

The First Session of the Working Group
on Future Development of EANET
19-20 August 2004, Bangkok, Thailand

Report on the Performance of the Network Center Activities in 2003

I. INTRODUCTION

1. This is the report prepared by the Network Center (NC) of the Acid Deposition Monitoring Network in East Asia (EANET) to explain the performance of NC activities in 2003 to the First Session of the Working Group on Future Development of EANET, in accordance with the request from the Fifth Session of the Intergovernmental Meeting (IG5) held in Pattaya, Thailand in November 2003. NC activities in 2003 have been carried out based on the "Work Program and Budget in 2003 for EANET" adopted at the Fourth Session of IG held in Bangkok, Thailand in November 2002.

II. CENTRAL COMPILATION, EVALUATION AND STORAGE OF DATA, ETC.

II-1. Data Verification/Maintenance of database

2. The participating countries have submitted the data in 2002 and related information in 2003 obtained through the monitoring activities of EANET to NC. NC compiled, checked, evaluated and stored these data on the database of all the EANET data, and implemented maintenance of the database.

III. PREPARATION OF THE DATA REPORT

3. At the Second Session of the Scientific Advisory Committee (SAC2) held in November 2002, NC presented a draft "Data Report on the Acid Deposition in the East Asia 2001 (Data Report 2001)". NC finalized the Data Report 2001 following the comments at SAC2 and issued it in May 2003. This Report was disseminated among the participating countries and relevant organizations together with other published reports such as reports of inter-laboratory comparison projects.

4. NC has prepared a preliminary draft "Data Report on the Acid Deposition in the East Asia Region 2002 (Data Report 2002)" for the consideration at the Fourth Senior Technical Managers' Meeting (STM4) held in Niigata, Japan in October 2003. The preliminary draft Data Report 2002 was revised based on the comments at STM4 with additional data provided by

participating countries after STM4, and verified by the data verification group established in NC. After receiving the comments by the data verification group members, NC communicated with relevant participating countries and has prepared a draft Data Report 2002 for the consideration at the Third Session of the Scientific Advisory Committee (SAC3) held in Pattaya, Thailand in November 2003. After presentation and discussion at SAC3, the draft Data Report 2002 was under further revision to complete with comments and suggestion of the Scientific Advisory Committee (SAC) members.

IV. DISSEMINATION OF DATA AND RELEVANT INFORMATION

IV-1. Analysis on the state of acid deposition in the region/Development and updating of EANET website

5. Relevant scientific and technical information was disseminated among the participating countries, as well as other countries, relevant organizations and individuals. NC has also updated EANET web site in April and August 2003 by presenting relevant information on EANET activities, such as EANET history, summaries of meetings, the latest Data Report, Reports of Inter-laboratory Comparison Projects and so on.

6. NC developed the "Proposal on Detailed Mechanism of EANET Data Disclosure Procedure" after the discussion at STM4 to be presented at SAC3. After consideration and revision, SAC3 recommended to endorse document "Detailed Mechanism of Article 4 of the Procedures on Data and Information Disclosure for EANET" by IG5. This revised document was endorsed at IG5.

V. STRENGTHENING TECHNICAL CAPACITY IN THE PARTICIPATING COUNTRIES

V-1. Dispatch of technical missions

7. NC dispatches technical missions to the participating countries to exchange information and experiences, to provide technical advice and to disseminate the latest technical information. With regard to dispatch of technical missions to the participating countries, NC had discussed the dates, contents of tasks, mission members, etc. with the National Focal Point of each participating country 3/4 months or more before the mission in advance. NC decided to submit the mission report to the each participating country from 2003 based on the requests from the participating countries.

8. In 2003, NC missions were sent to China, Viet Nam and Philippines (in January), R. of Korea (in February), Thailand (in February/March), Mongolia (in July), Russia (in July/August), Cambodia, Lao P.D.R. and Indonesia, (in September).

9. Missions visited (candidate) network monitoring sites and laboratories, and had technical discussions with local experts on acid deposition and to exchange information and experiences on the preparatory and 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: List of NC technical missions during this period).

V-2. Fourth Senior Technical Managers' Meeting (STM4)

10. NC organized STM4 from 1 through 3 October 2003 in Niigata, Japan. Senior technical managers of all participating countries and Myanmar as an observer as well as experts from relevant organizations attended the meeting. The invitation was sent to the participating countries and relevant organizations in July 2003 with Outline, Draft Program and General Information (GI).

