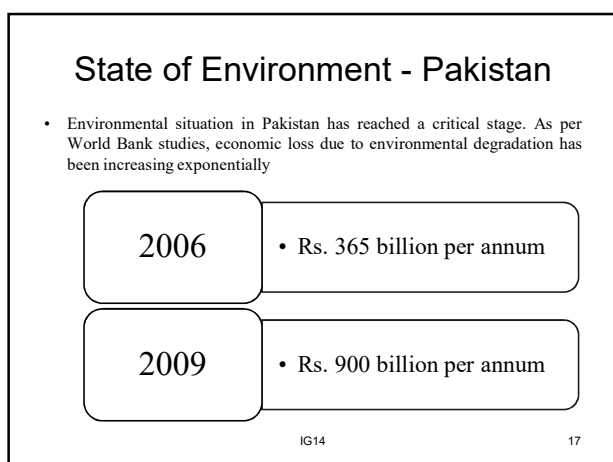
- Major sources are vehicles, power plants, industries and brick kilns.
- Transport-related: Old and poorly functioning vehicles, diesel trucks, two-stroke two wheelers and Rickshaws.
- High level of sulfur in diesel.
- Burning of municipal solid waste is significant, almost 57,000 tons of solid waste is generated each day, most of which is either dumped or burnt.

IG14 10





	Wind Speed	Wind Direction	Temp	RH	Radiation	NO	NO ₂	NO _x	CH ₄	NMHC	THC	CO	SO ₂	O ₃	PM ₁₀
units	m/s	degrees	°C	%	W/m ²	µg/m ³	µg/m ³	µg/m ³	ppm	ppmC	ppm	mg/m ³	µg/m ³	µg/m ³	µg/m ³
NAAQS						40 µg/m ³	40 µg/m ³	80 µg/m ³				5 mg/m ³ 8hrs	120 µg/m ³ 24hrs	130 µg/m ³ 24hrs	35 µg/m ³
Jul-2014	0.15	70.81	40.86	20.5	655.1	10.34	26.7363	37.0763	2.255	2.0215	4.283	1.02775	36.47	3.21	94.335
Aug-2014	S.N.O	S.N.O	32.2	67.7	210.3	10.0	25.6	35.6	*	*	*	0.718	21.2	446.9	-
Sep-2014	0.1281	71.89	29.64	41.9399	1	3.456	10.44	28.25	36.69	3.2805	0.919	4.199	4.21	36.05	5.82
Oct-2014	0.1283	73.36	29.64	41.9375	5	3.44912	11.67	33.08	44.75	A.N.O*	A.N.O*	A.N.O*	4.217	36.07	5.80
Nov-2014	0.1278	74.9384	29.64	41.93	3.45087	10.567	36.6562	47.2232	A.N.O*	A.N.O*	A.N.O*	4.217	36.05	5.80	-
Dec-2014	0.12681	76.52	29.62	41.9531	3	3.4273	10.5094	36.7404	47.2498	A.N.O*	A.N.O*	A.N.O*	4.217	36.04	6.0
Jan-2015	S.N.O	S.N.O	14.65	96.02	3.9273	6.150	34.1694	43.3194	A.N.O*	A.N.O*	A.N.O*	0.798	35.15	6.3429	-
Feb-2015	S.N.O	-	21.1	69.8	8.7	8.5	27.33	35.83	A.N.O*	A.N.O*	A.N.O*	1.574	32.0	17.8	-
Mar-2015	S.N.O	-	15.4	84.4	49.6	8.7	25.45	34.15	A.N.O*	A.N.O*	A.N.O*	0.958	32.5	1.4	87.1
Apr-2015	S.N.O	-	36.3	32.6	511.1	9.4	26.7	36.1	A.N.O*	A.N.O*	A.N.O*	1.119	32.3	5.9	88.6
May-2015			41.7	14.4	415.2	9.9	24.07	33.97	-	-	-	3.023	32.7	A.N.O*	149.7
Averages						9.9251	29.525	39.450				2.3709	33.320	39.52	113.7
						27	66	79					9	5	5





Health Impact Assessment in Pakistan

Health End-Points	Attributed Total Cases	Total Annual Costs
Premature mortality adults	21,791	58-61
Mortality children under 5 yrs	658	0.83
Chronic Bronchitis	7,825	0.06
Hospital Admissions	81,312	0.28
Emergency room visits/ outpatient hospital visits	1,595,080	0.80
Restricted activity days	81,541,893	2.06
Lower respiratory illness in children	4,924,148	0.84
Respiratory symptoms	706,808,732	0.00
Total		62-65

Source: Pakistan Strategic country Environmental Assessment Report by World Bank, 2006

IG14 19



Status of Implementation

IG14 20



Malé Declaration Phase-I

IG14 21



Phase- I Implementation

- Carried out a baseline report
- Preparation of National Action Plan for air pollution
- Compilation of experts' database
- Created a database on air pollution
- Formulation of a national action plan to cope with the air pollution.
- Developed a national emission inventory in 2000

IG14 22



Malé Declaration Phase-II

IG14 23



Phase- II Implementation

- Monitoring station installed at Bahawal Nagar after feasibility study.
- A capacity building programme was initiated in Phase-II of the implementation programme
- Trainings on air quality monitoring were conducted.
- National and regional level stakeholders' consultations were held during this Phase.
- Capacity building activities initiated during the implementation of Phase-II have made significant impact at the national level.

IG14 24

Institutional Arrangement

- A Memorandum of Understanding (MOU) was signed between Pak-EPA and Pakistan Meteorological Department (PMD) to establish and for proper functioning of Trans-boundary Air Pollution Monitoring Station under Male' Declaration.
- PMD Officials and staff are looking after the Laboratory and carrying out the monitoring activities.

IG14 25

Monitoring Equipment

- Ambient air monitoring equipment for Particulate Matter [PM₁₀ and TSPM (Total Suspended Particulate Matter)]
- Bulk collector - for deposition monitoring
- Wet-only collector – for acidic gas deposition
- Diffusive samplers (for Nitrogen Dioxide, Sulfur Dioxide and Ozone) according to the monitoring protocol
- All equipment were installed according to the monitoring protocol under Malé Declaration

IG14 26

Monitoring Site-Bahawal Nagar



Industries located around monitoring station

Haze / Fog phenomena in winter in Bahawalnagar

IG14 27

Cont'd...

- Monitoring Station comprising a Laboratory was established at Bahawal Nagar in January 2007 for Trans-boundary Air Pollution Monitoring under Male' Declaration.

IG14 28

Lab. Equipment

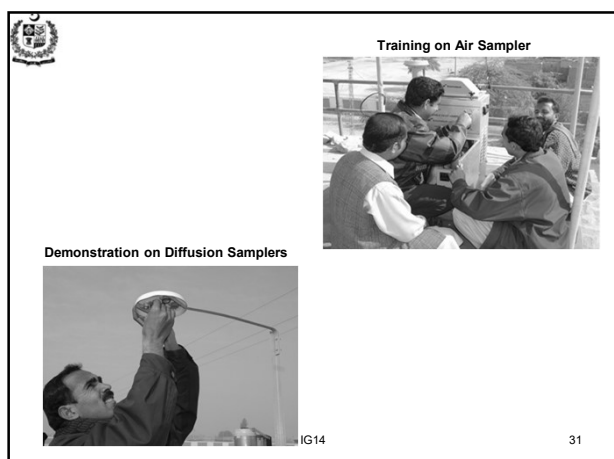
- High Volume Samplers
- Bulk collector - for deposition monitoring
- Wet-only collector – for acidic gas deposition
- Diffusive samplers (for Nitrogen Dioxide, Sulfur Dioxide and Ozone) according to the monitoring protocol
- UV-Spectrophotometer
- pH Meter
- Electricity Conductivity Meter

IG14 29

Laboratory



IG14 30



On-Site Monitoring Activities

- PM₁₀, NRSPM & TSPM - Analyzed at the Monitoring Site.
- Samples for Analysis of SO₂ & NO₂ have been sent regularly to Swedish Environmental Research Institute, Sweden.

IG14 33

Malé Declaration Phase-III

IG14 34

Phase- III Implementation

- Meeting of **National Advisory Committee** could not be held.
- National report on status of trans-boundary air pollution was provided after the exchange programme.
- Monthly data reports of monitoring results for a 3-year period i.e., January, 2006 to October, 2008 have been sent to UNEP RRCAP.
- **Emission inventory** could not be developed as the Pak-EPA official who got training moved to another organization.

IG14 35

Cont'd... Phase- III Implementation

- Inter-comparison study-completed.
- A study on '**Crop Impact Assessment**' was conducted through Punjab University conducted
- A study has been conducted in September, 2007 to determine the exposure level of school children to major air pollutants.
- Pak-EPA's official got training in corrosion impact assessment.
- **Regional integrated assessment and atmospheric transport modeling** could not be completed due to expertise constraints.

IG14 36

Cont'd...

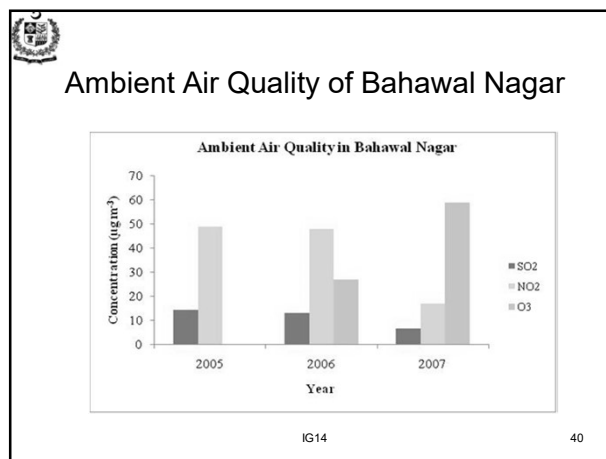
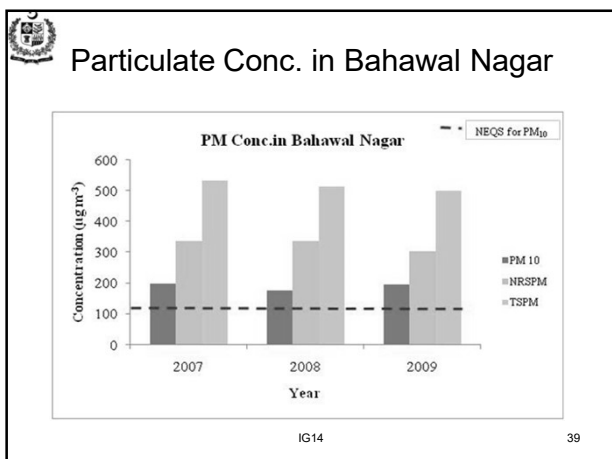
Phase- III Implementation

- Study on '**Corrosion Impact Assessment for buildings**' could not be carried out.
- Pak-EPA's officials got training in soil acidification held in March, 2008.
- Study on '**Soil Acidification**' could not be conducted as the trained official moved to another organization.
- **Official nomination** of expert institution in the following fields is pending:
 - Development of urban rapid integrated assessment programme
 - Human health impact assessment programme
 - Corrosion impact assessment programme
 - Soil impact assessment programme

IG14 37

Monitoring Activities under Malé Declaration

IG14 38



Inter-Comparison Study

- Inter-comparison study was conducted two times for QA/QC.
- One Set of Four Samplers for NO₂ and SO₂ was Analyzed by the Analysis Protocol Employed at Pak-EPA's Laboratory
- Second Set of 4 Samplers was analyzed by NUS.

IG14 41

Crop Impact Assessment

- Punjab University was nominated as Institute to carry out the Study on 'Crop Impact Assessment' which has been completed.
- Pak-EPA is not being Informed About the Developments of Experiments Being Done by the Expert Institute Designated for the Job.

IG14 42

Malé Declaration Phase-IV

IG14

43

Health Impact Assessment

Research Study- Level of Exposure of School Children to Air Pollutants

Objectives:

- To Monitor the Level of NO_2 and SO_2 in Ambient Air in order to Know the Spatial Variation of this Important Traffic Related Air Pollutant.
- To Determine the Level of Exposure of School Children to Air Pollutants.

IG14

44

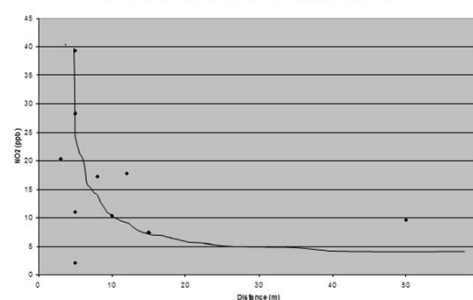
Activities Undertaken

- A 5-Days Comprehensive Study was Undertaken in Murree (Hill Resort) in September, 2007.
- 15 Locations were Selected for Ambient Air Quality Monitoring of NO_2 and SO_2 .
- Vehicular Emission Testing was part of the study.
- Personal Passive Samplers were Attached to 37 Children to Monitor the Exposure Level.

