The Fifteenth Session of the Scientific Advisory Committee
on the Acid Deposition Monitoring Network in East Asia
29 September – 1 October 2015, Da Nang, Vietnam

Report of the Session

I. Introduction

1. The Scientific Advisory Committee (SAC) of the Acid Deposition Monitoring Network in East Asia (EANET) held its Fifteenth Session (SAC15) from 29 September to 1 October 2015 in Da Nang, Vietnam. The Session was organized by the Secretariat and the Network Center (NC) for the EANET and hosted by Vietnam Institute of Meteorology, Hydrology and Climate Change.

2. The Session was attended by the members of the SAC and/or their alternates and other nominated persons from the participating countries of the EANET, namely: Cambodia, China, Indonesia, Japan, Lao PDR, Malaysia, Mongolia, Myanmar, Philippines, Republic of Korea, Russia, Thailand and Vietnam as well as the Secretariat and the NC. An expert from World Meteorological Organization (WMO) as a resource person and observers also attended the Session. The List of Participants is attached as Annex 1.

II. Opening of the Session (Agenda Item 1)

3. Mr. Mylvakanam Iyngararasan, Programme Officer, United Nations Environment Programme, Regional Office for Asia and the Pacific (UNEP, ROAP) delivered the Opening Remarks, on behalf of the Secretariat. He highlighted the major developments taking place at global and regional level that are relevant to EANET. At the global level, world leaders agreed on new global goals for the sustainable development, known as the "Sustainable Development Goals (SDGs)". The EANET's work is related to at least 3 of the 17 SDGs. He also pointed out that UNEP is initiating a regional initiative entitled "Asia Pacific Clean Air Partnership (APCAP)", which aims to bring together many existing initiatives to promote scaled up action to combat air pollution. He mentioned that SAC15, which will discuss key documents including the medium term plan, provides an opportunity for the EANET to place itself in the wider context of SDGs, the United Nations Environment Assembly (UNEA) resolution and the APCAP.

4. Dr. Kazuhiko Sakamoto, Director General of the Asia Center for Air Pollution Research (ACAP) delivered the Introductory Remarks. He appreciated that the Government of Vietnam, Ministry of Natural Resources and Environment invited the SAC15 to Da Nang. He emphasized that emission of air pollutants and greenhouse gases in East Asia became comparable to or much more than those in Europe and North America. He pointed out that

scientists have to think more strategically on what is the best way to contribute to healthy life of people living in East Asia, in addition to monitoring and reviewing the dynamic behavior and impacts of various air pollutants, including acid deposition. Scientists should also give proper message to policy makers on interrelationship between air pollution and climate change. Finally, he stressed that scientific integrity should be more important in the future EANET activities, and SAC should play even more important role to give proper guideline for EANET, continuously

5. Dr. Le Ngoc Cau, Acting Director, Center of Environmental Research, Institute of Meteorology, Hydrology and Climate Change, Ministry of Natural Resources and Environment, Vietnam delivered the Welcome Remarks. He highlighted the continuous commitment of Vietnam to EANET activities. He welcomed the participants to Da Nang, which is one of the most developing cities in Vietnam. He wished the SAC15 would be successful.

III. Election of the Officers (Agenda Item 2)

6. The NC introduced the previous system of 3-year fixed term bureau members and re-election of the officers of the SAC. The 3-year fixed term of the SAC bureau members from the Twelfth Session to the Fourteenth Session of the SAC (SAC12-SAC14) were implemented by means of re-election.

7. The Session decided a 3-year (2015-2017) fixed term for the SAC bureau members composed of one Chairperson, two Vice-chairpersons and a Rapporteur. The bureau members were elected as follows: Prof. Nik Muhamad Majid, Principal Research Fellow, Institute of Tropical Forestry and Forest Products, Universiti Putra Malaysia, Malaysia as the Chairperson, Dr. Patcharawadee Suwanathada, Director of Ambient Air Quality Division, Air Quality and Noise Management Bureau, Pollution Control Department, Ministry of Natural Resources and Environment, Thailand, and Dr. Batbayar Jadamba Director, Environmental Monitoring Department, National Agency for Meteorology and Environment Monitoring, Mongolia, as Vice-Chairpersons, and Prof. Fan Meng, Senior Research Fellow, Director, Institute for Atmospheric Environment, Chinese Research Academy of Environmental Sciences as the Rapporteur of the Session.

