

The Twelfth Session of the Intergovernmental Meeting  
on Acid Deposition Monitoring Network in East Asia  
23-24 November 2010, Niigata, Japan

**REPORT ON THE PROGRESS OF EANET SINCE THE ELEVENTH SESSION  
OF THE INTERGOVERNMENTAL MEETING (IG11)**

**I. INTRODUCTION**

1. This document is prepared to report the progress of the Acid Deposition Monitoring Network in East Asia (EANET) activities since the Eleventh Session of the Intergovernmental Meeting (IG11) held on 19-20 November 2009 in Bangkok, Thailand.
2. The activities of EANET implemented during this period were guided by the “Strategy on EANET Development (2006-2010)”, adopted at the Eighth Session of the Intergovernmental Meeting (IG8) held in November 2006 in Hanoi, Vietnam. The activities were also in accordance with the Work Program and Budget of EANET in 2009 and 2010 adopted at the Tenth Session of the Intergovernmental Meeting (IG10) and the Eleventh Session of the Intergovernmental Meeting (IG11), respectively.

**II. INSTITUTIONAL AND ADMINISTRATIVE ARRANGEMENT**

Voluntary financial contribution from the participating countries

[Secretariat Budget]

3. In accordance with the Revised Procedures and Guideline for Voluntary Contribution to EANET adopted at the Ninth Session of the Intergovernmental Meeting (IG9) in November 2007, the Secretariat sent letters of request to all National Focal Points regarding the estimated contributions of the participating countries, both for the Secretariat budget and the Network Center (NC) core budget in 2010. Currently, nine participating countries are already contributing to the budget of the Secretariat, and seven participating countries are contributing to the NC core budget.
4. In March 2010, the Ministry of Environment of Japan, MOEJ and the UNEP RRC.AP signed agreements regarding the Japanese contribution for the budget of the Secretariat activities in 2009. In accordance with the contract, the contribution from Japan was made in March 2010.

[Network Center Budget]

5. In March 2010, MOE, Japan and the Japan Environmental Sanitation Center (JESC) also signed agreements regarding Japanese contribution for the budget for implementation of the Network Center (NC) core and additional budget activities for the second to the fourth quarter of 2009 and for the first quarter of 2010. In accordance with the contract, the contribution from Japan was made in April 2010.
6. In accordance with the Revised Procedures and Guideline for Voluntary Financial Contribution to EANET and the Work Program and Budget of EANET in 2009/2010, Thailand and Cambodia made contributions to the NC core budget for the year 2010 in March and September 2010, respectively after IG11, and Vietnam contributed to the NC core budget for the year 2009 in March 2010.

#### Renaming of the NC

7. In accordance with the “DECISION 4/IG.2 (EANET/IG 2/9)”, ADORC (Acid Deposition and Oxidant Research Center) has been serving as the NC for EANET from the start of regular phase of EANET. JESC renamed the ADORC to ACAP (Asia Center for Air Pollution Research) on 30 June 2010, considering more than ten years have passed from the foundation and air pollution issues are becoming more important, though the organizational structure was not changed.

#### Staff recruitment

*[Coordinator, EANET Secretariat]*

8. According to the “Review of the Status of the EANET Secretariat” (EANET/IG 6/11) endorsed by the Sixth Session of the Intergovernmental Meeting (IG6) in 2004, the position of the professional staff of the Secretariat will be for a period of two years with a provision for a maximum period of two terms. The first term of the appointment of the present Coordinator was completed by October 2009. The Secretariat sent out the vacancy announcement for Coordinator position to all National Focal Points (NFPs) on 17 September 2009. The Secretariat received only one application, from Ms. Adelaida B. Roman (Philippines), the current Coordinator. Five countries which included: Indonesia, Malaysia, Mongolia, Philippines, and Thailand sent their comments and full support to the application of Ms. Roman. The Selection Committee reviewed the application and recommended Ms. Roman for the position of the Coordinator for a period of two years. With the concurrence of the NFPs, she was appointed as the Coordinator of the Secretariat for EANET.

*[Program Officer, EANET Secretariat]*

9. The vacancy announcement for Programme Officer position at the Secretariat was circulated to all National Focal Points (NFPs) on 18 February 2010. The Secretariat sent the long list of applicants for information and the 3 short-listed candidates for comments of the NFPs on 20 April 2010 and 29 April 2010, respectively. The Selection Committee held its meeting on 17 May 2010 to interview the short-listed applicants and to select the final candidate. The Committee selected Ms. Dong Yao from China as the final candidate. She worked in International Cooperation Department, Ministry of Environmental Protection, China. The effectivity of her appointment was 15 July 2010, with duration of two years.

Publication of proceedings, summaries of the meetings and newsletters, etc.

10. The EANET Newsletters, dated December 2009 and June 2010 were published by the Secretariat in collaboration with the NC.
11. After the IG11, publications of proceedings and summaries of the following meetings were completed and distributed to the participating countries and participants of the sessions:
  - Eleventh Session of the Intergovernmental Meeting (IG11)
  - Ninth Session of the Scientific Advisory Committee (SAC9)
  - Eighth Session of the Working Group on Future Development of EANET (WGFD8)
  - Ninth Session of the Working Group on Future Development of EANET (WGFD9)
  - Tenth Senior Technical Managers' Meeting (STM10)
12. The Second Report for Policy Makers (RPM2) named "Clean Air For a Sustainable Future" was launched at the IG11 held on 19-20 in Bangkok, Thailand, and copies were distributed to the participating countries of EANET and related organizations in November 2009. It was also published in EANET website in December 2009.
13. The Factsheets titled "Country efforts and achievements in combating acid deposition" developed by all participating countries of EANET through collaboration and coordination with the NC and the Secretariat were published in November 2009. It was also issued on EANET website in March 2010.