11. The participants of STM4 discussed important technical issues such as national monitoring plans, monitoring data in 2002 and results of inter-laboratory comparison projects in 2002. The summary of this meeting was also developed by NC and distributed to the participating countries of EANET.

12. NC also distributed the proceedings of the Third Senior technical managers' Meeting (STM3) to the participants, and relevant organizations in May 2003.

V-3. Assistance and technical support to individual countries

13. NC has implemented the technical cooperation programs with support of Ministry of the Environment (MOE), Japan for the participating countries by providing technical and financial support to the countries. NC provided technical advice and disseminated the latest technical information on the acid deposition monitoring to the participating countries of EANET. Monitoring materials such as wet-only sampler, spare-parts, consumable supplies and standard reference materials for wet deposition monitoring were provided to Cambodia, China, Lao P.D.R. and Mongolia. Used Atomic Absorption Spectrometer was provided to Russia.

V-4. Communication/coordination with donor agencies

14. In order to provide assistance and technical support to participating countries depending on their situation, NC tried to contact close cooperation and coordination with relevant international and bilateral organizations such as UNEP, EMEP, WMO and so on.

VI. IMPLEMENTATION AND COORDINATION OF QA/QC ACTIVITIES

VI-1. Inter-laboratory comparison surveys

15. As one of QA/QC activities of EANET, Inter-laboratory comparison project (round robin analysis survey of uniformly prepared artificial samples) among the analytical laboratories of EANET were conducted by NC, in order to recognize the analytical precision and accuracy in each participating laboratory through the evaluation of analytical results, and provide an opportunity to improve the quality of the analysis on monitoring.

16. 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 issued them 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.

17. 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 artificial surface water) among the laboratories in participating countries in December 2002 and January 2003. All of the participating laboratories have submitted their analytical data to NC. NC has prepared preliminary draft reports on 2002 inter-laboratory comparison projects for their consideration at STM4. After STM4, NC prepared draft reports on the inter-laboratory comparison projects and distributed them to the participating countries. The draft report was discussed at SAC3.

18. NC reviewed existing QA/QC activities on the filter pack method. The document summarized the information that NC had got from Co-operative Programme for Monitoring and Evaluation of the Long Range Transmission of Air Pollutants in Europe (EMEP) and Clean Air Status and Trends Network (CASTNET) in the United States. The reports were presented at STM4 and SAC3 for their comments and discussion.

19. NC successfully participated in the "Inter-comparison 0317" project organized by the UNECE International Cooperative Programme on Assessment and Monitoring of Acidification of Rivers and lakes (ICP Waters), which was performed in June/July 2003.

VI-2. Individual questions and answers

20. Following the recommendation of SAC2, NC distributed the Questionnaire on Participation in International Inter-laboratory Comparison Projects among the national centers of EANET countries. A draft report on the results of this questionnaire was prepared for the consideration at STM4 and SAC3.

21. NC has disseminated technical information on the QA/QC programs of EANET and other technical documents, to provide technical advice for the participating countries in developing national QA/QC programs and standard operating procedures for all the monitoring activities, etc.

VII. IMPLEMENTATION OF TRAINING ACTIVITIES

VII-1 Development of annual training program

22. In order to improve various monitoring skills of the participating countries, NC developed annual training program on individual training at Acid Deposition and Oxidant Research Center (ADORC) taking account of the results of Inter-laboratory comparison projects and specific situations of each participating country. This training program included name of candidate countries of training and contents of the training. Training on wet deposition monitoring (sampling and analysis), dry deposition monitoring (air quality monitoring and analysis), soil and vegetation monitoring (sampling and analysis) and inland aquatic environment monitoring (sampling and analysis of inland water) as well as data management were included in this program.

VII-2 Development of training materials, technical documents

23. NC developed the textbooks on basic knowledge for “Fundamental Methodology for Wet Deposition Monitoring”, “Quality Assurance and Quality Control in Soil Monitoring”, “Fundamental Limnology for Inland Aquatic Environment Monitoring on Acidification” and “Procedures for Data Management in Wet Deposition Monitoring” to use for training activities of EANET in line with “Training Programs for EANET in the Regular Phase” endorsed at the Third Session of IG held in 2001 in Chiang Mai, Thailand. These textbooks were disseminated among the participants of SAC3 and IG5.

