REPORT

TRAINING ON MONITORING TRANSBOUNDARY AIR POLLUTION

29 – 31 May 2002, UNEP RRC.AP, Bangkok, Thailand

C O N T E N T S

LIST OF ACRONYMS

AIT	Asian Institute of Technology
EANET	East Asia Network on Acid Deposition
ERTC	Environmental Research and Training Center
IVL	IVL Swedish Environmental Research Institute
MoC	Monitoring Committee
NIA	National Implementing Agency
QA/AC	Quality Assurance / Quality Control
SACEP	South Asia Co-operative Environment Programme
SEI	Stockholm Environment Institute
Sida	Swedish International Cooperative Development Agency
UNEP/RRC.AP	United Nations Environment Programme / Regional Resource Center for Asia and the Pacific

R E P O R T

The training on monitoring transboundary air pollution was held at UNEP RRC.AP, Bangkok during 29 – 31 may 2002. Major objectives of the training program are to discuss the technical issues on site selection; introduce the technical manual; and provide demo on sampling and analysis of transboundary pollutants. This is the first training program under the Malé Declaration on the Control and Prevention of Air Pollution and its Likely Transboundary Effects for South Asia. Participants from this training will serve as the resource persons when the in-country training programs are organised for each of the participating countries.

The training program was attended by the project managers from National Implementing Agencies (NIA) and technical personals who will carryout the monitoring in eight participating countries, members of Monitoring Committee (MoC), SACEP, SEI, UNEP, and an expert from EANET. A list of the participants is enclosed in Attachment 1.

The training was organised by UNEP/RRC.AP, in collaboration with SACEP, IVL and SEI. The training was funded by Sida as a part of the Programme on Atmospheric Environment Issues in Developing Countries.

1. Opening Session

The training program started with the opening remarks by Mylvakanam Iyngararasan (UNEP. RRC.AP), Pradyumna Kumar Kotta (SACEP), Vikrom Mathur (SEI) and Karin Sjoberg (MoC). Opening remarks were followed by the self-introduction of participants.

2. Introduction of Phase II

This is the first gathering of participating countries after the initiation of Phase II implementation in February 2002. Mylvakanam Iyngararasan of UNEP-RRC.AP presented a brief on the project objectives and outlined the activities proposed to be carried out during the Phase II, which will be concluded in March 2004. (Attachment 3.)

3. Air pollution and acid deposition

Karin Sjoberg, MoC member provided an introduction to air pollution, acid deposition and its impacts using European examples. Presentation is provided in the Attachment 4. The following web sites were also given as the useful references on transboundary air pollution. www.europa.eu.int/comm/environment/air/café.htm; asta.ivl.se; www.emep.int; www.unece.org; www.iiasa.ac.at; www.forsurning.nu; and www.nbu.ac.uk/negtap/ .

4. Selection of monitoring sites

Careful section of monitoring sites for monitoring transboundary air pollution is vital and pollution from local sources need to be avoided. A set of guidelines for selection of sites for Malé declaration was prepared by the MoC. Sagar Dhara, MoC member presented the guidelines. The guidelines are provided in the Attachment 5.

Subrato Sinha of RRC.AP provided a case study on site selection and planning for air quality monitoring. Details of the presentation are given in the Attachment 6.

5. Demonstration of monitoring wet deposition

During the after noon session on 29 May participants visited the wet deposition monitoring facilities at ERTC (Environmental Research and Training Center) at Pathumthani. Hathairatana Garivait provided a brief on acid deposition monitoring in Thailand and explained the rainwater monitoring equipments. Some of the on-going research on dry deposition and soil water sampling was also explained. On site discussion, which lasted nearly three hours, addressed the queries from the participants.

6. Demonstration of analysis of rainwater

During the morning session on 30 May, participant visited the Environmental Engineering laboratory at the Asian Institute of Technology (AIT). Analysis of rainwater chemistry was demonstrated using titration and Atomic Absorption Spectrophotometer (AAS).

