

REPORT OF THE SESSION

Introduction

1. The Third Regional Stakeholders cum Coordination meeting of Malé Declaration on Control and Prevention of Air Pollution and Its Likely Transboundary Effects for South Asia was held in Thimpu, Bhutan during 12 – 13 September 2006.
2. The meeting was attended by the National Focal Points (NFP) and National Implementing Agencies (NIA) of Malé Declaration as well as representatives from various stakeholders groups and ongoing initiatives on air pollution at national, sub-regional, regional, and global levels. A list of the participants is enclosed in Attachment II.
3. His Excellency Mr. Dasho Nado Rinchen, Deputy Minister, National Environment Commission (NEC) of Bhutan chaired the meeting. Mr. R. Rajamani, former Secretary of Ministry of Environment and Forests, Government of India participated in the meeting as the regional facilitator.

Session 1: Progress reporting on Malé Declaration

Introduction by the Regional Facilitator

4. The meeting started with an introduction by the regional facilitator for the Male Declaration, Mr. R. Rajamani. In his introductory remarks, Mr. Rajamani highlighted the usefulness and effectiveness of parallel activities in technical aspects and awareness. He emphasized the need for collaborative actions. He encouraged the exchange and dissemination of information and ideas among stakeholders. One such possibility is to put the information on a centralized data repository such as e-KH of UNEP RRC.AP. He pointed out the need for coordinated impact assessment and actions to address the adverse effects in various components such as health, crops, soil and water bodies. He also mentioned the important role of adoption of clean energy and better combustion technologies in addressing air pollution problems. He also pointed out the urgency of the data, impact assessment and integration of the information in to policy development.

Comments by Sara Stenhammar, Sida

5. Sara Stenhammar of Sida thanked the Bhutanese people and organizers of the meeting. She mentioned about the Sida's support to Male' Declaration through the RAPIDC program, and its support to project ABC. She shared the experience of Sweden with the acid deposition problem, and POPs, and the initiatives to address the problems, such as CLRTAP. He mentioned that the Swedish experience could be useful to

addressing air pollution issues in South Asia. She mentioned that Sida can support only limited activities, and there is a need to search for local or other resources to continue the Male' Declaration activities. She indicated that the national support is vital to increase the ownership and sustainability of the process. She also encouraged the participating countries to come up with an ownership plan and collaborative actions among them. She pointed out that regardless of gender, air pollution affects everyone, and women and children are most vulnerable to air pollution. Sida wanted better gender representation and balance, she told.

Progress report by the Secretariat

6. Mr. Mylvakaman Iyngararasan of UNEP RRC.AP presented the progress on the implementation of the Male' Declaration. He briefly mentioned about the Phase I, Phase II, and the activities that are being carried out in Phase III. The Secretariat reported the Progress of Malé Declaration after the Seventh Session of the Intergovernmental Meeting (IG7) which was held in October 2005 in New Delhi, India. Some of the activities included: a workshop on emission inventory and scenario generation; creation of an e-mail forum for discussion on technical issues, sharing of problems and providing prompt solutions. The presentation of the Secretariat focused mostly on the implementation of Phase III. Details are provided in the document "Malé Declaration/RSC3/1/1".
7. Dr. Johan of SEI presented a brief overview of the RAPIDC program in Asia, African and South America and its support for Male' Declaration. He mentioned that the ultimate goal of the RAPIDC program is to establish the linkage between air pollution sources, impacts and policy development. He presented the driving factors in air pollution management. He then described the various activities that are being carried out in the region under Male' Declaration. He mentioned that the Male' Declaration should be able to influence decision making and designing of policy options relevant to South Asia. Details are provided in the document "Malé Declaration/RSC3/1/2".

Progress report by NIAs

8. National Implementation Agencies (NIAs) participating in the Male' Declaration, presented the progress, institutional structure and implementation plan in their respective countries. They highlighted the problems specific to their countries.
9. Mr. Q. S. I. Hashmi Presented the status of implementation of the Malé Declaration in Bangladesh. Detailed presentation is given in the document "Malé Declaration/RSC 3/1/3".
10. Summary of the presentation include:
 - Monitoring station has been permanently established in a land donated by a farmer.

