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

Fourteenth Session of the Intergovernmental Meeting (IG14)

25 November 2015
Bangkok, Thailand
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I. Report of the Fourteenth Session of the Intergovernmental Meeting (IG14)
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 counties, 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 PM$_{10}$ 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. Kamyota, 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

<table>
<thead>
<tr>
<th>Country</th>
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<th>Position</th>
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II. Meeting Documents
The Fourteenth Session of the Intergovernmental Meeting (IG14)
25 November 2015, Bangkok, Thailand

Agenda

<table>
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<tr>
<th>Time</th>
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<tr>
<td>09:00-9:30</td>
<td>Opening of the Session</td>
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|          | - 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

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 Malé Declaration

National implementing agencies and Institutional Arrangement

Ministry of Environment and Forest (NFP)
Department of Environment (NIA)
National Advisory Committee
Department of Occupational & Environmental Health, NIPSOM, Dept. of Meteorological Environment Science Department
Bangladesh Agricultural University

Monitoring Station, Sathkhira
Khulna Divisional Lab of DOE

Presentation on Implementation of Malé Declaration

Monitoring activities

Location of Transboundary Air Pollution Monitoring Station

Presentation on Implementation of Malé Declaration

Monitoring Activities of Malé declaration Project

- Two types of monitoring
  - Dry Deposition Monitoring
  - Wet Deposition Monitoring

In Dry Deposition Monitoring
- Meteorological Data
- Field Temperature
- Air Quality Monitoring

In Wet deposition Monitoring
- Rain water Quality Test
- Precipitation Amount

Presentation on Implementation of Malé 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, Shatkhira
  - Malé 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)
25 November 2015, Bangkok, Thailand

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- Success stories

Presentation on Implementation of Male' Declaration

National implementing agencies and Institutional Arrangement:

- Ministry of Environment and Forest (NFP)
- National Advisory Committee
- Department of Environment (NIA)
- National Advisory Committee
- Environment Science Department
- Bangladesh Agricultural University
- Monitoring Station, Sathkhira
- Khulna Divisional Lab of DOE

Monitoring activities

Location of Transboundary Air Pollution Monitoring Station

Presentation on Implementation of Male' Declaration

Priority of Monitoring Activities of Malé declaration Project

- Two types of monitoring
  - Dry Deposition Monitoring
  - Wet Deposition Monitoring

In Dry Deposition Monitoring
- Meteorological Data
- Field Temperature
- Air Quality Monitoring

In Wet Deposition Monitoring
- Rainwater Quality Test
- Precipitation Amount

Presentation on Implementation of Male' Declaration

Dry Deposition monitoring

- Meteorological Data
  - Meteorological Parameters are
    - Wind Direction
    - Wind Speed
    - Solar Radiation
  - All Meteorological Parameters have been being monitored by Meteorological Dept, Shatkhira
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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

- Educational Materials
- Challenges
- Success stories

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
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

- **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.
  - SOX, NOX, 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

**Data Completeness**

**Observation About Gaseous Pollutants**

- SO2 and NO2 are monitored since 2005 to Still now by Passive sampler.
- SOX and NOX Monitoring by active sampler is not done due to very low conc. of SOX and NOX 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.

**Impact Assessment**

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

**Health Impact Assessment**

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

- 3 schools of Dhaka City
  - Survey:1680 Students (Class V-IX), Duration: 7 Days
  - Main Study:180 Students(120 Asthma=60 Non-Asthma), Duration:42 Days
Assessment of Impact of Air Pollution among School Children of selected school of Dhaka City

Findings:

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

NIPSOM: Regional Center for Health Impact Assessment

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

Awareness Activities

- Awareness material for print and electronic media developed
- Print Material:
  a. Posters-20,000
  b. Leaflets-20,000
  c. Stickers-10,000
- Electronic Media Material:
  a. TV spots- 4 Nos.
  b. Docodramas-3 Nos.
  c. Folksongs- 2 Nos.
  d. Bus Sticker- 6 Nos.
Awareness Activities

- 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, NOx 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

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.....
Progress on implementation of the Malé Declaration at the national level

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

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.

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.

Implementation of national activities

• Continue to monitor PM10 levels for 5 locations in the country;
• 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.

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.

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.
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.