IG14

45

Relationship Between NO_2 Concentration and Distance from Main Road



IG14

46

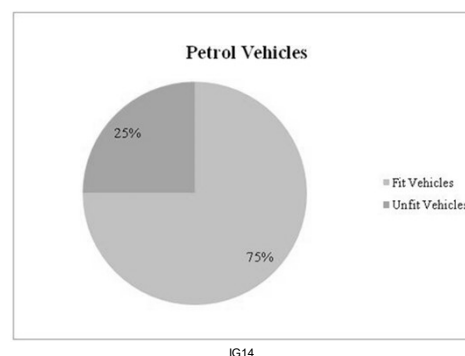
Results

- NO_2 and SO_2 concentration decrease with Increase in distance from the road.
- The samplers installed at more than 30 meters Distance from the road have More or Less Stable Concentration of NO_2 and SO_2 .
- Children of Schools Away from the Roadside Area are Less Exposed to Air Pollutants

IG14

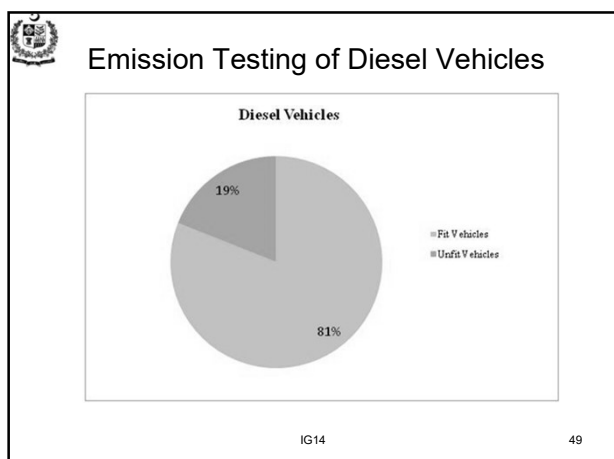
47

Emission Testing of Petrol Vehicles



IG14

48



Challenges & Difficulties

- Some institutional issues also impacted the functioning of monitoring activities under Malé Declaration.
- Communication and Logistical Constraints for Supervising & Monitoring the Site
- Equipments are now completely non-functional due to non-maintenance and consumables' non-availability.
- High Volume Sampler is not functional due to unavailability of filter papers since 2009.

IG14 50

Cont'd...

- Non-Delivery of 'Kjeldhal Distillation System (Model UDK 142) & Titrator (Model Titroline Easy of Scott Germany)' by M/s Modern Lab. Lahore for which Payment has already been made by UNEP.
- Un-availability of funds for Malé station has been a real challenge for past few years.

IG14 51

Cont'd...

- Currently, the **Regional Centre on Crops and Vegetation Monitoring** – Pakistan has no coordination with Pak-EPA.
- No technical documents and information about on-going research activities being shared with Pak-EPA.

IG14 52

Capacity Building

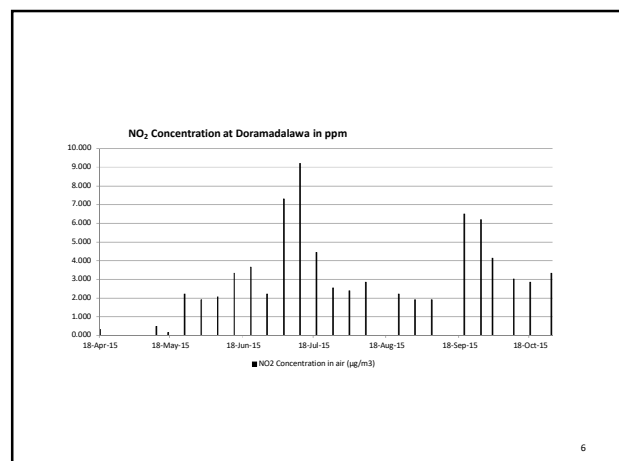
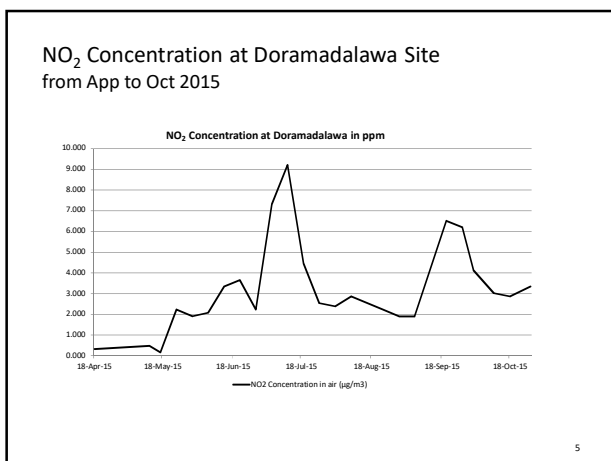
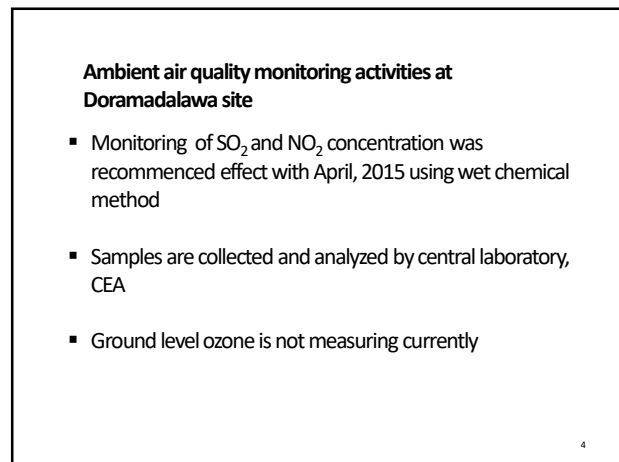
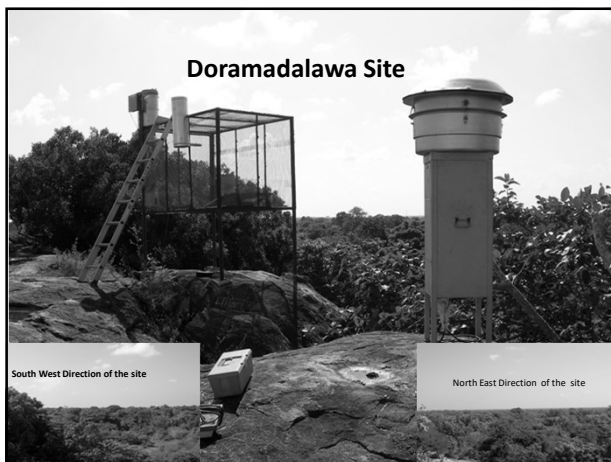
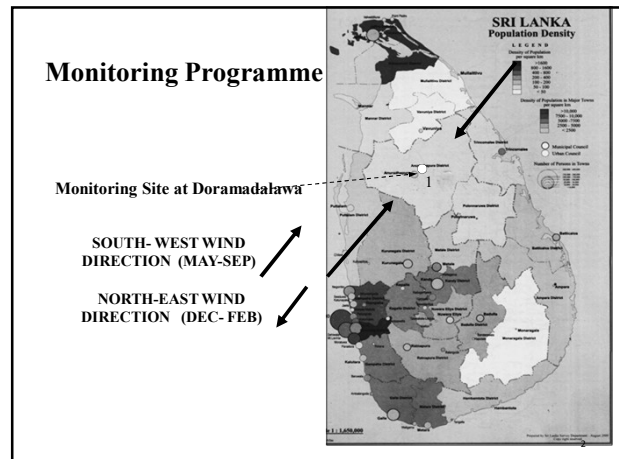
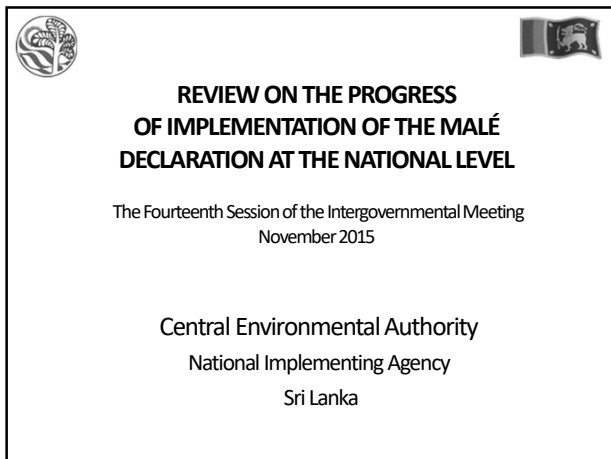
- Field Staff Need More Training
- Training on Emission Inventory development required for NIA and some other experts from Pakistan
- Hands-on trainings for monitoring of criteria pollutants

IG14 53

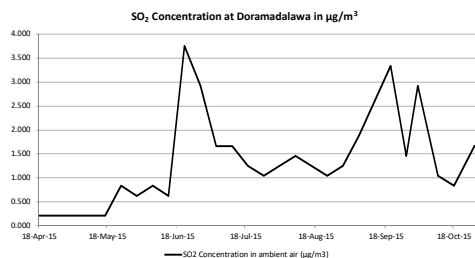
Improvement of Monitoring Station

- The existing laboratory needs to be improved with more analytical instruments.
- Considering the issue of black carbon, installation of Aethalometer is highly required for real-time BC monitoring.
- The existing set-up maybe replaced with the automated monitoring station with real-time data monitoring for all the pollutants.
- It will help ensure continuous air quality monitoring.

IG14 54

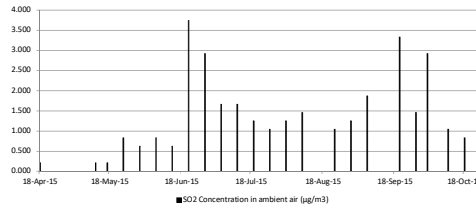


SO₂ Concentration at Doramadala Site
from April to Oct 2015



7

SO₂ Concentration at Doramadala in µg/m³ from App to Oct 2015



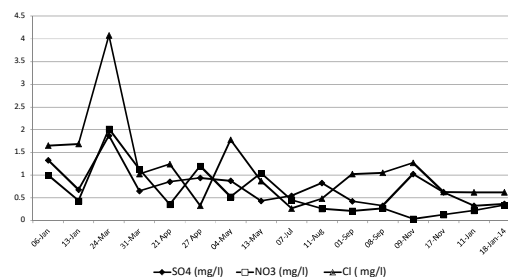
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WET DEPOSITION MONITORING

- Wet deposition monitoring is not being carried out presently due to instrument failures
- It is not practice to repair instruments locally
- Monitoring and analyzing samples could be commence, once instruments are obtained

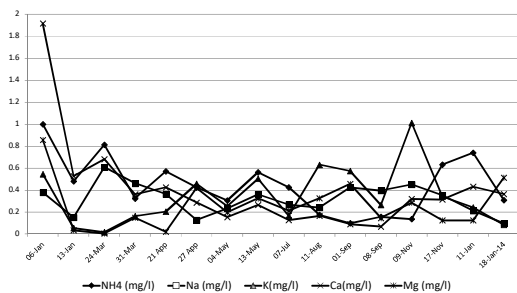
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Concentration of Anions from Jan 2013 to Jan 2014



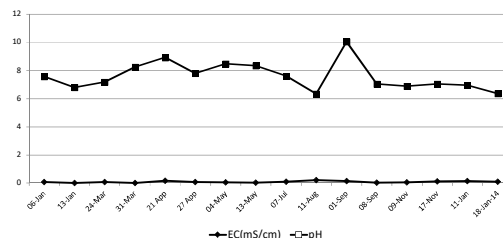
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Concentration of Cations from Jan 2013 to Jan 2014



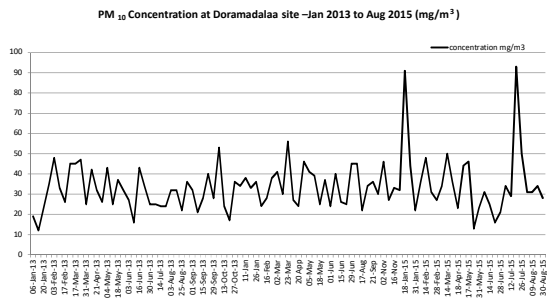
11

EC and pH from Jan 2013 to Jan 2014



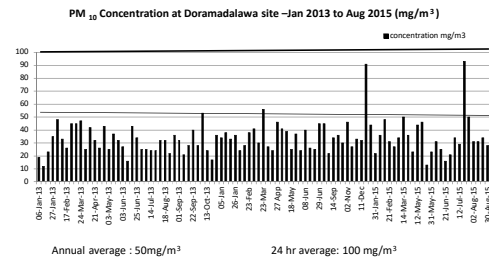
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PM₁₀ concentration in mg/m³ :from Jan 2013 to Aug 2015



13

PM₁₀ Excedences during Jan 2013 to Aug 2015 with reference to National Standard



14

Status of Impact Assessment

- Assessment was interrupted due to demise of the researcher appointed by Rajarata university
- Re-planning to carrying out the impact assessment activity
 - ✓ Rajarata University appointed a new researcher to continue the activity
 - ✓ University informed that (Ethylene diurea) EDU is not available to continue the research
 - ✓ The CEA requested form RRC.AP to see the possibility of providing EDU

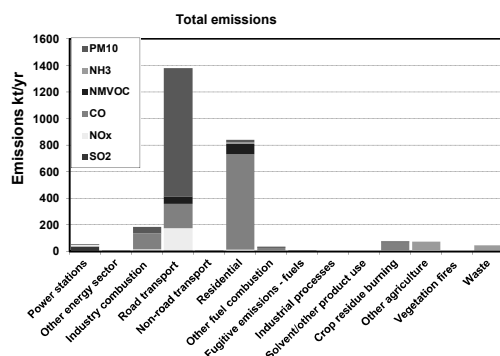
15

Emission Inventory 2010 - Sri Lanka

- Emission inventory for 2010 is completed
- Data gaps were filled compared to 2000 and 2005
- Initiatives have been taken to complete emission inventory for year 2012 and collecting data for the preparation of emission inventory for year 2012 has been commenced