7. Technical manual for monitoring transboundary air pollution

A set of technical manuals for monitoring wet & dry deposition, soil and vegetation monitoring, inland aquatic environment monitoring have been prepared based on the EANET manual. A copy of the manuals was distributed to all the participants and Sgara Dhara, MoC member introduced the manual to the participants. Manuals will be discussed and updated during the next annual network meeting proposed to be held during 16 – 17 July 2002.

8. Demonstration of analysis of air quality/dry deposition

Participants visited AIT laboratory during the morning session on 31 May and air sampling and analysis were demonstrated. Demonstrations included PM_{10} sampling using high volume sampler and chemical analysis for SO_2 and NO_2. Details are provided in the Attachment 7.

9. Quality Assurance / Quality Control Program

Norio Fukuzaki of Acid Deposition and Oxidant Research Center (ADORC) provided a detailed presentation on QA/QC program using EANET as the example. He covered various issues related to QA/QC program such as site performance audit, collection and handling of samples and ion balance. The complete presentation is provided in the Attachment 8.

10. Discussions

Training program was organised in a participatory manner and extensive discussion was held throughout the training. A concluding discussion was held during the last session of the training program on site selection, site setting, equipments, and frequency of monitoring. The following observations were made during the discussions:

Site selection:

1. Remote sites will be selected in order to avoid the local sources.
2. The monitoring network will start with the establishment of one station in each of the countries during the Phase II.
3. Sensitive areas should be given priority while selecting the sites.

4. The monitoring sites should be accessible, and electricity should be made available.
5. Sustainability of the station is very important. Therefore, the monitoring stations should be established with the existing infrastructure. NIAs are encouraged to make link with meteorological departments in selection and operation of stations.
6. NIAs agreed to finalise the site selection following the guidelines as early as possible, latest by end of July 2002.
7. Meeting the guidelines and finalization of sites may vary from country to country. RRC.AP will communicate to the countries individually and will proceed with installation of monitoring stations for the countries finalised the national arrangements.

Site setting:

1. A schematic diagram of the proposed monitoring station was presented to the participants (Attachment 9) and considered as technically feasible. Countries will construct the structure following the similar set up.

Equipments:

1. A list of equipments and consumables for sites and laboratories was prepared and discussed at the training (Attachment 10). NIAs comments on the proposed equipments have already been considered in developing the list. Countries those have further inputs will send their comments to RRC.AP before the end of June 2002. NIAs will confirm with the RRC.AP on the existing and available equipments and laboratory facilities.
2. Equipments will be purchased centrally and transferred to NIAs. NIAs will take the lead role in installing the equipments with the technical support from the MoC.
3. Details of vendors in each of the countries should be given to NIAs for their future contact.
4. Some participants requested that a computer and software for statistical analysis to be included in the list.

Frequency of monitoring:

1. Utilization of manpower should also be considered in selecting frequency of monitoring.
2. Seasonal monitoring and monthly monitoring were discussed. Since the monitoring stations are to be placed in remote places, the cost of each monitoring should also be considered. Monthly monitoring is preferred. However, frequency will be decided based on the cost analysis.
3. All the participating countries should follow the similar frequency as much as possible to facilitate comparison and harmonization.

Other issues:

1. Participants felt that the formation of a e-mail newsgroup for Malé Declaration is necessary to exchange the information on technical issues. RRC.AP will develop a newsgroup before the end of July 2002.
2. Participating countries were encouraged to provide inputs to the Malé Declaration Newsletter and also to use their own news channels to disseminate the activities under this project implementation.

3. Participants expressed the need for more training programs specially for the countries which do not have any air quality monitoring initiatives. Training needs vary from country to country. Special training programs could be organised for weaker countries when the monitoring system is in place.
4. In-country training, which will take place together with the installation of monitoring equipments, could be organised in three areas- operation and maintenance of equipments, laboratory analysis and data handling and management.

11. Closing Session

During the closing session each country expressed their limitations and plans for the establishment of monitoring stations. All the participants expressed the view that Malé Declaration provides a common platform for mutual cooperation and exchange of information. All the Government representatives appreciated the flexibility in program and efforts in capacity building. Participants also thanked the organizers for providing the opportunity to discuss the technical issues on site selection and establishment of monitoring stations.