

The First Session  
of the Scientific Advisory Committee  
on the Acid Deposition Monitoring Network  
in East Asia  
14-16 November 2001, Chiang Mai, Thailand

## REPORT OF THE SESSION

### Introduction

1. The Scientific Advisory Committee on the Acid Deposition Monitoring Network in East Asia (EANET) (hereinafter referred to as SAC) held its First Session in Chiang Mai, Thailand, from 14–16 November 2001. The Session was organized by the Interim Secretariat for EANET and the Network Center for EANET, and hosted by the Government of Thailand.
2. The Session was attended by the members of SAC and their alternates nominated by the following participating countries: China, Indonesia, Japan, Malaysia, Mongolia, the Philippines, Republic of Korea, Russia, Thailand and Vietnam.
3. The Session was also attended by Cambodia and the Lao People's Democratic Republic as observers, as well as experts from the United Nations Environment Program Regional Resource Center for Asia and the Pacific (UNEP/RRC.AP.), the United Nations Economic Commission for Europe (UN/ECE) representing the Convention on Long-Range Transboundary Air Pollution (CLRTAP), the Co-operative Programme for Monitoring and Evaluation of the Long Range Transmission of Air Pollutants in Europe (EMEP), and the International Co-operative Programme on Assessment and Monitoring of Air Pollution Effects on Forests (ICP Forests).
4. Researchers of universities and local government officials of Thailand observed the Session.
5. The list of participants is attached in Annex 1.

### Agenda Item 1: Opening of the Session

6. The Session was opened with remarks by Mr. Hajime Endo, the Interim Secretariat for EANET, followed by a welcome address by Mr. Sirithan Pairoj-Boriboon, Director-General, Pollution Control Department, Ministry of Science, Technology and Environment of Thailand.

### Agenda Item 2: Election of officers

7. Dr. Pojanie Khummongkol of Thailand was elected as Chairperson. Prof. Muhamad Awang of

Malaysia and Dr. Seong-Yeon Cho of Korea were elected as Vice-Chairpersons. Dr. Serguei A. Gromov of Russia was elected as Rapporteur.

Agenda Item 3: Adoption of the agenda

8. The Session adopted the agenda as proposed by the Interim Secretariat (IS) and the Network Center (NC).

Agenda Item 4: Review of EANET activities since the Third Interim Scientific Advisory Group Meeting

9. IS and NC presented a summary of the activities of EANET after the Third Interim Scientific Advisory Group (ISAG) Meeting, held in July/August 2000 in Manila, Philippines. IS also introduced some important issues to be discussed at the Third Session of the Intergovernmental Meeting (IG3). NC was requested to clarify whether some of the activities of the Acid Deposition and Oxidant Research Center (ADORC) were implemented as activities of NC or the National Center of Japan. It was stressed that the compilation of EANET data is to be an important activity of ADORC as NC and covered by the core budget of NC.

Agenda Item 5: Consideration of the national monitoring plans

10. An overview of national monitoring plans in participating countries was presented by NC. This overview was followed by the presentations by each of the participating countries.
11. The Session considered the national monitoring plans and provided comments and suggestions for their further elaboration. Major discussions on this topic included the following:
  - It was pointed out that not all the necessary information was compiled yet. NC was requested to send a list of all missing information to the national centers of each participating country.
  - It was pointed out that there were some parts in the national monitoring plans of some participating countries that should be revised and submitted to NC.
  - Participants discussed the data necessary to evaluate the impacts of acid deposition on soil and vegetation. It was clarified that establishment of baseline data on soil and vegetation would be important for evaluation of long-term trends. It was suggested that new methodologies should be developed by the Task Force on Soil and Vegetation Monitoring

in order to determine the past baseline data and historical trends.

