

The Eighteenth Session of the Scientific Advisory Committee
on the Acid Deposition Monitoring Network in East Asia
9-11 October 2018, Hanoi, Viet Nam

Report of the Session

I. Introduction

1. The Scientific Advisory Committee (SAC) of the Acid Deposition Monitoring Network in East Asia (EANET) held its Eighteenth Session (SAC18) from 9 to 11 October 2018 in Hanoi, Viet Nam. The Session was organized by the Secretariat and the Network Center (NC) for the EANET and hosted by the Institute of Meteorology, Hydrology and Climate Change (IMHEN), Ministry of Natural Resources and Environment (MoNRE), Viet Nam.
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, Viet Nam, and the Secretariat, the NC, as well as experts and resource persons from MoNRE, Viet Nam, Asia Pacific Clean Air Partnership, the European Monitoring and Evaluation Programme (EMEP) (through Skype) and observers. The List of Participants is attached as Annex.

II. Opening of the Session (Agenda Item 1)

3. The Session was opened by Dr. Erdenebat Eldev-Ochir, Deputy Director General of Asia Center for Air Pollution Research (ACAP), the NC.
4. Assoc. Prof. Dr. Huynh Thi Lan Huong, Deputy Director General of IMHEN, Viet Nam delivered the Welcome Remarks on behalf of the host country. She mentioned that the Session of the SAC18 is important in strengthening and expanding EANET activities. IMHEN is committed to upholding acid deposition monitoring activities under EANET. She also mentioned about the air pollution related research activities conducted by the Center of Environmental Research, IMHEN. Dr. Huong informed the Session that a PM2.5 monitoring station has been installed and running since 2015 thanks to support on technology transfer from ACAP.
5. Mr. Tomi Haryadi, Coordinator of Secretariat for the EANET, delivered the Opening Remarks. He mentioned that in 2018, EANET has undergone a review process of its Medium Term Plan (MTP) for the EANET (2016–2020). The review aims to measure the journey of EANET in achieving its objectives in the first half of the MTP and to make necessary improvements in the second half of the MTP. Despite all significant progress, the review made some recommendations, such as, to suggest EANET to make use of its long-term monitoring data to explore impacts due to the exposure to acid deposition and air pollutants and more focus on solutions to acidification and other air pollutant related adverse effects. It also suggests EANET to continue with the promotion of information exchange,

develop the policy-relevant reports and publications and raise public awareness. To do that, EANET may consider working closely with like-minded partners to seek potential opportunities.

6. Dr. Kazuhiko Sakamoto, Director General of ACAP, delivered the Introductory Remarks. He pointed out that the rapid and remarkable economic and industrial growth in Northeast and Southeast Asia has ushered serious environmental issues and people living in these regions are more vulnerable to air pollution. Therefore, it is very important to monitor and review the dynamic behavior and impacts of various air pollutants including acid deposition to motivate us toward a cleaner world. He emphasized that economic and political situation in East Asia has been rapidly changing and scientists must think more strategically their contribution to people in East Asia. He also pointed out that we must think of the interrelationship between air pollution and climate change for the co-benefits and co-control policy. In conclusion, he convinced that scientific integrity should be more important in the future EANET activities, and SAC should play a more important role in providing proper guidelines for EANET.
7. Mr. Naoya Tsukamoto, Director of the Regional Resource Center for Asia and the Pacific, Asian Institute of Technology (RRC.AP/AIT) delivered the Remarks. He welcomed delegates from all the participating countries. He appreciated the progress of the EANET to which he was a part of some years ago. He pointed out that the SAC meeting is one of the most significant scientific meetings in achieving the goals and objectives of the EANET. He emphasized improvement in air quality need to be considered as part of a larger sustainable development context as we are witnessing a confluence of large-scale, interrelated environmental problems, air pollution, climate change, waste, and other issues. RRC.AP has made their best efforts to address air pollution issues and assisting countries to achieve Sustainable Development Goals (SDGs) and targets. RRC.AP is contributing to the EANET, Malé Declaration on Control and Prevention of Air Pollution and its Likely Transboundary Effects for South Asia (Malé Declaration), Climate and Clean Air Coalition (CCAC), and initiatives pertaining to air pollution and climate change and other environmental issues.