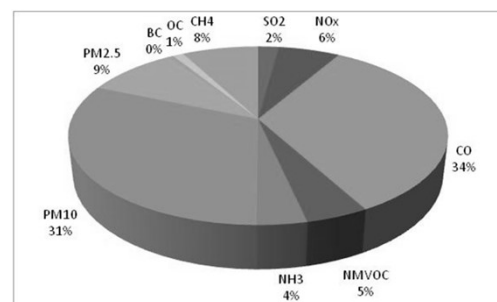
16

Emission Inventory -2010



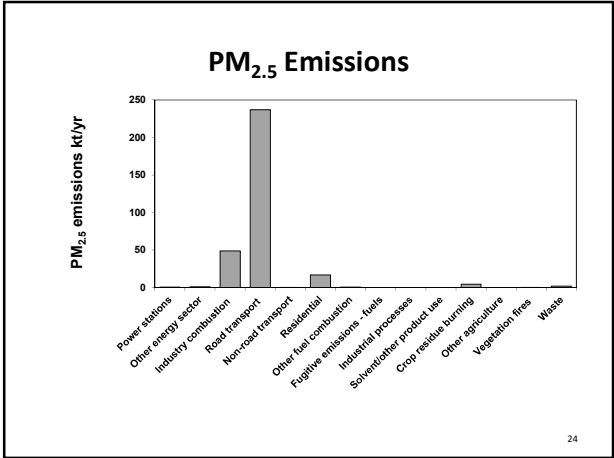
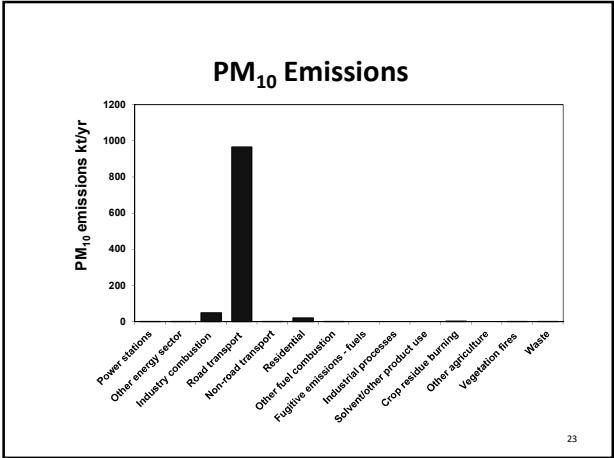
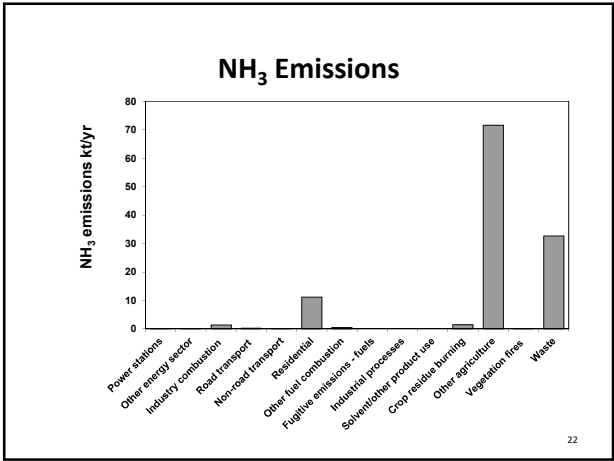
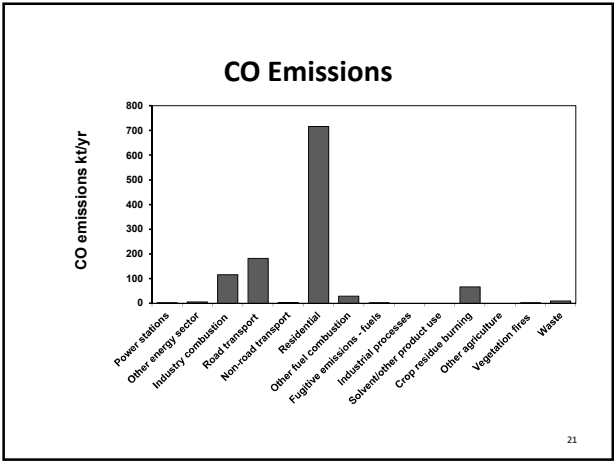
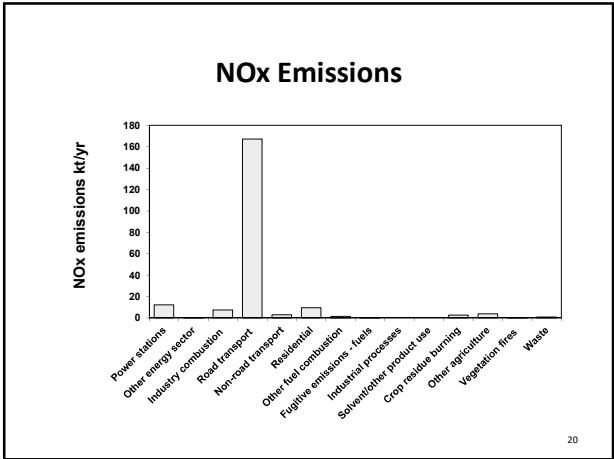
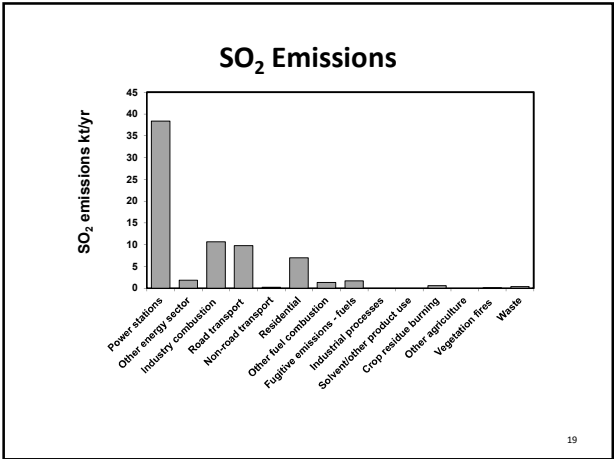
17

Emission Inventory Results for 2010



Total 3347 kt/yr

18



Challenges for bridging data gaps**▪ Industrial data**

- ✓ *No accurate data base on industrial activities as data collection is being still processed by CEA*

▪ Data from construction activities

- ✓ *Accurate data are not available and collecting actual data is very difficult*

▪ Quality control/quality assurance

- ✓ *To develop of country specific emission factors*

25

Updating emission inventory

- CEA has decided to prepare emission inventory for year 2012
- Initiatives have been taken to gather emission data for preparation of inventory

26

THANK YOU

27

Fourteenth Session of the Intergovernmental Meeting of the
Malé Declaration on Control and Prevention of Air Pollution and
Its Likely Transboundary Effects for South Asia (Malé Declaration)
25 November 2015, Bangkok, Thailand

**Report on the Progress of Malé Declaration after the
Thirteenth Session of the Intergovernmental Meeting (IG13)**

I. INTRODUCTION

1. This report presents and reviews the progress of Malé Declaration on Control and Prevention of Air Pollution and Its Likely Transboundary Effects for South Asia (Malé Declaration) activities after the Thirteenth Session of the Intergovernmental Meeting (IG13) held in Dhaka, Bangladesh on 20 May 2013.

II. STRENGTHEN REGIONAL COOPERATION

2. The Thirteenth Session of the Intergovernmental Meeting (IG13) of the Malé Declaration was held in Dhaka, Bangladesh on 20 May 2013. The event was attended by the representatives of the participating countries, namely, Bangladesh, Bhutan, India, Iran, Maldives, Nepal, Pakistan, and Sri Lanka. Some international organizations, such as, the South Asia Cooperative Environment Programme (SACEP), Stockholm Environment Institute (SEI), United Nations Environment Program (UNEP) Headquarters, and the Regional Resource Centre for Asia and the Pacific (RRC.AP) were also represented. A regional facilitator and some experts participated as resource persons in the Session.
3. The IG13 considered and discussed the following agenda: (1) progress on the implementation of the Malé Declaration; (2) review and endorsement of the data analysis report; (3) review and decision on the Malé Declaration guidelines; (4) review and endorsement on the results of the crop and health impact assessment studies; (5) guidelines on the synthesis report; (6) review, approval and endorsement of the reports during the Phase IV implementation; and (7) consideration of the plan for Phase V and the work programme of Malé Declaration in 2013 up to the next IG. The session acknowledged and endorsed all the guidelines and the reports that were presented. The meeting also approved the Plan for Phase V (2014-2016) and the Work Programme in 2013. Please see attached Report of the Session.
4. The Fourth Meeting of the Task Force Task Force for Future Development was held on 26-27 May 2015 in Pathumthani, Thailand. The objectives of the meeting include: 1) discuss the progress of Malé Declaration including implementation and

operation of the regional centres; 2) update on status of financial contribution; 3) discuss the Work Programme in 2015-2016 of Malé Declaration; 4) discuss the Terms of Reference of the Expert Group on strengthening the Malé Declaration; 5) introduction and briefing on Short-Lived Climate Pollutants (SLCPs); and 6) update on regional initiatives and programmes on transboundary air pollution.

III. ENSURE STAKEHOLDERS ENGAGEMENT

5. The Seventh Regional Stakeholders cum Coordination Meeting (RSC7) of the Malé Declaration on Control and Prevention of Air Pollution and its Likely Transboundary Effects for South Asia (Malé Declaration) was held back-to-back with IG13 in Dhaka, Bangladesh on 18-19 May 2013. The RSC Meeting is held regularly in order to enhance participation of stakeholders on air pollution control and prevention activities. The two-day meeting involved presentations by the NIAs on the updates of the implementation of the Malé Declaration activities. Some other national, regional and sub-regional level initiatives on air pollution control and prevention were also presented. The final reports on the crop and health impact assessment studies conducted by SEI and the data analysis report of 2012 were reviewed and discussed at the meeting.
6. A National Stakeholders Meeting on Malé Declaration was held in Tehran, Iran on 28 May 2013. The meeting was organized by the Air Pollution Research Bureau, Department of Environment in Iran, in collaboration with RRC.AP, the Secretariat for the Malé Declaration. The meeting was aimed at increasing awareness on transboundary air pollution issues and seeking the views and involvement of the stakeholders in the implementation of Malé Declaration in Iran. About 50 participants from various stakeholder groups related to air quality in Iran, as well as the implementing agencies of Malé Declaration, attended in the event. The presentations and discussions were focused more on public awareness initiatives and air quality activities of Iran and other regional networks.

IV. STRENGTHEN CAPACITY BUILDING PROGRAMMES AND MONITORING

7. The National Implementing Agencies (NIAs) continued operation of the monitoring activities in their respective countries. Bangladesh is continuously sending to the Secretariat the monitoring data as analyzed through the Swedish Environmental Research Institute (IVL). It is expected that the monitoring results from all member countries will be presented and discussed during the 10th Refresher Training, dates to be decided.

V. IMPLEMENTATIONS AT THE REGIONAL TECHNICAL CENTERS

Regional Centre on Health Impact Assessment, Bangladesh

8. The National Stakeholders Workshop on Health Impact Assessment of Air Pollution on Malé Declaration was held in Dhaka, Bangladesh on 15 October 2014. The objectives of the workshop included: 1) describe different contents of Health Impact Assessment Manual and knowledge sharing among the stakeholders about the different aspects of air pollution; 2) disseminate the activities, roles and future plan and expected output of the Regional Center on Health Impact Assessment in Bangladesh; 3) identify different initiatives to reduce air pollution in Bangladesh; 4) describe the effects of cook stove intervention for reduction of indoor air pollution in rural Bangladesh; 4) explore the health impact study findings of other regional countries; and 5) discuss about the major challenges faced by the researchers on the Effects of PM on School children in Bangladesh.

VI. COOPERATION AND COORDINATION WITH OTHER INITIATIVES AND PROGRAMMES

9. Some Malé Declaration member countries participated at the High Level Sub-regional Consultation on Advancing Action on Short-Lived Climate Pollutants (SLCPs) in Southeast and Northeast Asia on 19 August 2014, in Bangkok, Thailand. The SLCP consultation was hosted by the UNEP Regional Office for Asia and the Pacific (UNEP ROAP) under the auspices of the Climate and Clean Air Coalition to Reduce Short-Lived Climate Pollutants (CCAC), with logistical arrangements coordinated by RRC.AP. The high level consultation agreed that relevant stakeholders from countries in the region could consider taking the following next steps, among others:
 - Integrating policies to strengthen coherence and effectiveness of air quality, climate change, and/or relevant sectoral action at national and subnational levels, where appropriate, and across multiple stakeholders including the private sector, notably through:
 - additional research providing evidence of the local public health benefits from SLCP emissions mitigation and strategies to raise awareness of these benefits in support of scaling effective mitigation measures capable of realizing these benefits in **the transport sector**.
 - adoption of cook and heatstoves, lighting, and air quality standards taking into account local contexts in **the residential sector**.
 - integrating **waste management** and climate change (methane and black carbon) actions and policies at national and local levels, where appropriate.

- adoption of measures in **the agriculture sector** to reduce black carbon and co-emitted species from residue burning and slash and burn practices, and methane emissions from irrigated rice paddies, livestock manure management and enteric fermentation
10. The Malé Declaration participating countries and the Secretariat, RRC.AP, participated at the Consultation Meetings of the Joint Forum on Clean Air in Asia and the Pacific and the Fifth Governmental Meeting on Urban Air Quality in Asia that were held in Colombo, Sri Lanka from 17 to 18 November 2014. The combined meetings brought together over 60 participants with representations from twenty governments, inter-governmental organisations, non-governmental organisations, research institutions, air pollution-related processes and initiatives, and United Nations agencies. The Secretariat presented the Malé Declaration in the Joint Forum. It was stressed that Joint Forum will have the synergy of the initiatives as there are a large number of regional processes and initiatives related to air pollution in Asia and the Pacific region. There was an opportunity to address the fragmentation of processes and initiatives in the region by developing a mechanism to help them share experiences and identify opportunities for effective collaboration. Such coordination mechanism would help with better use of investments by avoiding duplication of efforts such as assessments and meetings and ultimately speed up air pollution control in the region.

