

The Working Group Meeting in 2021 Session 1
Acid Deposition Monitoring Network in East Asia
20-22 April 2021, Virtual Meeting

ACTIVITIES IN LINE WITH EXPANSION OF SCOPE OF EANET

I. INTRODUCTION

1. This report provides proposed reference information regarding activities in line with the expansion of scope of the Acid Deposition Monitoring Network in East Asia (EANET). It is prepared by taking into account the discussion and recommendations of the Working Group Meeting Session 2 (WGS2) on Drafting Medium Term Plan (MTP) for the EANET (2021-2025) and the Twenty-second Session of the Intergovernmental Meeting (IG22) on EANET (EANET/IG 22/10) as well as “Decisions of IG22”. It is also developed by making references to EANET Instrument and MTP for the EANET (2021-2025).
2. The report “Activities In Line With Expansion of Scope of EANET” (EANET/WG2021-1/5/2) is presented as an Attachment.

II. ACTIONS REQUIRED

3. The Working Group Meeting in 2021 Session 1 (WG2021-1) is invited to review the document “Activities In Line With Expansion of Scope of EANET” and may wish to consider, discuss, provide guidance, particularly on:
 - a. Target substances that EANET would like to focus on as part of its expanded activities related to air pollution;
 - b. Specific activities that were proposed as Non-core Activities in 2021 but considered as beyond the current scope.

Attachment

ACTIVITIES IN LINE WITH EXPANSION OF SCOPE OF EANET

I. INTRODUCTION

1. In November 2020, the Twenty-second Session of the Intergovernmental Meeting (IG22) on Acid Deposition Monitoring Network in East Asia (EANET) decided to:
 - a. Recognize that some activities relating to air pollution are a major interest to Participating Countries but may be beyond the current scope of the EANET. This includes types of activities and/or substances or targets areas that are related to air pollution beyond acid deposition.
 - b. Therefore, agree to start to expand the scope of the Instrument.
 - c. Request the Secretariat and the NC to engage in the necessary actions, that include the preparation of working documents that will define clearly the expanded scope in order to address activities mentioned in sub-paragraph (a) above in addition to the Instrument's current scope, which may include the necessary adjustment to Instrument, noting the supplementary type option is preferred by some countries.
2. As a follow-up from Decisions of IG22, the Working Group in 2021 Session 1 and Session 2 (WG2021-1 and WG2021-2) will be organized to discuss and review the activities related to the expansion of the scope of EANET. The Sessions will review and make some considerations on the report.
3. Under the agenda item 5, the sub-agenda item WG2021-1/5/3 Elements for Supplementary Document to the EANET Instrument: Addressing Air Pollution Within EANET Framework will be discussed by referring to the sub-agenda item WG2021-1/5/1 on Findings from the Questionnaire: Review of Efforts of EANET Participating Countries in Tackling Acid Deposition/Air Pollution Problems and WG2021-1/5/2 on Consideration of Activities in Line with Expansion of Scope of EANET. Such arrangement of the sub-sessions aims to address issues related to Participating Countries' needs as reflected in the document WG2021-1/5/1 and the future activities in the expansion of the scope of EANET as reflected in the document WG2021-1/5/2 before discussing the sub-agenda item 5/3 on Supplementary Document to EANET Instrument.
4. This report only focuses on the group of EANET activities (for both current scope and expanded scope) according to target substances. The justification, objectives, and expansion of the scope of the EANET Instrument to include air pollution will be highlighted in the document WG2021-1/5/3. In addition, the document WG2021-1/5/3 also refers to the type of activities of EANET according to the Instrument. Regarding the group of activities

according to Core and Non-Core Activities, the reference document for this arrangement is the Medium Term Plan (MTP) for the EANET (2021-2025).

II. GROUP OF ACTIVITIES

5. By referring to the Instrument and MTP for the EANET (2021-2025), EANET activities could be grouped into the following (current scope and expanded scope):
- i. Monitoring;
 - ii. Emission Inventory;
 - iii. Modeling;
 - iv. Impact Assessment;
 - v. Technology (technology transfer and provision of information etc.);
 - vi. Provision of Inputs to Policies/ Regulations;
 - vii. Public Awareness.