- Monitoring site is operational with passive sampler, bulk collector, and wet only collector.
 - National Advisory Committee (NAC) meeting recommended that the monitoring results might be posted in the department of environment website.
 - NAC approved the allocation of impact assessment responsibilities to different technical institutions.
 - NAC recommended low volume samplers for PM₁₀ measurements.
 - Training cum installation programme on Atomic Absorption Spectrophotometer (AAS) was held in February 2006.
 - Health impact assessment study has been initiated with a consultation workshop held in Dhaka.
 - Awareness programmes on impacts of air pollution through print, electronic and other media could be undertaken depending on the availability of financial resources.
11. Mr. Nedup Tshering presented the status of implementation of the Malé Declaration in Bhutan. Detailed presentation is given in the document “Malé Declaration/RSC 3/1/4”.
12. Summary of the presentation include:
- Monitoring station is permanently established at Bhur, which is a remote site suitable for monitoring background air pollution.
 - High Volume Sampler is operational in Thimphu, which is an urban site.
 - Sample analysis is being conducted at the National Environment Commission’s laboratory.
 - One remote monitoring station will not be sufficient to get the overall picture of transboundary air pollution in Bhutan. At least one more station need to be established.
 - Limited technical capacity is a constrain for maintaining the continuous monitoring.
13. Mr. Mashaallah Tohidi presented the status of implementation of the Malé Declaration in Iran. Detailed presentation is given in the document “Malé Declaration/RSC 3/1/5”.
14. Summary of the presentation include:
- Monitoring station has been permanently established at Chamsari
 - SO₂, NO₂, PM₁₀, and electrical conductivity and pH of rainwater are monitored on a regular basis following the guidelines developed by the Malé Declaration.
 - Emission inventory need to be prepared during Phase III implementation.
 - Department of Environment conducted public awareness programs for universities and NGOs and also published brochures and CDs containing information about Malé Declaration and air pollution.
 - One monitoring station would not be sufficient for larger countries like Iran. At least 4 stations need to be established.

15. Mr. Abdul Muhusin presented the status of implementation of the Malé Declaration in Maldives. Detailed presentation is given in the document “Malé Declaration/RSC 3/ 1/6”.
16. Summary of the presentation include:
 - Department of Meteorology (DoM) has been assigned the mandate to monitor the air pollution in the Maldives since June 2005. Therefore, DoM has become the National Implementing Agency for Malé Declaration in Maldives.
 - Monitoring site under the Malé Declaration is co-located with the ABC monitoring site in Hanimaadhoo
 - Constraints include lack of human resources in the field of atmospheric chemistry; and lack of technical expertise for repair and maintenance of equipments.
 - Human resources development and awareness programmes on air pollution are planned.
17. Ms. Bidya Banmali presented the status of implementation of the Malé Declaration in Nepal. Detailed presentation is given in the document “Malé Declaration/RSC 3/ 1/7”.
18. Summary of the presentation include:
 - Wet only collector has been installed and operational at monitoring site in Citwan.
 - Nepal has benefited from previous training programmes under Malé Declaration and has skilled manpower to conduct air quality monitoring.
 - Organised National Stakeholders meeting to review the implementation at the national level.
19. Mr. Javed Iqbal presented the status of implementation of the Malé Declaration in Pakistan. Detailed presentation is given in the document “Malé Declaration/RSC 3/ 1/8”.
20. Summary of the presentation include:
 - Monitoring station under the Malé Declaration is currently operational at a temporary site.
 - Bahawalnajar has been identified as the location of the permanent monitoring site, in consultation with national experts and stakeholders. Installation will be completed in a month time.
 - Technicians have already been trained to conduct regular monitoring.
21. Mr. C. K. Amaratunga presented the status of implementation of the Malé Declaration in Sri Lanka. Detailed presentation is given in the document “Malé Declaration/RSC 3/ 1/9”.
22. Summary of the presentation include:
 - Monitoring station is operational in Dutuwewa since August 2003. All the mandatory parameters except PM₁₀ are being monitored.

- Occasionally, automatic monitoring stations are also deployed to conduct air quality monitoring.
- Due to several reasons, including unsteady power supply, an alternative location is being considered for the monitoring site.
- Intend to launch a lecture series on transboundary air pollution for Master Degrees in Universities.
- Intend to introduce a brochure on Malé Declaration and related activities.

Discussion

23. The participants pointed out the need of applying a stringent QA/QC in data collection and analysis in order to get credible data. They also pointed out to consider the civil societies in the group of stakeholders.