- As for the plan of Malaysia, it was clarified that wet and dry deposition monitoring and soil and vegetation monitoring were carried out in different sites. Malaysia commented that hopefully the soil and vegetation monitoring would be carried out jointly with deposition monitoring at Danum Valley.
- As for the plan of Mongolia, it was requested to clarify the reason why the filter pack monitoring at Ulaanbaator cannot be done throughout the whole year.
- As for the plan of the Philippines, it was clarified that exchangeable acidity or exchangeable Al and H should be analyzed for calculation of ECEC. The monitoring data should be updated according to the discussion.
- As for the plan of Korea, it was clarified that the interval for soil pH measurements was planned as once a year, and for other parameters once every 3 years.
- As for the plan of Thailand, it was clarified that survey of tree decline would be carried out as vegetation monitoring, and analysis of nutrients in fresh leaves was planned as a future item.

As for the plan of Vietnam, it was clarified that the Technical Manual recommends that ECEC be analyzed instead of CEC according to, and exchangeable acidity or exchangeable Al and H should be analyzed for calculation of ECEC.

#### Agenda Item 6: Consideration of the data report in 2000

12. NC presented a Draft Data Report on Acid Deposition in the East Asian Region 2000. Major discussions on this topic included the following:

- i. Wet deposition monitoring data
  - It was pointed out that unusually high concentrations of  $\text{nss-SO}_4^{2-}$  and  $\text{NO}_3^-$  were found even at some remote and rural sites, because the sites were classified on the basis of potential sources of contamination and representativeness, not concentration level.
  - The minimum and maximum data in the monthly value table should be grouped by sampling frequency, that is to say tabulated in separate weekly and daily columns. NC will modify these tables.
  - The data report should not have any graphs as evaluation and such figures should be contained in the status report on acid deposition, the date of preparation of which is not decided yet.
- ii. Dry deposition (air concentration) monitoring data
  - It was recommended that detailed information on measurement methods, especially those for  $\text{NO}_x$  monitoring, should be included in the report as much as possible.

- For the NO<sub>2</sub> data set, "NO<sub>2</sub>\*" – defined as (NO<sub>x</sub>\* - NO) – could be used, however the matter is not described in the Strategy Paper for Future Direction of Dry Deposition Monitoring of EANET. In that case, a supplementary explanation should be attached to the Strategy Paper.
  - Monitoring of particulate matter components was encouraged to obtain the information on sulfate, nitrate and other species in aerosols.
  - The cutoff size of particulate matter should be carefully considered when monitoring with filter packs.
  - In the case of the filter pack data, the mark "N.D." should be used instead of "0.0" to indicate that the value was under the detection limit.
- iii. Soil and vegetation monitoring data
- It was pointed out that soil and vegetation data of Thailand are not included in the draft report due to an NC editorial mistake; this data will be included.
  - It was pointed out that detailed and complete information on the repeat analysis should be described for the data of soil chemical properties.
- iv. Inland aquatic environment monitoring data
- In response to a question about preservatives in inland aquatic environment monitoring, NC replied that preservatives are not used usually due to its low reactivity.
  - It was informed that Lake Ordinscoe, in which EC was very high, did not meet the monitoring criteria and is to be replaced by another site.
- v. General remarks
- The nomenclature used should be provided at the beginning of the report.
  - Some statistical and data control parameters should be defined in the report.
  - The unit used in each table should be checked.
  - Advanced statistics seemed not to be needed but useful graphs could be included for data comparison in the final version of the report.

13. IS presented a Proposal on the Procedure on Data and Information Disclosure. Major discussions on this proposal are summarized as follows:

- Most participants in the Session considered that, from scientific and technical viewpoints, data and information obtained through EANET activities should be, in principle, disclosed;
- However, some participants considered that there might be some other factors to make participating countries cautious about disclosing the data and information;
- Some participants emphasized that ownership of each participating country's data and information should be respected and that the data and information should not be disclosed when the relevant countries do not wish it to be. In this connection, they suggested that

paragraphs 7 through 9 of the draft Procedures should be carefully examined by the Intergovernmental Meeting;

- It was pointed out that the data obtained through EANET activities are quite valuable in promoting understanding of acid deposition phenomena in the East Asia region.
- Sharing of data and information among the participating countries and disclosure of data and information to the public should be clearly distinguished. In this connection, paragraphs 6, 10 and 11 need to be further elaborated. In particular, it was requested that NC should inform the relevant participating countries which data will be disclosed;
- A procedure for data verification should be developed and considered by SAC apart from this Draft Procedures;
- Some participants suggested that some processed data such as annual data reports may be disclosed as a first step toward wider disclosure.