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

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Activity</th>
<th>Summary Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ambient Air Quality Monitoring and wet deposition monitoring</td>
<td>Sequential Air Quality monitoring and wet deposition monitoring is being carried out at Sunderban bordering stations. Discussions initiated with concerned SPCBs/PCCs to set up monitoring stations in other bordering areas. Transboundary Monitoring is in operation.</td>
</tr>
<tr>
<td>2</td>
<td>Corrosion Study</td>
<td>Corrosion study was completed on Taj Mahal, Agra. Awarded one project to National Metallurgical Laboratory at Jamshedpur for carrying out impact on materials at 9 cities in India including one virgin area.</td>
</tr>
<tr>
<td>3</td>
<td>Health Impact Study</td>
<td>Impact assessment through Chittaranjan National Cancer Institute (CNCI), Kolkata. Impact on exposure of petrol pump workers has been initiated. Development of Protocol Monitoring &amp; Instrumentation is in progress.</td>
</tr>
<tr>
<td>4</td>
<td>Emission Inventory</td>
<td>National emission inventory is available and is being regularly updated.</td>
</tr>
<tr>
<td>5</td>
<td>Advisory Committee</td>
<td>Advisory committee is being revised.</td>
</tr>
<tr>
<td>6</td>
<td>Awareness</td>
<td>CPCB is maintaining a very dynamic website along with lot of publications and data on ambient air quality data such as Environmental Data Bank including trans-boundary ambient air quality stations.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>No.</th>
<th>Monitoring station</th>
<th>Model</th>
<th>Port Location</th>
<th>Parameter</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Port Canning</td>
<td>C-PYTE</td>
<td>West Bengal</td>
<td>SO2, NO2, PM10, SPM</td>
<td>Operational since August 2009.</td>
</tr>
<tr>
<td>2</td>
<td>Dera Baba Nanak</td>
<td>BATAD</td>
<td>Punjab</td>
<td>SO2, NO2, PM10, SPM</td>
<td>Operational since January 2009.</td>
</tr>
<tr>
<td>3</td>
<td>Daranga</td>
<td>C-PYTE</td>
<td>Assam</td>
<td>SO2, NO2, PM10, SPM</td>
<td>Operational since January 2009.</td>
</tr>
<tr>
<td>4</td>
<td>Lakshadweep</td>
<td>C-PYTE</td>
<td>Maldives</td>
<td>SO2, NO2, PM10, SPM</td>
<td>Operational since January 2009.</td>
</tr>
<tr>
<td>5</td>
<td>Dawki</td>
<td>C-PYTE</td>
<td>Meghalaya</td>
<td>SO2, NO2, PM10, SPM</td>
<td>Operational since January 2009.</td>
</tr>
</tbody>
</table>
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. Rainfall,
  2. Temperature,
  3. Salinity,
  4. Acidic gases and humidity surrounding the area besides collection of meteorological data for all selected locations.

• Similarly, dust collectors will be installed at different locations to collect the data for:
  a. Falling of dust per unit area
  b. Presence of heavy metals
  c. Analysis of components in dust
  d. pH of dust

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

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

<table>
<thead>
<tr>
<th>Material</th>
<th>Corrosion rate (µm/year)</th>
<th>Jamshedpur</th>
<th>New Delhi</th>
<th>Lucknow</th>
<th>Mumbai</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel</td>
<td>24.96</td>
<td>18.57</td>
<td>11.68</td>
<td>26.19</td>
<td></td>
</tr>
<tr>
<td>Brass</td>
<td>1.07</td>
<td>4.19</td>
<td>1.40</td>
<td>3.76</td>
<td></td>
</tr>
<tr>
<td>Bronze</td>
<td>2.91</td>
<td>3.32</td>
<td>1.22</td>
<td>3.80</td>
<td></td>
</tr>
<tr>
<td>Copper</td>
<td>3.40</td>
<td>4.35</td>
<td>2.86</td>
<td>4.58</td>
<td></td>
</tr>
<tr>
<td>Aluminium</td>
<td>0</td>
<td>1.28</td>
<td>0</td>
<td>0.38</td>
<td></td>
</tr>
<tr>
<td>Zinc</td>
<td>0.52</td>
<td>1.75</td>
<td>4.40</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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, Benzo(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

### 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

### What are the 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).
Progresses in Iran

(COUNTRY REPORT)
BANGKOK
25 NOV 2015
Masood zandi

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

Topographic Map
Climate Map

Regional dust chains (UT-GRC, 2012)
Major Naturally Caused Pollution Episodes

- Desert Dust Intrusion
- Inversion Episodes
  Several episodes in cold season
- Tehran view from mountains

Backward trajectory of HYSPLIT model

8 Megacities with Major Air Pollution Problems

Number of unhealty days 2013-2014

Contribution of various sources of air pollution in Tehran
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

Road Map for Future

<table>
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<tr>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LDV (petrol)</td>
<td>EURO IV + EOBD</td>
<td>EURO V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HDV (Diesel)</td>
<td>EURO 2</td>
<td>EURO 3 + DPF</td>
<td>EURO 4 + DPF</td>
<td>Europe Union standard</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motorcycle</td>
<td>EURO 3</td>
<td>Europe Union standard</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 catalyst converor (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 online monitoring system in industrial unit (DOE)
- Developing environmental education programs (DOE)
- Development of public transportation

