

Report on the Scientific and Technical Activities of EANET since the Third Senior Technical Managers' Meeting

I. INTRODUCTION

1. The Senior Technical Managers' Meeting (STM) of the Acid Deposition Monitoring Network in East Asia (EANET) was organized annually by the Network Center (NC) since the start of EANET activities on the regular basis in January 2001. These Meetings were attended by senior technical managers of all participating countries, who are responsible for monitoring operations and technical issues on EANET activities in their country. The number of topics were discussed at STM concerning the progress on scientific and technical matters related to EANET, national monitoring activities and data, results of inter-laboratory comparison projects and other issues to be considered further at the Scientific Advisory Committee of EANET,

2. The Third Senior Technical Managers' Meeting (STM3) was held in Niigata, Japan from 2 to 4 October 2002 to discuss the important technical issues on EANET activities at the beginning of EANET activities on the regular basis. Besides senior technical managers of all participating countries the Meeting was also attended by experts from international organizations as well as ones from Japanese universities, research institutes, local governments and other relevant bodies. This report presents a review of the progress of EANET activities since STM3 focusing on scientific and technical aspects.

II. COMPILATION OF DATA

3. Based on the consideration of preliminary draft "Data Report on the Acid Deposition in the East Asia Region 2001" at STM3 and refilling of missing monitoring data NC prepared a draft Data Report for the consideration at the Second Session of the Scientific Advisory Committee (SAC2) held in November 2002 in Bangkok, Thailand.

4. After presentation and consideration of the draft "Data Report on the Acid Deposition in the East Asia Region 2001" at SAC2, NC finalized the Data Report 2001 taking into account the comments and guidance at SAC2 to distribute among the National Focal Points of EANET (NFPs), National Centers and other relevant organizations in May 2003. This report was disclosed outside

EANET according to the “Procedures on Data and Information Disclosure for the Acid Deposition Monitoring Network in East Asia (EANET)” adopted at the Third Session of the Intergovernmental Meeting (IG3) in 2001 after confirmation on absence of any objections from the participating countries.

5. The participating countries have submitted the data and related information obtained through the monitoring activities of EANET in 2002 to NC. NC has prepared a preliminary draft “Data Report on the Acid Deposition in the East Asia Region 2002” for the consideration at the Fourth Senior Technical Managers’ Meeting (STM4).

6. NC updated EANET web site in April 2003 by presenting relevant information on EANET activities, such as EANET history, meeting documents, reports of inter-laboratory comparison projects and so on. Relevant scientific and technical information were disseminated among the participating countries, as well as other countries, relevant organizations and individuals.

III. SUPPORT TO TASK FORCES

7. NC continued the service as the secretariats of the Task Force on Dry Deposition Monitoring, the Task Force on Soil and Vegetation Monitoring, and the Network of Soil and Vegetation Specialists to promote the improvement of monitoring methodologies.

8. Being as the secretariat of the Task Force on Dry Deposition Monitoring NC prepared a preliminary draft of the “Technical Document for Filter Pack Monitoring in East Asia” and distributed this document for consideration among members of the Task Force in September 2002. After the reviewing of the progress of consideration at the Second Session of the Scientific Advisory Committee (SAC2) NC prepared revised draft based on the comments at SAC2 to be sent to the members of SAC and this Task Force for their comments in May 2003. The issues of discussion to prepare the final draft will be introduced at the STM4.

9. Based on the suggestion of SAC member at the SAC2 to provide a plan and related guidelines for preparing the inter-laboratory comparison on dry deposition (air concentration monitoring) NC prepared a review of existing QA/QC activities on Filter Pack Method taking into account the experience of EMEP and other monitoring networks to introduce this issue at the STM4. Expected comments and proposals will be used for improvement of this document to be

presented at the Third Session of Scientific Advisory Committee (SAC3). This activity will continue toward development of “QA/QC Program for the Air Concentration Monitoring in East Asia” by the Task Force on Dry Deposition Monitoring.

10. A draft “Strategy Paper for Future Direction of Soil and Vegetation Monitoring of EANET” was introduced at the STM3 after the consideration by the Task Force on Soil and Vegetation Monitoring. Revised draft Strategy Paper prepared after comments from the participating countries and members of Task Force and Network was endorsed by SAC2 after discussion. NC printed this document in March 2003 to be distributed to NFPs, National Centers, members of SAC and the Task Force, and other relevant organizations in May 2003.