III. Election of the Officers (Agenda Item 2)

8. The Secretariat 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 Fifteenth Session to the Seventeenth Session of the SAC (SAC15-SAC17) was implemented by means of re-election.
9. The Session decided a 3-year (2018-2020) fixed term appointment for the SAC bureau members composed of one Chairperson, two Vice-chairpersons and a Rapporteur. The elected bureau members were as follows: Dr. Le Ngoc Cau, Director, Center of Environmental Research, IMHEN, MoNRE, Viet Nam as the Chairperson, Prof. Fan Meng, Director, Institute for Atmospheric Environment, Chinese Research Academy of

Environmental Sciences, China, and Prof. Wilfredo M. Carandang, Professor, University of the Philippines Los Baños, Philippines, as Vice-Chairpersons, and Mr. Eka Suharguniyawan, Head, Atmospheric Chemistry Composition Analysis, Meteorological Climatological and Geophysical Agency, Indonesia as the Rapporteur of the Session.

IV. Adoption of the Agenda (Agenda Item 3)

10. The Session adopted the Agenda (EANET/SAC 18/3/1) as proposed.

V. Review on the Draft Report on the Progress of the EANET since the Seventeenth Session of the Scientific Advisory Committee (SAC17) and the Draft Financial Report in 2017 (Agenda Item 4)

11. The Secretariat and the NC made presentations on the Draft Report on the Progress of the EANET since the Seventeenth Session of the Scientific Advisory Committee (SAC17) (EANET/SAC 18/4/1) and the Draft Financial Report of the Secretariat and the Network Center in 2017 (EANET/SAC 18/4/2). The Session was invited to make comments on the reports from the scientific and technical viewpoints.

12. Major discussion included:

- It was clarified that RRC.AP would support the Secretariat not only for the Sessions of SAC and the Intergovernmental Meeting (IG) but also for other EANET Secretariat activities by following the decision made at the Fifteenth Session of the IG (IG15).
- It was pointed out that several meetings should be held for the preparation of the next periodic report.
- It was clarified that the balance of the Secretariat budget in 2017 is used to secure the budget to implement the EANET Work Programme in 2018 and to pay all commitments as part of implementation of activities in 2017.

13. The Session acknowledged the draft progress report.

VI. Adoption of the EANET Data Report 2017 (Agenda Item 5)

14. The NC presented the Draft Data Report 2017 (EANET/SAC 18/5). 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 2017, which were submitted to the NC. The Session was invited to review the monitoring data of the Participating Countries in 2017 for consideration and adoption at the Session. ^[1]_[SEP]

15. Major discussion included:

- i. Wet and dry deposition

- It was clarified that the descriptions of the monitoring methods of PM10 and PM2.5 at a station in Thailand were not updated, and therefore the NC will revise them.
- One chart in the data report of Indonesia will be modified after the Session.
- Since 2010, many monitoring sites showed a decline of air pollutant concentration, indicating an improvement of the atmospheric environment. It was pointed out that seasonal variation is important for data evaluation and verification. The NC will implement seasonal trend analysis of gases and PM components in EANET countries.
- Technical Manual on Dry Deposition Flux Estimation recommends using hourly meteorological data to estimate the dry deposition velocity. It was clarified that the flux estimation was applied only for Japanese sites because of the availability of hourly meteorological data. Revision of the Technical Manual is aimed to expand the estimation in other countries. The discussion will be made on the Expert Group on Revision of the Technical Manuals for Dry Deposition Flux Estimation and Air Concentration Monitoring.
- The EANET research fellow from Russia in 2017 found difficulties of the dry deposition flux estimation in Far East because the EANET methodology was verified only in tropical and mid-latitude regions, not in the boreal regions. It was recommended to study the application in the boreal regions in the future.
- It was mentioned that the expert from Russia could contribute to the revision of the Technical Manuals for Dry Deposition Flux Estimation.