Thank you
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
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
- Recent 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
- Standard on Emission and Chimney Height for Industrial Boiler, 2012
- Standard on Emission for Diesel Generator, 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……

Energy Consumption Status

<table>
<thead>
<tr>
<th>Energy Source</th>
<th>Tons of Oil Equivalent</th>
<th>% Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firewood</td>
<td>6,154</td>
<td>76.60</td>
</tr>
<tr>
<td>Agricultural residues</td>
<td>403</td>
<td>5.17</td>
</tr>
<tr>
<td>Animal Residue</td>
<td>246</td>
<td>3.09</td>
</tr>
<tr>
<td>Commercial</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coal</td>
<td>938</td>
<td>76.57</td>
</tr>
<tr>
<td>Petroleum Products</td>
<td>1,364</td>
<td>11.25</td>
</tr>
<tr>
<td>Electricity</td>
<td>274</td>
<td>3.22</td>
</tr>
<tr>
<td>Total</td>
<td>1,958</td>
<td>100</td>
</tr>
<tr>
<td>Renewable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>294</td>
<td>3.03</td>
</tr>
<tr>
<td>Grand Total</td>
<td>21,232</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Economic Survey 2013/14, MoF

No. of Registered Vehicles

<table>
<thead>
<tr>
<th>Types</th>
<th>Fiscal Year</th>
<th>2013/14</th>
<th>Up to mid-March 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1989/90 to</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bus</td>
<td>2013/14</td>
<td>9154</td>
<td>2,776</td>
</tr>
<tr>
<td>Mini/Minicab Truck</td>
<td>305,170</td>
<td>5,421</td>
<td>5,428</td>
</tr>
<tr>
<td>Crane/Dumper/Excavator</td>
<td>72,981</td>
<td>4,789</td>
<td>4,671</td>
</tr>
<tr>
<td>Car/Jeep/Van</td>
<td>2013/14</td>
<td>11,372</td>
<td>9,054</td>
</tr>
<tr>
<td>Tractor/Royer</td>
<td>23,839</td>
<td>2,668</td>
<td>3,703</td>
</tr>
<tr>
<td>Microbus</td>
<td>2,814</td>
<td>1,768</td>
<td>1,712</td>
</tr>
<tr>
<td>Tempo</td>
<td>7,577</td>
<td>517</td>
<td>914</td>
</tr>
<tr>
<td>Motorcycle</td>
<td>3,371,206</td>
<td>1,945</td>
<td>1,245</td>
</tr>
<tr>
<td>Tractor/Power Tiller</td>
<td>75,175</td>
<td>10,070</td>
<td>6,911</td>
</tr>
<tr>
<td>Others</td>
<td>7,543</td>
<td>1,768</td>
<td>99</td>
</tr>
<tr>
<td>Total</td>
<td>1,905,821</td>
<td>106,243</td>
<td>110,613</td>
</tr>
</tbody>
</table>

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 Kathmandu 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 Kathmandu Valley

Contd…

- 1999 - Ban on import of new 2 stroke vehicles and second hand vehicles
- 2002 - Establishment of Ambient Air Quality Monitoring System with six permanent stations in Kathmandu 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 - Up gradation of Vehicular mass emission Standard and national Ambient air Quality standard
- 2012 - Emission Standards for Brick Kilns
- 2012 - Emission Standards of Cement industries, stone crusher industries, DG set and Industrial Boilers.
- 2012 - ban on Moving BTKs throughout the Nepal

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

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, PM2.5, 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

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

<table>
<thead>
<tr>
<th>Name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lobuche NCO-P</td>
<td>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.</td>
</tr>
<tr>
<td>Simon</td>
<td>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.</td>
</tr>
<tr>
<td>Tila Glacier, Langtang</td>
<td>Site of ongoing ICIMOD-DHI collaboration to monitor glacier mass balance with plans to install black carbon measurements</td>
</tr>
<tr>
<td>Bahiyakarna</td>
<td>Site of full-scale strike observatory to be set up as a collaboration between DoEnv and ICIMOD.</td>
</tr>
<tr>
<td>Lumbini Resources</td>
<td>Resources committed by ICIMOD for a full AQ station. Site approved by Lumbini Development Trust</td>
</tr>
</tbody>
</table>
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. (AEPC)
- AEPC 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)
14th Session of the Intergovernmental Meeting of the Malé Declaration

Country Report: Pakistan

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

Basic Facts

Pakistan: Key Statistics
Official name: Islamic Republic of Pakistan
Capital: Islamabad
Area (Thousands of km2): 796
Total population: 181.71 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: 2.0%
Manufacturing Posted Growth: 2.5%
Total revenues collected: Rs 2682.6 billion
Per capita income: $1512