11. To promote activities in line with this strategy paper the EANET-ICP Forests Joint Workshop was held in Seremban, Malaysia, in December 2002 to be attended by representatives from EANET participating countries and European experts. Based on the discussion at the Workshop, some technical subjects were clarified for development of sub-manual on forest monitoring. NC requested the Task Force members to give comments/suggestions on the technical subjects for this sub-manual in April 2003. Taking into account received comments NC prepared and distributed the "Procedures and schedule for preparing sub-manual on forest monitoring in East Asia (Draft)" among the NFPs, members of the Task Force on Soil and Vegetation Monitoring as well as Network on Soil and Vegetation Monitoring Specialists in September 2003.

12. To promote activities in line with the Strategy Paper the Network Center as the secretariat of the Task Force drafted a document "Sampling Plan/Schedule for Soil and Vegetation Monitoring of EANET 2003-2007" based on the National Monitoring Plans and the existed latest information to be distributed among the NFPs, national centres and Task Force members in July 2003. After the checking and refilling by the latest information this draft document will be reported at the STM4.

IV. STRENGTHENING OF TECHNICAL CAPACITY IN THE PARTICIPATING COUNTRIES

IV-1. Dispatch of technical missions

13. NC dispatches technical missions to the participating countries to exchange information and experiences, to provide technical advice and to disseminate the latest technical information. During the period since STM3 NC's missions were sent to Mongolia (in October 2002 and July

2003), Cambodia and Lao P.D.R. (in October 2002 and September 2003), Malaysia (in December 2002), China, Viet Nam, Philippines (in January 2003), Republic of Korea (in February 2003), Thailand (in February/March 2003), Russia (in July 2003) and Indonesia (September 2003). Last mission to Cambodia and Lao P.D.R. (in September 2003) was shipped off by NC and Secretariat together to establish more close communication with these newly participating countries.

14. Missions visited network monitoring sites (both operated and candidate) and laboratories, and conducted technical discussions with local experts on acid deposition and their impact as well as made an exchange of information and experiences on regular-phase activities. These missions were considered as very useful for NC in grasping the current and potential capacities of the participating countries as well as for the participating countries to have detailed technical discussions among various experts from relevant agencies and academies (See Annex: Technical missions of NC since STM3).

15. NC dispatched experts to provide technical support for national training programs on acid deposition monitoring of China (December 2002), Indonesia (February 2003) and Thailand (March 2003). Representative of NC also visited China to provide technical support for annual national workshop on acid deposition monitoring held in March 2003.

16. Under the cooperation with Japan International Cooperation Agency (JICA) NC dispatched experts to Thailand in January/ February 2003 as members of the advisory committee for the development study on "The Acid Deposition Control Strategy in the Kingdom of Thailand". Mission members participated in the Thai steering committee meeting and the technical meeting of Pollution Control Department (PCD) and the JICA study team to evaluate and advise these activities. Representatives of NC and each EANET participating country also attended contemporary international seminar.

IV-2. Implementation of the technical cooperation programs

17. Under the financial support by the Ministry of the Environment of Japan NC has implemented the technical cooperation programs for the participating countries in Japanese Fiscal Year (JFY) 2002 by providing both technical and financial support to the EANET countries. Technical and financial assistance was rendered for the Philippines and China to repair the sampling equipment in those countries.

18. In order to start wet deposition monitoring in Cambodia and Lao PDR monitoring materials such as wet-only samplers, spare-parts, consumable supplies and standard reference materials for wet deposition monitoring were provided to these two countries in March 2003.

V. IMPLEMENTATION AND COORDINATION OF QA/QC ACTIVITIES

19. NC presented draft reports of 2001 inter-laboratory comparison projects (the fourth one on wet deposition, the third one on soil and the second one on artificial surface water) at SAC2. NC finalized these reports taking the comments at SAC2 into account and distributed them to the participating laboratories in May 2003. Due to no any objection for disclosure of the names of participating laboratories they were identified in final reports on the 2001 inter-laboratory comparison projects.

20. NC distributed samples of the 2002 inter-laboratory comparison projects (the fifth one on wet deposition, the fourth one on soil and the third one on inland surface water) to participating countries in December 2002 and January 2003. NC is preparing the preliminary draft of correspondent Reports for the consideration at STM4.

