

NEWS LETTER

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

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The 5th annual network meeting of the Malé Declaration was held in Dhaka, Bangladesh between the 6th and 7th of October 2003. The objectives of the network meeting were to share experiences and discuss the status of the networks progress, and also chart out future action plans. The meeting in Dhaka was attended by the Ministries of Environment and National Implementing Agencies (NIAs) of the participating countries, members of the Monitoring Committee (MoC) as well as SACEP, SEI, UNEP and a few experts.

Since the last network meeting in June 2002, various activities have been put into effect. A training manual has been developed, as well as in-country training programs. By the time of the meeting in Dhaka, 5 countries had completed the training programs and had monitoring equipment installed. Furthermore, a technical training program has been developed for wet deposition monitoring. A national

level stakeholders meeting in India has also been carried out. Additional progress includes information exchange through news letters and news groups. The highlight of the this year's network meeting was the presentation of the first set of monitoring results from the Malé Declaration monitoring sites by some of the participating countries.

The focus of the Phase II is capacity building for monitoring transboundary air pollution. In the future there is a need to provide the policy makers with mitigation options. Awareness and mitigation will therefore be advanced further during Phase III. Other Phase III activities will include development of the monitoring, science and analysis.

The discussions also explored how the monitoring network can be further improved. The need to implement QA/QC in order to improve the quality of the data

collected was acknowledged. It was also stated that the characteristics of particulate matter could be useful in source characterization. Furthermore, it is understood that completion of each monitoring, sites especially regarding which parameters to analyze, is more important than increasing the number of monitoring sites. With regard to this, the monitoring should be extended to include meteorological parameters.

During the meeting, parallel activities on emission inventory and integrated assessment modeling were presented. This was followed by discussions concerning emission factors to be considered. Means of data sharing are also looked into. In general, the annual network meeting 2003 was acknowledged to be fruitful with high standard presentations and discussions.

The First Regional Stakeholders Forum

The First Regional Stakeholders Forum on the Malé Declaration took part in Dhaka, Bangladesh on the 8th of October 2003. The main objectives were to consult the stakeholders on the implementation process of Malé Declaration. The Forum also aimed to let the stakeholders share information as well as their views on air pollution. Nearly 50 participants representing national governments, national implementing agencies, NGOs and Academia participated at this first regional Stakeholders Forum. The intention of the Stakeholders Forum was to create a platform for generating enthusiasm and knowledge about air pollution issues with a variety of interests, policy makers and civil society and other groups of concern.

Air pollution stakeholders range from pedestrians to manufacturers of automobiles to governments. All with different interests and varying degrees of influence. However, when it comes to transboundary air pollution the stakeholder situation complicates further as air pollution spreading over wide geographical areas can affect crops, forests, lakes and animal life as well as property. Thus, transboundary air pollution increases the complexity and diversity of the stakeholders; subsequently complicating the identification of solutions.

The Regional Stakeholders Forum is important in assisting this process. By identifying the different stakeholders and their respective requirements for improved awareness on air pollution matters, best results in terms of policies and actions can arise.

The First Regional Stakeholders Forum provided recommendations for further implementation of the Malé Declaration and involvement of major stakeholders groups through National Stakeholders Forums. It was also recommended that members of the Stakeholders Forum should join together to spread awareness about the problem of air pollution and its likely transboundary effects among all the people of the region.



The first Regional Stakeholders Forum on Malé Declaration, 8 October, Dhaka, Bangladesh

Towards mitigation

New PUC norms to come into force from October 1, 2004 in India

The pollution under control (PUC) norms have been reviewed for the first time in 15 years, with the union ministry of road transport highways issuing a draft notification recently. According to the proposed changes for petrol vehicles, cars manufactured after the year 2000 will have to ensure that exhaust emissions contain only 0.5 per cent carbon monoxide, compared to the previous 3 per cent. In addition, vehicles will also have to pass tests for hydrocarbons, which were not mandatory before.