VII-3 Assistance for national training activities

24. NC dispatched experts to provide technical support for national training programs on acid deposition monitoring of Indonesia (February 2003) and China (October and December 2003). NC also dispatched an expert to China to provide technical support for an annual national workshop on acid deposition monitoring held in March 2003.

25. In order to disseminate information on the training activities in the participating countries, NC sent questionnaires about national training activities in 2002 to the participating countries in June 2003. NC prepared a report on the results of this survey for submission to STM4 and SAC3.

VII-4 Coordination with and support for other training programs

26. NC has maintained close communication and coordination with the organizers of Japan International Cooperation Agency (JICA) training course on acid deposition monitoring 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.

27. JICA decided to continue its training course entitled "Country Focused Training Course on the Acid Deposition Monitoring Network in East Asia" for at least five years from 2003 considering its importance in the implementation of EANET activities and based on the request from participating countries of EANET. The participants of this course were mid-level technical officials or researchers from East Asian countries who were working at the national centers or monitoring laboratories in EANET or expected to do work there.

28. JICA carried out the training course in JFY2003 since 13 October through 21 December 2003 in Kobe, Japan. Ten trainees participated in this course representing nine participating countries, namely Cambodia, China, 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, and public awareness activities of EANET.

29. 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 received training focusing on emission inventory and numerical modeling at NC in March 2003.

VII-5 Individual training at NC

30. Individual training at NC has been carrying out in line with “Training Programs for EANET in the Regular Phase”. Individual training in 2003 was tentatively planned for five or six trainees from the participating countries based on the NC budget in 2003.

31. The training expenses at ADORC were borne by NC, as well as the expenses for the economy class round-trip airfare by the most direct route between the nearest international airport and Narita International Airport, per diems including room charges and other miscellaneous expenses.

32. The individual training at NC has been implemented from a viewpoint of enhancing the proficiency of various monitoring skills of participating countries, taking into account of the results of QA/QC activities, specific situations in the countries such as personal change, etc., and individual needs for training in each participating country. Every year, in consultation with the participating countries, NC sent invitation 3 or 4 months before the start of training.

33. In 2003, two trainees (from Cambodia and Lao P.D.R.) received individual training at NC in February/March 2003, including wet and dry deposition monitoring, soil and vegetation monitoring and data management. And, one trainee each from China, Thailand and Viet Nam also received individual training at NC in October 2003, including wet and dry deposition monitoring, soil and vegetation and inland aquatic environment monitoring, and data management in response to their needs and necessities.

VII-6 Communication/coordination with donor agencies

34. In order to provide assistance and technical support to individual participating countries, NC undertook close cooperation and coordination with relevant international and bilateral organizations such as UNEP, EMEP, WMO, etc.

35. NC dispatched an expert to lecture at the Training on Monitoring Transboundary Air Pollution under the Malé Declaration held at UNEP RRC.AP on 29 - 31 May 2002 based on the request from the organizer. Major objectives of the training were to discuss the technical issues on site selection, to introduce the technical manual, and to provide demonstration on sampling and analysis of transboundary pollutants, etc. NC continued efforts in 2003 to have close communication, cooperation and coordination with the organization and disseminated the latest relevant information after mentioned training course.

VIII. RESEARCH ACTIVITIES

VIII-1 Research for improving monitoring methodologies

36. NC conducted a research on applicability of 4-stage (Teflon, Nylon, Alkali impregnated cellulose, and Acid impregnated cellulose) filter pack method for the air concentration monitoring. Two kinds of filter pack, open face and with aluminum impactor for cutting PM₁₀ off, were prepared for the research on effects of PM₁₀ cut impactor. Concentrations of gas (SO₂ and HNO₃) and aerosol components (SO₄²⁻, NO₃⁻, Cl⁻, NH₄⁺, Na⁺, K⁺, Mg²⁺, Ca²⁺) were compared among these methods. Sampling efficiency of SO₂ was also examined using multi stage filter pack holder. Furthermore, comparison of filter pack method with automatic gas monitor was carried out. A part of these results was presented at the annual meeting of Japan Society for Atmospheric Environment held in September 2003, in Kyoto, Japan.

37. Research activities were implemented in a small catchment area in Kajikawa Village, Niigata Prefecture. In the area, monitoring on input (deposition) and output (stream water) fluxes in/from the catchment area, and analyses on other biogeochemical aspects have been carried out continuously, and nutrient dynamics and acid deposition impacts in the area would be estimated. Based on the experience, monitoring methodologies for catchment area would be elaborated/developed for future activities on EANET. Catchment monitoring would be promoted in the East Asian Region as one of the approaches for achieving the ultimate objective of soil and vegetation monitoring, which was described in the Strategy Paper for future direction on soil and vegetation monitoring of EANET.