IV. Adoption of the Agenda (Agenda Item 3)

8. The Session adopted the Agenda (EANET/SAC 15/3/1) as proposed.

V. Review on the Report on the Progress of the EANET since the Fourteenth Session of the Scientific Advisory Committee (SAC14) and the Financial Report in 2014 (Agenda Item 4)

9. The Secretariat and the NC made presentations on the Draft Report on the Progress of the Acid Deposition Monitoring Network in East Asia (EANET) since the Fourteenth Session of the Scientific Advisory Committee (SAC14) (EANET/SAC 15/4/1) and the Draft Financial Report of the Secretariat and the Network Center in 2014 (EANET/SAC 15/4/2).

10. Major discussions included:
- The Fourteenth Session of the Working Group on Future Development of the EANET (WGFD14) provided the guidance that report of the Feasibility Study on the Expansion of the Scope of the EANET be used as a basis for the development of the Medium Term Plan (MTP) for the EANET (2016-2020). It included "Strengthening understanding and capacity for monitoring of meteorological parameters and reporting on these as appropriate". The resource person from WMO informed that WMO has the standard document for meteorological monitoring and observation by meteorological agencies in their respective countries and the activities have been conducted according to the official procedures. Further discussion was made in the Agenda item 14.
- It was informed that the Coordinator of the EANET Secretariat would be recruited as soon as possible according to the official procedures in UNEP. Until the recruitment of the Coordinator, UNEP ROAP will provide in-kind support to fulfill the functions of the Coordinator.

11. The Session acknowledged the draft progress report.

VI. Adoption of the EANET Data Report 2014 (Agenda Item 5)

12. The NC presented the Draft Data Report 2014 (EANET/SAC 15/5). The report included data on wet deposition, dry deposition, soil and vegetation, inland aquatic environment and catchment-scale, from the monitoring activities carried out by the participating countries in 2014, which were submitted to the NC.

13. Major discussions included:

i. Wet and dry deposition
- Regarding the data completeness of wet deposition, the percentage of total precipitation (%TP) does not reflect real situation because of definition of "no rain" is different among the countries. It was recommended that instruction of input precipitation data should be clearer.

ii. Soil and vegetation, inland aquatic environment and catchment-scale

- In the Lake Ijira Catchment, the stream water pH declined with increase of the NO_3^- concentration. It was clarified that direct effects of fertilizer or local pollution on stream water chemistry were negligible since the sampling point was located in forest area. Nitrogen saturation and acidification derived from atmospheric deposition was suggested in the area.
- Soil and vegetation monitoring should be implemented every 3-5 years and observation of tree decline should be done every year according to the technical manuals. However, no data was submitted in some monitoring sites for the last several years. It was pointed out that periodical monitoring data would be useful for trend analysis.
- The inland aquatic environment monitoring data in Amblalakaw Lake was out of the allowable range of R_1 and/or R_2. It was suggested that the ion concentrations in the lake were sometimes lower than detection limits and this might affect the R_1 and/or R_2. It was also pointed out that continuous monitoring would be important since the lake might be acid-sensitive.

14. The Session in principle adopted the Data Report 2014, but the participating countries could still submit data to the NC.

VII. Adoption of the Report on the Inter-laboratory Comparison Projects 2014 (Agenda Item 6)

15. The NC presented the Draft Report of the Inter-laboratory Comparison Projects 2014 on wet deposition, dry deposition (filter pack method), soil and inland aquatic environment (EANET/SAC 15/6).