### **III. EANET MEETINGS**

Scientific Advisory Committee (SAC)

14. The SAC10 was held on 13-15 October 2010 in Pattaya, Thailand in order to discuss all of important technical and scientific issues of EANET including Medium Term plan for EANET (2011-2015). Major decisions/discussions during SAC10 include the following:

- 1) Review and adoption of the Data Report 2009 of EANET;
  - 2) Review and adoption of the Report of the Inter-laboratory Comparison projects in 2009 and consideration of recommendations for improvement of QA/QC activities;
  - 3) Consideration of updated National Monitoring Plans of the participating countries;
  - 4) Consideration of the Reports from the Chairpersons of the Task Forces and Expert Groups of SAC:
    - Report from the Chairperson of the Task Force on Soil and Vegetation Monitoring
    - Report from the Chairperson of the Task Force on Dry Deposition Monitoring
    - Report from the Chairperson of the Expert Group on Dry Deposition Flux Estimation
    - Report from the Chairperson of the Expert Group on Revision of Technical Manual on Wet Deposition Monitoring
    - Report from the Chairperson of the Expert Group on Revision of Technical Manual on Inland Aquatic Environment Monitoring
    - Report from the Chairperson of the Expert Group on Preparation of Technical Manual on Air Concentration Monitoring
    - Report from the Chairperson of the Task Force on Research Coordination
    - The Session agreed to submit the Revised Draft Technical Manual on Wet Deposition Monitoring, Revised Draft Technical Manual on Inland Aquatic Environment Monitoring, and Draft Technical Manual on Dry Deposition Flux Estimation to IG12 for adoption..
  - 5) Report on the Progress of the Drafting Committee (DC) for the Second Periodic Report on the State of Acid Deposition in East Asia (PRSAD2)
  - 6) Consideration of the Draft Medium Term Plan (MTP) for EANET (2011-2015) from scientific and technical viewpoints
  - 7) Consideration of EANET High Priority research projects;
  - 8) Consideration of the relevant activities of EANET; and
  - 9) Updates on the activities of other regional and international initiatives on acid deposition and transboundary air pollution
15. On 20 April 2010, the Secretariat sent an invitation letter to all NFPs of EANET participating countries to host the Tenth Session of the Scientific Advisory Committee Meeting (SAC10). Since the Secretariat did not receive any offer from the participating countries, it was decided that the SAC10 be held in Pattaya, Thailand on 13-15 October 2010.

#### Intergovernmental Meeting of EANET (IG)

16. The Intergovernmental Meeting (IG) of EANET held its Eleventh Session in Bangkok, Thailand on 19-20 November 2009. The Session made decisions and guidance on the implementation of EANET activities.

17. The Session endorsed the proposal to establish an Expert Group on Preparation of the Technical Manual for Air Concentration Monitoring. The Chairperson is Dr. Duong Hong Son, Vietnam.
18. The Session also endorsed the proposal to dissolve the Expert Group on Preparation of the Second Periodic Report on State of Acid Deposition in East Asia (PRSA2) following the information on the Establishment of the Drafting Committee for the PRSA2.

#### Working Group on Future Development of EANET (WGFD)

19. The Ninth Session of the WGFD (WGFD9) was held in Pathumthani, Thailand on 7-8 April 2010. The Session discussed the National Procedures of the Participating Countries and Modalities of the Signature for the Instrument of EANET, Draft Explanatory Note for Obtaining the Signatures for the Instrument, Draft Report on the Review of Performance of the Secretariat and the Network Center (2008-2009), Draft Medium Term Plan for EANET (2011-2015) and Draft Second Report on Future Development of EANET and the Draft Procedures and Guidelines for Voluntary Financial Contributions to EANET for 2011-2013.

#### Senior Technical Managers' Meeting (STM)

20. On 8 March 2010, the NC sent an invitation letter to all NFPs of EANET participating countries to host the Eleventh Senior Technical Managers' Meeting (STM11). Since the NC did not receive any offer from the participating countries, it was decided that the STM11 be held in Niigata, Japan on 2-3 September 2010. Major discussion items during the STM11 were as follows:
  - Report on progress of EANET since STM10;
  - Update of national monitoring plans of the participating countries;
  - Consideration of the preliminary draft Data Report 2009;
  - Consideration of the preliminary draft Report on Inter-laboratory Comparison Projects in 2009;
  - Progress report on scientific and technical activities of EANET;
  - Progress of the Second Periodic Report on the State of Acid Deposition in East Asia (PRSA2); and
  - Calibration of the automatic ozone monitoring.

#### Meetings of the Task Forces and Expert Groups established under SAC

21. The NC has continued its task as the secretariat of the Task Forces and Expert Groups (TFs/EGs). The NC contacted the Chairpersons of the TFs/EGs to discuss on dates, agenda of the third meeting and also membership of TFs/EGs as appropriate. The latest Chairpersons and members of the TFs/EGs, and schedule of their meetings are attached as Annex 1.

22. After the IG11, the following TFs/EGs meetings were held to discuss the important issues of each TF or EG in accordance with the TOR, future plan, etc.
- Third Meeting of the Expert Group on Dry Deposition Flux Estimation (24-25 June 2010, Niigata, Japan)  
The session decided to submit the final draft of the technical manual to the SAC10 for endorsement.
  - Third Meeting of the Expert Group on Revision of Technical Manual on Inland Aquatic Environment Monitoring (12-13 July 2010, Niigata, Japan)  
The session decided to submit the final draft of the revised technical manual to the SAC10 for endorsement.
  - Third Meeting of the Task Force on Monitoring for Dry Deposition (26-27 July 2010, Niigata, Japan)  
The session decided to submit the final draft of the “Draft Strategy Paper on Future Direction of Monitoring for Dry Deposition of EANET (2011-2015)” to the SAC10 for consideration and endorsement.
  - Third Meeting of the Task Force on Soil and Vegetation Monitoring (28-29 July 2010, Niigata, Japan)  
The session decided to submit the final draft of the “Draft Guideline for Catchment-scale Monitoring in East Asia” to the SAC10 for consideration and endorsement.
  - Third Meeting of the Task Force on Research Coordination (14 October 2010, Pattaya, Thailand)