Source: Economic Survey 2014-15

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)

State of Environment

Tarbela Dam capacity has decreased by 29.32% due to siltation of its reservoir. The main cause of which is upstream deforestation.
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.
Ambient PM$_{2.5}$ Conc. In Islamabad

Hourly $O_3$ Exceedances-Islamabad

Diurnal Profile of $O_3$ - Islamabad

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
Health Impact Assessment in Pakistan

<table>
<thead>
<tr>
<th>Health End-Points</th>
<th>Attributed Total Cases</th>
<th>Total Annual Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Premature mortality adults</td>
<td>21,791</td>
<td>58-61</td>
</tr>
<tr>
<td>Mortality children under 5 yrs</td>
<td>658</td>
<td>0.83</td>
</tr>
<tr>
<td>Chronic Bronchitis</td>
<td>7,825</td>
<td>0.06</td>
</tr>
<tr>
<td>Hospital Admissions</td>
<td>31,312</td>
<td>0.28</td>
</tr>
<tr>
<td>Emergency-room visits/outpatient hospital visits</td>
<td>1,355,080</td>
<td>0.89</td>
</tr>
<tr>
<td>Restricted activity days</td>
<td>81,541,893</td>
<td>2.06</td>
</tr>
<tr>
<td>Lower respiratory illness in children</td>
<td>4,924,148</td>
<td>0.84</td>
</tr>
<tr>
<td>Respiratory symptoms</td>
<td>786,808,732</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>62-65</strong></td>
<td></td>
</tr>
</tbody>
</table>

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

Malé Declaration Phase-I

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

Malé Declaration Phase-II

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.
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.

Monitoring Equipment

- Ambient air monitoring equipment for Particulate Matter ($\text{PM}_{10}$ 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 Male’ Declaration

Monitoring Site-Bahawal Nagar

- Industries located around monitoring station
- Haze / Fog phenomena in winter in Bahawalnagar

Cont’d…

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

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
On-Site Monitoring Activities

- PM$_{10}$, NRSPM & TSPM - Analyzed at the Monitoring Site.
- Samples for Analysis of SO$_2$ & NO$_2$ have been sent regularly to Swedish Environmental Research Institute, Sweden.

Malé Declaration Phase-III

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.

Cont'd…

Phase-III Implementation

- Inter-comparison study-completed.
- A study on ‘Crop Impact Assessment’ was conducted through Punjab University.
- 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.
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

Monitoring Activities under Malé Declaration

Particulate Conc. in Bahawal Nagar

Ambient Air Quality of Bahawal Nagar

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.

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.
Malé Declaration Phase-IV

Health Impact Assessment
Research Study- Level of Exposure of School Children to Air Pollutants

Objectives:
• To Monitor the Level of NO₂ and SO₂ 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.

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 NO₂ and SO₂.
• Vehicular Emission Testing was part of the study.
• Personal Passive Samplers were Attached to 37 Children to Monitor the Exposure Level.

Results
• NO₂ and SO₂ 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 NO₂ and SO₂.
• Children of Schools Away from the Roadside Area are Less Exposed to Air Pollutants

Emission Testing of Petrol Vehicles
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.

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.

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.

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

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.
REVIEW ON THE PROGRESS OF IMPLEMENTATION OF THE MALÉ DECLARATION AT THE NATIONAL LEVEL

The Fourteenth Session of the Intergovernmental Meeting
November 2015

Central Environmental Authority
National Implementing Agency
Sri Lanka

Monitoring Programme

Monitoring Site at Doramadalawa

SOUTH-WEST WIND DIRECTION (MAY-SEP)

NORTH-EAST WIND DIRECTION (DEC-FEB)

Doramadalawa Site

Ambient air quality monitoring activities at Doramadalawa site

- Monitoring of SO₂ and NO₂ concentration was recommenced effect with April, 2015 using wet chemical method
- Samples are collected and analyzed by central laboratory, CEA
- Ground level ozone is not measuring currently

NO₂ Concentration at Doramadalawa Site from App to Oct 2015

- NO₂ Concentration at Doramadalawa in ppm
- NO₂ Concentration in air (µg/m³)
SO$_2$ Concentration at Doramadalawa Site from April to Oct 2015

SO$_2$ Concentration in ambient air (µg/m$^3$)

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

Concentration of Anions from Jan 2013 to Jan 2014

Concentration of Cations from Jan 2013 to Jan 2014

EC and pH from Jan 2013 to Jan 2014
PM$_{10}$ concentration in mg/m$^3$ from Jan 2013 to Aug 2015