VIII-2 Fellowship

38. For evaluation on the effects of acid deposition on vegetation the information on plant sensitivity to acid deposition is necessary to be accumulated as well as other relevant scientific results. In order to promote the research on monitoring methodology for detection of acid deposition impact on forest, NC applied for Fellowship Program to invite Russian researcher to Japan Society for the Promotion of Science (JSPS) Fellowship Program for Research in Japan (short term) twice, in May 2003 and September 2003. The second application was accepted by JSPS. The researcher came to NC in April 2004 to study monitoring methodologies of lichens in East Asia for two months. The research activities in this field and information exchange with correspondent European organization also have been promoted.

VIII-3 Joint research with Russia

39. From JFY 1998 through 2001, 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 deposition monitoring

as well as dry deposition monitoring started in 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.

40. From JFY 2002, NC started the joint research project Phase 2 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 were very useful for data analysis of EANET network due to their importance as data 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 prepared a report for the consideration at STM4 and SAC3.

VIII-4 Joint research with Thailand

41. NC has been promoting a joint research project on dry deposition flux with PCD, Thailand. A flux observation system using 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 available data for over two years were accumulated as of December 2003 to be used for scientific evaluation. The report on results of the data in 2002 processing and analyzing was introduced at STM4 and SAC3.

VIII-5 Other research

42. Since JFY 2001, NC has been promoting 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 pollution concentration and physiological response of the plants to acid deposition has been obtained around the Bogdkhan Mountain near Ulaanbaatar City. NC obtained the research budget for this study in March 2003, and studied implication between emission from the thermal power plant and chemical/physiological properties of plant and soil as well as sensitivities of Mongolian plant species.

43. In accordance with the Work Program and Budget in 2002, NC carried out the review of existing initiatives on developing emission inventory and numerical modeling such as (1) Long-range Transboundary Air Pollutants in Northeast Asia (LTP project), (2) RAINS-Asia, (3) Model Intercomparison Study in Asia (MICS-Asia), (4) the Study on the Acid Deposition Control Strategy in the Kingdom of Thailand (TAciDES) and (5) Cooperative research program between the Malaysian Meteorological Service and the Swedish Meteorological and Hydrological Institute. Following the studies in 2003, NC has collaborated with some of initiatives on developing emission inventories and numerical modeling. The current activities of NC were introduced at STM4 and SAC3.

44. In order to collect recent information on modeling activities for Asian region, 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, on 20 - 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 was introduced at ADORC web site in August 2003 and data sets for model inter-comparison study were prepared and distributed among the participating groups.

45. Based on the document "Proposal for future research activities in EANET" submitted to the First Session of the Scientific Advisory Committee (SAC1) held in Chiang Mai, Thailand in November 2001, and taking the comments from SAC1 into account, NC developed the "Proposal for Future Direction of Research Activities in EANET" for the consideration at STM3 held in October 2002 and SAC2 held in November 2002. This document was disseminated in 2003 to the participating countries.

46. NC attended the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollution in Europe (EMEP), German and US International 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. In 2003 NC continued communication to have close cooperation and coordination with the EMEP and mentioned CLRTAP initiative after this meeting. NC distributed documents of EANET meeting/workshop in the previous year in 2003, such as the proceedings of the Third Senior Technical Managers' Meeting (STM3) and the proceedings of the Second Workshop on Public Awareness for Acid Deposition Problems.

IX. TECHNICAL SUPPORT FOR EANET MEETINGS

IX-1 Preparation of technical documents

47. In consultation with the Secretariat, NC prepared the documents for the Second and the Third Session of the Working Group on Further Financial Arrangement for EANET (WG2 and WG3) held in August and October 2003 in Pathumthani, Thailand. Also NC has prepared the necessary documents and reports for SAC3 and IG5 held in November 2003.

48. In order to promote efficiency and transparency, NC developed “A Memorandum on More Efficient and Transparent Activities of the Network Center” as annex of the “Report on Further Financial Arrangement for EANET” to WG2, WG3 and IG5. The document was sent by e-mail to the participating countries before the session for their consideration in advance. The document was endorsed at IG5.