#### Drafting Committee (DC) for the PRSAD2

23. Based on the discussion at SAC9, the First Meeting of the Drafting Committee (DC1) for the PRSAD2 was held on 22-23 April, 2010 in Niigata, Japan. The meeting was attended by the DC members or their alternates from 13 participating countries. The DC1 decided the Table of Contents of Part I (Regional Report) and Part II (National Report), and designated the lead author(s) and contributing authors of each chapter. The DC1 also decide the implementation plan for the PRSAD2.
24. Based on the result of DC1, the First Lead Authors’ Meeting of the Drafting Committee (DC) for the PRSAD2 was held on 28-29 June, 2010 in Niigata, Japan. The meeting was attended by the Lead authors and contributors from participating countries. The meeting elaborated the Structure and contents of PRSAD2 including the Lead author(s) and contributing authors of each chapter, Implementation plan for PRSAD2.

#### **IV. INTERNATIONAL COOPERATION - PARTICIPATION IN MEETINGS AND WORKSHOPS RELATED TO EANET**

##### Long-Range Transboundary Air Pollutants in Northeast Asia (LTP)

25. The NC has been participating in the International Joint Research of LTP between Korea, China, and Japan. The NC representatives attended the 13<sup>th</sup> Expert Meeting for Long-range Transboundary Air Pollutants in Northeast Asia, organized by the National Institute of Environmental Research (NIER), Republic of Korea, and held in Zhuhai, China on 8-10 November 2010. The reports on monitoring and modeling activities in each country were presented by the experts of three countries.

Meeting of the Joint Forum on Atmospheric Environment in Asia and the Pacific

26. The Secretariat and the NC attended the “Meeting of the Joint Forum on Atmospheric Environment in Asia and the Pacific” which was held in Bangkok, Thailand on 10-11 March 2010. The meeting was organized by the United Nations Environment Programme (UNEP) and participated in by the representatives of EANET and Malé Declaration on Control and Prevention of Air Pollution and its Likely Transboundary Effects for South Asia participating countries and other regional networks/programmes such as Association of Southeast Asian Nations (ASEAN) Secretariat, Central Asian Environment Convention Secretariat, Pacific Regional Environment Programme (SPREP) Secretariat, and South Asia Cooperative Environment Programme (SACEP) Secretariat, Clean Air Initiative Asia (CAI-Asia), Institute for Global Environmental Strategies (IGES), Stockholm Environment Institute (SEI-York) and resource persons. The participants adopted the revised “Joint Plan for Joint Activities on Air Pollution in Asia and the Pacific”.

Malé Declaration on Control and Prevention of Air Pollution and its Likely Transboundary Effects for South Asia

27. The Secretariat and the NC attended the First Meeting of the Task Force on Future Development of the Malé Declaration on Control and Prevention of Air Pollution and its Likely Transboundary Effects for South Asia held on 2-3 August 2010 in Pathumthani, Thailand. The meeting discussed the Draft Sustainable Financial Mechanism for Malé Declaration (MD), Draft Feasibility Report on the Establishment of Regional Technical Centers, Draft Resolution at the Ministerial meeting and so on. The Secretariat and the NC presented the experiences of EANET on “Financial Arrangement of EANET” and the “Instrument for EANET” as well as “Experience of ACAP/ADORC as a Network Center for EANET”.

Ministerial Regional Forum on Environment and Health in South-East and East Asian Countries

28. The Secretariat and the NC attended the 2<sup>nd</sup> Ministerial Regional Forum on Environment and Health in South-East and East Asian Countries held on 14-15 July 2010 in Jeju, Republic of Korea and disseminated information on progress of EANET through the EANET posters, etc. The Jeju Declaration was adopted and urge the member countries to consider establishing sustainable and effective mechanisms to finance the operation of the

Forum. Malaysia proposed to be the host of the 3<sup>rd</sup> Ministerial Meeting in the next 3 years (2013). The forum is potentially effective to be able to solve the environment and health problems in East Asia.

#### Model International Workshop on Atmospheric Modeling Research in East Asia

29. International Workshop on Atmospheric Modeling Research in East Asia was held on 18-19 March 2010 in Dalian, China. Based on the outcomes at the Model Inter-Comparison Study (MICS) workshops, the International Workshop on Atmospheric Modeling Research in East Asia focuses on (i) current modeling analysis results of air pollution and atmospheric deposition in East Asian region, (ii) discussion on future modeling researches in East Asian region, and research activities of MICS Asia Phase III, etc. were discussed. In order to discuss these agenda, the workshop invited modeling researchers in Asian countries as well as members of MICS-Asia.

#### CLRTAP Meeting

30. The NC attended the 27<sup>th</sup> Session on the Executive Body for the Convention on Long-range Transboundary Air Pollution (EB-CLRTAP) held on 14-18 December 2009 in Geneva, Switzerland and presented the recent activities of the EANET and exchanged information and views on transboundary air pollution issues.
31. The NC attended the 26<sup>th</sup> Task Force Meeting of International Co-operative Programme on Assessment and Monitoring of Air Pollution Effects on Forests (ICP Forests), UNECE, which was held from 29 May to 1 June 2010 in Garmisch-Partenkirchen, Germany, and presented the recent progress of ecological monitoring in EANET.

#### 11<sup>th</sup> Annual Collaborative Action Network (CAN) Meeting

32. The NC and Dr. Supat Wangwongwatana (as senior representative for EANET) participated in the Eleventh Annual Collaborative Action Network (CAN) Meeting held on 20 October 2010 in Bangkok, Thailand. This meeting brought together CAN partners and donors of UNEP to exchange information and communicate on issues of common interest. The sub-regional reporting by CAN members on atmospheric issues and climate change adaptation (current status, initiative, needs) was done during the meeting. UNEP RRC.AP presented the proposal for Asia Pacific Regional Centre of Excellence on Atmospheric Resources.

