

The Seventeenth Session of the Scientific Advisory Committee
on the Acid Deposition Monitoring Network in East Asia
26-28 September 2017, Pathumthani, Thailand

Report of the Session

I. Introduction

1. The Scientific Advisory Committee (SAC) of the Acid Deposition Monitoring Network in East Asia (EANET) held its Seventeenth Session (SAC17) from 26 to 28 September 2017 in Pathumthani, Thailand. The Session was organized by the Secretariat and the Network Center (NC) for the EANET.
2. The Session was attended by the members of the SAC 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 Viet Nam, the Secretariat and the NC for the EANET, as well as an expert from Ulsan National Institute of Science and Technology (UNIST), Republic of Korea. Observers also attended the Session. The List of Participants is attached as Annex.

II. Opening of the Session (Agenda Item 1)

3. Mr. Tomi Haryadi, Coordinator of Secretariat for the EANET delivered an Opening Remarks. He mentioned that the SAC17 is the first SAC meeting organized after finalization of arrangement of provision of the EANET Secretariat under UN Environment decided at IG18, in November 2016. It was marked by appointment of Coordinator of the Secretariat as well as endorsement and signing of the Framework Agreement between UN Environment and the EANET. Since then, the Secretariat under UN Environment has been fully functional and capable of providing services. He explained the new arrangement of Secretariat for the EANET has brought new opportunities for the EANET to get one step closer to regional and global agenda of the UN, such as through the Asia Pacific Ministerial Summit on the Environment and United Nations Environment Assembly (UNEA). In 2017, the theme of third UNEA is 'Pollution Free Planet', focusing on human and ecosystem dimension of pollution. This issue is closely linked to EANET, particularly in regard to air pollution. Therefore, contribution of EANET to the success of the third UNEA is expected and highly appreciated.
4. Dr. Kazuhiko Sakamoto, Director General of the Asia Center for Air Pollution Research (ACAP) delivered the Introductory Remarks. He pointed out that the rapid and remarkable economic and industrial growth has ushered serious environmental issues in Northeast and Southeast Asia and that people in these regions are more vulnerable to the air pollution.

Therefore, it is very important to monitor and review the dynamic behavior and impacts of various air pollutants including acid deposition. Moreover, economic and political situation in East Asia is rapidly changing and scientists must think more strategically what is the best way they can contribute to healthy life of people living in East Asia. Scientists should give proper message to policy makers on air pollution, climate change and their interrelationship for the co-benefit co-control policy. Environmental policy based on science is getting more important. Finally, he emphasized 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.

III. Election of the Officers (Agenda Item 2)

5. The NC introduced the previous system of 3-year fixed term bureau members and re-election of the officers of the SAC. The Fifteenth Session of the Scientific Advisory Committee (SAC15) decided 3-year fixed term of the SAC bureau members (Chairperson, two Vice-chairpersons and Rapporteur) from 2015 to 2017. This 3-year fixed term system for the SAC bureau members has been applied since SAC4 as a custom in SAC Session. The Session agreed to follow the decision on the Bureau members in the SAC15 in 2015 for the SAC17.
6. The elected Bureau members were as follows: Prof. Nik Muhamad Majid, Principal Research Fellow, Institute of Tropical Forestry and Forest Products, Universiti Putra Malaysia, Malaysia as the Chairperson, and 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 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)

7. The Session considered and adopted the Provisional Agenda (EANET/SAC 17/3/1), Annotated Provisional Agenda (EANET/SAC 17/3/2), and the Draft Program (EANET/SAC 17/3/3).

V. Review on the Report on the Progress of the EANET since the Sixteenth Session of the Scientific Advisory Committee (SAC16) and the Financial Report in 2016 (Agenda Item 4)

8. 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 Sixteenth Session of the Scientific Advisory Committee (SAC16) (EANET/SAC 17/4/1) and the Draft Financial Report of the Secretariat and the Network Center in 2016 (EANET/SAC 17/4/2). The Session was invited to make comments on the reports from the scientific and technical viewpoints.