III. GROUP OF ACTIVITIES AND TARGET SUBSTANCES

6. In the last twenty years, EANET has been working closely with the Participating Countries to implement acid deposition activities that are defined in the Instrument as major acidifying species and related chemical substances. Based on its Monitoring Guideline and Manuals, EANET has continuously monitored acid deposition for the following target substances: SO₂, NO_x, NH₃, PM_{2.5}, PM₁₀, Ozone, PM (chemical component: inorganic ions, metallic elements, and organic aerosols), and precipitation chemistry (ions, pH, and EC). See Table 1. EANET Group of Activities and Target Substances below to consider the activities in expansion scope.

Table 1. Group of Activities and Target Substances

Target Substances ¹	Group of Activities						
	Monitoring	Emission Inventory	Modeling	Impact Assessment	Technology	Provision of Inputs to Policies/ Regulations	Public Awareness
SO ₂	✓	✓	✓	✓	✓	✓	✓
NO _x	✓	✓	✓	✓	✓	✓	✓
NH ₃	✓	✓	✓	✓	✓	✓	✓
PM (mass)	PM _{2.5}	✓	✓	✓	✓	✓	✓
	PM ₁₀	✓	✓	✓	✓	✓	✓
	TSP	✓	✓	✓	✓	✓	✓

¹ SO₂: Sulfur Dioxide; NO_x: Nitrogen Oxides; NH₃: Ammonia; TSP: Total Suspended Particles; pH: Acidity; EC: Electrical Conductivity; CO: Carbon Monoxide; NMVOC: Non-Methane Volatile Organic Compounds; POPs: Persistent Organic Pollutants; CH₄: Methane; HFCs: Hydrofluorocarbon.

Ozone	✓		✓	✓	✓	✓	✓
PM (chemical component: inorganic ions, metallic elements, and organic aerosols)	✓		✓	✓		✓	✓
Precipitation Chemistry (ions, pH, EC)	✓		✓	✓		✓	✓
CO	✓	✓	✓	✓	✓	✓	✓
NMVOC	✓	✓	✓	✓	✓	✓	✓
Black Carbon	✓	✓	✓	✓			✓
Mercury							✓
POPs							✓
CH4							✓
HFCs							✓

Notes:

- 1) "Group of Activities" is the current/ future activities of EANET.
 - 2) Checkered patterned cells (pink): current Core Activities of EANET (2021).
 - 3) Horizontal stripe patterned cells (yellow): current Non-core Activities of EANET (2021).
 - 4) Vertical stripe patterned cells (blue): both Core and Non-core Activities of EANET (2021).
 - 5) Non-core Activities; monitoring: core activity 1, non-core activity 4,16,20,24,27, emission inventory: non-core activity 18,20,24,27, impact assessment on ecosystem: core activity 6,7, non-core activity 6,20,24,27, Provision of inputs to policy/regulations: core activity 6,7,8,10, non-core activity 26, public awareness. Core Activity 10 (Work Program and Budget 2021).
 - 6) The cells with no pattern/color with "✓" under "Group of Activities" are possible future activities to be considered by EANET as part of expanded activities.
 - 7) The corresponding items of "Group of Activities" for Items of Instrument for Strengthening the Acid Deposition Monitoring Network in East Asia (EANET) are: "Monitoring" for Item 4 (Monitoring and Reporting), "Emission Inventory" for Item 7 (Education and Training), "Impact Assessment" for Item 5 (Assessment), "Provision of Inputs to Policies/Regulations" for Item 2 (Objectives and Scope), "Public Awareness" for Item 8 (Public Awareness).
7. Current Scope: As shown in Table 1, in 2021, EANET implements Core and Non-core Activities, particularly on monitoring of acid deposition target substances (vertical stripe patterned cells (blue), particularly for sub-group "Monitoring", and "Impact Assessment (on the ecosystem)" (target substances: SO₂, NO_x, NH₃, PM (PM_{2.5}, PM₁₀, TSP), Ozone, PM (chemical component: inorganic ions, metallic elements, and organic aerosols), Precipitation Chemistry (ions, pH, EC).
8. Current Scope: Regarding the group "Emission Inventory", in 2021, activities are being implemented as Non-core Activities involving target substances. Under the Provision of