## **V. COMMUNICATION WITH PARTICIPATING COUNTRIES AND OTHER RELEVANT AGENCIES**



Communication with the participating countries, etc.

33. The Secretariat received communications from some NFPs regarding a few changes on institutional bodies of EANET in their respective countries, e.g. NFPs, SAC members, etc. from time to time and circulated this information to all concerned.
34. The Secretariat maintained close communication with the participating countries in all related activities of EANET and relevant international organizations such as United Nations Economic Commission for Europe (UNECE), UNEP, etc.
35. The NC also communicated with participating countries regarding scientific and technical issues to improve monitoring and assessment of acid deposition in the region.

**VI. CENTRAL COMPILATION, EVALUATION, STORAGE AND DISSEMINATION OF DATA AND RELEVANT INFORMATION**

36. The NC published the Data Report 2008 in November 2009 and distributed it to NFPs, National Centers, SAC members and other relevant organizations in January 2010. All of the participating countries have already submitted their 2009 monitoring data to the NC. The NC is in the process of checking and verifying the data.
37. In accordance with the Detailed Mechanism of Article 4 of the Procedures on Data and Information Disclosure for EANET, all the EANET monitoring data up to 2007 were disclosed outside of EANET in January 2010. The raw data of 2008 will be disclosed in January 2011.

**VII. STRENGTHENING THE CAPACITY IN THE PARTICIPATING COUNTRIES**

Dispatch of technical missions

38. After IG11, the NC dispatched technical missions to Myanmar (November 2009), Philippines (January 2010), Cambodia (February 2010), Lao PDR (March 2010), Russia (August 2010), Malaysia (September 2010), and Thailand and Myanmar (October 2010) to exchange information, provide technical advice and assess the suitability of proposed EANET monitoring sites. The mission members also checked the condition of the instruments provided to countries. (Ref. Annex 2: Summary of Technical Missions of the NC since IG11).

Technical support for the participating countries

39. The NC provided assistance to Cambodia, China, Lao PDR, Mongolia, Myanmar and Vietnam in 2009 and 2010 for their monitoring activities.

## **VIII. IMPLEMENTATION AND COORDINATION OF QA/QC ACTIVITIES**

### Inter-laboratory comparison projects

40. The NC published the Report of Interlaboratory Comparison Project 2008 comprising the 11<sup>th</sup> Inter-laboratory comparison project on wet deposition, the 4<sup>th</sup> Inter-laboratory comparison project on dry deposition (filter pack method), the 10<sup>th</sup> Inter-laboratory comparison project on soil and the 9<sup>th</sup> Inter-laboratory comparison project on inland aquatic environment, and distributed it to the participating laboratories in January 2010.
41. The NC distributed samples for the 12<sup>th</sup> Inter-laboratory comparison project on wet deposition, the 5<sup>th</sup> Inter-laboratory comparison project on dry deposition (filter pack method), the 11<sup>th</sup> Inter-laboratory comparison project on soil and the 10<sup>th</sup> Inter-laboratory comparison project on inland aquatic environment to the participating countries in October 2009. The results were discussed at the SAC10..
42. Several EANET laboratories in Japan, Philippines, Russia, Thailand and Viet Nam also participated in the international inter-comparison 2009 organized by the Convention on Long-range Transboundary Air Pollution (CLRTAP) International Cooperative Programme on Assessment and Monitoring of Acidification in Rivers and Lakes (ICP-Waters), etc.

## **IX. IMPLEMENTATION OF TRAINING ACTIVITIES**

### Questionnaire Survey for Training Activities 2009

43. In July 2010, the NC implemented the annual questionnaire survey on training activities carried out by the participating countries. The information gathered on training requirements and suggestions on new training areas are useful for planning of the future training activities of EANET. The results including the requests on EANET training activities from the participating countries were summarized as Annex 3.

### JICA Training Course on EANET

44. Japan International Cooperation Agency (JICA) training course, “Acid Deposition Monitoring Network in East Asia 2009” was held from 27 September through 12 December 2009 in Kobe and some other places in Japan. Six trainees from five EANET participating countries, namely Cambodia, Lao PDR, Myanmar, Thailand and Vietnam attended this course. Several lectures were delivered by the NC staffs. During the visit of JICA trainees to

Niigata, the NC presented lectures and demonstrated practices on acid deposition monitoring of EANET.

45. The NC maintained close communication with the organizers of the JICA training course on the curriculum by attending the meetings of the steering committee and briefing them on EANET activities regularly. The training course in 2010 is being carried out from 17 October to 18 December 2010 in Kobe, Japan. This year, seven trainees from six EANET participating countries, namely Cambodia, China, Lao PDR, Myanmar (2), Thailand and Vietnam were attend this course.

#### JICA Third Country Training Program

46. The JICA Third Country Training Course to be held in 2011 is now being discussed among the relevant organizations in Japan and Thailand including the NC, Pollution Control Department (PCD) and Environmental Research and Training Center (ERTC).

#### EANET individual training at ADORC

47. One trainee from Malaysia received the EANET individual training at the NC from 24 November through 4 December 2009 by their own budget. One trainee each from China, Indonesia and Vietnam was selected to participate in the EANET individual training course at the NC from 1 through 26 February 2010. They received training on wet deposition, dry deposition, soil/vegetation and inland aquatic environment monitoring, and data management. One trainee each from Cambodia, Lao PDR and Myanmar also participated in the EANET individual training on wet deposition, dry deposition and data management from 25 October through 5 November 2010.