VII. DEVELOPMENT OF PUBLICATIONS

11. Following approval and endorsements made at the IG13 in May 2013, the Malé Declaration Secretariat, had developed the following publications after IG13: (1) Malé Declaration 1998-2013: a Synthesis - Progress and Opportunities; (2) Data Analysis Report 2012; (3) Standard Operating Procedures (SOP): Manual for Wet and Dry Deposition Monitoring; and (4) Proceedings of the Seventh Regional Stakeholders cum Coordination Meeting (RSC7), 18-19 May 2013 and the Thirteenth Session of the Intergovernmental Meeting (IG13), 20 May 2013. These four publications are available at the Malé Declaration website: <http://www.rrcap.ait.asia/male>. Copies of the publications were disseminated to the participating countries.

VIII. UPDATING THE WEBSITE and OTHER ACTIVITIES

12. The Secretariat developed the Final Report including the Financial Report in Phase IV and submitted the report to Swedish International Development Cooperation Agency (Sida) on 23 September 2013, as per agreement with the donor agency.
13. The Secretariat is updating the website of the Male' Declaration. The regional database is available online at: <http://www.rrcap.ait.asia/male/>.

IX. CONSTRAINTS AND PROBABLE SOLUTIONS IN MEETING THE TARGETS

Regional Centre on Wet and Dry Deposition Monitoring – India

Activities/Tasks	Targets in 2014, depending on funds availability	Reasons for delay and solutions to meet the targets
10th Refresher Training Course on Monitoring Transboundary Air Pollution	Planned on 12-14 November 2014 in New Delhi, India, followed by IG14	Re-scheduled by the host country due to another international meeting during same period, arranged by the MOE, CPCB. This activity is planned for next year.
IG14	Planned in December 2014 in AIT, Thailand for cost saving at the Secretariat's office	Moved to November 2015, back to back with Joint Forum.
Fourth Task Force Meeting (TFFD4)	Supposedly before IG14	Moved to May 2015 due to budgetary consideration.

Report on the Progress of the Malé Declaration

by
The Secretariat

*Regional Resource Centre for Asia and the Pacific
(RRC.AP)*

Strengthen regional cooperation

Thirteenth Session of
the Intergovernmental
Meeting (IG13), 20 May
2013, Dhaka, Bangladesh



The IG13 discussed and adopted the following:

- progress on the implementation of the Malé Declaration;
- review and endorsement of the data analysis report;
- review and decision on some Malé Declaration guidelines, e.g. 1) financial mechanism; 2) Technical Centres and on 3) Strengthening the Framework on Air Pollution reduction in South Asia;
- review and endorsement on the results of the crop and health impact assessment studies;
- adopted the synthesis report;
- review, approval and endorsement of the reports during the Phase IV implementation; and
- consideration of the plan for Phase V and the work programme of Malé Declaration in 2013 up to the next IG.

Strengthen regional cooperation

Fourth Meeting of the
Task Force for Future
Development (TFFD4),
26-27 May 2015,
Pathumthani, Thailand



The TFFD4 discussed the following:

- progress of Malé Declaration
- update on status of financial contribution;
- Work Programme and Budget in 2016 of Malé Declaration;
- Terms of Reference of the Expert Group on strengthening the Malé Declaration;
- introduction and briefing on Short-Lived Climate Pollutants (SLCPs); and
- update on regional initiatives and programmes on transboundary air pollution.

Ensure Stakeholders' Engagement

Seventh Regional
Stakeholders cum
Coordination Meeting
(RSC7), 18-19 May 2013,
Dhaka, Bangladesh.



- To enhance
participation of
stakeholders on air
pollution control and
prevention activities



National Stakeholders
Meeting on Malé
Declaration, 28 May 2013,
Tehran, Iran

To promote public
awareness initiatives and air
quality activities in Iran

Strengthen capacity building programmes and monitoring

The National Implementing Agencies (NIAs) have continued the operation of monitoring activities in their respective countries.

- Bangladesh has been continuously sending monitoring data analysed through the Swedish Environmental Research Institute (IVL).
- It is expected that the monitoring results from all member countries will be presented and discussed during the 10th Refresher Training planned to be held in 2016.

Implementation at Regional Technical Centers

- The IG12 adopted and agreed on the location of regional centers as follows:

- Regional Centre on Wet and Dry Deposition Monitoring - India
- Regional Centre on Crops and Vegetation Monitoring - Pakistan
- Regional Centre on Soil Monitoring - Bhutan
- Regional Centre on Corrosion Impact Assessment - India
- Regional Centre on Health Impact Assessment - Bangladesh
- Regional Centre on Emission Inventories – Sri Lanka
- Regional Centre on Modelling Atmospheric Transport of Air Pollution - Iran
- Regional Centre on Pollution Reduction Policies/Strategies – Nepal / Maldives

Regional Technical Centers

- Based on the adoption of the IG12, the selected centres were recognized as the Regional Centre's of the specified area. The regional centre will work in close collaboration with the Malé Declaration Secretariat.
- The Regional centre's will coordinate with the NFPs and NIAs of the country to provide technical support, compile data and information and store it and prepare policy briefs.
- The other member countries in similar modality have to contact these regional centre's through their respective national focal point or implementing agency for any query or assistance required on the subject. This will ensure that the NFP and NIAs in each country can monitor the use of the technical centres.

Implementations at the Regional Technical Centres

Regional Centre on Health Impact Assessment Bangladesh

The National Stakeholders Workshop on Health Impact Assessment of Air Pollution on Malé Declaration was held in Dhaka, Bangladesh on 15 October 2014.

The objectives of the workshop included: 1) describe different contents of Health Impact Assessment Manual

2) disseminate the activities, roles and future plan and expected output of the Regional Center on Health Impact Assessment in Bangladesh;

3) identify different initiatives to reduce air pollution in Bangladesh;

4) describe the effects of cook stove intervention for reduction of indoor air pollution in rural Bangladesh;

4) explore the health impact study findings of other regional countries; and

5) discuss about the major challenges faced by the researchers on the Effects of PM on School children in Bangladesh.

Cooperation and coordination with other initiatives and programmes

- Participation at the High Level Sub-regional Consultation on Advancing Action on Short-Lived Climate Pollutants (SLCPs) in Southeast and Northeast Asia on 19 August 2014, in Bangkok, Thailand.
- Participation at the Consultation Meetings of the Joint Forum on Clean Air in Asia and the Pacific and the Fifth Governmental Meeting on Urban Air Quality in Asia that were held in Colombo, Sri Lanka from 17 to 18 November 2014.

Publications



Malé Declaration 1998-2013: a Synthesis-Progress and Opportunities

Proceedings of the Seventh Regional Stakeholders cum Coordination Meeting (RSC7) and the Thirteenth Session of the Intergovernmental Meeting (IG13)



Standard Operating Procedures (SOP): Manual for Wet and Dry Deposition Monitoring



Data Analysis Report 2012



These publications are available at the Malé Declaration website: <http://www.rrcap.ait.asia/male>

Other activities

- The Secretariat developed the Final Report including the Financial Report in Phase IV and submitted the report to Swedish International Development Cooperation Agency (Sida) on 23 September 2013, as per agreement with the donor agency.
- The Secretariat is updating the website of the Malé Declaration. The regional database is available online at: <http://www.rrcap.ait.asia/male/>.

Constraints and probable solutions in meeting the targets

Activities/Tasks	Targets depending on availability in 2014, on funds	Reasons for delay and solutions to meet the targets
10th Refresher Training Course on Monitoring Transboundary Air Pollution	Planned on 12-14 November 2014 in New Delhi, India, followed by IG14.	Re-scheduled by the host country (India, Regional Centre for Wet and Dry Deposition Monitoring) due to another international meeting during same period, arranged by the MOE, PCB. This activity is planned for next year.
IG14	Planned in December 2014 in AIT, Thailand for cost saving at the Secretariat's office	Moved to November 2015, back to back with Joint Forum.
Fourth Task Force Meeting (TF4)	Supposedly before IG14.	Moved to May 2015 due to budgetary consideration.

Fourteenth Session of the Intergovernmental Meeting of the
Malé Declaration on Control and Prevention of Air Pollution and
Its Likely Transboundary Effects for South Asia (Malé Declaration)
25 November 2015, Bangkok, Thailand

Updates on Status of Financial Contribution to the Malé Declaration

I. Introduction

1. The Twelfth Session of the Intergovernmental Meeting (IG12) of the Malé Declaration on Control and Prevention of Air Pollution and Its Likely Transboundary Effects for South Asia (Malé Declaration) was held in Delhi, India on 30 June 2011. The Session adopted, with modifications the Report of the Task Force for Future Development (TFFD), and its Annexes which include the Draft Resolutions for Consideration of the Ministerial Level Meeting, the Report on the Sustainable Financial Mechanism, the Feasibility Report on the Establishment of Regional Centres, and the Feasibility Report on Strengthening the Regional Framework on Air Pollution Reduction in South Asia. It was suggested that in the budget under regional level activities, the budget for the operation and activities of the regional centres be included.
2. The Thirteenth Session of the Intergovernmental Meeting (IG13) held in 2013 in Dhaka, Bangladesh endorsed the “Guidelines for implementation of the sustainable financial mechanism”. The meeting adopted and endorsed the participating contributions in Phase V implementation, annually (2014-2016), attached as Annex 1.

II. Previous Discussions

3. Furthermore, the IG13 agreed that on Male’ Declaration implementation, the following to be undertaken:
 - All the countries are encouraged to make voluntary contributions for the regional core budget for the success of the network and continue the national activities at the countries’ expenses. Moreover, the countries are encouraged to support the operation of the regional centers that they are hosting.
 - The letter requesting for voluntary contribution will be prepared by the Secretariat and send to the participating countries.
 - The participating countries may transfer the money to the Secretariat via electronic transfer to the following bank account:

Bank Details

Account Name: **Asian Institute of Technology**
Account No : 10492918
Account Type : Checking Account
Bank Name : Citibank, NA
Bank Address : Citicorp Center, 16th floor
153 East 53rd Street, New York, USA10043
Swift Code : CITIUS33
ABA : 021000089
Detail of payment: For RRC.AP / Malé Declaration

4. The Secretariat will inform the National Focal Points (NFPs) of the Malé Declaration as soon as the transfer to the bank account above has been confirmed.
5. The possibility of introducing minimum contribution amount from the participating countries should also be explored in the future.

III. Status of Financial Contributions

6. By the step-wise approach, the countries are already transferring voluntary contribution to the Malé Declaration activities to the Secretariat account.
7. There are two countries that contributed to the Malé Declaration in the year 2012: India had contributed an amount of US \$ 19,439.00 on 19 April 2012 and Maldives contributed an amount of US \$ 251.00 on 16 May 2012.
8. In 2013, two countries had contributed, which include Maldives an amount of US\$ 251 receipt dated 16 May 2013 and Bangladesh an amount of US \$ 2,506.00 on 6 June 2013.
9. For year 2014, India contributed US \$ 33,324.00 on 29 August 2014 and Bangladesh had transferred their contribution on 24 February 2014, an amount of US \$ 1,931.00 to the Secretariat account.
10. In 2015, Pakistan had contributed the amount of US\$ 16, 361.52 to the Male Declaration on 29 April 2015; Bangladesh had transferred the amount of US \$ 1,931.00, receipt dated 9 Oct. 2015; and Maldives financial contribution was received an amount of US \$ 193.00, receipt dated 6 Nov. 2015.
11. The Secretariat received a copied letter from the Ministry of Environment, Forest and Climate Change, India that the President has approved the transfer of financial contribution to the Male' Declaration, a total amount of US \$ 61, 576.07 for 2015. As

soon as the Secretariat received the money, acknowledgment of receipt will be sent to the Indian government.

12. The Table-1 below highlighted the status on financial contributions received by the Secretariat.

Table 1: Money received from the Participating Countries		
Date	Participating countries	US\$
7Aug.2012	India	19,439.00
7 Aug. 2012	Maldives	251.00
16 May 2013	Maldives	251.00
6 Jun 2013	Bangladesh	2,506.00
29 Aug. 2014	India	33,324.00
24 Feb. 2014	Bangladesh	1,931.00
29 Apr.2015	Pakistan	16,361.52
09 Oct. 2015	Bangladesh	1,931.00
06 Nov. 2015	Maldives	193.00
	Total Received	76,187.52

Action needed at the IG14

The Session will discuss, review and provide guidance on the activities of the Malé Declaration and strengthen the financial contribution for continuous operation of the network.

Annex 1

Estimated Countries Contributions for Regional Level Activities (Annual Basis) for Phase V (2014-2016) implementation of Malé Declaration*

No.	Name of Country	% in UN Assessment Scale in 2013	% in Malé Declaration	Contribution in US Dollars (USD)
1	Bangladesh	0.01	0.87	1,931
2	Bhutan	0.001	0.087	193
3	India	0.666	57.91	128,542
4	Iran	0.356	30.96	68,701
5	Maldives	0.001	0.087	193
6	Nepal	0.006	0.521	1,156.45
7	Pakistan	0.085	7.4	16,426
8	Sri Lanka	0.025	2.174	4,826
Total		1.15	100	221,968

*Based on IG13 decision on 20 May 2013

UPDATES ON STATUS OF FINANCIAL CONTRIBUTION TO THE MALÉ DECLARATION

THE SECRETARIAT



1

I. INTRODUCTION

The IG12 held in Delhi, India on 30 June 2011 adopted the Report of the Task Force for Future Development (TFFD), and its Annexes which include:

- ❖ Draft Resolutions for Consideration of the Ministerial Level Meeting,
- ❖ the Report on the Sustainable Financial Mechanism,
- ❖ the Feasibility Report on the Establishment of Regional Centres, and;
- ❖ the Feasibility Report on Strengthening the Regional Framework on Air Pollution Reduction in South Asia.