21. Following the recommendation of SAC2 NC distributed the Questionnaire on Participation in International Inter-laboratory Comparison Projects among the national centres of EANET countries. A draft report on the results of this questionnaire was prepared for consideration at the STM4.

VI. IMPLEMENTATION OF TRAINING ACTIVITIES

22. Training activities have been implemented following the Training Programs for EANET in the Regular Phase, which was endorsed at IG3 in November 2001.

VI-1. Utilization of existing training programs (JICA Training Course)

23. The Japan International Cooperation Agency (JICA) has been implementing the training course on acid deposition monitoring since JFY 1997 for leading technical officials or researchers in national or local governments of East Asia under the cooperation with Hyogo Prefecture of

Japan and other relevant organizations. NC has maintained close communication and coordination with the organizers of JICA course on the curriculum by sending experts to attend the steering committee meeting and to lecture on EANET monitoring and data management, and by holding ad hoc technical coordination meetings.

24. The JICA training course entitled “Country Focused Training Course on the Acid Deposition Monitoring Network in East Asia” in JFY 2002 was held from 8 October through 15 December 2002 in Kobe, Japan. The participants of this course were mid-level technical officials or researchers from the East Asian countries who were working at the national center or monitoring laboratory of EANET or expected to do work there. Nine trainees participated at this course representing eight East Asian countries, namely Cambodia, Indonesia, Lao P.D.R., Malaysia, Mongolia, Philippines, Thailand and Viet Nam. During visit of JICA trainees to Niigata, NC also explained current state and problems of acid deposition monitoring of EANET.

25. As a part of JICA counterpart trainings, one trainee from Philippines received training of air quality monitoring including acid deposition monitoring at NC in February 2003, and another trainee from Thailand got training focusing on emission inventory and numerical modeling at NC in March 2003.

VI-2. Implementation of individual training

26. The individual training at NC has been implemented with aims to enhance the proficiency of various monitoring skills of personnel in the participating countries taking into account specific situations in the countries. As a part of the training program in 2002 after STM3 NC conducted individual training course to four trainees, one each from China, Indonesia, Mongolia and Philippines in October-November 2002.

27. One trainee each from Cambodia and Lao P.D.R. received individual training at NC from February to March 2003 to increase their knowledge and experience in wet and dry deposition monitoring, soil and vegetation monitoring and data management.

28. NC sent questionnaires about national training activities in 2002 to the participating countries in June 2003. NC will prepare a report on results of this survey for submission to STM4.

VII. RESEARCH ACTIVITIES

VII-1. Joint research project with Russia

29. From JFY 1998 through 2001 the Interim Network Center (INC)/NC had implemented the joint research project Phase 1 on acid deposition monitoring in frigid zones with the Limnological Institute, Russian Academy of Science, Siberian Branch (RAS/SB). Under this project wet and dry deposition measurements were conducted from JFY 1998 in a remote site to study appropriate methodologies for monitoring in frigid zones. The project also included the soil and vegetation monitoring and monitoring for inland aquatic environment in Siberia.

30. From JFY 2002 the joint research project Phase 2 was started with the Limnological Institute. The number of the research monitoring sites increased to four. Annual acid deposition as well as heavy metals (mercury and lead) and lead isotope ratio in snow have been measured. The results of monitoring in Phase 2 in this region are very useful for EANET data analysis due to the importance of them as information obtained from transition area to monitor long-range transportation of air pollutants from Europe and industrial regions of Russia to East Asia. Keeping in view that long term monitoring is necessary to evaluate the atmospheric environment in this region NC prepares a report for the consideration at STM4.

VII-2. Joint research project with Thailand

31. INC/NC has been promoting a joint research on dry deposition flux with Pollution Control Department (PCD), Thailand, since JFY 1999. A flux observation system based on micrometeorological techniques was established in a teak forest located in Mae Moh, Lampang Province, Thailand, and then the observation was started in late 2001. The second meeting of experts from Japan and Thailand was held at PCD, Thailand in October 2002 to discuss the preliminary results of the research and to exchange information on progress of dry deposition study. The available data for period of one year over were accumulated at NC in 2003. The report on results of data processing and analyzing will be introduced at STM4.

VII-3. Joint research project with Mongolia

32. Since JFY 2001 NC has been promoting a joint research project on plant sensitivity to acid deposition with the Central Laboratory of Environmental Monitoring (CLEM), Mongolia. From

2001 to 2002 basic information on air concentration and physiological response of the plants to acid deposition has been obtained around the Bogdkhan Mountain near Ulaanbaatar City for further studies. NC has obtained the research budget for this study in March 2003. This study is being carried out to retrace implication between emission from a thermal power plant and chemical/physiological properties of flora and soil as well as to get basic information on sensitivities of Mongolian plant species.