Session 2: Initiatives on air pollution in South Asia

24. Dr. A.L. Aggarwal made a presentation on “Project Plan and status on air quality management planning for six Indian cities based on source apportionments and source-receptor modeling”. Detailed presentation is given in the document “Malé Declaration/RSC 3/ 2/1. Highlight of the presentation include:
- Component of the project include: ambient air quality & meteorological monitoring; preparation of emission inventory; chemical characterization of PM10; emission profiling of different sources; source apportionment modeling based on CMB; dispersion modeling; and cost-effective analysis for prioritizing control options and preparation of action plans.
 - Current status of the project: common methodology frameworks & its peer review completed; agencies selection/tasks/costing completed; equipments like XRF, Ion Chromatograph, ICP, EC/OC Analyser, EPA Approved Samplers, FRM Samplers, Five Decimal Weighing Balances, Condition Chambers for each city being procured; development of emission factors for Indian vehicles near completion; field monitoring to start in Nov 2006; and comprehensive emission inventory in progress.
25. Prof. Razi Abbas Shamsi made a presentation on “Biomonitoring of air pollution in Punjab”. Detailed presentation is given in the document “Malé Declaration/RSC 3/ 2/2. Highlight of the presentation include:
- Impacts of O₃ on tobacco plants (biomarker)
 - Biomonitoring is useful semi-quantitative measure- but not a direct measure of pollutant concentration, hence not capable of replacing continuous monitors.
 - Close correlation between biomonitoring and chemical monitoring results
 - At rural sites concentrations exceed 60nl/l with likelihood of elevated O₃ levels for a period longer than 6 hrs / day.
 - Conservative calculation only illustrative; the potential for large adverse effects of ambient air pollution clearly demonstrated by 30-45% yield reductions of local

cultivars of wheat and rice in an air filtration study at the University of the Punjab, Lahore.

26. Prof. O. Illeperuma made a presentation on “Transboundary pollution in Sri Lanka: a case study”. Detailed presentation is given in the document “Malé Declaration/RSC 3/ 2/3. Highlight of the presentation include:
 - Concentration of SO₂, NO₂, and O₃ were monitored in selected cities in Sri Lanka (Anuradapura and Kandy)
 - Higher concentration of SO₂ and NO₂ were observed during November – January period.

27. Dr. Asif Javed Khan Khawaja made a presentation on “Air quality in urban areas in Pakistan vs. transport planning: Issues and management tools at Karachi”. Detailed presentation is given in the document “Malé Declaration/RSC 3/ 2/4. Highlight of the presentation include:
 - Transport planning and management play a significant role in urban air quality
 - Urban mass transport system using clean fuel need to be promoted to reduce the air pollution in cities.
 - Road shoulder improvement and road cleaning could improve the air quality, specially particulate matter.
 - Awareness programmes on road safety could include environmental aspects such as cleaner fuel and efficient engine.

28. Prof. Ram M. Shrestha made a presentation on “Power sector development and environmental emissions in selected South Asian countries”. Detailed presentation is given in the document “Malé Declaration/RSC 3/ 2/5. Highlight of the presentation include:
 - Relatively higher growth of electricity generation in South Asia
 - Power sector has a substantial share in total SO₂, NO_x and CO₂ emissions in South Asia.
 - Share of the power sector in total SO₂ emissions in South Asian countries varies from 0.1% to 41% in 1990; the share projected to grow in the range of 30% to 71% by 2030.
 - Carbon tax below \$25/tC will not be effective for emission reductions; higher tax rate needed to have significant emission reductions.
 - Renewable and clean coal technologies can play significant role in SO₂ emission reduction.

Session 3: Initiatives on air pollution in Asia

29. Aida Roman of East Asian Network on Acid Deposition (EANET) made a presentation on the activities of EANET. Detailed presentation is given in the document “Malé Declaration/RSC 3/ 3/1.