### **X. RESEARCH ACTIVITIES**

48. The research activities of EANET are important to evaluate the environmental impacts of acid deposition on the region's diverse ecosystem, to improve the monitoring methodologies, and develop analytical methods suitable for East Asia. NC performed research activities with consideration of the regional characteristics.

#### EANET Research Fellowship Program

49. On 5 June 2009, the NC sent a letter to NFPs and SAC members inviting applicants for the research fellowship in 2009. In response to the invitation letter, the NC received 7 applications from 3 countries namely Lao PDR, Mongolia and Thailand. Based on the procedures of the fellowship research program, the Selection Committee of the NC considered the proposed research plans submitted by the applicants and decided to invite one researcher from Thailand to conduct the research in the NC for two months. The

research topic was “Effect of haze episodes on wet and dry depositions at EANET sites in Thailand”.

50. In July 2010, the NC sent a letter to NFPs and SAC members inviting applicants for the research fellowship in 2010. In response to the invitation letter, the NC received 4 applications from 4 countries namely Malaysia, Mongolia, Thailand and Vietnam. Based on the procedures of the fellowship research program, the Selection Committee of the NC considered the proposed research plans submitted by the applicants and decided to invite two researchers from Thailand and Vietnam to conduct the researches in ACAP for two/four months. The research topic from Thailand is “Effect of biomass burning on atmospheric acid deposition in Chiang Mai, Lamphun Basin, Thailand”, and the research topic from Vietnam is “Study on wet and dry deposition over the Southeast Asia by CMAQ model and EANET data”. The fellowship is being implemented from the beginning of October 2010.

#### Publication of the EANET Science Bulletin (Volume II)

51. In order to share research findings among the participating countries, the NC plans to publish the EANET Science Bulletin biennially. Therefore, the NC sent invitation to the participating countries to submit relevant research reports of scientists. The deadline for submission was by the end of August 2010. The EANET Science Bulletin (Vol. II) will be published early 2011.

#### EANET high priority research projects

52. The NC has started the implementation of the following three EANET high priority research projects with the leaders of the projects. Implementation plans of these projects were sent to the SAC members in June 2009. The third one was almost finished, but other two projects are still ongoing. The progress of the projects will be reported to the SAC meeting.
- Aerosol Deposition Studies in Forests for Improvement of Estimation Method for Dry Deposition in Thailand
  - Feasibility Study on Low Cost Methodologies for Monitoring Air Concentrations with Thailand, China and Russia
  - Analysis of Existing Data for Improving the Understanding of the Status of Acidification in East Asia

#### Joint research project on catchment analysis with Thailand, Malaysia and Japan

53. Catchment analysis is one of the issues described in the Strategy Paper for Future Direction of Soil, Vegetation and related Ecosystems Monitoring of EANET (2009-2014). The NC has implemented the joint research project on catchment analysis in Thailand with the Royal Forest Department (RFD) and ERTC, in Malaysia with the Malaysian Meteorological Department (MMD), and in Japan with Niigata Prefecture and Niigata University. Part of the projects is supported financially by the Global Environment Research Fund of the MOE,

Japan. Monitoring on input (deposition) and output (stream water) fluxes in/from a small 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. The experience obtained through three joint projects above will be informative for development of guidelines on catchment-scale monitoring. Moreover, the data is being utilized for development of catchment-scale biogeochemical model.

## **XI. BUILDING PUBLIC AWARENESS**

### Joint project on environmental education activities

54. The NC has undertaken a joint project with Thailand to support their environmental study activities on acid deposition in schools. The results of the project by the school children from one school in Bangkok and two elementary schools in Niigata Prefecture, such as measurements of the concentration of nitrogen oxides, dust around their schools and the pH value of rainwater were reported at the Workshop on Public Awareness for Acid Deposition Problems, etc. The Environmental Conference of School Children 2010 was held in February 2010 with participation of school children from two elementary schools in Bangkok, Thailand and four elementary schools in Niigata, Japan.
55. The NC made a plan for a similar joint project with China to support the environmental study activities on acid deposition in schools of China in 2010 after the NC mission to Chongqing, China in June 2010 to discuss detailed plan. An elementary school in Chongqing, China and elementary schools in Niigata Prefecture, Japan will participate in the joint project.

### EANET website

56. New information has been included on the EANET web site such as publications (e.g. Second Report for Policy Makers, Fact Sheets, Data Report 2008 and Inter-laboratory comparison projects 2008), EANET Newsletter, EANET meeting reports, monitoring site information, and so on.
57. In accordance with the renaming of the organization, former ADORC website was renewed as the new ACAP website on 30 June 2010. The new ACAP is as follows:  
URL: <http://www.acap.asia/index.html>
58. The NC also made some minor improvements to the e-Learning program on acid deposition problems for environmental education.

**XII. CHALLENGES/PROBLEMS/SOLUTIONS IN EANET IMPLEMENTATION**

59. No serious problems have been encountered by the Secretariat and the NC in the implementation of the activities of EANET during this period. The Secretariat and the NC recognized that the participating countries are in consensus of a step-by-step approach regarding EANET activities and all countries have different situations and conditions.