inputs to policy/ regulations, Policy Training, and Public Awareness Activities, EANET has been continuously implementing activities related to i) Provision of inputs to policy/ regulations; and ii) Public Awareness concerning the above acid deposition target substances: SO₂, NO_x, NH₃, PM (PM_{2.5}, PM₁₀, TSP), CO, NMVOC, and Black carbon.

9. Current Scope: In 2021, all public awareness activities are being implemented in line with target substances acid deposition ((SO₂, NO_x, NH₃, PM (PM_{2.5}, PM₁₀, TSP), Ozone, PM (chemical component: inorganic ions, metallic elements, and organic aerosols), Precipitation Chemistry (ions, pH, EC)),
10. Expanded Scope: In table 1, The cells with no pattern/color with “✓” under "Group of Activities" are possible future activities to be considered by EANET as part of expanded activities.
11. Target substances listed in Table 1 include target substances beyond acid deposition, such as target substances of air pollution, Short-Lived Climate Pollutants (SLCPs), and Green House Gases (GHGs). The categorization of target substances in table 1 was prepared by referring to Table 2. Category of Target Substances and Impact of Air Pollutions/Acid Deposition. The list of target substances in Table 2 was made by referring to the following guidelines:
 - a. Acid Deposition (SO₂, NO_x, NH₃, PM (PM_{2.5}, PM₁₀, TSP), Ozone, PM (chemical component: inorganic ions, metallic elements, and organic aerosols), Precipitation Chemistry (ions, pH, EC): EANET Monitoring Guideline and Manuals.
 - b. Air Pollution (SO₂, NO_x, NH₃, PM (PM_{2.5}, PM₁₀, TSP), Ozone, PM (chemical component: inorganic ions, metallic elements, and organic aerosols), CO, NMVOC, black carbon, Mercury, POPs): Convention on Long-Range Transboundary Air Pollution (CLRTAP).
 - c. Short-Lived Climate Pollutants (SLCPs) (Ozone, black carbon, CH₄, HFCs): Climate and Clean Air Coalition (CCAC).
 - d. Green House Gasses (GHGs) (CH₄, HFCs): United Nations Framework Convention on Climate Change (UNFCCC).
12. Expanded Scope: The following target substances in line with the interventions could be considered as part of expanded activities of EANET:

Group of Activities:

 - i. Monitoring; In addition to target substances of acid deposition, suggest adding CO, NMVOC, black carbon, Mercury, POPs (air pollution target substances).
 - ii. Emission inventory: To retain target species acid deposition and current target substances implemented under Non-Core Activities in 2021.
 - iii. Modeling; In addition to target substances acid deposition, to add: CO, NMVOC, black carbon (air pollution target substances)
 - iv. Impact Assessment: To retain target substances (on the ecosystem) implemented under Non-Core Activities in 2021 and to add: CO, NMVOC, black carbon, Mercury

(air pollution and GHG target substances as well as target substances for acid deposition target substances for human health).

- v. Technology (technology transfer and provision of information etc.): SO₂, NO_x, NH₃, PM (PM_{2.5}, PM₁₀, TSP), Ozone, CO, NMVOC (air pollution target substances).
- vi. Provision of Inputs to Policies/ Regulations: In addition to target substances acid deposition, suggest adding CO and NMVOC (air pollution target substances).
- vii. Public Awareness: To retain target species acid deposition and current target substances implemented under Non-Core Activities in 2021 (air pollution, SLCPs, and GHG target substances).