PM$_{10}$ Concentration at Doramadalaa site – Jan 2013 to Aug 2015 (mg/m$^3$)

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

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

Emission Inventory Results for 2010
- Total 3347 kt/yr
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

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

THANK YOU
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](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/](http://www.rrcap.ait.asia/male/).
IX. CONSTRAINTS AND PROBABLE SOLUTIONS IN MEETING THE TARGETS

*Regional Centre on Wet and Dry Deposition Monitoring – India*

<table>
<thead>
<tr>
<th>Activities/Tasks</th>
<th>Targets in 2014, depending on funds availability</th>
<th>Reasons for delay and solutions to meet the targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>10th Refresher Training Course on Monitoring Transboundary Air Pollution</td>
<td>Planned on 12-14 November 2014 in New Delhi, India, followed by IG14</td>
<td>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.</td>
</tr>
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<td>Planned in December 2014 in AIT, Thailand for cost saving at the Secretariat’s office</td>
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</tr>
</tbody>
</table>
Report on the Progress of the Malé Declaration

by

The Secretariat

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

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 mechanisms; 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 to 2016 up to the next IG.

Strengthen regional cooperation


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

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.

Implementation 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.

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

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</tr>
</tbody>
</table>
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, USA 10043
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>
<thead>
<tr>
<th>Date</th>
<th>Participating countries</th>
<th>US$</th>
</tr>
</thead>
<tbody>
<tr>
<td>07 Aug. 2012</td>
<td>India</td>
<td>19,439.00</td>
</tr>
<tr>
<td>07 Aug. 2013</td>
<td>Maldives</td>
<td>251.00</td>
</tr>
<tr>
<td>6 Jun 2013</td>
<td>Bangladesh</td>
<td>2,506.00</td>
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</tr>
<tr>
<td>06 Nov. 2015</td>
<td>Maldives</td>
<td>193.00</td>
</tr>
</tbody>
</table>

| 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*

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

*Based on IG13 decision on 20 May 2013
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.

II. UPDATES ON STATUS OF FINANCIAL CONTRIBUTION TO THE MALÉ DECLARATION

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 3 of the document).

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

<table>
<thead>
<tr>
<th>No.</th>
<th>Country</th>
<th>% in UN Assessment</th>
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<th>Approximate Contribution (US$)</th>
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### BANK DETAILS

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**Account Type:** Checking Account

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**Detail of payment:** RRC.AP / Malé Declaration

### 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.

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.

PREVIOUS DISCUSSION

The IG13 agreed that on Malé 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.
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 Malé Declaration, at the amount of US $ 61,576.07 for 2015.

**Table-1 Below Highlighted the Status on Financial Contributions Received by the Secretariat.**

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<td>Maldives</td>
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**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.

Thank you for your attention!
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.
**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:
  - 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.
  - Minimum common standard that could be implemented by the participating countries in a phased manner. Prioritize parameters and make simple standards. Countries should be grouped and need a substantive roadmap.
  - 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.
  - Common guidelines instead of common standards would be fine as stressed.

**Decision at IG13**

The IG13 agreed to establish an 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.

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

**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.

**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

**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
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 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

Action by the IG14
- The IG14 is requested to endorse the document and approve the TOR of the expert group.

Thank you!
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

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

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

<table>
<thead>
<tr>
<th>No.</th>
<th>Name of Country</th>
<th>% in UN Assessment Scale in 2013</th>
<th>% in Malé Declaration</th>
<th>Contributions in US dollar</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bangladesh</td>
<td>0.01</td>
<td>0.87</td>
<td>1,931</td>
</tr>
<tr>
<td>2</td>
<td>Bhutan</td>
<td>0.001</td>
<td>0.087</td>
<td>193</td>
</tr>
<tr>
<td>3</td>
<td>India</td>
<td>0.666</td>
<td>57.91</td>
<td>128,542</td>
</tr>
<tr>
<td>4</td>
<td>Iran</td>
<td>0.356</td>
<td>30.96</td>
<td>68,701</td>
</tr>
<tr>
<td>5</td>
<td>Maldives</td>
<td>0.001</td>
<td>0.087</td>
<td>193</td>
</tr>
<tr>
<td>6</td>
<td>Nepal</td>
<td>0.006</td>
<td>0.521</td>
<td>1,156.45</td>
</tr>
<tr>
<td>7</td>
<td>Pakistan</td>
<td>0.085</td>
<td>7.4</td>
<td>16,426</td>
</tr>
<tr>
<td>8</td>
<td>Sri Lanka</td>
<td>0.025</td>
<td>2.174</td>
<td>4,826</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>1.15</td>
<td>100</td>
<td>221,968</td>
</tr>
</tbody>
</table>
Work Programme and Budget in 2016 and the Future Development of Male’ Declaration (Draft)

The Secretariat

I. Introduction

- The implementation of Male 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 Male Declaration in the region. This would be done through the:
  - Intergovernmental Meeting,
  - Stakeholders networks,
  - Task Force, and

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.