**Annex 1**

**Members and meeting schedule of the Task Forces and Expert Groups under SAC**

Name	Members	3 <sup>rd</sup> Meeting
Task Force on Monitoring for Dry Deposition	Dr. Cho Seog-Yeon (R. of Korea) - <b>Chairperson</b> Mr. Chhek Roth/ Mr. Kong Savuth (Cambodia) Dr. Li Jianjun (China) Ms. Rina Aprishanty (Indonesia) Dr. Shiro Hatakeyama (Japan) Ms. Setouanh Phanthavongsa (Lao PDR) Ms. Maznorizan Mohamad (Malaysia) Ms. B. Altantuya (Mongolia) Ms. Htwe Htwe Win (Myanmar) Engr. Jean N. Rosete (Philippines) Dr. Chang Lim-Seok (Republic of Korea) Dr. Tamara V. Khodzher (Russia) Dr. Pojanie Khummongkol (Thailand) Dr. Duong Hong Son (Vietnam)	26-27 July 2010 in Niigata, Japan
Task Force on Soil and Vegetation Monitoring	Dr. Wilfredo M. Carandang (Philippines) - <b>Chairperson</b> Mr. Haijiang Liu (China) Dr. Masamichi Takahashi (Japan) Dr. Nik Abdul Majid/Dr. Ahmad Makmum Abdullah (Malaysia) Dr. Apolonio M. Ocampo (Philippines) Dr. Kim Hye-Jin (Republic of Korea) Dr. Tatiana A. Mikhailova (Russia) Mr. Bopit Kietvuttinon (Thailand) Dr. Hiroyuki Sase (ACAP)	27-28 July 2010 in Niigata, Japan
Task Force on Monitoring Instrumentation	Prof. Wang Ruibin (China) - <b>Chairperson</b> Mr. Chhek Roth (Cambodia) Mr. Zheng Haohao (China) Ms. Novy Farhani (Indonesia) Dr. Tsuyoshi Ohizumi (Japan) Ms. Setouanh Phanthavongsa (Lao PDR) Ms. Siniarovina Urban (Malaysia) Mr. Barkhasragchaa Baldorj (Mongolia) Ms. Htwe Htwe Win (Myanmar) Engr. Arturo Bongco /Engr. Robert Co (Philippines) Dr. Ahn Joon-Young (Republic of Korea) Dr. Sergey Paramonov (Russia) Ms. Wassana Toruksa (Thailand) Mr. Tran Son (Vietnam)	No plan

Name	Members	3 <sup>rd</sup> (1 <sup>st</sup> ) Meeting
Task Force on Research Coordination	Dr. Sergey Gromov (Russia) - <b>Chairperson</b> Prof. Wang Ruibin (China) Dr. Hiroshi Hara (Japan) Prof. Katsunori Suzuki (Japan) Dr. Elizabeth Phillip (Malaysia) Dr. Cho Seog-Yeon (R. of Korea) Dr. Wilfredo M. Carandang (Philippines) Dr. Tamara Khodzher (Russia) Dr. Pojanie Khummongkol (Thailand) Dr. Duong Hong Son (Vietnam) Dr. Hajime Akimoto (ACAP)	14 October 2010 in Pattaya, Thailand (during SAC10)
Expert Group on Dry Deposition Flux Estimation	Dr. Pojanie Khummongkol (Thailand) - <b>Chairperson</b> Dr. Kazuhide Matsuda (Japan) Dr. Kentaro Hayashi (Japan) Dr. Akira Takahashi (Japan) Dr. Hiromasa Ueda (Japan) Dr. Chang Lim-Seok (R. of Korea)	24-25 June 2010 in Niigata, Japan
Expert Group on Revision of Technical Manual on Wet Deposition Monitoring	Dr. Hiroshi Hara (Japan) - <b>Chairperson</b> Dr. Tsuyoshi Ohizumi (Japan) Mr. Izumi Noguchi (Japan) Ms. Leong Chow Peng (Malaysia) Ms. Bulgan Tumendemberel (Mongolia) Dr. Ahn Joon-Young (R. of Korea) Dr. Hathairatana Garivait (Thailand) Dr. Dave Mactavish (WMO/Canada)	No plan
Expert Group on Revision of Technical Manual on Inland Aquatic Environment Monitoring	Dr. Tamara Khodzher (Russia) - <b>Chairperson</b> Dr. Simon S. Brahmana (Indonesia) Dr. Senichi Ebise (Japan) Dr. Haruo Fukuhara (Japan) Dr. Vu Van Tuan (Vietnam) Prof. Seiichi Ohta (Japan) Prof. Tomonori Kawakami (Japan) Dr. Hiroyuki Sase (ACAP)	12-13 July 2010 in Niigata, Japan
Expert Group on Preparation of Technical Manual for Air Concentration Monitoring	Dr. Duong Hong Son (Vietnam) – Chairperson  (Other members will be selected soon.)	April or May 2011



**Annex 2**

**Summary of Technical Missions of the NC since IG11**

Country	Duration	Major Activities/Outcomes of the Mission
Myanmar	23-27 Nov. 2009	The mission visited Department of Meteorology and Hydrology (DMH) to exchange information and views with the staffs of DMH, and visited the lab of DMH to hold a seminar of IC and pure water apparatus. The mission confirmed that new IC system installed by JICA can be operated without any problems.
Philippines	16-21 Jan. 2010	The mission requested moving positions of the wet-only sampler and the rain gauge of Mt. Sto Tomas site in order to remove obstruction to collection of the sample based on the site criteria because the distance between those instruments and the fence of 2 meters in height was less 2 meters. Regarding results of Inter-laboratory comparison projects 2008, the mission requested to select appropriate concentration range of standard solutions for every ion to measure. Although ozone monitor in Metro-Manila site has been broken, the data will be submitted as EANET data after it is repaired.
Cambodia	9-13 Feb. 2010	The mission requested to start filter-pack monitoring as soon as possible because almost one year has passed since they received necessary equipment and so on from the NC, and the monitoring equipment was installed appropriately to the Phnom Penh monitoring site. Cambodia decided to start filter-pack monitoring from 12 February 2010. The mission instructed all of necessary technical matters of the monitoring to the staff in charge again during the mission.
Lao PDR	21-25 Mar. 2010	The filter-pack monitoring has not been implemented yet though long time has passed since Lao PDR received necessary equipment and so on from the NC. The mission instructed all of necessary technical matters of the monitoring to the staff in charge again during the mission. With regard to the Inter-laboratory comparison projects 2008, since there are many flagged data, the mission confirmed the reasons including the contamination of pure water for the projects.
Russia	15-20 August 2010	The mission discussed the MOA of the Joint Research Project. It was contracted by ACAP and Limnological Institute (LIN). The mission visited LIN and Primorsky Center for Environmental Monitoring (PCEM) and discussed EANET activities in Russia. The Mission also visited three atmospheric monitoring stations and a monitoring site for inland aquatic environment.
Malaysia	20-25 Sep. 2010	The mission visited the organizations relevant to EANET and exchange information and views on QA/QC activities on acid deposition monitoring including calibration of the automatic ozone monitors in Malaysia. The mission visited monitoring sites, Kuching and Bintulu (candidate) to know onsite information as EANET monitoring sites.