Source: Time of India, October 16, 2003

Government sets air quality standards in Nepal

Government in Nepal has set up a national standard of ambient air quality. According to the National Ambient Air Quality Standards (NAAQS), the maximum levels of all six pollutants in the air at a particular place have been fixed. Anything exceeding these standards is considered harmful to human health.

The air quality standard for PM₁₀ is 120 micrograms per cubic metre. Similarly, the ambient air quality for Sulphure Dioxide is 50 micrograms per cubic metre, 40 micrograms per cubic metre for Nitrogen Oxide, 0.5 micrograms for lead and 20 micrograms per cubic metre for benzene. The air quality standard for Carbon Monoxide is set as 10,000 micrograms per cubic metre per eight hours. The government aims to meet NAAQS in case of all air pollutants within three years.

Source: The Kathmandu Post, June 9, 2003

Capacity Building Programmes

Malé Declaration action aim to build regional cooperation as actions well as national capacities in addressing the issue of transboundary air pollution in South Asia. Monitoring equipment is being installed in each of the participating countries together with training on sampling transboundary air pollutants. To date six countries have received their in-country training. The first country that underwent the extensive training, Nepal, has up to today been followed by Bhutan, Sri Lanka, Maldives, Iran and Bangladesh. Every in-country training course has been jointly organized in cooperation with the specific National Implementation Agencies (NIA) of the participating countries. Technical

personnel from SEI and UNEP RRC.AP as well as equipment venders (IVL, MISU and Envirotech) participate in the training programmes as resource persons; their essential role being to lecture in air pollution concerns, as well as instruct the trainees in how to use the monitoring equipment.

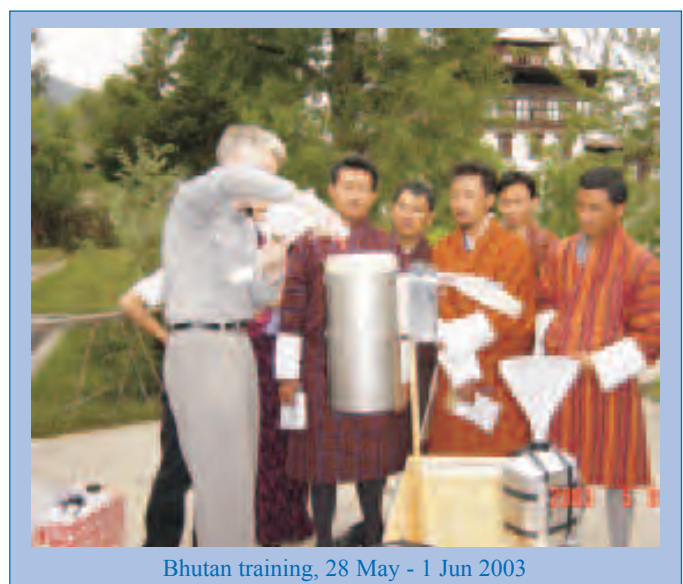
The major objective of the training courses is to build national capacity by providing instruction and hands on experience in sampling and analysis of transboundary air pollutants. All the trainees in each and every training programme have proven to be eager learners and shown great enthusiasm.

Contents of the in-country training programs	
<u>Background</u> Malé Declaration Units and materials and energy balance Basics concepts of meteorology Basic chemistry Dispersion of pollutants	<u>Rainwater sampling</u> Wet only & bulk collector: theory Setting up wet only collector Setting up bulk collector Troubleshooting of Wet only collector, bulk collector
<u>Air Sampling</u> High Volume Sampler (HVS): features and setting it up Features & operation of desiccator, balance & distillation unit Setting up the HVS for monitoring Preventive maintenance for HVS HVS Calibration Passive sampling: theory and practice	<u>Laboratory analysis</u> pH meter theory and practical EC meter theory and practical Spectrophotometer analysis Calibration curve preparation Good laboratory practices
<u>Site Visit</u> Expert team made site visits to help the NIAs in finalizing the site.	<u>Quality Control and Data analysis</u> Quality Control/Quality assurance Basic Statistics Monitoring protocol and Data reporting

• Bhutan

The in-country training programme in Bhutan was organized together with the National Environment Commission (NEC) in Bhutan. The training was initiated with basic theory on air pollution and related issues. The practical training was held outside the NEC building. All the trainees showed great interest during the entire training period. Since it rained during the time of the training, it was possible to collect samples of rainwater. The rainwater was collected by both Bulk sampler and Wet only collectors and the trainees analyzed the samples themselves. Test samples for PM_{10} , SO_2 and NO_2 were also analyzed by the trainees.