16. Major discussions included:

i. Wet and dry deposition

- Problems in the respective laboratories may be different from each other. It was pointed out that the possible causes should carefully be considered in the respective laboratories when the data was flagged.
- The results of the Inter-laboratory Comparison Projects are used for self-checking in the respective laboratories. The NC will not exclude the monitoring results even if one laboratory got the flagged data.
- It was suggested that measurement uncertainties should be reported with the results of the Report on the Inter-laboratory Comparison.

ii. Soil and inland aquatic environment

- There was no comment on this topic.

17. The Session was further informed that the NC will send the samples for the Inter-laboratory Comparison Projects 2015 to the participating laboratories at the beginning of October 2015.

Participating laboratories are strongly requested to submit their results to the NC after the review by their National QA/QC Managers by 28 February 2016.

18. The Session adopted the Report on the Inter-laboratory Comparison Projects 2014.

VIII. Overview of the Updated National Monitoring Plans of the Participating Countries (Agenda Item 7)

19. The NC presented the Overview of the Updated National Monitoring Plans of the Participating Countries (EANET/SAC 15/7).

20. Major discussions included:
- It was informed that automatic monitoring of $PM_{2.5}$ by β-ray method started officially at monitoring sites in Republic of Korea, namely Kanghwa, Cheju (Kosan), and Imsil, from January 2015.
- The number of EANET monitoring sites of $PM_{2.5}$ and ozone is not sufficient for regional assessment. It is recommended to include existing monitoring stations of $PM_{2.5}$ and ozone into the EANET network.
- It was informed that a new $PM_{2.5}$ monitor has been installed in Myanmar and Vietnam and also would be installed in Mongolia in 2015. The NC will discuss with the countries to include relevant existing stations into the EANET.

IX. Consideration of the Revised National Monitoring Plan Format and draft QA/QC Guideline (Agenda Item 8)

21. The NC presented the Revised National Monitoring Plan Format and draft QA/QC Guideline (EANET/SAC 15/8).

22. Major discussions included:
- It was clarified that WMO has already prepared similar documents. It was suggested that collaboration between EANET and WMO should be explored.
- It was mentioned that ISO17025 will also be referred as relevant document.

X. Consideration of the Reports from the Chairpersons of the Task Forces of the Scientific Advisory Committee (SAC) (Agenda Item 9)

Task Force on Monitoring for Dry Deposition

23. The Chairperson of the Task Force on Monitoring for Dry Deposition (TFMDD) presented the Progress Report on the Activities of the Task Force on Monitoring for Dry Deposition

(EANET/SAC 15/9/1) including the development of the Strategy Paper on Future Direction of Monitoring for Dry Deposition of EANET (2016-2020) (Final Draft) (EANET/SAC 15/9/2).

24. Major discussions included:
- It was clarified that the manuals of international monitoring networks are referred for preparation on the Technical Manual for Air Concentration Monitoring in East Asia.
- It was clarified that collaboration with relevant networks/organizations is important activity of the Task Force. It is included in the new strategy paper (2016-2020).

25. The Session adopted the "Strategy Paper on Future Direction of Monitoring for Dry Deposition of EANET (2016-2020)", the revised Terms of Reference of the Task Force (Annex 2), and establishment of two Expert Groups which will consider revision of the Technical Manual on Dry Deposition Flux Estimation in East Asia and the Technical Manual for Air Concentration Monitoring in East Asia.

Task Force on Soil and Vegetation Monitoring

26. The Chairperson of the Task Force on Soil and Vegetation Monitoring (TFSV) presented the Progress Report on the Activities of the Task Force on Soil and Vegetation Monitoring (EANET/SAC 15/9/3), including activities in line with the "Strategy Paper of Future Direction of EANET on Monitoring of Effects on Agricultural Crops, Forest and Inland Water by Acidifying Species and Related Chemical Substances", which was adopted at SAC14.

27. Major discussions included:
- Risk maps on acidification of soil or inland water in Japan were presented as an example of "identification of the areas susceptible to acid deposition", which was one of the specific activities proposed in the new strategy paper. It was discussed that such risk maps would be informative for linkage between science and policy.
- It was informed that Japan started the intensive surveys including isotopic analysis in the high-risk areas as one of the actions for the risk maps.
- It was suggested that the similar risk maps for the East Asian region would be prepared based on the latest scientific knowledge and available data.