Thailand	15-21 Oct. 2010	The mission visited the organizations relevant to EANET (PCD, Thai Meteorological Department and Chiang Mai Univ.) exchange information and views on QA/QC activities on acid deposition monitoring including calibration of the automatic ozone monitors in Thailand. The mission visited monitoring sites, Bangkok, Samut Prakan and Chiang Mai to know onsite information as EANET monitoring sites.
Myanmar	25-29 Oct. 2010	The mission visited the organizations relevant to EANET and exchange information and views on QA/QC activities on acid deposition monitoring in Myanmar.

**Annex 3**

**National Training Activities in the Participating Countries of EANET in 2009**

Country	Title of Training Course / Meeting	Duration	No. of Participants	Major Topics
<b>Cambodia</b>	None	-	-	-
<b>China</b>	Training on wet deposition monitoring and data reporting	11-12 November 2009 2 days	52	- Lecture on wet deposition sampling - Lecture on QA/QC on laboratory analysis - Lecture on data reporting
	Training on wet deposition monitoring and data reporting	25-26 November 2009 2 days	74	- Lecture on wet deposition sampling - Lecture on QA/QC on laboratory analysis - Lecture on data reporting
<b>Indonesia</b>	Training on Inland Aquatic, Soil & Vegetation Analysis to Support The Acid Deposition Activities	20- 22 October 2009 3 days	16	Inland aquatic, soil sampling & analysis
	Meeting of Acid Deposition Activity in 2009	1 day	16	To discuss about annual monitoring and data
	Workshop on Acid deposition and Impact Management	2 day	100	Introducing acid deposition activities to the students and public communities
	Meeting of Acid Deposition Activity in 2009	3 day	10	To arrange the publication of Acid deposition State in Indonesia (for Wet and Dry Deposition)
<b>Japan</b>	The training of atmospheric and traffic environment	29 September - 2 October 2009 4 days	89	- Atmospheric and traffic environment
	The training of equipment operation	24 June - 9 July 2009 12 days	43	- Equipment operation training
	The training of atmosphere monitoring	26 January - 6 February 2009 10 days	10	- Sampling/analytical methods for atmospheric monitoring
	The training of acid deposition monitoring for officials of municipalities	20-21 May 2009 2 days	15	- General consideration of acid deposition - Sampling/analytical methods for acid deposition monitoring
	Audit (Inspection and guidance) of National monitoring sites (including EANET monitoring sites)	January - December 2009 33 days	51	- Site and laboratory audit - Wet and dry deposition sites - Soil and vegetation Monitoring sites - Sites on inland aquatic environment

Country	Title of Training Course / Meeting	Duration	No. of Participants	Major Topics
<b>Lao PDR</b>				
<b>Malaysia</b>	Basic Course for Meteorological Officer – “Introduction on Air Pollution”	21-22 July 2009 2 days	53	- Air Pollution Monitoring and Instrumentation - Acid Deposition - GAW Activities
	Hands-on training on maintenance and calibration of the air pollution instrumentation	5 times during the visit to the site	35	- Wet-Only System and Acid Precipitation System - High Volume Air Sampler
<b>Mongolia</b>	Yearly seminar for environmental monitoring	March 2009 10 days	11	- Water and soil chemical analysis, Operation of some sampling and analytical equipments
<b>Myanmar</b>	System Installation and operation for Ion Chromatograph	27-31 July 2009 5 days	10	- Ion Chromatography Equipment - Rain water Chemical Analysis
	Ultra pure water System	3-7 August 2009 5 days	10	- Production of Ultra pure water for glass washing, electrochemical analysis and Standard preparation
	Training on sampling and analysis method for Wet deposition monitoring	24-27 November 2009 4 days	5	- Introduction of EANET - Acid deposition process - Methodologies for sampling and analysis of Wet deposition monitoring - QA/QC and data reporting - Practice on sampling and analysis
	World Environment Day	5 June 2009 1 day	100	- Acid deposition monitoring in Myanmar ( Paper reading session ) - Air quality monitoring in Yangon City ( Paper reading session )
	Opening session of Training on sampling and analysis method for Wet deposition monitoring	24 November 2009 (1/2) day	17	- Wet deposition monitoring and analysis

Country	Title of Training Course / Meeting	Duration	No. of Participants	Major Topics
Philippines	National Training/Hands-on Exercises on Ambient Air Monitoring	26-27 October 2009 2 days	40	- Actual sampling, siting consideration (EPA Part 58), Calibration of TSP
	National Training/Hands-on Exercises on Stack/Source Monitoring	28-29 October 2009 2days	40	- Method 1 to 5 – Particulates, Method 6/8 SOx, Method 7, NOx, Calibration of stack equipment such as pitot tube, thermocouple, console, etc.
	Lecture/Workshop on Satellite Monitoring, Receptor and Trajectory Modeling	30 October 2009 1 days	40	- Satellite monitoring on NO2, SO2 and O3. Hysplit modeling, meteorological parameters used in air pollution monitoring
	Meetings/discussions	continuing	20	- Establishment of mass emission rate standards for SO2 –stationary
	Seminar	3 days	30	- Motor vehicle emission limits for EURO 2
	Hands-on/actual tests on power plants for CEMS audit for Sox, NOx	2 days	3	- Actual conduct of RATA test for CEMS
	(Seminar/Workshop on Continuous Emission Monitoring System ( CEMS ) of large industrial sources (SOx, NOx, O2, CO2, CO))	( 20-21 October 2008 2 days )	(40)	(CEMS Performance Specifications of SOx, NOx, CO2, CO, CEMS Quality Assurance of 40 CFR Part 60 and Audit)
	(Training on Ambient Air Monitoring on Quality Assurance Project Plan/Siting Criteria)	( 22-23 October 2008 2 days )	(40)	(Quality Assurance Project Plan Per EPA Parts 58 and 50, Checklist for Network inspection on equipment, meteorological, and calibration)
(Overview lectures on Air Dispersion Modeling)	( 24 October 2008 1 days )	(20)	(Screen 3, AUSPLUME, and meteorological data)	
R. of Korea				