IX-2 Attendance at EANET meetings

49. NC attended WG2, WG3, SAC3 and IG5, and made presentations, as appropriate.

IX-3 Support of Task Force

50. NC continued to serve 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 implementation of EANET dry, and soil and vegetation monitoring.

IX-3-1 Task Force on Dry Deposition Monitoring

51. NC prepared a preliminary draft of the “Technical Document for Filter Pack Monitoring in East Asia” for consideration by Task Force on Dry Deposition Monitoring. Progress of the consideration was introduced at SAC2. Based on the comments at SAC2, NC, as the Secretariat of the Task Force on Dry Deposition Monitoring, prepared revised draft, and sent it to the members of SAC and this Task Force members in May 2003. Taking the comments of the members into account, NC prepared the final draft to submit for SAC3 after the reporting of progress at STM4. The “Technical Document for Filter Pack Monitoring in East Asia” was endorsed at SAC3 as proposed.

52. Based on the suggestion of 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 the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollution in Europe (EMEP) and other monitoring networks to introduce this issue at STM4. Considering the comments and proposals at STM4, NC revised the document and presented at SAC3.

IX-3-2/3 Task Force on Soil and Vegetation Monitoring and the Network on Soil/Vegetation Specialists

53. "The Strategy Paper for Future Direction of Soil and Vegetation Monitoring" (Strategy Paper) was endorsed by SAC after development and consideration by the Task Force and discussion at SAC2. NC printed it in March 2003, and distributed to the National Focal Points (NFPs), National Centers, members of SAC and the Task Force, and other relevant organizations in May 2003. Activities in line with the Strategy Paper were promoted in 2003. As one of the activities, the proceedings of Joint Workshop on Elaboration and Development of Forest Monitoring in East Asia were prepared by NC and distributed to NFPs, participants of workshop and other relevant organizations in May 2003.

54. Based on the discussion in 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 the received comments, NC prepared and distributed the "Procedures and schedule for preparing sub-manual on forest monitoring in East Asia (Draft)" among NFPs, members of the Task Force on Soil and Vegetation Monitoring as well as Network on Soil and Vegetation Monitoring Specialists in September 2003. NC introduced the activities in line with Strategy Paper for Future Direction of Soil and Vegetation Monitoring of EANET including a progress on the development of sub-manual on forest monitoring at SAC3.

55. To promote activities in line with the Strategy Paper and implementation of the next survey of soil and vegetation, NC as the secretariat of the Task Force drafted a document on "Sampling Plan/Schedule for Soil and Vegetation Monitoring of EANET 2003-2007" based on the national monitoring plans as well as the existing latest information to be distributed among NFPs, national centers and Task Force members in July 2003. After the checking and refilling by the latest information this draft document was introduced at STM4 and SAC3.

56. NC sent a mission to 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.

IX-4 Other follow-up activities of the meetings

57. In order to disseminate the information on EANET activities to high level policy makers, in collaboration with the Secretariat, NC developed brief material of EANET. This material was distributed and introduced at the ASEAN+3 Ministerial Meeting held in December 2003 in Myanmar.

58. NC presented the overview of EANET activity for 2002-2003 as well as recent progress of NC at the 4th Collaborating Assessment Network (CAN4) Meeting in Pathumthani, Thailand, November 2003. Collaboration within UNEP environmental programs and with related founding organization was discussed. The importance of EANET as the part of Earlier Warning Direction for collaborative studies within Framework for Sustainable Development were emphasized together with explanation of data supporting schemes and joint researches with EANET participating countries.

X. OTHER ACTIVITIES

X-1 Raising of public awareness on acid deposition problems

59. NC obtained a grant from the Japan Fund For Global Environment of Japan Environment Corporation, and undertook following activities.

X-1-1 Development of brochures etc.

60. In 2003, NC undertook joint projects with Mongolia (in JFY 2002) and Russia (in JFY 2003) to develop national brochures, and with Indonesia, Viet Nam (in JFY 2002) and Mongolia (JFY 2003) to hold in-country workshops.

61. 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. The program was introduced at SAC3 and IG5. The e-learning program will be operated on the server computer of IGES under collaborative management of IGES and NC. The IGES e-learning system has remarkable features such as easy operation (enrolment, course setting & taking and management), two languages (Japanese and English for now), multi functions (tracking, reporting, dialogues function, discussion and chat etc.) and contents (environment related topics and strategic skills). The e-learning program will be the more effective tool for public awareness and environmental education by making full use of those advantages.