9. Major discussion include:
 - In the EANET Fellowship Research Program in 2016, only one fellowship researcher was selected. It was pointed out that the fellowship program is a good opportunity for capacity building to young scientists in the EANET community. It was suggested to establish alumni network of research fellows to enable follow up actions on their applications of knowledge during the program.
 - The NC informed that the fellowship researchers have been selected taking into account several factors especially appropriateness of the study theme, duration, and relevance to the EANET activities. Moreover, not only the level of the study plan but also equal and fair opportunity is given to all the participating countries in the selection process.
 - EANET data is currently provided to registered users as a package containing all data. It was mentioned that the current system is not user friendly, and it should be improved.
 - Based on data analysis by some scientists, outliers considered as errors were detected. It was suggested that such errors should be reported to the NC to verify with the participating countries.
 - Myanmar is currently processing its financial contribution to the Secretariat and NC in 2017.
 - The cost of feasibility study on establishing the new NC was borne by in-kind contribution to the Secretariat budget.

10. The Session acknowledged the draft progress report.

VI. Adoption of the EANET Data Report 2016 (Agenda Item 5)

11. The NC presented the Draft Data Report 2016 (EANET/SAC 17/5). The report included data on wet deposition, dry deposition, soil and vegetation, inland aquatic environment and catchment-scale, from monitoring activities conducted in 2016 and submitted by the participating countries to the NC. The Session was invited to review the monitoring data of participating countries in 2016 for consideration and adoption at the Session.

12. Major discussion include:
 - i. Wet and dry deposition

- The site in Chiang Mai, Thailand was re-classified into three, namely Mae Hia, Chang Phueak and Si Phum. It was clarified that not only site location but also the monitoring items/devices such as automatic monitors and filter pack monitoring are different in these sites.
- Detailed meteorological data are necessary to calculate dry deposition velocities. However, in cases where the data are not available, dry deposition fluxes have not been estimated in such sites. It was informed that more simplified method to calculate dry deposition velocities should be considered when revising the Technical Manual on Dry Deposition Flux Estimation.

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

- No comment in these topics.

13. The Session adopted the Data Report 2016 with minor modifications.

VII. Adoption of the Report on the Inter-laboratory Comparison Projects 2016 (Agenda Item 6)

14. The NC presented the Draft Report of the Inter-laboratory Comparison (ILC) Projects 2016 on wet deposition, dry deposition (filter pack method), soil and inland aquatic environment (EANET/SAC 17/6). The Session was invited to review, make comments and provide guidance for consideration and adoption at the Session. In addition, since there are different evaluation methods for result of ILC, the results were reanalyzed according to ISO13528 and 5725-2.

15. Major discussion include:

i. Wet and dry deposition

- The results of ILC projects in EANET and those in WMO are different. Dilution of artificial sample and quality of pure water might be one of the reasons.
- The Data Quality Objective (DQO) of WMO monitoring is more stringent than that of EANET. It is recommended to exchange information on ILC projects between EANET and WMO.
- The prepared values of wet samples should be informed to the participating laboratories after data submission so that artificial samples can be used as Standard Reference Material as early as possible.

ii. Soil and inland aquatic environment

- No comment in these topics.

iii. Reanalysis of the evaluation on the results of the projects

- One of the objectives of this analysis is to evaluate analytical performance in each laboratory. How to interpret these results and the trend of deviation from EANET assigned values will be considered in future to improve ILC projects of EANET.
16. The Session was further informed that the NC would send the samples for the ILC projects 2017 to the participating laboratories in middle October 2017. Participating laboratories are encouraged to submit their results to the NC after the review by their National QA/QC Managers by 28 February 2018.
 17. The Session adopted the Report on the Inter-laboratory Comparison Projects 2016.

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

18. The NC presented the Overview of the Updated National Monitoring Plans of the Participating Countries (EANET/SAC 17/7). The Session was invited to discuss the National Monitoring Plans of the Participating Countries and provide necessary comments and guidance as appropriate
19. 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

20. The NC as the secretariat 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 17/8/1). The presentation included the work plan on the new Expert Group on Revision of Technical Manuals for Dry Deposition Flux Estimation and Air Concentration Monitoring and dissolution of Expert Group on Preparation of Technical Manual for Air Concentration Monitoring.
21. Major discussion include:
 - It was pointed that the number of members of the Expert Group are not sufficient to implement revision works. It was clarified that TOR and membership of the Expert Group were adopted during the previous session of SAC. It is recommended that the review and revision of the two technical manuals be done at the same time for consistency.
 - The current template to calculate dry deposition velocity is difficult to use and should be modified. The instructions to use the template will be discussed by the Expert Group.

- It was clarified that consideration of simplified method include use of 3-hour or 6-hour meteorological data and alternative method to avoid cloud coverage data.
 - It is recommended to consider chemical transport model to evaluate dry and total atmospheric deposition.
 - It is also recommended to include an expert on meteorology in the Expert Group or to invite an external reviewer for the revised technical manuals.
22. The Session acknowledged the progress report of TFMDD and adopted the dissolution of Expert Group on Preparation of Technical Manual for Air Concentration Monitoring.

Task Force on Soil and Vegetation Monitoring

23. 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 17/8/2), including the outcomes from the Fifth Meeting (TFSV5), which was held on 5–6 July 2017. The presentation included the progress of the activities in line with the Strategy Paper for Future Direction of EANET on Monitoring of Effects on Agricultural Crops, Forest and Inland Water by Acidifying Species and Related Chemical Substances, and also possibility of scientific/technical collaboration with the International Co- operative Programme on Assessment and Monitoring of Air Pollution Effects on Forests (ICP Forests) under the Convention on Long-range Transboundary Air Pollution (CLRTAP) in Europe.
24. Major discussion include:
- The TFSV5 recommended that atmospheric deposition, soil and vegetation, and inland water should be surveyed in the vicinity of one another to be able to discuss mechanisms on acidification or recovery. If the atmospheric data is available in the vicinity of ecological sites, relationship with the trends of soil chemical properties and stream water chemistry can be discussed effectively. It was suggested that efforts be made to promote this integrated approach continuously in the EANET community.
 - As one of the specific activities in line with the strategy paper, a trial campaign of ozone effects in forest area and agricultural field is planned. It was clarified that the detailed campaign plan has not been finalized yet. It was pointed out that consideration of ozone effects might contribute to evaluation of acid deposition effects.
25. The Session acknowledged the progress report of TFSV.

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

26. The Secretariat made a presentation on the Draft Report of the Feasibility Study on the Establishment of a New Network Center for the EANET (EANET/SAC 17/9) which was developed based on the Concept note of the Feasibility Study, and taking into account of discussion at the Meetings of the Advisory Group on the Feasibility Study on the

Establishment of a New Network Center for the EANET held twice in July and September 2017. The Session was invited to review, discuss, and make comments from scientific and technical viewpoints for review and provision of guidance prior to submission of the report to the Nineteenth Session of the Intergovernmental Meeting (IG19) on the EANET.

27. Major discussion include:

- It was suggested that scope of the new NC should be clarified, since many of the activities on monitoring have already been implemented by the current NC. Clean air technology including development of new technology might be the candidate scope of the new NC.
- It was pointed out that capacity of the current NC should be strengthened prior to establishment of the new NC. Considering the current financial and human resources, establishment of the new NC is not necessary.
- Establishment of the new NC will only be considered if there is a proposal from participating countries. A new Task Force should be established under SAC to evaluate the proposal of the new NC.
- It was emphasized that SAC discusses issues from scientific point of view. It is more important to include relevant research activities in respective countries into the network of the EANET.

28. It was informed that additional comments on the feasibility study report can be submitted to the EANET Secretariat no later than 15 October 2017.

XI. Consideration of the cooperation with WMO/GAW (Agenda Item 10)

29. The NC made a presentation on the Consideration of the cooperation with WMO/GAW (EANET/SAC 17/10). The Session was invited to discuss, make comments and provide guidance from scientific and technical viewpoints for consideration at the IG19.

30. Major discussion include:

- There are some technical problems when the EANET joins a contribution network of WMO/GAW. Requirement of information listed in GAW Station Information System (GAWSIS) should be confirmed.
- It was pointed that current information on WMO activity and its linkage to EANET have not been informed to the SAC members. It is necessary to ask WMO or other network representative to explain such information at SAC meeting.
- Benefits and implications in the scientific viewpoints have been discussed by SAC over 2 years. However, there are remaining issues such as institutional arrangement and financial burden. Such issues will be discussed in IG.

31. It was agreed that the NC would prepare proposal including advantages and difficulties on this cooperation and draft the Letter of Agreement (LoA) to be considered at IG19.

XII. Consideration of the Relevant Scientific Activities (Agenda Item 11)

Air Quality Monitoring by GEMS in East Asia and Its Validation Strategy using in-situ Surface Observations

32. Dr. Chang-Keun Song, Ulsan National Institute of Science and Technology (UNIST), Republic of Korea introduced the remote monitoring plan on air quality in East Asian region by Geostationary Environmental Monitoring Spectrometer (GEMS) to be launched in 2019 (EANET/SAC 17/11/1). The Geostationary Environmental Monitoring Spectrometer/Satellite (GEMS) will be launched in the timeframe of 2019-2020. GEMS can measure the tracer gases (SO₂, NO₂, HCHO, and O₃) and aerosol properties (AOD, Aerosol type, SSA, etc.) with the high spatio-temporal resolution compared to LEO satellite already operated. GEMS will be validated with several ground-based in-situ measurement networks and air-borne and space-borne observations. It was clarified that validation was conducted by comparison between virtual data of GEMS and ground observation. Accuracy is determined by calibration of GEMS.

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

33. The NC made a presentation on the Progress of the Joint Research Activities on Model Inter-comparison Study in Asia (MICS-Asia) (EANET/SAC 17/11/2). The presentation included the work plan of MICS-Asia Phase III and its progress in 2016 and 2017. It was informed that the discussion workshop by participants who submitted simulated results was held in November 2016 and the 8th International Workshop on Atmospheric Modeling Research in East Asia was held in March 2017. At the 8th workshop. The results of further analysis after the discussion workshop will be reported, and the detailed contents of scientific papers will be discussed. The work plan after 2017 was presented. It was noted that model inter-comparison studies have been conducted in the Asian countries, and sharing information with MICS-Asia is important. It was clarified that the model simulation results were compared with observational data for concentrations and deposition. In the case of dry deposition flux, deposition velocity is also assessed to discuss the uncertainty comparing with inferential method.

Plan of Acid Rain 2020

34. ACAP made a presentation on the plan of Acid Rain 2020 conference (EANET/SAC 17/11/3). The Acid Rain conference is one of the historical international conferences, which are related to acid deposition. The ACAP decided to host the next conference in 2020 in Niigata City and play a role of the secretariat. It is expected that the conference will be held in the middle of October 2020 in Niigata City, Japan. Since the EANET started its regular-phase activities in 2001, this is a good opportunity to celebrate the 20th anniversary in 2020.

The presentation included progress of the preparation by Japanese scientists and ideas on the EANET anniversary events as the pre-events of the conference. Sponsorship for the participants from the EANET community should be considered together with that for organization of the conference.

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

35. The UN Environment presented progress of the Air Pollution Solutions Report of APCAP Science Panel (EANET/SAC 17/11/4). The APCAP is developing the Air Pollution Solution Report which is being prepared in response to Resolution 1/7 of the first UNEA which calls for United Nations Environment Programme (now UN Environment) to prepare regional assessment reports on air quality issues. The presentation included the outline of the report and its preparation procedures. It was informed that the 2nd Authors' Meeting Atmospheric Pollution in the Asia Pacific: Science-based solutions would be held on 16-18 October 2017 in Bangkok, Thailand.

XIII. Consideration of the Draft Work Programme and Budget of the EANET in 2018 from Scientific and Technical Viewpoints (Agenda Item 12)

36. The Secretariat and the NC made presentations on the Draft Work Programme and Budget of the EANET in 2018 (EANET/SAC 17/12). The Session was invited to make comments, suggestions and/or recommendations from scientific and technical viewpoints for consideration and approval at the IG19.
37. No comment in this item.

XIV. Other issues (Agenda Item 13)

38. No major issue was raised in this item.

XV. Consideration and Adoption of the Report of the Session (Agenda Item 14)

39. The Report of the Session (EANET/SAC 17/14) was considered and adopted.

XVI. Closing of the Session (Agenda Item 15)

40. The Session expressed its deepest gratitude to the Secretariat and the NC for organizing the SAC17. The Session also appreciated the efforts made by the Chairperson, Vice-Chairpersons, Rapporteur and the resource persons.
41. The Session was officially closed by the Chairperson, thanking all the participants for their great contributions.

Annex

List of Participants

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