Based on the discussions, the recommendations for IG3 were developed (Annex 2).

#### Agenda Item 7: Review of QA/QC activities in the participating countries

14. NC reviewed the history of the EANET inter-laboratory comparison projects. NC also explained the processes it used to seek approval for disclosing the names of participating laboratories of inter-comparison projects. Some participants, however, felt that it was still premature to disclose the names. Some considered that the disclosure would improve performance of participating laboratories, while some others hesitated to disclose the names now. Some strongly considered that participating laboratories should be ready to disclose their names at least in the third project on wet deposition, but consensus was not reached. It was generally felt that the names should be disclosed in the future and that NC should continue communication with the relevant countries to seek common understanding and consensus on this issue.
15. NC presented a draft report on the inter-laboratory comparison project on soil in 1999, preparation of which has been delayed because submission of results was delayed. NC also presented preliminary draft reports on the inter-laboratory comparison project on wet deposition, soil, and inland aquatic environment in 2000. Major discussions on this topic included the following:
  - Atomic absorption spectrometry (AAS) did not produce good  $[\text{Na}^+]$  values for the low concentration, wet deposition sample in this project. NC recommended that when using AAS to determine  $[\text{Na}^+]$  in low concentration samples, analysts should be careful of potential interferences and take measures to avoid contamination.
  - EMEP showed comparison data between ion chromatography, AAS and other methods for

determination of  $[\text{Na}^+]$  for reference. According to the data, IC generally performs best; however, other methods may also give satisfactory results when used properly.

16. NC informed that it was planning to implement a questionnaire survey on QA/QC activities of the participating countries shortly.

#### Agenda Item 8: Consideration of improvement of the monitoring methodologies

17. NC presented the QA/QC Program for Air Concentration Monitoring in East Asia (final draft) developed by the Task Force on Dry Deposition Monitoring. Some participants recommended modifying and adding definition to some terms used in the program. It was recognized that the program is useful for the monitoring activities of the participating countries, although the coverage of instrumentation and analytical methods is not sufficient; details of procedures need to be further elaborated. It was suggested that the elaborated program would include additional explanation for calibration methods and describe other methodologies such as filter packs, based on future discussions by the Task Force on Dry Deposition Monitoring; it was also suggested that the experience of EMEP would be informative in this regard. The program was endorsed by SAC on condition that the Program will be revised as recommended by the participants.
18. NC reported on progress in developing the Strategy Paper for the Future Direction of Soil and Vegetation Monitoring of EANET that it is being developed by the Task Force on Soil and Vegetation Monitoring. It was commented that “multi-stage sampling” should be referred to in subchapter 4.3.1 for the monitoring system by adding a short sentence.

#### Agenda Item 9: Consideration of the work program and budget in 2002

19. IS and NC presented the draft work program and budget for 2002. NC also introduced a draft training program for the regular phase. It was pointed out that short-term and mid-term targets should be defined for the regular-phase EANET activities, and that priorities should be clearly set, especially for the research activities described in paragraph 40 of the Draft Work Program and Budget for 2002, taking account of possible financial constraints.

#### Agenda Item 10: Consideration of the future research activities on acid deposition

20. NC presented the proposal for future research activities in EANET. While appreciating the comprehensive proposal, participants generally felt that the proposal is very ambitious and it needs clear prioritization. Many participants considered that the highest priority should be placed on improvement of monitoring activities, particularly in terms of strengthened QA/QC activities, research on monitoring methodologies and development of analytical methods suitable for East Asia. Some pointed out that research activities towards prevention and reduction of adverse impacts were also important to attain the objectives of EANET. It was stressed that methodologies to interpret and evaluate data sets, and to present the results to decision makers should also receive due attention. NC responded that it would further elaborate the proposal in the future, taking into account the comments from the Session participants.

Agenda Item 11: Review of the progress of other international programs on acid deposition

21. The representative from UN/ECE, the secretariat for CLRTAP, made a presentation on the history, framework and recent relevant activities of the Convention. The critical loads approach using the RAINS model, critical levels of ozone, historical trends of sulfur and nitrogen deposition, and the dynamic modeling of recovery were introduced. He pointed out that strengthened collaboration between CLRTAP and EANET would be welcomed by the convention, and drew attention specifically to possible collaborative work on intercontinental transport of air pollutants.
22. The expert from EMEP presented the activities of the Chemical Coordinating Center of EMEP, focusing on quality assurance matters. Some results from both laboratory and field intercomparisons were presented. EMEP's plan for particulate matter in 2002 regarding monitoring and modeling activities was also introduced.
23. The expert from ICP Forests made a presentation on the monitoring design and results of the Large-scale systematic monitoring (Level I) and the Intensive monitoring (Level II). It was pointed out that increasing defoliation observed in the Level I monitoring was statistically related to air pollution, soil acidification, and nutrient imbalance. As outcomes from the Level II monitoring, the impact of nitrogen and sulfur depositions on forest soils was shown.
24. An expert from UNEP/RRC.AP made a presentation on implementation of the Male' Declaration. Progress of the declaration, including preparation of baseline information and establishment of a monitoring committee was introduced. It was pointed out that the final recommendation of the

committee was adopted for the Phase II implementation. The presentation also included a briefing on the Project on Asian Brown Clouds (ABC).

25. Dr. Hajime Akimoto provided information about research on the impact of neutralization of soil aerosols on the distribution of acid deposition over East Asia using EANET data for the model validation. A quantitative comparison of pH and major ion concentrations in precipitation has been made based on the model results and the observational data obtained at EANET monitoring sites.

Agenda Item 12: Other issues

26. NC informed the Session that it had prepared a supplementary explanation for siting criteria for inland aquatic environment monitoring sites for EANET in order to provide the participating countries with information supplementary to the Technical Manual for Monitoring on Inland Aquatic Environment in East Asia.

Visit to the EANET acid deposition monitoring site in Chiang Mai

27. The participants visited the EANET acid deposition monitoring site in Chiang Mai, located at the Mae Hia Campus of Chiang Mai University.

Agenda Item 13: Consideration and adoption of the report of the Session

28. This report was considered and adopted.

Agenda Item 14: Closing of the Session

29. All the participants expressed their gratitude and appreciation for the efforts made by the organizers and the host country for having arranged this important meeting.

## List of Participants

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**Recommendation of the Scientific Advisory Committee at its First Session**  
**on**  
**the Procedures on Data and Information Disclosure for EANET (EANET/SAC 1/6/2)**

The Scientific Advisory Committee (SAC) considered at its First Session the “Proposal on the Procedures on Data and Information Disclosure for EANET (EANET/SAC 1/6/2)” from scientific and technical viewpoints, and recommends that the following issues should be taken into account when the Intergovernmental Meeting (IG) considers these Procedures at its Third Session.

1. Most participants in SAC at its First Session consider that, from scientific and technical viewpoints, data and information obtained through EANET activities (data and information) should, in principle, be disclosed.
2. However, some participants consider that there may be some other factors to make participating countries cautious about disclosing data. They feel that such issues should be discussed by IG rather than SAC.
3. Some participants emphasize that ownership of the data should be respected and that data should not be disclosed when the relevant countries do not wish it to be disclosed. In this connection, they suggest that paragraphs 7 through 9 of the Draft Procedures should be carefully examined by IG.
4. It was pointed out that the data obtained through EANET activities are quite valuable in promoting understanding of acid deposition phenomena in the East Asia region.
5. Sharing of data and information among the participating countries and disclosure of data to the public should be clearly distinguished. In this connection, paragraphs 6, 10 and 11 need to be further elaborated.
6. A procedure for data verification should be developed and considered by SAC apart from these Draft Procedures.
7. Some participants suggest that some processed data, such as annual data reports, may be disclosed as a first step toward wider disclosure.