62. NC participated in the International Symposium on Environmental Management: Policy, Research, Education held on 6-9 November, 2003 in Chiang Mai, Thailand organized by Chiang Mai University, Thailand and Shiga University, Japan. The presentation was done to disseminate activities of EANET especially focused on public awareness, and to exchange information and experiences from other initiatives.

X-1-2 Workshop on exchange of experiences

63. 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 the National Focal Points (NFPs), the participants of the workshop and other relevant organizations in May 2003.

64. NC also organized the Fourth Workshop on Public Awareness for Acid Deposition Problems from 19 to 20 December 2003 in Niigata, Japan. The Workshop consisted of the Part I and the Part II. The Part I was attended by approximately forty participants and observers from eleven EANET participating countries, namely, Cambodia, China, Indonesia, Japan, Lao P.D.R., Malaysia, Mongolia, Philippines, Russia, Thailand and Viet Nam.

65. In addition to the participants of the Part I, approximately three hundreds local residents in Niigata attended the Part II of the Workshop. They included school children of an Elementary School, who have been learning acid deposition problems in a special education class. 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 enhance public awareness activities among general public and school children, and so on.

X-2 Others

66. 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 where approximately four hundred participants were attended. In order to disseminate information on recent EANET activities three oral and three poster presentations were made by NC in 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.

XI. ADMINISTRATIVE WORKS

67. NC implemented necessary administrative works such as management of budget and personal affairs, communication/coordination with the Secretariat, and so on.

Annex 1

Technical Missions of NC in 2003

Country	Period	Main Purposes	Results
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. 	<ul style="list-style-type: none"> i) Exchanged information and views on the progress of activities on the acid deposition monitoring in China; ii) Visited the monitoring center of four cities and most of the monitoring sites excluding Jinyunshan site in Chongqing, etc. iii) Discussed the possibility of carrying out of filter-pack method; and iv) Reported results of the mission to SEPA and CNEMC.
Viet Nam	19 – 25 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 Viet Nam; ii) To visit the candidate sites for wet and dry deposition monitoring around Hochiminh City, and monitoring site in Hoa Binh; iii) To hold workshop on QA/QC activities for wet and dry deposition monitoring; and iv) To visit relevant agencies to exchange information and discussion on the cooperation in acid deposition monitoring activities in Viet Nam. 	<ul style="list-style-type: none"> i) Visited the wet/dry deposition monitoring site and the inland aquatic environment monitoring site in Hoa Binh Dam; ii) Attended the joint committee at HMS, in which the new monitoring plan was discussed; iii) Attended National Workshop on a Acid Deposition and made presentation on EANET; iv) Visited the HMS of Southern Vietnam and had discussion on monitoring activities in Southern Vietnam; and v) Visited NCST and had discussion on cooperation between NCST and IMH
Philippines	20 – 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, for wet and dry deposition monitoring; iii) To visit the monitoring site for wet and dry deposition and inland aquatic environment and discuss the monitoring methods with the relevant experts; and iv) To exchange information and view on cooperation between Philippines and Japan. 	<ul style="list-style-type: none"> i) Confirmed actual situation of wet and dry deposition monitoring sites and two laboratories (EMB and UP); ii) Discussed major causes of low data completeness on wet deposition monitoring at Los Banos site; iii) Discussed technical issues that there are many data sets, which R1 and R2 are out of allowable range; iv) Discussed with EMB staffs about characteristics of Mojicap Lake and suggested to look for a new monitoring site for inland aquatic environment; and v) Requested to DG of EMB to elect new QA/QC manager in the Philippines