VIII. OTHER ACTIVITIES

VIII-1. Communication with relevant organizations/programs

33. The Workshop on Elaboration and Development of Forest Monitoring in East Asia was organized jointly by NC and the Programme Coordinating Centre of the International Co-operative Programme on Assessment and Monitoring of Air Pollution Effects on Forests (ICP Forests) in Seremban, Malaysia in December 2002 and hosted by the Government of Malaysia. The Workshop was attended by 28 participants from ten participating countries of EANET, namely Cambodia, China, Indonesia, Japan, Lao P.D.R., Malaysia, Mongolia, Philippines, Thailand and Viet Nam, and experts on forest monitoring as well as delegation of ICP Forests. The major discussions were summarized in the Chairperson's Summary. The proceedings of this workshop were distributed by NC to NFPs, participants of workshop and other relevant organizations in May 2003.

34. NC sent a mission to attend the 19th Task Force Meeting of International Co-operative Programme on Assessment and Monitoring of Air Pollution Effects on Forests (ICP Forests) held in Zagreb, Croatia on 24-28 May, 2003. Progress of the EANET activities including outcomes of the EANET-ICP Forests Joint Workshop were reported to European forest monitoring network, and possibility of further collaboration between EANET and ICP Forests was discussed.

35. In order to promote further collaboration with existing initiatives on modeling activities in Asian region and to get recent information NC dispatched experts to attend the Fifth Workshop on the Transport of Air Pollution in Asia (Model Inter-comparison Study – MICS-Asia) held at IIASA, Laxenburg, Austria from 20 to 21 January 2003. The main objectives of the workshop were to observe recent achievements in regional atmospheric pollution modeling and to discuss the plan of next model inter-comparison study (Phase II). As the results of the discussion the plan of Phase II was clarified, and at least seven model groups expressed their readiness to join the next model

inter-comparison study with their models. The second announcement of MICS-Asia Phase II is presented at the ADORC web site in August 2003.

36. NC expert attended the EMEP Workshop on Hemispheric Air Pollution held on 7-9 October 2002 in Bad Breisig, Germany to introduce EANET activities and exchange views on long-range air pollution across the northern hemisphere.

VIII-2. Activities related to Public Awareness for Acid Deposition Problems

37. Since JFY 1999 joint projects has been undertaking by INC/NC with selected participating countries to develop their own national brochures and/or videotapes on acid deposition. In JFY 2002 NC undertook a project with Mongolia to develop brochure on acid deposition for school children. In-country workshops on Public Awareness were held in Indonesia in October 2002 and in Viet Nam in January 2003. NC also has been developing an e-learning program on acid deposition problems for environment education in collaboration with Institute for Global Environmental Strategies (IGES) since JFY 2002.

38. NC organized the Third Workshop on Public Awareness for Acid Deposition Problems from 20 to 21 February 2003 in Niigata, Japan. The Workshop was attended by approximately thirty participants and observers from Cambodia, China, Indonesia, Japan, Lao P.D.R., Malaysia, Mongolia, Russia, Thailand and Viet Nam. The main objectives of the Workshop were to exchange information and share experiences on public awareness and environmental education in the participating countries, and to discuss how to promote public awareness and environmental education. NC developed the proceedings of this workshop and distributed to NFPs, the participants and other relevant organizations in May 2003.

39. NC researchers took part in the 8th International Conference on Atmospheric Sciences and Applications to Air Quality (ASAAQ) held from 11 to 13 March 2003 in Tsukuba, Japan attended by approximately four hundred participants. In order to disseminate recent EANET activities three oral and three poster presentations were made by NC at the conference including special panel section of EANET. The documents regarding EANET activities, such as brochures, Data Report 2000, results of inter-laboratory comparison projects, proceedings of meetings and so on, were also distributed among the ASAAQ participants.

