

The Second Senior Technical Managers' Meeting  
of the Acid Deposition Monitoring Network  
in East Asia  
19-21 September 2001, Niigata, Japan

## REPORT OF THE MEETING

### Introduction

1. The Second Senior Technical Managers' (STM) Meeting of the Acid Deposition Monitoring Network in East Asia (EANET) was held in Niigata from 19–21 September 2001, organized by the Acid Deposition and Oxidant Research Center (ADORC) as the Network Center for EANET, in collaboration with the Ministry of the Environment of Japan, and in cooperation with the Ministry of Foreign Affairs of Japan, Niigata Prefecture and Niigata City.
2. The Meeting was attended by senior technical managers of nine participating countries, namely, China, Indonesia, Japan, Mongolia, Philippines, Republic of Korea, Russia, Thailand and Viet Nam, who are responsible for technical issues on EANET activities in each country. The expert from Malaysia who was supposed to participate in the meeting could not attend because of urgent business.
3. The Meeting was also attended by experts from international organizations as well as Japanese universities, research institutes, local governments and relevant bodies.
4. Researchers of relevant institutes in Niigata observed the Meeting.
5. The list of participants is attached in the Annex.

### Opening of the Meeting

6. The Meeting was opened with remarks by Mr. Katsunori Suzuki, Director of the Interim Secretariat for EANET. Dr. Tsumugu Totsuka, Director General of ADORC, made the introduction of the meeting organization.
7. Dr. Emil Budiando of Indonesia, Ms Adelaida Bonquin Roman of Philippines and Dr. Wangwongwatana Supat of Thailand were elected as co-chairpersons of the Meeting.

It was agreed that Ms Roman would chair the Meeting on the first day, Dr. Budianto on the second day and Dr. Supat on the third day.

8. The Meeting adopted the agenda as proposed by the Network Center.

Review of the scientific and technical activities of EANET since the First STM Meeting

9. The Network Center presented a short summary of scientific and technical activities of EANET in the period between the First and the Second STM Meetings.

Consideration of the national monitoring plans presented by the participating countries

10. An overview of national monitoring plans in participating countries was presented by the Network Center. This overview was followed by explanations by the participants of the participating countries.

11. The Meeting considered the national monitoring plans and provided comments and suggestions for their further elaboration. Major discussions on this topic included the followings:

- i. As for China's plan,
  - the Network Center suggested that the Indophenol blue method for the determination of  $\text{NH}_4^+$  ion is recommended to be used instead of Nessler method,
  - it was pointed out that effective cation exchangeable capacity (ECEC) became a mandatory item in the Technical Manual for soil and vegetation monitoring of EANET, and exchangeable acidity should be listed in the measurement parameters for calculation of ECEC, and
  - it was pointed out that the frequency of soil and vegetation monitoring is described as once a year in the plan but the frequency of once 3-5 years is recommended in the Technical Manual.
- ii. As for Indonesia's plan, it was pointed out that;
  - the measurement parameters of dry deposition monitoring should be clarified,
  - exchangeable base cations (Ca, Mg, K and Na) should be listed in the measurement parameters for calculation of ECEC,

- the frequency of inland aquatic environment monitoring is described as once a year in the plan but the frequency of 4 times a year is recommended in the Technical Manual.
  - the frequency of four times a year may be useful for accumulation of baseline data in the initial stage for soil monitoring however too frequent sampling may disturb the site condition.
- iii. As for Japan's plan,
- there was a discussion about the reason why mostly remote sites are included in EANET.
- iv. As for Mongolia's plan,
- it was clarified that the sampling period of filter pack at Terelj changed from biweekly to weekly, and
  - expectation for the starting of inland aquatic environment monitoring was expressed.
- v. As for Philippines' plan,
- the location of UP Quezon Land Grant and the distance between UP Quezon Land Grant and Makilling forest, Los Banos were clarified,
  - clarification about the sampling period of wet deposition monitoring was requested, and
  - it was requested the sampling period of filter pack should be fixed such as weekly.
- vi. As for Republic of Korea's plan, it was pointed out that;
- further investigation to find monitoring sites for inland aquatic environment should be considered,
  - the frequency of once a year for soil pH may be useful for accumulation of baseline data however too frequent sampling may disturb the site condition, and
  - two forest areas with different soil types were recommended to be selected within 50 km from the acid deposition monitoring site in Imsil.
- vii. As for Russia's plan,
- expectation for the new monitoring site in Far Eastern region was expressed,
  - it was explained that two other sites (rural and urban) have been established for routine monitoring of wet and dry deposition with cooperation of ADORC and they have been approved by NFP for the revised national monitoring plan, and
  - it was clarified that soil and vegetation monitoring is carried out at two

sites (Mondy and Bolshye Koty) and this should be described in the monitoring plan.

viii. As for Thailand's plan,

- it was clarified that soil and vegetation monitoring would be carried out two times a year, and the interval of monitoring would be 3 years.
- it was recommend that the frequency of inland aquatic monitoring is more than 4 times a year based on the Technical Manual although the frequency is described as 2 times in the plan, and
- the intention to expand monitoring sites for EANET gradually in the next few years was expressed.

ix. As for Viet Nam's plan,

- it was pointed out that implementation of soil and vegetation monitoring should be clarified by the National Center of Viet Nam whether soil and vegetation monitoring will be carried out, and
- it was requested to investigate the influence of the anthropogenic emission near the Hoa Binh site by analyzing seasonal wind direction.

#### Consideration of a preliminary draft data report on the acid deposition in the East Asian region in 2000

12. The Network Center presented a preliminary draft data report on the acid deposition in the East Asian Region: 2000. Major discussions on this topic included the followings:

i. Wet deposition monitoring data

- It was recognized that both sample amount using balance and precipitation amount using standard rain gauge should be measured. Deposition amount is calculated using concentration and precipitation amount. If standard rain gauge is not available, sample amount should be used instead of precipitation amount.

ii. Dry deposition (air concentration) monitoring data

- There was a discussion about checking ion balance of particulate matter components taking into account differences between aerosol chemistry and precipitation chemistry.

iii. Soil and vegetation monitoring data

- It was commented that continuous record of canopy by photograph might be useful for evaluation of tree condition.

- It was pointed out that vegetation data of Philippines are not included in the draft report due to editorial mistakes.
  - Some countries expressed difficult to select two soil types in an area within 50km from the acid deposition monitoring site. Detailed classification of soil species may be useful in these countries. It was requested that criteria for selection of monitoring forests should be elaborated for the case that only one soil species could be selected.
- iv. Inland aquatic environment monitoring data
- It was requested to consider increasing of sampling frequency in Thailand.
13. The Network Center was requested to inform the National Centers of its comments on questionable data after the Meeting. The National Centers are expected to check the data as soon as possible after receiving the comments. The Network Center will revise the preliminary draft report based on the response from the National Centers. The revised preliminary draft report will be distributed among the verification groups to receive comments before the First SAC Meeting.
14. In connection with the monitoring data, information was provided about the volcano in Miyake-jima Island in Japan that erupted last summer and has emitted a great amount of sulfur compounds. It was pointed out that effect by the volcano should be taken into consideration at the evaluation of monitoring data in 2000.

Consideration of preliminary draft reports on inter-laboratory comparison projects in 2000 (wet deposition, soil, and inland aquatic environment) and 1999(soil)

15. The Network Center presented a preliminary draft report on inter-laboratory comparison project on soil in 1999, which preparation has been delayed because submission of results was delayed. The Network Center also presented preliminary draft reports on inter-laboratory comparison project on wet deposition, soil, and inland aquatic environment in 2000. Major discussions on this topic included the followings:
- i. Project on Soil in 1999
    - For the exchangeable cations, inter-laboratories precisions were quite low, and various possible factors for these low precisions were discussed.
  - ii. Project on Wet deposition in 2000
    - There were 5 flagged data in the determination of Cl<sup>-</sup> in sample No.2

(lower concentrations) and there was only one flagged data in sample No1 (higher concentrations). Contamination may be one of the causes for the difference.

iii. Project on Soil in 2000

- The inter-laboratories precisions in the exchangeable cations were still quite low, and precision in each analytical step should be clarified in order to improve the analytical quality.
- Within-laboratory and inter-laboratories precisions in exchangeable acidity were relatively high. The analytical quality had been improved in 2000.

iv. Project on Inland aquatic environment in 2000

- The relationship between years of experience of the staff and data accuracy was discussed.
- The main reason of occurring flags in inter-laboratory comparison of inland aquatic environmental analysis was discussed.

16. The Network Center expressed the intention to use the names of laboratories instead of ID numbers in the reports on inter-laboratory projects in 2000 in line with the discussion in the ISAG Meetings. Network Center was requested to send letters to the National Focal Points to receive the confirmation that there is no significant difficulty in using the names of laboratories.

Consideration of improvement of the monitoring methodologies

17. The Network Center made a presentation on the QA/QC program for the Air Concentration Monitoring in East Asia (final draft) developed by the Task Force on Dry Deposition Monitoring. The Network Center was requested to provide supplementary explanation about specific technical issues such as calibration method to understand the QA/QC program better.

18. The Network Center reported on progress in developing of the Strategy Paper for Future Direction of Soil and Vegetation Monitoring of EANET that it is in the process of development by the Task Force on Soil and Vegetation Monitoring. It was commented that the direct effect of acid deposition should be important issues to be discussed in the strategy paper.

19. The Network Center made a presentation on the information obtained through the questionnaire on training needs on acid deposition monitoring. It was suggested that training of the Network Center for local trainers in each participating country should be considered to promote the national training activities, and the result of inter-laboratory comparison projects should be utilized in order to implement the more effective training for participating countries.

#### Consideration of the future research activities on acid deposition

20. The Network Center made a presentation on a proposal for the future research activities on acid deposition for the consideration by the participants. Major discussions on this topic included the followings:

i. Data evaluation

- It was emphasized that the establishment of the methodology of scientific analysis and interpretation of monitoring data, as well as securing the data quality for this purpose is necessary.
- It was pointed out that selection of suitable monitoring sites is as important as quality of data.

ii. Model

- It was suggested that, for the time being, EANET activities should utilize the existing modeling activities such as LTP project, JICA Development Studies and Model Intercomparison Study.
- It was addressed that, according to the experiences in Europe, the validity of source-receptor relationship matrix should be investigated on the basis of the intercomparison among models.
- It was emphasized that sophisticated inventory is necessary to obtain more reliable simulation results.

iii. Impacts on ecosystems

- It was emphasized that strategy for expanding scale and area would be necessary for regional quantitative evaluation of impact and simulation modeling on ecosystem including forest and rivers. It was also pointed out that baseline information on soil and vegetation should be accumulated for the above approach.
- The difficulty and importance of quantitative studies of the plant sensitivity to acid deposition were pointed out according to the experience in Europe.

### Other issues

21. The Network Center emphasized the importance of appropriate maintenance of equipment and necessity for suitable systems for maintenance including supply of chemicals, and asked the participants their comments on the constraints on this issue. The participants presented problems such as difficulties in obtaining reference materials for specific use for acid deposition monitoring and getting prompt repair of equipment. These difficulties are caused partly by lack of local agents. It was expected that this issue should continue to be considered among the participating countries and the Network Center.
22. It was pointed out that recommended units should be used to report the data.

### Visit on the Telemeter Room for Air Concentration Monitoring in the Niigata Prefectural Office, and a road side air pollution monitoring station

23. The participants visited the Telemeter Room for Air Concentration Monitoring in the Niigata Prefectural Office, and observed a road side air pollution monitoring station near the Niigata City Hall.

### Wrap-up of the Meeting

24. This report was considered and adopted.

### Closing of the Meeting

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

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21 September 2001

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