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

- It was informed that inland aquatic environment monitoring at Danum Valley station, Malaysia had been temporarily stopped until 2019.

16. The Session, in principle, adopted the Data Report 2017. Nevertheless, the participating countries still could submit the data to the NC.

VII. Adoption of the Report on the Inter-laboratory Comparison Projects 2017 (Agenda Item 6)

17. The NC presented the Draft Report of the Inter-laboratory Comparison Projects 2017 on wet deposition, dry deposition (filter pack method), soil and inland aquatic environment (EANET/SAC 18/6). The Session was invited to review, make comments and provide guidance for consideration and adoption at the Session.

18. Major discussion included:

i. Wet and dry deposition

- Submitted values of Ca^{2+} concentration of wet deposition and inland aquatic samples are higher than the prepared value in many laboratories. It was suspected that the contamination of deionized water used for the sample dilution could be one of the

possible causes. The NC requested to measure diluted sample blank for inter-laboratory comparison survey in 2018.

- It was suggested to discuss which evaluation methods, ISO methods or the EANET method, would be used for the evaluation in the future.

ii. Soil and inland aquatic environment

- The project on soil used the statistical methods, Cochran and Grubbs methods to identify outliers. It was also pointed out that the inter-laboratory precision in 2017 was still relatively low even after removing the outliers.

19. The NC informed that the samples for the Inter-laboratory Comparison Projects 2018 would be sent to the participating laboratories in October 2018. Participating laboratories are requested to submit their results to the NC after the review by their National QA/QC Managers by 28 February 2019.

20. The Session adopted the Report on the Inter-laboratory Comparison Projects 2017.

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

21. The NC presented the Overview of the Updated National Monitoring Plans of the Participating Countries (EANET/SAC 18/7). The Session was invited to discuss the National Monitoring Plans of the Participating Countries and provide necessary comments and guidance as appropriate.

22. No major discussion in this item.

IX. Consideration of the Reports from the Chairpersons of the Task Forces of the Scientific Advisory Committee (SAC) (Agenda Item 8)

Task Force on Monitoring for Dry Deposition

23. The NC 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 18/8/1).

24. Major discussion included:

- It was pointed out that the Scientific Advisory Group of Total Atmospheric Deposition (SAG TAD) of the World Meteorological Organization, Global Atmosphere Watch (WMO/GAW) requested the NC to nominate a scientist from the EANET community as the member of SAG TAD. However, the nomination has not been made yet. The NC will

communicate with the Secretariat of SAG TAD about the nomination on behalf of the SAC.

- Due to retirement of the current Chairperson, the Session elected Prof. Fan Meng, China, as the new Chairperson of the TFMDD, and Dr. Patcharawadee Suwanathada, Thailand, as the new Chairperson of the Expert Group on Revision of the Technical Manuals for Dry Deposition Flux Estimation and Air Concentration Monitoring.

Task Force on Soil and Vegetation Monitoring

25. 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 18/8/2).

26. Major discussion included:

- The workshop on regional impact assessment will be held jointly with International Co-operative Programme on Assessment and Monitoring of Air Pollution Effects on Forests (ICP Forests) in November 2019. An expert on the critical loads may be invited from Europe. It was suggested that application of the critical loads would be considered in the region, at least for some case study areas.