Table 2: Category of Target Substances and Impact of Air Pollutions/Acid Deposition (Reference)

Target Substances		Category of Target Substances				Impacts of Air Pollutants/Acid Deposition		
		Acid Deposition	Air Pollution	Short-Lived Climate Pollutants (SLCPs)	Green House Gasses (GHGs)	Human health	Ecosystem	Climate
SO ₂		✓	✓			✓	✓	✓
NO _x		✓	✓			✓	✓	✓
NH ₃		✓	✓			✓	✓	✓
PM (mass)	PM _{2.5}	✓	✓			✓	✓	✓
	PM ₁₀	✓	✓			✓	✓	✓
	TSP	✓	✓			✓	✓	✓
Ozone		✓	✓	✓		✓	✓	✓
PM (inorganic ions, metallic elements, and organic aerosols)		✓	✓			✓	✓	✓
Precipitation Chemistry (ions, pH, EC)		✓					✓	✓
CO			✓			✓	✓	✓
NMVOC			✓			✓	✓	✓
Black carbon			✓	✓		✓	✓	✓
Mercury			✓			✓	✓	
POPs			✓			✓	✓	
CH ₄				✓	✓			✓
HFCs				✓	✓			✓

Notes:

- 1) "Category of Target Substances" and "Impact of Air Pollutants" are categories/characteristics of each substance.
- 2) "Acid deposition" is based on EANET monitoring; "Air Pollution" is based on CLRTAP; "SLCPs" is based on CCAC; "GHG" is based on UNFCCC); CLRTAP: Convention of Long-Range

Transboundary Air Pollution; CCAC: Climate Clean Air Coalition; UNFCCC: United Nations Framework Convention on Climate Change.

IV. SPECIFIC ACTIVITIES THAT WERE PROPOSED AS NON-CORE ACTIVITIES IN 2021 BUT CONSIDERED AS BEYOND THE CURRENT SCOPE

13. Current Scope: By referring to the Working Group Meeting Session 2 (WGS2) recommendations, the Work Programme and Budget of EANET in 2021 was submitted to the IG22 by including 28 Non-Core Activities. Among those activities, IG22 decided that only 9 out of 28 proposed Non-Core Activities could be implemented in 2021, considering those activities are within the current scope of the EANET Instrument. All nine Non-Core Activities are being implemented in 2021 together with Core-Activities of EANET in 2021. See Table 3. Approved Non-Core Activities of the EANET in 2021 below.

Table 3. Approved Non-Core Activities of the EANET in 2021 (reference information)

Approved Non-Core Activities of the EANET in 2021	Corresponding Part of Table 1
Activity 4: Research on analysis of long term trend and acid deposition including related chemical substances by using monitoring data of EANET accumulated so far (New activities)	Monitoring, Impact assessment (Vertical stripe pattered cells (blue))
Activity 6: Promotion of studies on the effects of acid deposition, including other priority chemical species on plants and ecosystems, especially on biogeochemical cycles on a catchment scale as well as regional impact assessment (Existing activities)	Impact assessment (Vertical stripe pattered cells (blue))
Activity 15: Promotion of capacity building for personnel of the participating countries, including training courses, capacity building workshops, etc. for monitoring (Existing activities)	Monitoring, Impact Assessment, Provision of Inputs to Policies/ Regulations (Vertical stripe pattered cells (blue)), Emission Inventory (Checkered patterned cells (pink))
Activity 16: Promotion of technical support to Participating Countries by Provision of advice, technical information, and equipment (Existing activities)	Monitoring (Vertical stripe pattered cells (blue))
Activity 18: Promotion of research and technical cooperation on emission inventory to support the capacity building (Existing activities)	Emission Inventory (Checkered patterned cells (pink))
Activity 20: Conduct fellowship research program (Existing activities)	Monitoring, Impact Assessment, Provision of Inputs to Policies/ Regulations (Vertical stripe pattered cells)

	(blue)), Emission Inventory (Checked patterned cells (pink))
Activity 24: Publication of EANET Science Bulletin (Existing activities)	Monitoring, Impact Assessment, Provision of Inputs to Policies/ Regulations (Vertical stripe patterned cells (blue)), Emission Inventory (Checked patterned cells (pink))
Activity 26: Providing information and policy recommendations to policymakers based on sound science and assessment (Expected outputs: Science and policy dialogue) (Existing activities)	Provision of Inputs to Policies/ Regulations (Vertical stripe patterned cells (blue))
Activity 27: Promotion of communication, collaboration, and cooperation with other relevant international organizations, initiatives, and programs (Existing activities)	Monitoring, Impact Assessment, Provision of Inputs to Policies/ Regulations (Vertical stripe patterned cells (blue)), Emission Inventory (Checked patterned cells (pink))