Country	Period	Main Purposes	Results
Republic 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; iii) To discuss the possibility of the inland aquatic environment monitoring of EANET in R. of Korea; and iv) To visit monitoring station (Kanghwa). 	<ul style="list-style-type: none"> i) Visited Ministry of the Environment and National Institute of Environmental Research (NIER), and exchanged information and views on the progress of activities in detail of wet & dry deposition and the soil & vegetation monitoring of EANET in R. of Korea; ii) Exchanged information on the filter-pack method in R. of Korea; iii) Discussed the possibility of the inland aquatic environment monitoring of EANET; and iv) Visited lab of NIER and Kanghwa monitoring site;
Thailand	25 February – 7 March 2003	<ul style="list-style-type: none"> i) To discuss the progress of EANET activities in Thailand; ii) To visit the monitoring sites at PCD, TMD, ERTC and Vachiralongkorn Dam and their laboratories (including KMUTT); iii) To attend the Thailand national training 2003 at ERTC; and iv) 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, 6 universities joint project and so on. 	<ul style="list-style-type: none"> i) Visited PCD and exchanged information and views on the progress of activities of wet & dry deposition and soil & vegetation monitoring of EANET in Thailand and visited the site/laboratory of PCD; ii) Visited the site/laboratory of TMD to observe the new wet monitoring site; iii) Visited also the laboratory of KMUTT, ERTC and Vachiralongkorn Dam; and iv) Attended the Thailand National training and lectured wet and dry deposition, Soil & vegetation and inland aquatic environment monitoring of EANET.
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 EANET in Mongolia; ii) To discuss the methodologies of wet and dry deposition monitoring, especially for winter season; iii) To exchange information and views in detail on the progress of the soil and vegetation monitoring of EANET in Mongolia; iv) To exchange information on the inland aquatic environment monitoring of EANET in Mongolia; v) To discuss the detailed plan for joint study on plant sensitivity to acid deposition in Mongolia; and 	<ul style="list-style-type: none"> i) Exchanged information and views on the progress of the monitoring activities on EANET in Mongolia and had a confirmation that NFP and other primary persons/organization for EANET activities in Mongolia; ii) Visited the wet/dry deposition monitoring site in Ulaanbaatar; iii) The monitoring of inland aquatic environment has started at a site in the Terelj River; iv) Went to the Bogdkhan Mountains to search out appropriate observation sites for the joint research on plant sensitivity, together with experts of CLEM; v) Received some copies of the brochure; and vi) Visited relevant organizations and explain recent EANET activities.

Country	Period	Main Purposes	Results
		vi) To exchange information and discuss progress on the joint project for dissemination of the brochure on acid deposition.	
Russia	27 July – 1 August 2003	i) To finalize MOA of the Cooperative Research Project in 2003; ii) To exchange views and information concerning EANET activities and workshop for soil and vegetation monitoring; 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; iv) To discuss technical issue, concerning the transfer of atomic absorption spectrophotometer; and v) To exchange information on the joint project for compiling the brochure on acid deposition.	i) Finalized MOA of the Cooperative Research Project in 2003; ii) Discussed on the transfer of AAS and the joint project for compiling the brochure on acid deposition; iii) Visited three monitoring sites, Mondy, Bol'shye Koty and Listvyanka; iv) Recommended changing site for inland aquatic monitoring because Krestovka River was not sensitive to acid deposition. Limnological Institute promised to start the monitoring at another river with high sensitivity from next year; and vi) Discussed topics of the Workshop for soil and vegetation monitoring which may be held next year in Irkutsk.
Cambodia and Lao P.D.R.	3 – 10 September 2003	i) To exchange information and views on institutional and technical arrangements for the activities of EANET in Laos and Cambodia; ii) To exchange information and views on technical cooperation between both countries and NC; iii) To know the condition of the wet-only sampler (and to offer necessary technical advise for the operation) in both countries; and iv) To visit relevant laboratories and candidate monitoring sites for EANET activities in both countries. Note: The Secretariat for EANET joined the mission to communicate with these newly participated countries.	i) Visited the Ministry of Environment, Cambodia and the Science, Technology and Environment Agency (STEA), Lao PDR and exchanged information and view on institutional and technical issues related to EANET; ii) Exchanged information and views on technical cooperation between both countries and NC; iii) Found the sampler installed on the roof of the Ministry's building and working properly in Cambodia, but STEA had not decided the wet deposition monitoring sites (Now it is installed tentatively on the courtyard in STEA); iv) Visited relevant laboratories and candidate monitoring sites for EANET activities in both countries.

Country	Period	Main Purposes	Results
Indonesia.	7 – 13 September 2003	<ul style="list-style-type: none"> i) To exchange views and information on progress of activities on the acid deposition monitoring in Indonesia with the staff of Ministry of the Environment, Indonesia; ii) To discuss technical issues such as QA/QC activities for monitoring activities with the staff of the Environmental Impact Control Facility (SARPEDAL); iii) To visit laboratories of SARPEDAL and the Bureau of Meteorology and Geophysics (BMG) and see equipment such as IC, sampler, etc.; and iv) To visit the (candidate) site for inland aquatic environment monitoring. 	<ul style="list-style-type: none"> i) Visited the Ministry of the Environment (KLH) and had a meeting to exchange views and information on progress of activities on EANET in Indonesia; ii) Visited SARPEDAL and had a meeting to discuss technical issues such as QA/QC activities for acid deposition monitoring activities in Indonesia; iii) Visited laboratories of SARPEDAL and the Bureau of Meteorology and Geophysics (BMG) and observed equipment such as IC, sampler, etc; iv) Visited the Research Institute for Water Resources (PUSAIR) to discuss the inland aquatic environment monitoring, observed the laboratory and followed by visit to the site of inland aquatic environment monitoring

Note: NC went on technical mission to Malaysia from 29 February to 6 March 2004.