27. The Session acknowledged the Report of the Task Forces of the SAC.

X. Consideration of the Draft Report of Elaboration of the Feasibility Study on the Establishment of a New Network Center for the EANET (Agenda Item 9)

28. The Secretariat made a presentation on the Draft Report of Elaboration of the Feasibility Study on the Establishment of a New Network Center for the EANET (EANET/SAC 18/9). The Session was invited to review, discuss, and make comments from scientific and technical viewpoints for consideration and approval at the Twentieth Session of the Intergovernmental Meeting (IG20) on the EANET, as appropriate.

29. Major discussion included:

- It was explained that the activity areas of new NC were studied in Feasibility Study in 2017. If new NC is established, the consideration should be made to expand the scope of the EANET.
- Open Laboratory should be open to new ideas, and it may be used to host post-doctoral researchers.
- It was pointed out that an education system to obtain Ph.D. should be considered for the EANET community, although external resources should be obtained to realize the system.

- The NC informed that ACAP has made a connection with Niigata University and some of the staff became visiting professors there. It was suggested that the NC scientists could supervise students from the EANET countries for their doctoral/master's thesis.
- It was suggested that EANET to conclude the discussion about the establishment of new NC at this SAC since there is no proposal to host the new NC from the participating countries.
- It was clarified that the strengthening of the current NC was not included in the feasibility study and if necessary, this can be studied in the future.
- The idea of a new NC or Open Laboratory is to seek more resources.
- It was pointed out that the NC implements research activities of EANET according to the Instrument.

30. It was informed that major discussion points in this agenda would be reported to the IG20.

XI. Consideration of the Report of Progress on cooperation with the World Meteorological Organization, Global Atmosphere Watch (WMO/GAW) (Agenda Item 10)

31. The NC made a presentation on the progress of the cooperation with WMO/GAW (EANET/SAC 18/10). The Session was invited to discuss, make comments and provide guidance from scientific and technical viewpoints for consideration at the IG20.

32. Major discussion included:

- It was clarified that the duration of the arrangement is five-year after signed by EANET and WMO. It will be automatically renewed on a year-to-year basis unless the arrangement is terminated.
- It was pointed out that approximately one-third of EANET stations are the urban site. Because WMO/GAW seeks to complement urban scale monitoring, EANET was invited to be part of the contributing networks.
- Because of the fact that Data Quality Objectives (DQOs) of EANET and WMO/GAW are different, it was suggested that further clarification about the difference would be added to the report to be submitted to the IG.

33. It was informed that major discussion points on this agenda would be reported to the IG20.

XII. Consideration of the Draft Report of Mid-Term Review (MTR) on the Implementation of the Medium-Term Plan (MTP) for the EANET (2016-2020) (Agenda Item 11)

34. The Secretariat made a presentation on the Draft Report of the Mid-Term Review (MTR) on the Implementation of the Medium-Term Plan (MTP) for the EANET (2016-2020) (EANET/SAC 18/11). The Session was invited to discuss, make comments and provide guidance from scientific and technical viewpoints for consideration at the IG20.

35. Major discussion included:

- It was suggested for EANET to have a mechanism in getting the external funds.

36. It was informed that major discussion points on this agenda would be reported to IG20.

XIII. Consideration of the Draft of the Fourth Report for Policy Makers (RPM4) (Agenda Item 12)

37. The Secretariat made a presentation on the Draft of the Fourth Report for Policy Makers (RPM4) (EANET/SAC 18/12). The Session was invited to discuss, make comments and provide guidance from scientific and technical viewpoints, for consideration at the IG20.

38. Major discussion included:

- It was informed that SAC could send their comments on the draft RPM4 to the Secretariat by email until 26 October 2018.

39. It was informed that major discussion points on this agenda would be reported to IG20.

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

Updates on the Progress of Revision of the European Monitoring and Evaluation Programme (EMEP) Monitoring Strategy (2020-2029)

40. The EMEP representative made an online presentation on the progress of the revision of the EMEP Monitoring Strategy (2020-2029). (EANET/SAC 18/13/1).