2

The (IG13) held in 2013 in Dhaka, Bangladesh endorsed the "Guidelines for implementation of the sustainable financial mechanism". The meeting adopted and endorsed the participating contributions in phase V implementation, annually (2014-2016), (please see in annex 1 of the document)

Estimated Countries Contributions for Regional Level Activities (Annual Basis) for Phase V (2014-2016)

No.	Country	% in UN Assessment Scale	% in Malé Declaration (approximate)	Approximate Contribution (USD)
1	Bangladesh	0.01	0.87	1,931
2	Bhutan	0.001	0.087	193
3	India	0.868	57.91	128,542
4	Iran	0.356	30.96	68,701
5	Maldives	0.001	0.087	193
6	Nepal	0.006	0.521	1,156.45
7	Pakistan	0.085	7.4	16,428
8	Sri Lanka	0.025	2.174	4,828
TOTAL		1.15	100	221,988

3

PREVIOUS DISCUSSION

The IG13 agreed that on Male' Declaration implementation, the following to be undertaken:

- All the countries are encouraged to make voluntary contributions for the **regional core budget** for the success of the network and continue the national activities at the countries' expenses.
- Moreover, the countries are encouraged to support the operation of the regional centers that they are hosting.
- The **letter requesting for voluntary contribution** will be prepared by the Secretariat and send to the participating countries.

4

➤The participating countries may transfer the money to the Secretariat via electronic transfer to the following bank account:

➤The Secretariat will inform the National Focal Points (NFPs) of the Malé Declaration as soon as the transfer to the bank account above has been confirmed.

➤The possibility of introducing minimum contribution amount from the participating countries should also be explored in the future.

BANK DETAILS

Account Name : Aalen Institute of Technology
Account No : 10482918
Account Type : Chequing Account
Bank Name : Citibank, NA
Bank Address : Citigroup Center, 10th floor
153 East 53rd Street, New York, USA10043
Swift Code : CITIUS33
ABA : 021000089
Detail of payment : RRCA / Malé Declaration

5

STATUS OF FINANCIAL CONTRIBUTIONS

By the step-wise approach, the countries are already transferring voluntary contribution to the Malé Declaration activities to the Secretariat account.

In 2012, India had contributed an amount of US \$ 19,439.00 on 7 August 2012 and Maldives contributed an amount of US \$ 251.00 on 7 August 2012.

In 2013, two countries had contributed, which include Maldives an amount of US\$ 251 on 16 May 2013 and Bangladesh an amount of US \$ 2,506.00 on 6 June 2013.

6

For year 2014, India contributed US \$ 33,324.00 on 29 August 2014 and Bangladesh had transferred their contribution on 24 February 2014, an amount of US \$ 1,931.00 to the Secretariat account.

In 2015, Pakistan had contributed the amount of US\$ 16, 361.52 (receipt dated 29 April 2015); Bangladesh had transferred the amount of US \$ 1,931.00 (receipt dated 9 Oct. 2015); and Maldives financial contribution was received at the amount of US \$ 193.00 (receipt dated 6 Nov. 2015).

The Secretariat received a copied letter from the Ministry of Environment, Forest and Climate Change, India on the President's approval of the transfer of financial contribution to the Male' Declaration, at the amount of US \$ 61, 576.07 for 2015.

7

TABLE-1 BELOW HIGHLIGHTED THE STATUS ON FINANCIAL CONTRIBUTIONS RECEIVED BY THE SECRETARIAT.

Date	Participating countries	US\$
7-Aug-12	India	19,439.00
7-Aug-12	Maldives	251.00
16-May-13	Maldives	251.00
6-Jun-13	Bangladesh	2,506.00
29-Aug-14	India	33,324.00
24-Feb-14	Bangladesh	1,931.00
29-Apr-15	Pakistan	16,361.52
09-Oct-15	Bangladesh	1,931.00
06-Nov-15	Maldives	193.00
	Total Received	76,187.52

8

ACTION NEEDED AT THE IG14

The Session will discuss, review and provide guidance on the activities of the Malé Declaration and strengthen the financial contribution for continuous operation of the network.

9

Thank you for your attention!

10

Fourteenth Session of the Intergovernmental Meeting of the
Malé Declaration on Control and Prevention of Air Pollution and
Its Likely Transboundary Effects for South Asia (Malé Declaration)
25 November 2015, Bangkok, Thailand

Expert Group on Strengthening the Framework of the Malé Declaration

Terms of Reference (TOR)

(Final)

Introduction

1. During the Thirteenth Session of the Intergovernmental Meeting (IG13) of the Malé Declaration, held in Dhaka, Bangladesh on 20 May 2013, the Secretariat presented the “Draft Guidelines for the Next Steps of Implementation on Strengthening the Framework on Air Pollution Reduction in South Asia”. The IG13 was requested to discuss, review and provide guidance or make endorsement of the document. Some major discussions on this topic included:
 - a. On strengthening the framework on air pollution reduction in South Asia, there would be some challenging tasks which should be included on the activities, e.g. developing common standards and protocol for South Asia. Action plan should be considered and could look into available expertise, group and technology, but this could be a long term action.
 - b. Some countries already have standards which are sometimes difficult to implement and enforce, these might be reviewed.
 - c. Suggestion was raised on a minimum common standard that could be implemented by the participating countries in a phased manner, prioritize parameters and make simple standards. The Task force may look into this to arrive at common standards.
 - d. A country mentioned that they have air quality standards but don't have the capacity to cover all parameters.
 - e. Countries should be grouped and need a substantive roadmap.
 - f. It was also suggested by a country that sea transport has to be included in the priority.
 - g. Standards of countries may vary. It was stressed that it is necessary to select experts to gather data from member countries and reach common standards.
 - h. Common guidelines instead of common standard would be fine as stressed by a country.
2. The IG13 agreed to establish the “Expert Group on Strengthening the Framework of the Male' Declaration” (Expert Group). The expert group will identify key sectors;

review existing guidelines, standards, and available technologies; and propose a roadmap for emission reduction from selective sectors in South Asia.

3. The IG13 endorsed the “Guidelines for the Next Steps of Implementation on Strengthening the Framework on Air Pollution Reduction in South Asia”.
4. The draft TOR of the Expert was discussed at the Fourth Meeting of the Task Force on Future Development (TFFD4) held on 26-27 May 2015 in Pathumthani, Thailand.
5. This document is for review and endorsement of the Fourteenth Session of the Intergovernmental Meeting (IG14) held on 25 November 2015 in Bangkok, Thailand.

Discussion during the TFFD4

6. The meeting suggested to include the harmonization and alignment of the standards and to add emission sources in the TOR.
7. The participants recommended that the Task Force members be also the member of the expert group and report to the Intergovernmental Meeting (IG). This proposal will be recommended the Fourteenth Session of the Intergovernmental Meeting to be held in November 2015, for its endorsement/approval.

Action needed by the IG14

8. The IG14 is requested to endorse the document and approve/adopt the TOR of the Expert Group on Strengthening the Framework of the Malé Declaration (please, refer to Attachment).

Terms of Reference (TOR) of the Expert Group

Composition of the Expert Group

- Chairman
- Members: One representative from each member country. The Task Force members were recommended to be the Expert Group members.
- Secretariat (RRCAP)

Terms of Reference of the Expert Group

- Review of the existing ambient air quality standards and guidelines, emission standards for industrial and mobile sources for the member countries.;
- Identification of the sectors for which standards need to be proposed;
- Recommend substances and pollutants to be standardized;
- Prepare a roadmap for harmonizing the standards in the region, to make it country/their phased implementation specific. (Note: It may not be possible for all the member countries to implement stringent standards immediately, it being cost intensive, besides requiring adequate infrastructure for monitoring the pollutants and the techno economic viability of their implementation.)
- Recommend procedures for monitoring and emission reduction;
- The expert group will identify the available technologies and propose a roadmap for emission reduction from selective sectors in South Asia;
- Submit progress report to IG; and
- Prepare a final report for endorsement of the IG.

Recommended timetable

Year 2016

- 1st quarter of 2016: Establishment of the Expert Group. The invitation will be sent to the member countries to nominate one representative from each country.
- 2nd quarter of 2016: First Meeting of the Expert Group
- 2nd --3rd quarter of 2016: Drafting of the Progress report
- 4th quarter of 2016 : Submit Draft Progress Report to IG

Year 2017

- 2nd quarter of 2017: Second Meeting of the Expert Group
- 3rd quarter of 2017 : The standards agreed by the Expert group can be discussed in a bigger group comprising sector specific experts from the member countries before their adoption.
- 4th quarter of 2017: Final report submitted to the IG.

Expert Group on Strengthening the Framework of the Male' Declaration and the Draft Terms of Reference of (TOR)

The Secretariat

1

Introduction

- At IG13 in 2013, the draft guidelines for the next steps of implementation on strengthening the framework on air pollution reduction in South Asia was reviewed and discussed. Major discussions include:
- a. Developing common standards and protocol. Action plan should be considered. Look into available expertise, group and technology, but this could be a long term action.
- b.. Minimum common standard that could be implemented by the participating countries in a phased manner. Prioritize parameters and make simple standards. d. Countries should be grouped and need a substantive roadmap.
- f. Standards of countries may vary. It was stressed that it is necessary to select experts to gather data from member countries and reach common standards.
- h. Common guidelines instead of common standard would be fine as stressed.

2

Decision at IG13

The IG13 agreed to establish an expert group.
The expert group will identify key sectors; review exiting guidelines, standards, and available technologies; and propose a roadmap for emission reduction from selective sectors in South Asia.

The IG13 endorsed the "Guidelines for the next steps of implementation on strengthening the framework on air pollution reduction in South Asia".

3

Discussion during the TFFD4

- The meeting suggested including the harmonization and alignment of the standards and adding emission sources on the TOR.
- The Task Force members be also the member of the expert group.
- Engaging an expert for each sector to do the tasks, and report to the Task Force for review and make final recommendations for submission to the IG.

4

Draft TOR

- **Composition** of the Expert Group in Each Sector- mobile sources (motor vehicles) and point sources (industries)
- Chairman
- Members: at least one representative from each country, Task Force Member was recommended during the TFFD4
- Secretariat

5

Terms of Reference

- Identify key sectors, e.g. mobile source and point source
- Review the air quality standards of both mobile sources and point/industrial sources of the member countries in South Asia;
- Recommend substances and pollutants to be standardized;
- Recommend procedures for monitoring and emission reduction;
- The expert group will identify the available technologies; and propose a roadmap for emission reduction from selective sectors in South Asia;
- Submit progress report to IG; and
- Prepare a final report for endorsement of the IG

6

Recommended timetable

- 1st quarter of 2016 : Establishment of the Expert Group, invitation send to the member countries
- 1st quarter of 2016 : First meeting of the expert group
- 2nd d quarter of 2016: Drafting of Progress report
- 3rd quarter of 2016: Second meeting of the expert group
- 4th quarter of 2016: Final report submitted to IG

7

Action by the IG14

- The IG14 is requested to endores the document and approve the TOR of the expert group.

8

Thank you!



9

Fourteenth Session of the Intergovernmental Meeting of the
Malé Declaration on Control and Prevention of Air Pollution and
Its Likely Transboundary Effects for South Asia (Malé Declaration)
25 November 2015, Bangkok, Thailand

Work Programme and Budget in 2016 and Future Development of Malé Declaration

I. Introduction

1. The implementation of the Malé Declaration on Control and Prevention of Air Pollution and Its Likely Transboundary Effects for South Asia (Malé Declaration) was envisaged in phases, keeping in mind the Malé Declaration's objectives, content, and thrust.
2. The Phase V (2014-2016) of the Malé Declaration aims to promote policy measures to control emissions of air pollution including short-lived climate pollutants (SLCPs) in South Asia and to ensure the sustainability and ownership of the Malé Declaration in the region. This would be done through the intergovernmental meetings, stakeholders networks, intergovernmental task forces, and Regional Technical Centres for Wet and Dry Deposition Monitoring, Crops and Vegetation Monitoring, Soil Monitoring, Corrosion Impact Assessment, Health Impact Assessment, Emission Inventories, Modelling Atmospheric Transport of Air Pollution, and Pollution Reduction Policies/Strategies.
3. The analysis of gaps and weaknesses of Malé Declaration should lead to identifying the policy actions at the regional and national level while this should be continuing process. Current experience shows we may have some policy instruments which will complement the on-going national efforts. We could have minimum standards, e.g. automobile, brick kiln, fuels, etc. referring to both terrestrial and non-terrestrial forms. This would be strengthened by technical assistance of experts on standards and thus enable protocols to be drawn up. The phase V implementation will include the development of source specific protocols and guidelines to control emissions of air pollutants.
4. As suggested in TFFD3 in August 2012, on developing guidelines/standards and protocols, Malé Declaration shall make prioritization by sectors, e.g. automobiles, fuels, brick kilns and other dominant industrial pollutants in the South Asian region. The participating countries shall make the listing of the priority areas in their respective countries.
5. In phase V, development of the national level master plan for control and prevention of air pollution will be considered.
6. Initial discussion was done at the Fourth Meeting of the Task Force on Future Development held in May 2015.