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 Male 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.

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.

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

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.

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.

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.

The contribution of 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.

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<thead>
<tr>
<th>Activities/Tasks</th>
<th>Budget in 2016 in US $</th>
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<tbody>
<tr>
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</tr>
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<td>22,800</td>
</tr>
<tr>
<td>Regional Training Workshops on Impact Assessment</td>
<td>33,000</td>
</tr>
<tr>
<td>Meetings of Task Force and Expert Group for Future Development</td>
<td>36,000</td>
</tr>
<tr>
<td>Personnel cost</td>
<td>47,000</td>
</tr>
<tr>
<td>Operating cost (office supplies, postage, communication)</td>
<td>7,873</td>
</tr>
<tr>
<td>Programme support</td>
<td>36,270</td>
</tr>
<tr>
<td><strong>Grand total</strong></td>
<td><strong>221,968</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No.</th>
<th>Name of Country</th>
<th>% in UN Assessment Scale in 2013</th>
<th>% in Malé Declaration</th>
<th>Contributions in US dollar</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bangladesh</td>
<td>0.00%</td>
<td>0.87%</td>
<td>1,931</td>
</tr>
<tr>
<td>2</td>
<td>Bhutan</td>
<td>0.00%</td>
<td>0.08%</td>
<td>193</td>
</tr>
<tr>
<td>3</td>
<td>India</td>
<td>0.66%</td>
<td>57.91%</td>
<td>128,542</td>
</tr>
<tr>
<td>4</td>
<td>Iran</td>
<td>0.35%</td>
<td>30.96%</td>
<td>68,701</td>
</tr>
<tr>
<td>5</td>
<td>Maldives</td>
<td>0.00%</td>
<td>0.08%</td>
<td>193</td>
</tr>
<tr>
<td>6</td>
<td>Nepal</td>
<td>0.00%</td>
<td>0.52%</td>
<td>1,156.45</td>
</tr>
<tr>
<td>7</td>
<td>Pakistan</td>
<td>0.08%</td>
<td>7.4%</td>
<td>16,426</td>
</tr>
<tr>
<td>8</td>
<td>Sri Lanka</td>
<td>0.02%</td>
<td>2.17%</td>
<td>4,826</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>1.15%</strong></td>
<td><strong>100%</strong></td>
<td><strong>221,968</strong></td>
</tr>
</tbody>
</table>

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

**Road Map for Future**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LDV (petrol)</strong></td>
<td>EURO IV + EOBD</td>
<td>EURO IV + EOBD</td>
<td>EURO IV + EOBD</td>
<td>EURO IV + EOBD</td>
<td>EURO IV + EOBD</td>
<td>EURO IV + EOBD</td>
<td>EURO IV + EOBD</td>
<td>EURO IV + EOBD</td>
</tr>
<tr>
<td><strong>HDV (Diesel)</strong></td>
<td>EURO 2</td>
<td>EURO 3+DPF</td>
<td>EURO 4+DPF</td>
<td>EURO 4+DPF</td>
<td>EURO 4+DPF</td>
<td>EURO 4+DPF</td>
<td>EURO 4+DPF</td>
<td>EURO 4+DPF</td>
</tr>
<tr>
<td><strong>Motorcycle</strong></td>
<td>EURO 3</td>
<td>EURO Union standard</td>
<td>EURO Union standard</td>
<td>EURO Union standard</td>
<td>EURO Union standard</td>
<td>EURO Union standard</td>
<td>EURO Union standard</td>
<td>EURO Union standard</td>
</tr>
</tbody>
</table>

**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

**Thank you**
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
• 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

Achievements
• AQ Monitoring Station and other related ongoing program
• Challenges on Air Quality
• Major other Studies/ programs Related to Air Pollution

Introduction

- Nepal – 147,181 sq. km.
- Country of the Mt. Everest, birth place of Lord Buddha
- Population 26.6 m, growth rate: 1.35%,
- 40th 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
- Present Urbanization by 2050: 36%
- Nepal ranks twenty-fifth globally in biodiversity,
- Forest covers approximately 39.5% of the total area,
- 33.23% 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
- Standard on Emission and Chimney Height for Industrial Boiler, 2012
- Standard on Emission for Diesel Generator, 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