30. Highlight of the presentation include:

- EANET is an intergovernmental network on acid deposition covering 13 countries in East Asia.
 - Monitoring under EANET covers four environmental fields: wet deposition, dry deposition, soil/vegetation and inland aquatic environment.
 - EANET has achieved significant progress in harmonizing acid deposition monitoring across the participating countries.
 - EANET publishes annual data reports, which is available on the EANET website.
31. Cornie Huizenga of Clean Air Initiative - Asia (CAI-Asia) made a presentation on the activities of CAI-Asia. Detailed presentation is given in the document “Malé Declaration/RSC 3/ 3/2. Highlight of the presentation include:
- CAI-Asia initiates, coordinates, and in selected cases implements AQM initiatives with the aim to improve air quality management and air quality in Asian Cities.
 - Membership of CAI-Asia include: cities, government agencies, development agencies, private sector, NGOs, and academic institutions.
 - CAI-Asia has an active website on urban air quality, which contains more than 3,800 documents.
 - BAQ workshops have had great impact on raising the profile of AQM in Asia. Since 2002, about 2,000 decision makers have participated in BAQ workshops. The next BAQ workshop is scheduled to be held in Yogyakarta during 13 – 15 December 2006.
32. Danutawa Tipayarom of Asian Institute of Technology (AIT) made a presentation on the Air Pollution Regional Research Network (AIRPET). Detailed presentation is given in the document “Malé Declaration/RSC 3/ 3/3. Highlight of the presentation include:
- AIRPET aims to develop a comprehensive assessment of air quality in the region based on long term monitoring; develop appropriate control technologies for developing countries; use modeling tools for regional air quality management; and apply integrated air quality management to reduce air pollution from target sources as the demonstration case.
 - AIRPET network conducts monitoring of air pollutants in 6 cities in China, India, Indonesia, Phillippines, Thailand and Viet Nam.
33. Mr. Mylvakanam Iyngararasan of UNEP RRC.AP made a presentation on the Project Atmospheric Brown Clouds. Detailed presentation is given in the document “Malé Declaration/RSC 3/ 3/4. Highlight of the presentation include:
- Project Atmospheric Brown Clouds aims to address the emerging issue of brownish haze, which is caused by air pollution emissions containing aerosol particulates.
 - Potential direct and indirect consequences of the haze include regional and global climate change and impacts on ecosystems, the water cycle, agriculture and human health.
 - The project comprises of 3 major programmes: (i) Observation: establishment of a network of ground based monitoring stations across the Asia-Pacific region for

data collection and capacity building; (ii) Impact assessment: assessment of the potential impacts of ABC on agriculture, water, and health using the data from the monitoring stations; (iii) Awareness and mitigation: provide science-based information for policy makers to mitigate atmospheric pollution.

Session 4: Environment and health

34. Mylvakanam Iyngararasan of UNEP RRCAP presented a concept note on the “regional initiative on environment and health in South Asia” (Malé Declaration/RSC 3/ 4/1). The meeting was invited to review the document and make recommendations.
35. Major discussions on the concept note included:
 - It was suggested that direct intervention programmes should be initiated parallel to the regional initiative.
 - Risk ranking should be conducted. It will facilitate the selection of priority issues.
 - It was suggested that assessment of effects of environmental issues on health of the poor people could be included in the regional initiative.
 - It was suggested that the proposed initiative should build on the existing institutions and initiatives.
 - It was expressed that lack of environment and health data is a major constraint in many countries. A knowledge base on environment and health is recommended.
36. The meeting agreed that a regional initiative on environment and health for South Asia is timely and endorsed the concept note.

Session 5: Initiatives on air pollution at the global level

37. Richard Mills of IUPPA and Johan Kuylenstierna of SEI presented a proposal for the establishment of a global atmospheric forum. (Malé Declaration/RSC 3/ 5/1). The meeting was invited to review the document and make recommendations.
38. Major discussions on the Global Atmospheric Forum included:
 - Participants mentioned that the mechanism for the participation of countries and sub-regional institutions should be clearly defined. It was clarified that national governments and sub-regional institutions will participate in the global forum through their existing networks such as Malé Declaration.
 - It was recommended that the proposed global forum need to play a major role in technology transfer.
 - Although it is a global forum, the capacity building at the national level should be continued.
39. Considering the increasing threat of atmospheric issues, the meeting agreed that the proposed activities for global atmospheric issues will be useful for the countries

Conclusion of Session

40. The Third Regional Stakeholders and Coordination meeting ended with a concluding remark from Mr. Rajamani, regional facilitator. During his concluding remarks, Mr. Rajamani summarized the various impressive activities that each country have been carrying out. Mr. Rajamani requested the member countries to implement public awareness activities through various media and forums, such as the Malé Declaration brochure in local languages. Mr. Rajamani expressed that the time has come for the participating countries to contribute financial support for the implementation of Malé Declaration, specially at the national level. Mr. Rajamani thanked Sida for its continued support and hoped that Sida support will continue even in the next phase. Mr. Rajamani thanked the Royal Government of Bhutan for the excellent arrangements, which contributed to the success of the meeting.