II. Work program and activities in 2016

7. Towards the achievements of the objectives in Phase V, the following are the activities in 2016, depending on funds availability:

- a. Discuss the future development of Malé Declaration including the strengthening of the framework of Malé Declaration by developing source specific protocols, guidelines and standards.
Review the progress and make decision for the next step of implementation, beneficial to the countries.
- b. Implement the activities in the Regional Technical Centres and enable them to conduct studies and communicate the results to policy makers and stakeholders;
- c. Consult and share experiences on air pollution initiatives and SLCP initiatives by those involved and other stakeholders; and
- d. Raise awareness on air pollution among policy makers, stakeholders, youths and others.
- e. Convene meetings/events as follows:

- **Intergovernmental Meeting**

8. The Fifteenth Session of the Intergovernmental Meeting (IG15) will be convened in the last quarter 2016 in order to review the progress and make decisions on further implementation particularly Phase VI of the network.

- **Task Force Meeting**

9. The Fifth Meeting of the Task Force Meeting on Future Development (TFFD5) will be held at the second quarter of 2016 before the IG15. The meeting will discuss and make recommendation for further implementation of the Malé Declaration, including the draft proposal for Phase VI for approval of the IG.

- **Expert Group Meetings**

10. The Expert Group Meetings will be convened in 2016, back to back with Task Force Meeting or other modalities.

- **Stakeholders meeting**

11. The Regional Stakeholders meeting will be convened in 2016 to consult on the implementation of Malé Declaration including the source specific protocols and guidelines, and to raise awareness on air pollution issues in the region. The meeting

will also bring together scientific activities on-going in South Asia to inform the Malé stakeholders.

▪ **Regional Refresher Training Workshop on Transboundary Air Pollution and Regional Training Workshops on Impact Assessment**

12. The activities of the regional centers in accordance with the Terms of Reference adopted by the IG will be implemented and pursued. The regional centers shall enable to conduct studies and communicate the results to policy makers and stakeholders, among others. The budget of the activities are to be carried out by the countries. The centers shall report the activities to the meetings of Malé Declaration. The Regional Refresher Training Workshop on Transboundary Air Pollution will be held in India and Regional Training Workshops on Impact Assessment, in any Regional Technical Center in 2016.
13. The development of newsletter, as part of awareness raising and updating of the MD website at the Secretariat office will continue.

III. Proposal for Phase VI implementation and Future Development

14. During IG13, on organizational structure, it was confirmed by the member countries that the current host of the Secretariat, RRC.AP will continue to function. The IG14 will reconfirm this institutional arrangement.
15. The draft document on Concept Proposal for Phase VI implementation of the Malé Declaration will be developed as guided by the IG14, and the draft outline will be submitted to IG in 2016. The outline will be circulated to the member countries prior to the IG meeting.

IV. Financial Consideration

16. The contribution of the participating countries is crucial for the successful implementation of Phase V as regional level core activities. Similarly, it is urged that monitoring activities shall continue using the national budget.
17. Depending on availability of funding, activities on Malé Declaration will be prioritized in consultation with the member countries.
18. Table-1 (Attachment) presents the annual budget in 2016 for the core activities under the regional level as agreed by the IG13.
19. Table-2 (Attachment) presents the estimated financial contributions of the participating countries, in annual bases for phase V implementation (2014-2016).

▪ **Additional Activities**

20. The budget for other activities varies according to the project to be implemented in each of the participating countries.

V. Actions needed at the G14

21. The Fourteenth Session of the Intergovernmental Meeting is invited to discuss, review and endorse/adopt the document.

Attachment

Table-1: Estimated Budget of Regional Core Level Activities in 2016

Activities/Tasks	Budget in 2016 in US \$
Session of the Intergovernmental Meeting	30,000
Regional Stakeholders' Meeting and Capacity Building	25,000
Regional Refresher Training Workshop on Transboundary air pollution	22,000
Regional Training Workshops on Impact Assessment	23,000
Meetings of Task Force and Expert Group for Future Development	30,000
Personnel cost	47,000
Operating cost (office supplies, postage, communication,	7,973
Programme support	36,995
Grand total	221,968

Table 2- Countries Voluntary Contributions for Regional Level Activities in 2016 based on Phase V approval

No.	Name of Country	% in UN Assessment Scale in 2013	% in Malé Declaration	Contributions in US dollar
1	Bangladesh	0.01	0.87	1,931
2	Bhutan	0.001	0.087	193
3	India	0.666	57.91	128,542
4	Iran	0.356	30.96	68,701
5	Maldives	0.001	0.087	193
6	Nepal	0.006	0.521	1,156.45
7	Pakistan	0.085	7.4	16,426
8	Sri Lanka	0.025	2.174	4,826
Total		1.15	100	221,968

Work Programme and Budget in 2016 and the Future Development of Male' Declaration (Draft)

The Secretariat

1

I. Introduction

- ❖ The implementation of Malé Declaration was envisaged in phases, keeping in mind the MD's objectives, content and thrust.
- ❖ The Phase V (2014-2016) of the Malé Declaration aims to promote policy measures to control emissions of air pollution including short-lived climate pollutants (SLCPs) in South Asia and to ensure the sustainability and ownership of the Malé Declaration in the region.

This would be done through the :

- Intergovernmental Meeting,
- Stakeholders networks,
- Task Force, and
- Regional Technical Centres for Wet and Dry Deposition Monitoring, Crops and Vegetation Monitoring, Soil Monitoring, Corrosion Impact Assessment, Health Impact Assessment, Emission Inventories, Modelling Atmospheric Transport of Air Pollution, and Pollution Reduction Policies/Strategies.

2

Previous discussions:

- As suggested in TFFD3 in August 2012, on developing guidelines/standards and protocols, Male' Declaration shall make prioritization by sectors, e.g. automobiles, fuels, brick kilns and other dominant industrial pollutants in the South Asian region. The participating countries shall make the listing of the priority areas in their respective countries.
- Initial discussion on the WPB in 2016 was done at the TFFD4 in May 2015.

3

II. Work program and activities in 2016

Towards the achievements of the objectives in Phase V, the following are the activities in 2015-2016, depending on funds availability:

- Discuss future development of Malé Declaration including the strengthening of the framework of Male Declaration by developing source specific protocols, guidelines and standards.
- Review the progress and make decision for the next step of implementation;
- Implement the activities in the Regional Technical Centres and enable them to conduct studies and communicate the results to policy makers and stakeholders;
- Consult and share experiences on air pollution initiatives and SLCP initiatives;
- Raise awareness on air pollution, among policy makers, etc.;
- Convene meetings and events.

4

Meetings/Events in 2016 will be convened as follows:

- ***Intergovernmental Meeting***
- ***IG15- 4th quarter of 2016***
- - will be convened in the last quarter 2016 in order to review the progress and make decisions on further implementation particularly Phase VI of the network.

5

TFFD5

- TFFD5 will be held at second quarter of 2016 before the IG15.
- The meeting will discuss and make recommendation for further implementation of the Malé Declaration, including the draft proposal for Phase VI for approval of the IG.

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Expert Group Meeting

- The Expert Group Meetings will be convened in 2016, back to back with Task Force Meeting or other modalities.

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III. Proposal for Phase VI implementation and Future Development

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IV. Financial Consideration

- The contribution of the participating countries is crucial for the successful implementation of Phase V as regional level core activities. Similarly, it is urged that monitoring activities shall continue using national budget.
- Depending on availability of funding, activities on Malé Declaration will be prioritized in consultation with the member countries.

9

Regional Level Core Activities

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Programme support	36,995
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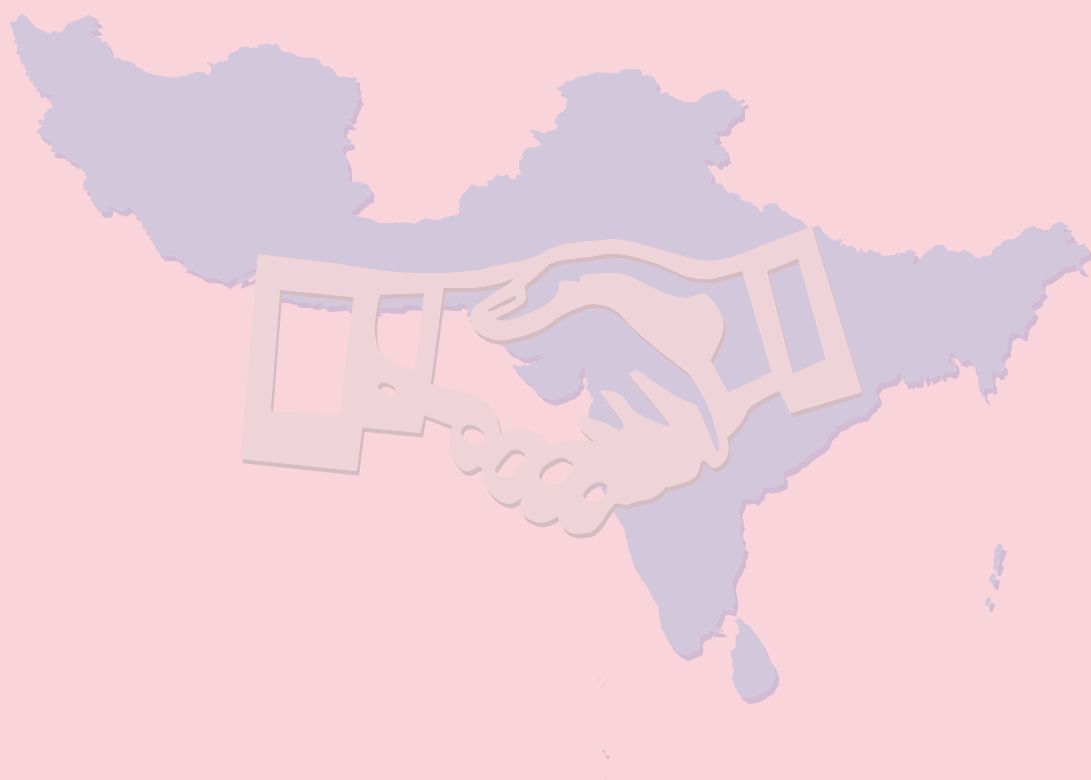
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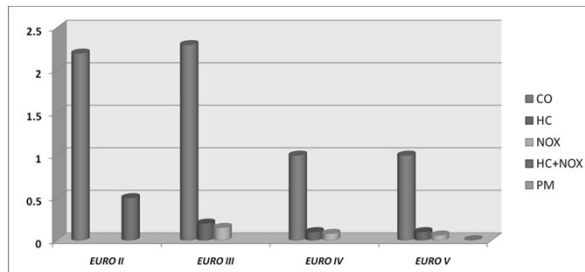
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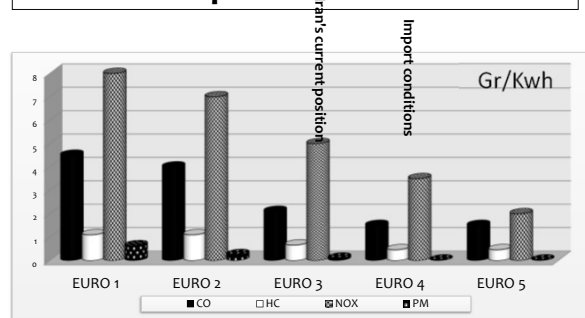


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comparing emissions from gasoline-powered vehicles based on environmental standards EuroIV and EuroV



Compare Standards



Road Map for Future

period	2014	2015	2016	2017	2018	2019	2019	2020	2021	2022
LDV (petrol)	EURO IV + EOBD					EURO V				
HDV (Diesel)	EURO 2	EURO 3+ DPF			EURO 4+DPF		Europe Union standard			
Motorcycle	EURO 3				Europe Union standard					

Expected outcomes

- Improvement of fuel standard in all of country
- To prevent the release of fuel vapors (ministry of oil ministry of industry)
- Requirement to replace the catalyst convertor (ministry of industry)
- Phasing out of old vehicle
- Installing particle filters(DPF) on diesel vehicles
- * -Production of electric and hybrid vehicle
- * -Production of electric motorcycle

Expected outcomes(cont.)

- * Completion of environmental data bank for province industrial zones (DOE, Ministry of industry)
- * Minimizing energy consumption in industrial zones (Ministry of industry)
- * Development urban green space (Ministry of agriculture-municipality of Tehran)
- * Monitoring centers(DOE)
- * Operation of On-line monitoring system in industrial unit(DOE)
- * Developing environmental education programs (DOE)
- Development of public transportation



Malé Declaration on Control and Prevention of Air Pollution and its Likely Transboundary Effects for South Asia

Overview of national level implementation of the Malé Declaration in Nepal

The Fourteenth Session of the Intergovernmental Meeting (IG14) 25 November 2015, Bangkok, Thailand

25 November 2015, Bangkok, Thailand

Shankar Prasad Paudel
 Senior Divisional Chemist (Under-Secretary, Tech)
 Department of Environment
 Ministry of Science, Technology and Environment (MoSTE)
 Kathmandu, Nepal

Presentation Outline

- Introduction
- Issues on Air Pollution
- Existing Legal Framework on Air Quality Management
- Organizations involved in Air Quality Management in Nepal
- Air Quality Status and Pollution Sources
- Energy Consumption Status
- No. of Registered Vehicles
- Impacts
- Achievements
- AQ Monitoring Station and other related ongoing program
- Challenges on Air Quality
- Major other Studies/ programs Related to Air Pollution

Introduction

- Area- 147,181 sq. km.
- Country of the Mt. Everest, birth place of Lord Buddha
- Population 26.6 m, growth rate: 1.35%,
- 45th biggest in population, 95th in terms of Area
- Borders with India in the South, East and West; with China in the North
- Urban population: 18%, Life expectancy 65 yrs
- Percent Urbanization by 2050: 36%
- Nepal ranks twenty-fifth globally in biodiversity,
- Forest covers approximately 39.5% of the total area,
- 23.23% of the country has been delineated as national park and conservation areas,
- Only 27 per cent of the country is potentially arable and only 20 per cent is under cultivation,
- Per capita income is US\$ 729 with a gross domestic product (GDP) growth rate at 5.1 per cent in 2013-14
- 25 per cent of Nepalese living below the poverty line

Issues on Air Pollution

- Rapid Urbanization
- Brick kilns in operation in Kathmandu Valley
- Growing Numbers of Vehicles
- Traffic Congestion and Increasing Demand of Fossil Fuel
- Industrialization
- Widening of road (dust)



Existing Legal Framework on Air Quality Management

- ✓ Constitution of Nepal, 2015
- ✓ Environment Protection Policy, 1987
- ✓ Industrial Policy, 1992
- ✓ Nepal Environmental Policy and Action Plan (NEPAP I), 1993
- ✓ National Transport Policy, 2002
- ✓ Industrial Enterprises Act, 1992
- ✓ Transport Management Act, 1992 and Regulation 1997
- ✓ Environment Protection Act and Rule, 1997
- ✓ Ozone Depleting Substances Consumption (Control) Rules, 2001

Contd....

- Standard on Emission and Chimney Height for Brick Kilns, 2008
- National Indoor Air Quality Standard and Implementation Guidelines, 2009
- National Ambient Air Quality Standard, 2012
- Nepal Vehicle Mass Emission Standard, 2012
- Standard on Emission and Chimney Height for Industrial Boiler, 2012
- Standard on Emission for Diesel Generator, 2012
- Standard on Emission for Cement and Crusher Industries, 2012
- Environmental Standards for Incinerators

Organizations involved in Air Quality Management in Nepal

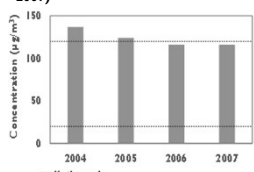
- Ministry of Science, Technology and Environment, lead organization and national focal point of Male Declaration.
 - Department of Environment, implementing agency of MoSTE in all environmental issues
 - ICIMOD, (International Centre for Integrated Mountain Development) national implementation agency for Male Declaration
- Members:
- Institute of Agriculture and Animal Science (IAAS) TU, Chitwan ; now it is Agriculture and Forestry University
 - Clean Air Network Nepal-representing from NGOs
 - Center for Pollution Studies, Institute of Engineering (IoE-TU) representing from academic institutions
 - Department of Hydrology & Meteorology, GoN

Air Quality Status and Pollution Sources

- Annual average PM_{10} concentrations in Kathmandu Valley from 2004 to 2007 was slightly decreased
- These were above the WHO air quality guideline value
- A more recent emission inventory showed that transport sector generated approximately 98% of total PM_{10} emissions in 2010 and 69% of total emission loads
- Unfortunately, the six monitoring stations in the capital have not been operational since 2007
- MoSTE re-established three previous station to measure PM_{10} during the period of Oct. 2013 to May 2014. They are ultimately closed.
- Government plan to establish different AQM stations

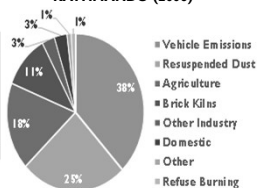
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ANNUAL AVERAGE PM_{10} LEVELS IN KATHMANDU (2004-2007)



*No annual PM_{10} national standard

EMISSION PROFILE PM_{10} IN KATHMANDU (2006)



Energy Consumption Status

Year 2013/14

Energy Source		Tons of Oil Equivalent	% Contribution
Traditional	Firewood	8,154	72.60
	Agricultural residues	403	3.57
	Animal Residue	426	3.79
	Total	8,983	76.97
Commercial	Coal	320	2.84
	Petroleum Products	1,264	11.25
	Electricity	374	3.32
	Total	1,958	20.52
Renewable	Total	291	3.03
Grand Total		11,232	100

Source: Economic Survey 2013/14, MoF

No. of Registered Vehicles

Types	Fiscal Year 1989/90 to 2013/14	2013/14	Up to mid- March 2015
Bus	32,914	2,776	2,375
Minibus/ Mini truck	14,719	1,412	1,288
Crane/ Dozer/Excavator	52,981	2,789	2,467
Car/ Jeep/Van	150,107	11,372	9,054
Pickup	23,839	5,668	3,703
Microbus	2,814	178	611
Tempo	7,527	17	914
Motorcycle	1,371,206	163,945	142,241
Tractor/Power Tiller	73,173	10,070	6,911
Others	6,543	116	49
Total	1,755,821	198,343	169,613

Source: Economic Survey 2013/14, MoF

Impacts

- Incidences of Air Pollution-Related Deaths (Mortality Estimates) in thousands (2012)

Respiratory infections: 13.1	Respiratory diseases: 23.7
Cardiovascular diseases: 41.4	Trachea, bronchus, lung cancers: 2.2

- Health impact study
 - A report in 2011 on cooking with biomass fuels indicated an association between acute exposure to smoke of women with restrictive lung disease and blood de-oxygenation, showing that fine particulate matter can worsen pre-existing lung diseases



Achievements

- 1991 - Ban on import of three wheelers
- 1992 - Banned entrance of two stroke vehicles in Katmandu valley
- 1995 - Introduction of Vehicle Emission Standards & Testing
- 1996 - Provision of Financial incentives for electric three wheelers
- 1997 - Promulgation of Environment Protection Act & Regulations
- 1999 - Ban on Vikrams (diesel 3-wheelers) in Katmandu Valley



Contd....

- 1999 - Ban on import of new 2 stroke vehicles and second hand vehicles
- 2000 -Introduction of Nepal Vehicle Mass Emission Standard (Euro I)
- 2002 - Establishment of Ambient Air Quality Monitoring System with six permanent stations in Katmandu valley (PM10, PM2.5, TSP, NOx, Pb, Benzene)
- 2003 - Introduction of National ambient air quality standards



Contd

- 2004/5 - Ban on running of moving Bull Trench Kiln in Kathmandu Valley. Promotion of Fixed Chimney and VSBK.
- 2006 -Preparation of Action Plan Report on AQM
- 2008 - Emission Standards for Brick Kilns
- 2012 - Up gradation of Vehicular mass emission Standard and national Ambient air Quality standard
- 2012 -Emission Standards of Cement industries, stone crusher industries, DG set and Industrial Boilers.
- 2012 - ban on Moving BTKs throughout the Nepal



AQ Monitoring Station and other related ongoing program

lists sites where long-term measurements are already taking place, or for which long-run resources have been committed by different agencies

Site	Status
Lobuche NCO-P	Nepal Climate Observatory – Pyramid site run by NAST/ EVK2CNR. Already measuring PM 2.5, PM10, ozone, as well as black carbon and aerosol size distribution and aerosol optical depth. Needs data transmission to DoEnv.
Jomsom	Temporary site started for PhD research work by ICIMOD affiliates, but with potential for conversion to long-term site. Currently measurements of CO, ozone, BC and aerosol optical depth.
Yala Glacier, Langtang	Site of ongoing ICIMOD-DHM collaboration to monitor glacier mass balance with plans to install black carbon measurements
Ichhyakamana	Site of full-scale climate observatory to be set up as a collaboration between DoEnv and ICIMOD.
Lumbini	Resources committed by ICIMOD for a full AQ station. Site approved by Lumbini Development Trust



Contd...

- DoEnv is prepared A Plan for Nepal's Air Pollution Monitoring Network (to be approved)
- DoEnv monitoring stations would be designed to eventually allow measurement of all the criteria pollutants listed in the National Ambient Air Quality Standards, 2012.
- The list of criteria pollutant are as follows: TSP, PM₁₀, PM_{2.5}, CO, NOx, SOx, ozone, benzene and lead
- This Plan suggested 56 AQM stations to be establish and operate within the country
- They are prioritized from 1 to 56 using different selection criteria



Contd.....

- Letter of Intent (LoI) signed between Department of Environment, Nepal and International Centre for Integrated Mountain Development (ICIMOD) intending to build up new collaborations in the area of atmospheric monitoring and analysis through the establishment and operation of air Quality stations and environment observatories in Nepal



Challenges on Air Quality Management

- To regulate the fuel quality for vehicle
- On road monitoring of the vehicle mass emission
- Protest (Burning of tire)
- Rapid and haphazard urbanization
- Sustainability of program
- Public health
- Maintaining the rule of law
- To channelize the monitoring data from other organization who have already run the AQ station
- Laboratory facilities for analysis of the criteria pollutants



Major other Studies/ programs Related to Air Pollution

Government announcement of “Clean Cooking Solution for All by 2017 (CCS 2017)” thereby ensuring Indoor Air Pollution free Nepal. (AEPD)

AEPD is promoting renewable energy sources in the country (ICS, Biogas, micro-hydro etc.)

Government of Nepal is prepared in-use vehicle emission standard (Draft) to regulate and control the vehicular emission

Reducing Impact of Black Carbon & other Short Lived Climate Pollutants (ICIMOD)

A Plan for Nepal's Air Pollution Monitoring Network is prepared (to be approved) - DoEnv

Research on diesel power generation and emission in Kathmandu valley by Clean Air Network Nepal

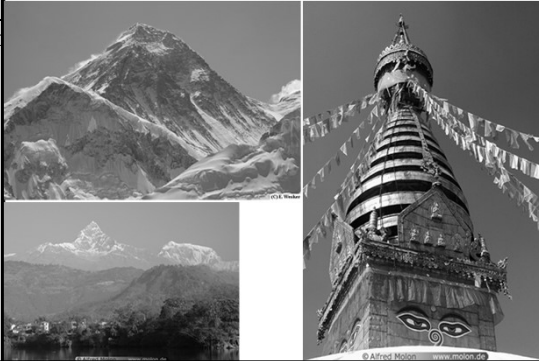


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- Promotion of safer cycling infrastructure in Kathmandu valley- Report on assessment of cycle track in Kathmandu Valley by Clean Air Network Nepal
- Pokhara Sustainable Urban Transport Conference organized together with Pokhara Sub-metropolitan City by Clean Air Network Nepal
- LEADERS Nepal is conducting a program of Investigation of the effectiveness of national clean cook-stove program in Nepal in reducing Acute Respiratory Infection in ≤ 5 children project with the support of PEER Health Project of National Academic of Science, USA and USAID (ongoing)
- Evaluation of the impact of major disaster on air pollution and children's health in Nepal by LEADERS Nepal (ongoing)



Glimpses of Nepal




Glimpses of Nepal



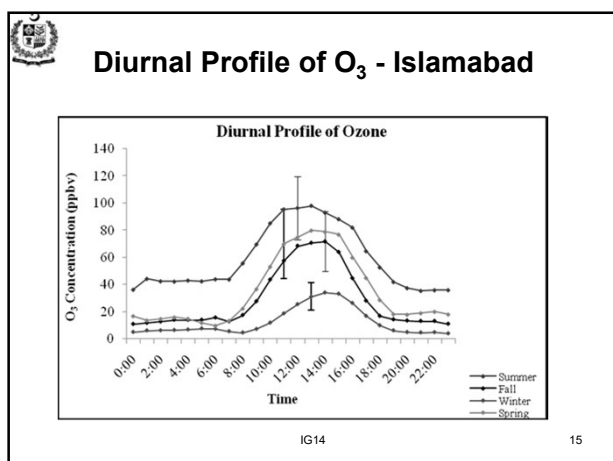
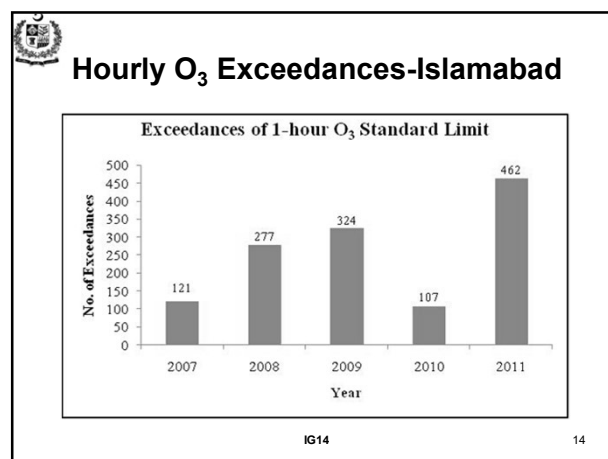
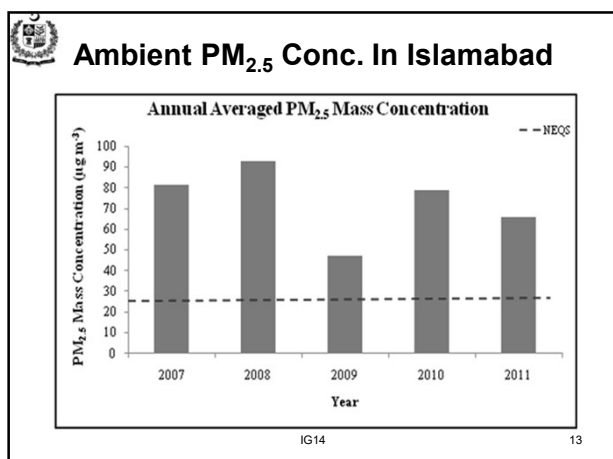
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Glimpses of Nepal