One week after the training course, the equipment had been successfully installed by NEC at Geliphu in Southern Bhutan. Currently the site is fully operational and samples are being collected and analyzed for wet deposition as well as air concentration.



Bhutan training, 28 May - 1 Jun 2003

- **Sri Lanka**

The technical training was held in June on the premises of the Sri Lankan National Implementing Agency, Central Environmental Authority (CEA) in Colombo. The training programme was initiated by Dr. Pethiyagoda, board member of the CEA, welcoming all. Technical training included basic theory on air pollution and related issues, followed by lectures and hands-on exercises on sampling and analysis of transboundary air pollutants using the equipment provided under the Malé Declaration. The monitoring site is being established at Anuradapura in the North Central Province of Sri Lanka by CEA. Currently the site is partially operational and it is expected to be fully operational by December 2003.

The trainees showed much enthusiasm and the test paper as well as the evaluation showed the training had been successful. All the trainees were awarded a certificate by Manel Jayamanne, Director General of CEA.

- **Maldives**

A one-week hands-on training program on monitoring transboundary air pollution was held in Hanimaadhu, Maldives during 28th July - 1st August. The program was organized as part of the capacity building activities under the Malé declaration and technical personals from Department of Meteorology and Ministry of Home Affairs, Housing & Environment (MHAH&E), were trained on sampling and analysis of air pollutants. Mr. Aslam Rasheed, Director General, MHAH&E, Maldives awarded the participants with certificates at the end of the training program.

Monitoring site is partially operational at Hanimaadhu in the northern most atoll of Maldives.

- **Iran**

Iran's in-country training programme was jointly organized with DoE in Iran. The actual training took place in the Environmental Research Centre's meeting room and fourteen participants came from laboratories from all over the country.

The monitoring site had been located 40 kilometers south of Ilam close to the Iraqi border. The site's name is Chamsari and was visited during the training course by Mr. Ferm (IVL), Mr. Iyngarasan (UNEP RRC.AP), Mr. Dhara and official from the DoE. Currently the site is being established by DoE and will be fully operational before the end of this year.

The practical training was held at the DoE office in Theran during which every trainee proved to be all wholehearted learner. Mr. Mostafa Mojkan, distributed Certificates for the participants at the end of the 5-day training program.

- **Bangladesh**

During 19th - 23rd October a one week training program was organized for the technical staff of the Department of Environment, Bangladesh in Dhaka. About 15 technical staff representing various regional offices as well as the laboratory staff from the DoE - Dhaka participated in this training program. Certificates were awarded to the participants by Dr. Md. Omar Faruque Khan, Additional Secretary, Government of the People's Republic of Bangladesh and Director General, Department of Environment.

The monitoring site will be established at Shamnagar in Sathkhira district in the south west of Bangladesh. The site will be fully operational by the December 2003.



Sri Lanka training, 22 - 27 June, 2003



Maldives training, 28 Jul to 01 August, 2003



Iran training, 13 - 17 September, 2003



Bangladesh, 19 - 23 October, 2003

Regional Training Program on Wet Deposition Analysis

As part of the capacity building activities, a centralized training program to build the national capacity was held on 4th - 9th of August 2003 at Central Pollution Control Board (CPCB), New Delhi, India.

The major objective of the training was to provide hands-on experience on analysis of transboundary pollutants in the rainwater (wet deposition). Participants also got the opportunity to discuss the issues encountered in operating the monitoring sites in each country. Technical personnel who are involved in carryout the monitoring in each of the participating countries were trained by CPCB during this training program. The program was started with the opening remarks by Dr. Sengupta, Member Secretary, CPCB. At the end of 6-day training program Surendra Shrestha, Regional Director, UNEP awarded certificates to the participants.