Annex

Technical Missions of NC since STM3

Country	Period	Main Purposes
Mongolia	14 – 19 October 2002	<ul style="list-style-type: none"> (i) To discuss the methodologies of wet and dry deposition monitoring; (ii) To exchange information and views in detail on the progress of the soil and vegetation monitoring of EANET in Mongolia; and (iii) To discuss the possibility of the inland aquatic environment monitoring of EANET in Mongolia.
Cambodia and Lao P.D.R.	23 – 30 October 2002	<ul style="list-style-type: none"> (i) To exchange information and views on institutional and technical arrangements for the activities on EANET in Cambodia and Lao P.D.R. (ii) To exchange information and views on technical cooperation with NC; and (iii) To visit laboratories and candidate monitoring sites for EANET activities in both countries.
Malaysia	9–14 December 2002	<ul style="list-style-type: none"> (i) To discuss and exchange information on wet and dry deposition sampling and analysis performed by MMS and DOC including the selection of new monitoring sites; (ii) To discuss and visit the new sites of Soil & Vegetation monitoring; and (iii) To discuss the possibility of implementation of JICA development study.
China	7 – 16 January 2003	<ul style="list-style-type: none"> (i) To exchange information and views on progress of the monitoring activity on EANET in China; (ii) To visit monitoring sites and laboratories in four cities of China; and (iii) To exchange the other information and views on acid deposition monitoring.
Viet Nam	18 – 25 January 2003	<ul style="list-style-type: none"> (i) To visit the candidate sites for wet and dry deposition monitoring around Hochiminh City, and monitoring site in Hoa Binh; (ii) To exchange information and views on the progress of activities on the acid deposition monitoring in Viet Nam; and (iii) To explore the cooperation with other environmental projects supported by JICA.
Philippines	19 – 24 January 2003	<ul style="list-style-type: none"> (i) To exchange information and views on the progress of activities on the acid deposition monitoring in the Philippines; (ii) To discuss technical issues, especially QA/QC activities, data reporting methods and maintenance of instrument, for wet & dry deposition monitoring; and (iii) To visit the monitoring site for wet & dry deposition, inland aquatic environment and soil & vegetation in Los Banos, and discuss with the relevant experts.

R. of Korea	25–28 February 2003	<ul style="list-style-type: none"> (i) To exchange information and views on progress of the monitoring activity on EANET in R. of Korea; (ii) To exchange information and views in detail on the progress of wet & dry deposition and the soil & vegetation monitoring of EANET in R. of Korea; and (iii) To discuss the possibility of the inland aquatic environment monitoring of EANET in R. of Korea.
Thailand	24 February – 7 March 2003	<ul style="list-style-type: none"> (i) To visit monitoring sites at PCD, TMD, ERTC and Vachiralongkorn Dam and their laboratories (including KMUTT); (ii) To attend the Thailand national training at ERTC; and (iii) To exchange information on relevant activities such as JICA acid deposition control strategy study, JICA project on the effects of air pollution and acid deposition, JICA 3rd country training program.
Mongolia	21 – 26 July 2003	<ul style="list-style-type: none"> (i) To exchange information and views on the progress of the monitoring activities on the Acid Deposition Monitoring Network in East Asia (EANET) in Mongolia; (ii) To discuss the methodologies of wet and dry deposition monitoring, especially for winter season; and (iii) To discuss the detailed plan for joint study on plant sensitivity to acid deposition in Mongolia.
Russia	27 July – 1 August 2003	<ul style="list-style-type: none"> (i) To finalize MOA of the Cooperative Research Project in 2003; (ii) To exchange views and information concerning EANET activities and work shop for soil and vegetation monitoring; and (iii) To visit soil and vegetation monitoring site in Listvyanka, three atmospheric monitoring station in East Siberia, and candidate monitoring sites for inland aquatic monitoring.
Cambodia and Lao P.D.R.	3–10 September 2003	<ul style="list-style-type: none"> (i) To exchange information and views on institutional and technical arrangements for the activities on EANET; (ii) To exchange information and views on technical cooperation between both countries and NC; and (iii) To know the condition of the wet-only sampler (and to offer necessary technical advise for the operation) in both countries. <p>Note: The Secretariat for EANET joined the mission to communicate with these newly participated countries.</p>
Indonesia.	7–13 September 2003	<ul style="list-style-type: none"> (i) To discuss technical issues such as QA/QC activities for monitoring activities with the staff of the Environmental Impact Control Facility (SARPEDAL); (ii) To visit laboratories of SARPEDAL and the Bureau of Meteorology and Geophysics (BMG) and see equipments such as IC, sampler, etc.; and (iii) To visit the (candidate) site for inland aquatic environment monitoring.