Author: Jay Ram Acharya, PhD



	Wind Speed	Wind Direction	Temp	RH	Radiation	NO	NO ₂	NO _x	CH ₄	NMHC	THC	CO	SO ₂	O ₃	PM ₁₀
units	m/s	degrees	°C	%	W/m ²	µg/m ³	µg/m ³	µg/m ³	ppm	ppmC	ppm	mg/m ³	µg/m ³	µg/m ³	µg/m ³
NAAQS						40 µg/m ³	40 µg/m ³	80 µg/m ³				5 mg/m ³ 8hrs	120 µg/m ³ 24hrs	130 µg/m ³ 24hrs	35 µg/m ³
Jul-2014	0.15	70.81	40.86	20.5	655.1	10.34	26.7363	37.0763	2.255	2.0215	4.283	1.02775	36.47	3.21	94.335
Aug-2014	S.N.O	S.N.O	32.2	67.7	210.3	10.0	25.6	35.6	*	*	*	0.718	21.2	446.9	-
Sep-2014	0.1281	71.89	29.64	41.9399	1	3.456	10.44	28.25	36.69	3.2805	0.919	4.199	4.21	36.05	5.82
Oct-2014	0.1283	73.36	29.64	41.9375	5	3.44912	11.67	33.08	44.75	A.N.O*	A.N.O*	A.N.O*	4.217	36.07	5.80
Nov-2014	0.1278	74.9384	29.64	41.93	3.45087	10.567	36.6562	47.2232	A.N.O*	A.N.O*	A.N.O*	4.217	36.05	5.80	-
Dec-2014	0.12681	76.52	29.62	41.9531	3	3.4273	10.5094	36.7404	47.2498	A.N.O*	A.N.O*	A.N.O*	4.217	36.04	6.0
Jan-2015	S.N.O	S.N.O	14.65	96.02	3.9273	6.150	34.1694	43.3194	A.N.O*	A.N.O*	A.N.O*	0.798	35.15	6.3429	-
Feb-2015	S.N.O	-	21.1	69.8	8.7	8.5	27.33	35.83	A.N.O*	A.N.O*	A.N.O*	1.574	32.0	17.8	-
Mar-2015	S.N.O	-	15.4	84.4	49.6	8.7	25.45	34.15	A.N.O*	A.N.O*	A.N.O*	0.958	32.5	1.4	87.1
Apr-2015	S.N.O	-	36.3	32.6	511.1	9.4	26.7	36.1	A.N.O*	A.N.O*	A.N.O*	1.119	32.3	5.9	86.6
May-2015			41.7	14.4	415.2	9.9	24.07	33.97	-	-	-	3.023	32.7	A.N.O*	149.7
Averages						9.9251	29.525	39.450				2.3709	33.320	39.52	113.7
						27	66	79				9	9	5	5

State of Environment - Pakistan

- Environmental situation in Pakistan has reached a critical stage. As per World Bank studies, economic loss due to environmental degradation has been increasing exponentially

2006

• Rs. 365 billion per annum

2009

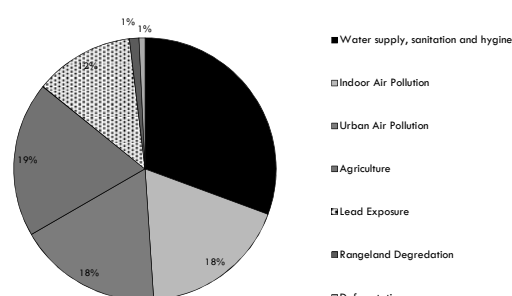
• Rs. 900 billion per annum

IG14

17

Cont'd...

Pakistan - Environmental Debt



Regional Technical Centers

- Based on the adoption of the IG12, the selected centres were recognized as the Regional Centre's of the specified area. The regional centre will work in close collaboration with the Malé Declaration Secretariat.
- The Regional centre's will coordinate with the NFPs and NIAs of the country to provide technical support, compile data and information and store it and prepare policy briefs.
- The other member countries in similar modality have to contact these regional centre's through their respective national focal point or implementing agency for any query or assistance required on the subject. This will ensure that the NFP and NIAs in each country can monitor the use of the technical centres.

Implementations at the Regional Technical Centres

Regional Centre on Health Impact Assessment Bangladesh

The National Stakeholders Workshop on Health Impact Assessment of Air Pollution on Malé Declaration was held in Dhaka, Bangladesh on 15 October 2014.

The objectives of the workshop included: 1) describe different contents of Health Impact Assessment Manual

2) disseminate the activities, roles and future plan and expected output of the Regional Center on Health Impact Assessment in Bangladesh;

3) identify different initiatives to reduce air pollution in Bangladesh;

4) describe the effects of cook stove intervention for reduction of indoor air pollution in rural Bangladesh;

4) explore the health impact study findings of other regional countries; and

5) discuss about the major challenges faced by the researchers on the Effects of PM on School children in Bangladesh.

Cooperation and coordination with other initiatives and programmes

- Participation at the High Level Sub-regional Consultation on Advancing Action on Short-Lived Climate Pollutants (SLCPs) in Southeast and Northeast Asia on 19 August 2014, in Bangkok, Thailand.
- Participation at the Consultation Meetings of the Joint Forum on Clean Air in Asia and the Pacific and the Fifth Governmental Meeting on Urban Air Quality in Asia that were held in Colombo, Sri Lanka from 17 to 18 November 2014.

Publications



Malé Declaration 1998-2013: a Synthesis-Progress and Opportunities

Proceedings of the Seventh Regional Stakeholders cum Coordination Meeting (RSC7) and the Thirteenth Session of the Intergovernmental Meeting (IG13)



Standard Operating Procedures (SOP): Manual for Wet and Dry Deposition Monitoring



Data Analysis Report 2012



These publications are available at the Malé Declaration website: <http://www.rrcap.ait.asia/male>

Other activities

- The Secretariat developed the Final Report including the Financial Report in Phase IV and submitted the report to Swedish International Development Cooperation Agency (Sida) on 23 September 2013, as per agreement with the donor agency.
- The Secretariat is updating the website of the Malé Declaration. The regional database is available online at: <http://www.rrcap.ait.asia/male/>.

Constraints and probable solutions in meeting the targets

Activities/Tasks	Targets in 2014, depending on funds availability	Reasons for delay and solutions to meet the targets
10th Refresher Training Course on Monitoring Transboundary Air Pollution	Planned on 12-14 November 2014 in New Delhi, India, followed by IG14.	Re-scheduled by the host country (India, Regional Centre for Wet and Dry Deposition Monitoring) due to another international meeting during same period, arranged by the MOE, CPCB. This activity is planned for next year.
IG14	Planned in December 2014 in AIT, Thailand for cost saving at the Secretariat's office	Moved to November 2015, back to back with Joint Forum.
Fourth Task Force Meeting (TF4)	Supposedly before IG14.	Moved to May 2015 due to budgetary consideration.

UPDATES ON STATUS OF FINANCIAL CONTRIBUTION TO THE MALÉ DECLARATION

THE SECRETARIAT



1

I. INTRODUCTION

The IG12 held in Delhi, India on 30 June 2011 adopted the Report of the Task Force for Future Development (TFFD), and its Annexes which include:

- ❖ Draft Resolutions for Consideration of the Ministerial Level Meeting,
- ❖ the Report on the Sustainable Financial Mechanism,
- ❖ the Feasibility Report on the Establishment of Regional Centres, and;
- ❖ the Feasibility Report on Strengthening the Regional Framework on Air Pollution Reduction in South Asia.

2

The (IG13) held in 2013 in Dhaka, Bangladesh endorsed the "Guidelines for implementation of the sustainable financial mechanism". The meeting adopted and endorsed the participating contributions in phase V implementation, annually (2014-2016), (please see in annex 1 of the document)

Estimated Countries Contributions for Regional Level Activities (Annual Basis) for Phase V (2014-2016)

No.	Country	% in UN Assessment Scale	% in Malé Declaration (approximate)	Approximate Contribution (USD)
1	Bangladesh	0.01	0.87	1,931
2	Bhutan	0.001	0.087	193
3	India	0.866	57.91	128,542
4	Iran	0.356	30.96	68,701
5	Maldives	0.001	0.087	193
6	Nepal	0.006	0.521	1,156.45
7	Pakistan	0.085	7.4	16,426
8	Sri Lanka	0.025	2.174	4,826
TOTAL		1.15	100	221,968

3

PREVIOUS DISCUSSION

The IG13 agreed that on Male' Declaration implementation, the following to be undertaken:

- All the countries are encouraged to make voluntary contributions for the **regional core budget** for the success of the network and continue the national activities at the countries' expenses.
- Moreover, the countries are encouraged to support the operation of the regional centers that they are hosting.
- The **letter requesting for voluntary contribution** will be prepared by the Secretariat and send to the participating countries.

4

➤The participating countries may transfer the money to the Secretariat via electronic transfer to the following bank account:

➤The Secretariat will inform the National Focal Points (NFPs) of the Malé Declaration as soon as the transfer to the bank account above has been confirmed.

➤The possibility of introducing minimum contribution amount from the participating countries should also be explored in the future.

BANK DETAILS

Account Name : Aalen Institute of Technology
Account No : 10482918
Account Type : Chequing Account
Bank Name : Citibank, NA
Bank Address : Citigroup Center, 19th floor
153 East 53rd Street, New York, USA10043
Swift Code : CITIUS33
ABA : 021000089
Detail of payment : RRCAAP / Malé Declaration

5

STATUS OF FINANCIAL CONTRIBUTIONS

By the step-wise approach, the countries are already transferring voluntary contribution to the Malé Declaration activities to the Secretariat account.

In 2012, India had contributed an amount of US \$ 19,439.00 on 7 August 2012 and Maldives contributed an amount of US \$ 251.00 on 7 August 2012.

In 2013, two countries had contributed, which include Maldives an amount of US\$ 251 on 16 May 2013 and Bangladesh an amount of US \$ 2,506.00 on 6 June 2013.

6

For year 2014, India contributed US \$ 33,324.00 on 29 August 2014 and Bangladesh had transferred their contribution on 24 February 2014, an amount of US \$ 1,931.00 to the Secretariat account.

In 2015, Pakistan had contributed the amount of US\$ 16, 361.52 (receipt dated 29 April 2015); Bangladesh had transferred the amount of US \$ 1,931.00 (receipt dated 9 Oct. 2015); and Maldives financial contribution was received at the amount of US \$ 193.00 (receipt dated 6 Nov. 2015).

The Secretariat received a copied letter from the Ministry of Environment, Forest and Climate Change, India on the President's approval of the transfer of financial contribution to the Male' Declaration, at the amount of US \$ 61, 576.07 for 2015.

7

TABLE-1 BELOW HIGHLIGHTED THE STATUS ON FINANCIAL CONTRIBUTIONS RECEIVED BY THE SECRETARIAT.

Date	Participating countries	US\$
7-Aug-12	India	19,439.00
7-Aug-12	Maldives	251.00
16-May-13	Maldives	251.00
6-Jun-13	Bangladesh	2,506.00
29-Aug-14	India	33,324.00
24-Feb-14	Bangladesh	1,931.00
29-Apr-15	Pakistan	16,361.52
09-Oct-15	Bangladesh	1,931.00
06-Nov-15	Maldives	193.00
	Total Received	76,187.52

8

ACTION NEEDED AT THE IG14

The Session will discuss, review and provide guidance on the activities of the Malé Declaration and strengthen the financial contribution for continuous operation of the network.

9

Thank you for your attention!

10

Expert Group on Strengthening the Framework of the Male' Declaration and the Draft Terms of Reference of (TOR)

The Secretariat

1

Introduction

- At IG13 in 2013, the draft guidelines for the next steps of implementation on strengthening the framework on air pollution reduction in South Asia was reviewed and discussed. Major discussions include:
- a. Developing common standards and protocol. Action plan should be considered. Look into available expertise, group and technology, but this could be a long term action.
- b.. Minimum common standard that could be implemented by the participating countries in a phased manner. Prioritize parameters and make simple standards. d. Countries should be grouped and need a substantive roadmap.
- f. Standards of countries may vary. It was stressed that it is necessary to select experts to gather data from member countries and reach common standards.
- h. Common guidelines instead of common standard would be fine as stressed.

2

Decision at IG13

The IG13 agreed to establish an expert group.
The expert group will identify key sectors; review exiting guidelines, standards, and available technologies; and propose a roadmap for emission reduction from selective sectors in South Asia.

The IG13 endorsed the "Guidelines for the next steps of implementation on strengthening the framework on air pollution reduction in South Asia".

3

Discussion during the TFFD4

- The meeting suggested including the harmonization and alignment of the standards and adding emission sources on the TOR.
- The Task Force members be also the member of the expert group.
- Engaging an expert for each sector to do the tasks, and report to the Task Force for review and make final recommendations for submission to the IG.

4

Draft TOR

- **Composition** of the Expert Group in Each Sector- mobile sources (motor vehicles) and point sources (industries)
- Chairman
- Members: at least one representative from each country, Task Force Member was recommended during the TFFD4
- Secretariat

5

Terms of Reference

- Identify key sectors, e.g. mobile source and point source
- Review the air quality standards of both mobile sources and point/industrial sources of the member countries in South Asia;
- Recommend substances and pollutants to be standardized;
- Recommend procedures for monitoring and emission reduction;
- The expert group will identify the available technologies; and propose a roadmap for emission reduction from selective sectors in South Asia;
- Submit progress report to IG; and
- Prepare a final report for endorsement of the IG

6

Recommended timetable

- 1st quarter of 2016 : Establishment of the Expert Group, invitation send to the member countries
- 1st quarter of 2016 : First meeting of the expert group
- 2nd d quarter of 2016: Drafting of Progress report
- 3rd quarter of 2016: Second meeting of the expert group
- 4th quarter of 2016: Final report submitted to IG

7

Action by the IG14

- The IG14 is requested to endores the document and approve the TOR of the expert group.

8

Thank you!



9