41. Major discussion included:

- It was informed that dry deposition flux is monitored at the Level 3 sites, research-oriented monitoring stations. It was clarified that the dry deposition flux was estimated by the Eddy-Covariance method.

Progress of Acid Rain 2020

42. ACID RAIN Conference is one of the historical international conferences related to acid deposition. The ACAP made a presentation on the progress of the preparation of Acid Rain 2020 (EANET/SAC 18/13/2), which would be held in Niigata, Japan, 19-23 October 2020. The Session was invited to discuss and provide guidance on this topic as appropriate.

43. No comments on this topic.

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

44. The NC made a presentation on the Progress of the Joint Research Activities on Model Inter-comparison Study in Asia (MICS-Asia) (EANET/SAC 18/13/3). The Session was invited to discuss and provide guidance on this topic as appropriate.
45. Major discussion included:
- It was pointed out that the ensemble mean of wet deposition of sulfur in Japan was higher than that in the Republic of Korea. It is necessary to compare with observation data if it is correct or not.
 - In the comparison between deposition and emission of sulfur by each East Asian country, deposition for some models was lower than emission, whereas the other models exceed the emission. It is necessary to discuss the conclusions of these data carefully.
 - It was pointed out that microscale meteorology of each model could cause different wet deposition amounts.
 - Although common emission inventory, meteorology, and boundary conditions data were used for model intercomparison, large differences of deposition and air concentrations were observed. It is important to clarify the major reasons of these discrepancies between participated models.

Progress of the Research Activities on Appropriate Measurement Methodology for Elemental Carbon (EC) and Organic Carbon (OC)

46. The NC made a presentation on Progress of the Research Activities on Appropriate Measurement Methodology for Elemental Carbon (EC) and Organic Carbon (OC) (EANET/SAC 18/13/4). The Session was invited to discuss and provide guidance on this topic as appropriate.
47. No comments on this topic.

Progress of the Air Pollution Solutions Report of Asia Pacific Clean Air Partnership (APCAP)

48. A representative of APCAP Science Panel made a presentation on Progress of the Air Pollution Solutions Report of Asia Pacific Clean Air Partnership (APCAP) Science Panel (EANET/SAC 18/13/5) including the progress of development of the Air Pollution Solution Report which was prepared in response to Resolution 1/7 of the first United Nations Environment Assembly (UNEA) which calls for United Nations Environment Programme (now UN Environment) to prepare regional assessment reports on air quality issues. The Session was invited to discuss and provide guidance on this topic as appropriate.

49. Major discussion included:

- It was clarified that the cost-benefit analysis was done in APCAP.

Progress of Preparation of the Clean Air Technology Workshop

50. The NC made a presentation on progress of the preparation of the Clean Air Technology Workshop (EANET/SAC 18/13/6). The Session was invited to discuss and provide guidance on this topic as appropriate.

51. No comments on this topic.

XV. Consideration of the Draft Work Programme and Budget of the EANET in 2019 from Scientific and Technical Viewpoints (Agenda Item 14)

52. The Secretariat and the NC made presentations on the Draft Work Programme and Budget of the EANET in 2019 (EANET/SAC 18/14). The Session was invited to make comments, suggestions and/or recommendations from scientific and technical viewpoints for consideration and approval at the IG20.

53. Major discussion included:

- It was clarified that the Fourth Periodic Report on the State of Acid Deposition in East Asia (PR SAD4) would be adopted in 2021.

XVI. Other issues (Agenda Item 15)

54. No major discussion in this item.

XVII. Consideration and Adoption of the Report of the Session (Agenda Item 16)

55. The Report of the Session (EANET/SAC 18/16) was considered and adopted.

XVIII. Closing of the Session (Agenda Item 17)

56. The Session expressed its deepest gratitude to the host country, Viet Nam, the Secretariat and the NC for organizing the SAC18. The Session also appreciated the efforts made by the Chairperson, Vice-Chairpersons, Rapporteur and the resource persons.

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

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