XI. Consideration of the Report form the Chairperson of the Drafting Committee (DC) for the Third Periodic Report on the State of Acid Deposition in East Asia (PRSAD3) (Agenda Item 10)

28. The Chairpersons of the DC for PRSAD3, which was established under the SAC, presented Report from the Chairperson of the Drafting Committee (DC) for the Third Periodic Report on the State of Acid Deposition in East Asia (PRSAD3) (EANET/SAC 15/10).

29. Major discussions included:
- It was suggested that proper message to policy makers should be included in PRSAD3 mostly in Chapter 7. It was clarified that Executive Summary would be prepared for PRSAD in order to introduce major outcomes to policy makers. It was stressed that Report for Policy Makers would be prepared for such specific purpose, as decided by IG.
- The unit system to be used in PRSAD3 and possibility of using only SI unit system were discussed. The meeting agreed to continue the current system and to discuss change of the unit system in the future.

XII. Report of the Feasibility Study on the Expansion of the Scope of the EANET (Agenda Item 11)

30. The NC presented the Report of the Feasibility Study on the Expansion of the Scope of the EANET (EANET/SAC 15/11). The Session was invited to make comments from scientific and technical viewpoints for future consideration.

31. Major discussions included:
- There was no comment in this topic.

32. The Session took note of the Report of the Feasibility Study on the Expansion of the Scope of the EANET

XIII. Consideration of the Draft Medium Term Plan (MTP) for the EANET (2016-2020) from scientific and technical viewpoints (Agenda Item 12)

33. The Secretariat and the NC made a presentation on the Medium Term Plan (MTP) for the EANET (2016-2020) (Draft) (EANET/SAC 15/12). The Session was invited to discuss, make comments and provide guidance from scientific and technical viewpoints, for consideration and approval at the Seventeenth Session of the Intergovernmental Meeting (IG17) on the EANET.

34. Major comments and discussions included:
- It was pointed out that regular monitoring on impact assessment, including soil and vegetation, inland aquatic environment, and catchment, was missing in Objective 1. The regular monitoring on impact assessment should also be included in Objective 1.
- Republic of Korea informed of a plan of the new satellite for environment observation and it was suggested that satellite data should also be utilized for regional assessment. It was also suggested that use of the satellite data should be included in Objective 3 as relevant information.
- It was suggested that user-friendly format should be prepared for data dissemination.

- It was stressed that more resources would be necessary to implement the activities in the new MTP. China expressed its intention to host a new network center. It was suggested that the intension and feasibility should be discussed in detail since establishment of the new center might need more contributions and concrete plan.
- The NC has been leading most of the activities, and it was suggested that some of the activities be delegated to the Task Forces and other relevant experts. This should be clearly identified in the MTP.
- It was proposed to elaborate and provide more details on the newly added category 2 activities.

XIV. Consideration of the Relevant Scientific Activities (Agenda Item 13)

Progress of the Joint Research Activities on Model Inter-comparison Study in Asia (MICS-Asia)

35. The NC made a presentation on the Progress of the Joint Research Activities on Model Inter-comparison Study in Asia (MICS-Asia) (EANET/SAC/15/13/1). The presentation included the work plan of MICS-Asia Phase III and its progress in 2014. It was informed that the 7th International Workshop on Atmospheric Modeling Research in East Asia will be held in China, early 2016. At the 7th workshop, results of comparison and analysis will be reported, and additional simulations for further analysis will be discussed. The work plans for 2016 will also be discussed. Anyone interested in the Workshop can contact the NC.