Country	Title of Training Course / Meeting	Duration	No. of Participants	Major Topics
<b>Russia</b>	Training on sampling and analysis method for wet and dry deposition monitoring	March, July, October 2009 Duration: 3 40 days	10	<ul style="list-style-type: none"> <li>- Acid deposition monitoring;</li> <li>- Analysis of wet and dry deposition monitoring;</li> <li>- QA/QC activity;</li> <li>- Practice on sampling and analysis</li> <li>- Using the high-performance liquid chromatography for analysis of chemical compounds in precipitation and aerosol</li> </ul>
	Annual training course on the surface water analysis	June 2009 10 days	12	<ul style="list-style-type: none"> <li>- Update of practical knowledge on QA/QC in surface water monitoring (sampling, analysis, data processing and reporting); In-situ intergroup and inter-laboratory comparison on analysis of major cations and anions of deep water samples taken in Lake Baikal</li> </ul>
	Annual Scientific Meeting "Aerosols of Siberia"	24-27 November 2009 4 days	75	<ul style="list-style-type: none"> <li>- Assessment of atmospheric pollution of Siberia and Far East of Russia, atmospheric compounds including greenhouse gases, biological aerosol, natural emissions, mathematical modeling of the atmospheric transport and diffusion</li> </ul>
	Seminar for the control of the analyses quality in the analytical laboratories	17-20 February 2009 4 days	20	<ul style="list-style-type: none"> <li>- Warning quality control</li> <li>- Assessment of quality of analytical results</li> <li>- Ensure the reliability of analytical results</li> </ul>
	Seminar for the control of the chemical analyses quality	18-22 May 2009 5 days	25	<ul style="list-style-type: none"> <li>- Control of analyses quality taking into account new requirements of the standards</li> </ul>
<b>Thailand</b>	Third Country Training Course on Control Strategy and Mitigation Measures of Acid Deposition	19 January - 6 February 2009 18 days	19	<ul style="list-style-type: none"> <li>- General information of air pollution</li> <li>- Atmospheric chemistry</li> <li>- Air quality management</li> <li>- Air pollution control technology</li> <li>- Environmental economy</li> <li>- Acid deposition control technology</li> </ul>
	Training on operation and maintenance of automatic air monitoring instrument	2 days	15	Theory and general information of instrument, operation and maintenance method
	The meeting of National Acid Deposition Monitoring Network Sub-committee	1 day/time 2 times	13	Consideration of EANET meeting documents, monitoring and inter-laboratory comparison data, the Instrument for Strengthening EANET, etc.
	The meeting with 6 universities for acid deposition monitoring data in 6 national monitoring sites	9 November 2009 ½ day	12	Consideration of acid deposition monitoring data in 6 national monitoring sites which monitored by 6 universities

Country	Title of Training Course / Meeting	Duration	No. of Participants	Major Topics
Vietnam	Capacity building for air quality monitoring using passive sampling method	February - May 2009	32 come from environmental research units and management organizations	Passive sampling technology/ Application of passive sampling method in air quality monitoring/ Implementation of air quality monitoring activity in the site study of Northern Hanoi.
	User training on GCMS	19-23 October 2009	4	Use GCMS for methane analysis

### Training Requirements

Country	Requirements
Cambodia	(1) Basic training on acid deposition monitoring (2) Basic training on wet and dry and its effects
Indonesia	(1) QA/QC, Maintenance of Ion Chromatograph
Malaysia	(2) Basic training on acid deposition monitoring (3) Interpretation and data analysis including the link of the impact studies of acid deposition
Mongolia	(1) Chemical analysis for air samples
Myanmar	(1) Basic training on acid deposition monitoring (2) Specific topic on training on analysis of IC in order to check output and accuracy
Philippines	(1) Use of satellite monitoring to correlate the ground level concentration of parameters of EANET (2) Training on continuous automatic monitor of sulfur dioxide, nitrogen dioxide, ozone, and acid deposition air parameters. (3) Use of modeling to determine transport, trajectory and etc.
Russia	(1) Procedures of the Passive sampling on Dry Deposition Monitoring
Thailand	(1) Air pollution/acid deposition and impact assessment analysis
Vietnam	(1) Basic training on acid deposition monitoring for new site and new Laboratory (2) Wet Deposition Monitoring as a specific topics

### **Suggestions in EANET Training Activities**

1. Providing the resource person and funding of the training courses.
2. Training for model application on urban, national and regional scales and emission inventories are necessary.
3. Duration of individual training course should be extended.
4. Review of existing emission inventories among regional and countries to establish harmonized emission factors to be used in mobile, stationary and area, etc.
5. Additional air parameters to consider automatic or continuous monitoring.
6. Data interpretation to determine whether data sets are still representative and in any case, if new major sources have located in the area, a new database would be required.
7. Mapping within the EANET monitoring stations.
8. The training that can provide a good understanding and action on air pollution (such as ozone)/ global warming/ acid deposition problems and the linkage to environmental impact.
9. Pay more attention to the procedures of the samples preparation and analysis of exposed filters, to the calculations of the results of analysis.
10. More Indonesian participants to join the group training courses.