Energy Consumption Status

- Bar 2013/14

<table>
<thead>
<tr>
<th>Energy Source</th>
<th>Tons of Oil Equivalent</th>
<th>% Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firewood</td>
<td>6,154</td>
<td>13.60</td>
</tr>
<tr>
<td>Agricultural residues</td>
<td>403</td>
<td>9.57</td>
</tr>
<tr>
<td>Animal Residue</td>
<td>426</td>
<td>9.83</td>
</tr>
<tr>
<td>Total</td>
<td>6,983</td>
<td>76.97</td>
</tr>
<tr>
<td>Commercial</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coal</td>
<td>520</td>
<td>2.88</td>
</tr>
<tr>
<td>Petroleum Products</td>
<td>1,104</td>
<td>11.25</td>
</tr>
<tr>
<td>Electricity</td>
<td>114</td>
<td>1.22</td>
</tr>
<tr>
<td>Total</td>
<td>1,958</td>
<td>20.52</td>
</tr>
<tr>
<td>Renewable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>291</td>
<td>3.03</td>
</tr>
<tr>
<td>Grand Total</td>
<td>11,232</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Economic Survey 2013/14, MoF

No. of Registered Vehicles

<table>
<thead>
<tr>
<th>Types</th>
<th>Fiscal Year</th>
<th>2013/14</th>
<th>Up to mid-March 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1989/90 to 2013/14</td>
<td>2013/14</td>
<td></td>
</tr>
<tr>
<td>Bus</td>
<td>32,914</td>
<td>2,776</td>
<td>2,375</td>
</tr>
<tr>
<td>Minibus/Mini truck</td>
<td>14,719</td>
<td>1,412</td>
<td>1,288</td>
</tr>
<tr>
<td>Crane/Dozer/Excavator</td>
<td>52,981</td>
<td>2,789</td>
<td>2,467</td>
</tr>
<tr>
<td>Car/Jean/Van</td>
<td>150,107</td>
<td>11,372</td>
<td>9,054</td>
</tr>
<tr>
<td>Pickup</td>
<td>23,839</td>
<td>5,668</td>
<td>3,705</td>
</tr>
<tr>
<td>Microbus</td>
<td>2,814</td>
<td>118</td>
<td>41</td>
</tr>
<tr>
<td>Tempo</td>
<td>7,527</td>
<td>57</td>
<td>914</td>
</tr>
<tr>
<td>Motorcycle</td>
<td>1,375,206</td>
<td>105,945</td>
<td>142,241</td>
</tr>
<tr>
<td>Tractor/Rowe/Trailer</td>
<td>35,375</td>
<td>10,070</td>
<td>6,911</td>
</tr>
<tr>
<td>Others</td>
<td>6,543</td>
<td>316</td>
<td>49</td>
</tr>
<tr>
<td>Total</td>
<td>1,755,821</td>
<td>198,343</td>
<td>169,613</td>
</tr>
</tbody>
</table>

Source: Economic Survey 2013/14, MoF

Impacts

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

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory infections: 11.1</td>
<td>Respiratory diseases: 23.7</td>
</tr>
<tr>
<td>Cardiovascular diseases: 41.4</td>
<td>Trachea, bronchus, lung cancers: 2.2</td>
</tr>
</tbody>
</table>

- 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 - Promotion 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
- 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

<table>
<thead>
<tr>
<th>Site</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lobuche NCO-P</td>
<td>Nepal Climate Observatory – Pyramid site run by NAST/ EVK2CNR. Alreadly measuring PM 2.5, PM10, ozone, as well as black carbon and aerosol size distribution and aerosol optical depth. Needs data transmission to DoEnv.</td>
</tr>
<tr>
<td>Jomsom</td>
<td>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.</td>
</tr>
<tr>
<td>Tsetse Glacier, Lantang</td>
<td>Site of ongoing ICIMOD-DGK collaboration to monior glacier mass balance with plans to install black carbon measurements</td>
</tr>
<tr>
<td>Silghat/ Khatuwa</td>
<td>Site of full-scale climate observatory to be set up as a collaboration between DoEnv and ICIMOD.</td>
</tr>
<tr>
<td>Lumbini</td>
<td>Resources committed by ICIMOD for a full AQ station. Site approved by Lumbini Development Trust</td>
</tr>
</tbody>
</table>

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, PM2.5, 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

-37-
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. (AEPC)
- AEPC 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
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

Cont’d…
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 Centre 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.

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/](http://www.rrcap.ait.asia/male/).