Joint Research Project on Sulfur Dynamics in Forest Ecosystems in Thailand, Malaysia and Japan

36. The NC made a presentation on Joint Research Project on Sulfur Dynamics in Forest Ecosystems in Thailand, Malaysia and Japan (EANET/SAC 15/13/2). The presentation included outcomes from the project, which was supported by Asia-Pacific Network for Global Change Research (APN) until July 2015. Sulfur isotopic analysis in the project suggested possible sulfur sources or processes in the respective forest catchments. Moreover, based on the accumulated data, different trends of stream water chemistry have been observed with changes in sulfur deposition and/or precipitation pattern in Kajikawa, Japan and Sakaerat, Thailand. The information may be useful to evaluate effects of acid deposition precisely. Continuation of the study is highly encouraged.

XV. Consideration of the cooperation with WMO/GAW (Agenda Item 14)

37. The NC and Dr. Oxana Tarasova, Chief of the Atmospheric Environment Research Division, Research Department, WMO, made a presentation on the Consideration of the cooperation with WMO/GAW. The Session was invited to discuss, make comments and provide

guidance from scientific and technical viewpoints, for consideration at the IG17 (EANET/SAC 15/14).

38. Major comments and discussions included:
- There has been already close relationship between EANET and WMO for global assessment of precipitation chemistry and deposition.
- There was a suggestion to have official working arrangement between the EANET and WMO. However, the Session needs more detailed information on the benefits and implications of such arrangement.
- The issue would be discussed in the next Session of the SAC after going through the formal procedures of the EANET.

XVI. Consideration of the Draft Work Program and Budget of the EANET in 2016 from Scientific and Technical Viewpoints (Agenda Item 15)

39. The Secretariat and the NC made presentations on the Draft Work Program and Budget of the EANET in 2016 (EANET/SAC 15/15). The Session was invited to make comments, suggestions and/or recommendations from scientific and technical viewpoints for consideration and approval at the IG17

40. The major comments and discussion:
- It is important to promote research activities of measurement methodology including elemental carbon (EC) and organic carbon (OC) because there are perceived discrepancies of measured values among different measurement protocols. It is suggested that it is important to take into consideration existing methodologies in scientific knowledge worldwide.

XVII. Other issues (Agenda Item 16)

41. The major comments and discussion:
- It was suggested that the NC and the Secretariat should send the formal letter to request voluntary financial contributions in the participating countries after approval of the IG17.
- The Session took note that the actual amount of the voluntary contribution might fluctuate because of unstable currency exchange rate with US dollar.
- Effectiveness of the national workshop for public awareness, which was conducted by the Secretariat, was requested. The Secretariat clarified that the workshops have been held in some member countries. The Secretariat may implement evaluation of its effectiveness in the countries and the evaluation report will be prepared.
- It was suggested that public awareness activities should not utilize the core budget.
- Enhancement of training program and fellowship program was recommended.

- Scientific reports under the name of the EANET should acknowledge contributors taking account of opinions from the countries.
- It was suggested that efficiency of the budget use and transparency are important as well as voluntary contributions of the participating countries.
- It was suggested that concrete action plan of Particulate Matter (PM) monitoring and data evaluation is considered by SAC.
- It was informed that individual training program in 2015 will include a new item of operation of automatic monitors.

XVIII. Consideration and Adoption of the Report of the Session (Agenda Item 17)

42. The Report of the Session (EANET/SAC 15/17) was considered and adopted.

XIX. Closing of the Session (Agenda Item 18)

43. The Session expressed its deepest gratitude to the host country, Vietnam, the Secretariat and the NC for organizing the SAC15. The Session also appreciated the efforts made by the Chairperson, Vice-Chairpersons, Rapporteur and the resource person.

44. The Session was officially closed by the Chairperson, thanking all the participants for their great contributions.

Annex 1

List of Participants

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Annex 2

Terms of Reference of the Task Force on Monitoring for Dry Deposition

1. To further develop and elaborate the strategy for dry deposition evaluation in the region
2. To discuss on future direction of dry deposition evaluation and provide guidance on relevant activities based on the strategy
3. To revise Guidelines for Acid Deposition Monitoring in East Asia and to improve the Technical Manuals for Air Concentration Monitoring and Dry Deposition Flux Estimation