14. Expanded scope: Eighteen out of 27 Non-Core Activities that were considered beyond the scope of EANET Instrument could be considered to be implemented as part of Non-Core Activities (Project Activities) once the Supplementary Document is approved by IG and signed by Participating Countries (voluntarily). Please refer to Table 4 for your information. Non-core Activities Proposed in 2021 but Considered Beyond the Scope of EANET.

Table 4. Non-core Activities Proposed in 2021 But Considered Beyond the Scope of EANET (reference information)

Non-core Activities Proposed in 2021 But Considered Beyond the Scope of EANET	Corresponding part of Table 1 (<i>other than current activities</i>)
Activity 1: Expansion of data collection from national monitoring sites on acid deposition (acidifying species and related chemical substances such as ozone and PM) and data evaluation with agreed countries. (New activities)	Monitoring
Activity 2: Development of real-time air quality (such as PM _{2.5}) monitoring network (New activities)	Monitoring
Activity 3: Promotion of studies on estimation of the source of air pollution of PM _{2.5} (New activities)	Modeling
Activity 5: Promotion of studies on analysis in terms of climate change (e.g., EC/OC, SLCPs) (New activities)	Impact Assessment
Activity 7: Promotion of studies of acid deposition on human health and other social aspects, including the viewpoint of the socio-economics (Existing activities)	Impact Assessment

Activity 8: Conduct an annual assessment of the state of air pollution (except acid deposition) using trend analysis, numerical models (New activities)	Impact Assessment
Activity 9: Development of periodic assessment reports on the state of air pollution (except acid deposition) in East Asia, including impact on plants and ecosystems (New activities)	Impact Assessment
Activity 10: Promotion of information exchange - regional impact assessment on ecosystems and human health through workshops, seminars, etc. (Existing activities)	Impact Assessment
Activity 11: Promotion of information exchange - Information exchange on clean air technologies through workshops, seminars, etc. (Existing activities)	Technology
Activity 12: Promotion of research on clean air technology and policy dialogue, a technical demonstration project to share member countries' outstanding prevention technologies, etc. (New activities)	Technology, Provision of inputs to policy/regulations
Activity 13: Development and submission of emission inventories of air pollutants to support and enhance joint efforts among the participating countries of the EANET for reducing air pollutant emissions (New activities)	Emission Inventory
Activity 14: Implementation of 25 solutions for clean air measures for the Asia Pacific region, including the development of a synergy between air quality and climate change (New activities)	Technology, Provision of inputs to policy/regulations
Activity 17: Technical support for the air quality management (including revision of ambient air quality standards and emission source control, and moving towards low-sulfur fuels for PM, nitrogen oxide, ground-level ozone, etc. with development of policy, strategy, regulation) (New activities)	Emission Inventory, Technology, Provision of inputs to policy/regulations
Activity 19: Promotion of studies on atmospheric simulation models to assess the trend of national and regional acid deposition including other related air pollutants in East Asia through workshops, training courses, etc. (Existing activities)	Modeling
Activity 21: Training on policy development on air pollution and acid deposition targeting the policymakers of participating countries on policy development based on scientific monitoring data in collaboration with partners (New activities)	Provision of inputs to policy/regulations

Activity 22: Promotion of capacity building for personnel of the participating countries for control emission including control transboundary air pollution from mobile sources, etc. (New activities)	Emission Inventory, Technology
Activity 23: Promotion of studies on atmospheric simulation models to assess the trend of national and regional air pollution (except acid deposition) in East Asia through workshops, training courses, etc. (New activities)	Modeling
Activity 25: Promotion of public awareness on air pollution (except acid deposition), e.g., control transboundary air pollution from mobile sources, etc. (New activities)	Public awareness