Constraints and probable solutions in meeting the targets

<table>
<thead>
<tr>
<th>Activities/Tasks</th>
<th>Targets in 2014, depending on funds availability</th>
<th>Reasons for delay and solutions to meet the targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>10th Refresher Training Course on Monitoring Transboundary Air Pollution</td>
<td>Planned on 12-14 November 2013 in New Delhi, India, followed by IG14.</td>
<td>Re-scheduled by the host country (India, Regional Centre for Wet and Dry Deposition Monitoring) due to another international meeting during the same period, arranged by the MOE, CPCB. This activity is planned for next year.</td>
</tr>
<tr>
<td>IG14</td>
<td>Planned in December 2013 in AIT, Thailand for cost saving at the Secretariat’s office</td>
<td>Moved to November 2014, back to back with Joint Forum.</td>
</tr>
</tbody>
</table>

Publications

- Malé Declaration 1998-2013: a Synthesis-Progress and Opportunities
- Data Analysis Report 2012
- Standard Operating Procedures (SOP): Manual for Wet and Dry Deposition Monitoring
- Proceedings of the Seventh Regional Stakeholders cum Coordination Meeting (RSC7) and the Thirteenth Session of the Intergovernmental Meeting (IG13)

These publications are available at the Malé Declaration website: [http://www.rrcap.ait.asia/male/](http://www.rrcap.ait.asia/male/)
I. INTRODUCTION

The 11th held in Delhi, India on 30 June 2011 adopted the Report of the Task Force for Future Development (TFDF), and its Annexes which include:

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

PREVIOUS DISCUSSION

The 11th agreed that on Malé Declaration implementation, the following to be undertakend:

- 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 (11th) 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 3 of the document)

UPDATES ON STATUS OF FINANCIAL CONTRIBUTION TO THE MALÉ DECLARATION

THE SECRETARIAT

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

<table>
<thead>
<tr>
<th>No.</th>
<th>Country</th>
<th>Contribution</th>
<th>Percentage</th>
<th>Amount (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Maldives</td>
<td>12,251</td>
<td>10%</td>
<td>122,510</td>
</tr>
<tr>
<td>2</td>
<td>India</td>
<td>12,251</td>
<td>10%</td>
<td>122,510</td>
</tr>
<tr>
<td>3</td>
<td>Sri Lanka</td>
<td>12,251</td>
<td>10%</td>
<td>122,510</td>
</tr>
<tr>
<td>4</td>
<td>Bangladesh</td>
<td>12,251</td>
<td>10%</td>
<td>122,510</td>
</tr>
<tr>
<td>5</td>
<td>Nepal</td>
<td>12,251</td>
<td>10%</td>
<td>122,510</td>
</tr>
<tr>
<td>6</td>
<td>Sri Lanka</td>
<td>12,251</td>
<td>10%</td>
<td>122,510</td>
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<tr>
<td>7</td>
<td>India</td>
<td>12,251</td>
<td>10%</td>
<td>122,510</td>
</tr>
<tr>
<td>8</td>
<td>Maldives</td>
<td>12,251</td>
<td>10%</td>
<td>122,510</td>
</tr>
<tr>
<td>TOT</td>
<td></td>
<td></td>
<td></td>
<td>1,000,000</td>
</tr>
</tbody>
</table>

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.

FINANCIAL CONTRIBUTIONS

By the stepwise 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 $281.00 on 7 August 2012.

In 2013, two countries had contributed, which include Maldives an amount of US $251 on 18 May 2013 and Bangladesh an amount of US $2,506.00 on 6 June 2013.
For the year 2014, India contributed US$ 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$ 1,931,00 (receipt dated 6 Nov, 2015).

The Secretariat received a copy of letter from the Ministry of Environment, Forest and Climate Change, India on the President’s approval of the transfer of financial contribution to the Malé Declaration, at the amount of US$ 61,576,07 for 2015.

**TABLE 1**

<table>
<thead>
<tr>
<th>Date</th>
<th>Payment received</th>
<th>Amount (US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 August</td>
<td>India</td>
<td>9,490,00</td>
</tr>
<tr>
<td>7 August</td>
<td>Bangladesh</td>
<td>9,490,00</td>
</tr>
<tr>
<td>20 August</td>
<td>Bangladesh</td>
<td>9,490,00</td>
</tr>
<tr>
<td>28 September</td>
<td>Maldives</td>
<td>1,931,00</td>
</tr>
<tr>
<td>29 September</td>
<td>Maldives</td>
<td>1,931,00</td>
</tr>
<tr>
<td>2 October</td>
<td>Maldives</td>
<td>1,931,00</td>
</tr>
<tr>
<td>11 October</td>
<td>Maldives</td>
<td>1,931,00</td>
</tr>
<tr>
<td>5 November</td>
<td>Maldives</td>
<td>1,931,00</td>
</tr>
</tbody>
</table>

**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.

Thank you for your attention!
**Expert Group on Strengthening the Framework of the Male' Declaration and the Draft Terms of Reference of (TOR)**

The Secretariat

**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. 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.

**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”.

**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.

**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

**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
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 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

Action by the IG14

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

Thank you!