Annex 2

Table 1 Training program at NC in Feb./Mar. 2003 (four weeks)

Week	Trainees from Cambodia and Lao PDR
1	Soil/Vegetation monitoring Inland Aquatic Environment monitoring Review of EANET activities <ul style="list-style-type: none"> - Lecture/Discussion of Soil-Vegetation & Inland Aquatic Environment monitoring - Review of activities of EANET, Public Awareness, Training activities of EANET, etc.
2	Data management and evaluation <ul style="list-style-type: none"> - Field operation on soil/vegetation, inland aquatic environment (Kajikawa sites) - Lecture/Discussion of QA/QC activities - Lecture/Discussion of Data management and evaluation - Lecture/Practice of Wet deposition monitoring Data management Participation on Workshop on Public Awareness
3	Wet deposition monitoring <ul style="list-style-type: none"> - Lecture/discussion of QA/QC activities - Field operation (Maki) on wet and dry deposition equipment - Lecture/practice of wet deposition monitoring (pH, EC, AAS, spectrophotometry, titration, IC) - Lecture/practice of wet deposition monitoring
4	Wet/dry deposition monitoring <ul style="list-style-type: none"> - Lecture/practice of wet deposition monitoring (R1, R2) - Wrap up of wet deposition monitoring - Field operation (Maki) on wet and dry deposition equipment - Lecture/practice of dry deposition monitoring including data management Wrap-up of the training

Table 2 Training program at NC in Oct. 2003 (four weeks)

Week	Trainees from China and Viet Nam	Trainee from Thailand
1	Wet deposition monitoring Review of EANET activities <ul style="list-style-type: none"> - Lecture of EANET activities: progress of EANET and public awareness - Lecture/Discussion; wet deposition monitoring, QA/QC activities, SOPs etc. - Field operation (Maki) including collection of wet-samples - Lab analysis (practice, pre-treatment, pH, EC, IC measurement) - Lab analysis/practice: IC (prepare standard solution, bial bottle, learn procedure) - Data analysis of IC - Calculation of R1 and R2 	
2	Dry deposition monitoring Soil/vegetation and inland aquatic <ul style="list-style-type: none"> - Lecture/Discussion on dry deposition - Lecture of filter pack sampling - Lecture/Discussion of Soil-Vegetation & Inland Aquatic Environment monitoring 	
	<ul style="list-style-type: none"> - Lab analysis on soil sample (AAS:practice) 	<ul style="list-style-type: none"> - Lab practice: Filter pack method –preparation of filters - Lab analysis/practice (spectrophotometry)
3	<ul style="list-style-type: none"> - Field operation (Kaji) - Lab analysis (practice) - Discussion on monitoring of Eco-system 	
	Soil/Vegetation (and wet) monitoring <ul style="list-style-type: none"> - Lab analysis on soil/wet sample (AAS: practice) - Data analysis of AAS (soil/wet sample) - Lab analysis (Alkalinity measurement: practice) - Wrap up of Soil-Vegetation & Inland Aquatic Environment monitoring, Data management 	Dry deposition monitoring Soil/Vegetation monitoring <ul style="list-style-type: none"> - Lab analysis/practice: IC (extraction and set sample) - Calculation of dry deposition - Wrap up of wet/dry deposition
4	<ul style="list-style-type: none"> - Field operation (Sado island) on wet and dry deposition equipment 	
	Data management and evaluation <ul style="list-style-type: none"> - Lecture/practice of Soil/vegetation monitoring - Visit to Niigata Prefectural Research Institute for Health and Env. - Lecture/Practice of Dry deposition monitoring Data management - Lecture of numerical modeling - Lecture/Discussion of Data management and evaluation - Lecture/Discussion of QA/QC activities - Lecture/Practice of Wet deposition monitoring Data management Wrap-up of the training	