Regional Training Program on Wet Deposition Analysis, 4-9 Aug 2003, CPCB, India

The importance to continuously develop the accuracy of scientific data and further investigate impacts from air pollution

Experience shows that the most effective way of tackling air pollution issues is through international cooperation and in this, accurate scientific data are fundamental. As the aim of the Malé Declaration is to achieve intergovernmental cooperation addressing transboundary air pollution and its impacts, the declaration has set an institutional framework for linking scientific research with policy formulation. Consequently, for the participating countries to target the problems with air pollution, it is crucial that policies such as law and economic regulations are based on accurate data and correctly analyzed information. With regard to this, a deeper understanding of the physical response of air pollution is needed. In addition, the development of standardized methods for assessing the ecological and socio-economic impacts of air pollution is also considered necessary.

Due to the above, a main priority in the Malé Declaration is to enable the participating countries to monitor air pollution. This has been the main goal during the Malé Declaration Phase II with the installation of monitoring equipment and training. Even so, significant scientific uncertainties still remain. Enabling of accurate data compilation has been the first important step. This will be preferably followed by achieving a greater insight in the actual physical effects and ecosystem impacts that different air pollution components and concentrations in various locations generate.

At present the different roles of, and interactions between greenhouse gases, aerosols and ozone, are not fully understood. In addition, the current status of impacts of air pollution on

ecosystems is also not clear. It is important to address these uncertainties and get a clear picture about the effects from trans-boundary air pollution on our ecosystem

A strengthened knowledge about physical changes caused by air pollution is needed in order to investigate ecological and socio-economic impacts. Studies across the Asian region show that current day's air pollution concentrations are capable of causing significant damage to local vegetation. But as standardized methods to investigate these impacts have not yet been established, the collected data cannot be used for making regional assessments of crop yield reductions or forest damage. Therefore, the socio-economic cost of air pollution cannot be evaluated.

For the Asia-Pacific to draw up the right action plans when dealing with air pollution, a better knowledge of the physical changes as well as how to assess impacts on health, ecosystems and buildings are vital. It is therefore very important to:

- 1) Continuously improve the monitoring of air pollution;
- 2) deepen the understanding of the physical response and;
- 3) develop methods to assess the impacts as well as estimate the related socio-economic costs.

Subsequently the potential to successfully address the problems will be enhanced. The Malé Declaration provides a forum and framework towards achieving these tasks through capacity building at the national level.

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National Focal Points (NFP) and National Implementing Agencies (NIA)

Bangladesh

NFP: Ministry of Environment & Forest

NIA: Department of Environment
Dhaka

Bhutan

NFP & NIA: National Environment Commission
Thimpu

India

NFP: Ministry of Environment and Forests

NIA: Central Pollution Control Board
New Delhi

Iran

NFP & NIA: Department of Environment
Tehran

Maldives

NFP & NIA: Ministry of Home Affairs, Housing & Environment
Malé

Nepal

NFP: Ministry of Population & Environment

NIA: International Center for Integrated Mountain Development
Kathmandu

Pakistan

NFP: Ministry of Environment, Local Govt. & Rural Development

NIA: Pakistan Environment Protection Agency, Islamabad

Sri Lanka

NFP: Ministry of Environment & Natural Resources

NIA: Central Environment Authority, Colombo

Coordinating Agencies

UNEP Regional Resource Center for Asia and the Pacific (UNEP RRC.AP)
Bangkok, Thailand



South Asia Co-operative Environment Programme (SACEP)
Colombo, Sri Lanka



Stockholm Environment Institute (SEI)
Stockholm, Sweden



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Malé Declaration Newsletter

Further information may be requested from:

Surendra Shrestha
Director, UNEP RRC.AP
Outreach Building, AIT, P.O. Box: 4
Klongluang
Pathumthani 12120
Thailand
Fax: (66) 2 516 2125
E-mail: info@rrcap.unep.org

To: