

FINDINGS FROM THE QUESTIONNAIRE: REVIEW OF EFFORTS OF EANET PARTICIPATING COUNTRIES IN TACKLING ACID DEPOSITION/AIR POLLUTION PROBLEMS

Network Center for the EANET



**Asia Center for Air Pollution
Research (ACAP)**

I. BACKGROUND

- ◆ The Questionnaire was planned to survey the situation in each country and organize it as a reference for appropriately selecting the activities to be carried out as consideration to select future Non-Core Activities of EANET. The results of this survey were intended to be compiled and shared with the participating countries.
- ◆ In line with the approved “Proposed Next Steps After IG22” (EANET/IG 22/10), the NC implemented the Questionnaire survey and compiled the results as the Summary of the Questionnaire. In the agenda item 5, WG2021-1/5/3 Elements for Supplementary Document to the EANET Instrument: Addressing Air Pollution Within EANET Framework is discussed based on the discussion on WG2021-1/5/1 Findings from the Questionnaire: Review of Efforts of EANET Participating Countries in Tackling Acid Deposition/Air Pollution Problems and WG2021-1/5/2 Consideration of Activities in Line with Expansion of Scope of EANET so that the needs of countries for EANET (the document WG2021-1/5/1) and future activities in the expansion of scope of EANET (the document WG2021-1/5/2) are firstly discussed, and then Supplementary Documents (1/5/3) can be discussed intensively.

II. Summary of the Questionnaire: Review of Efforts for Acid Deposition/Air Pollution in the Participating Countries of EANET

Questionnaire: Review of Efforts for Acid Deposition/Air Pollution in the Participating Countries of EANET

(1) The latest situation on law/regulation and policy for air pollution

Q1. Please describe the recent establishment/abolishment and implementation of the law/regulation for air pollution control (in these 5 years).

Q2. Please describe policies for air pollution control developed and implemented recently (in these 5 years).

(2) Placement standard, classification and attribute of ambient air quality monitoring stations

Q1: Please describe classification of monitoring stations by objectives and attributes for monitoring the atmospheric environment

Q2: Is there any placement criteria of monitoring stations? If yes, please describe.

Q3: Do you utilize simple monitoring devices such as low-cost sensors for monitoring activities by public institutions, as supplement to high-spec equipment?

(3) QA/QC system of ambient air quality monitoring in your country

Q1: Please describe programs and implementation structures for QA / QC activities (including calibration system for measuring equipment and flowmeter) (attached if existing materials are available)

Q2: What are current challenges of QA / QC activities and do you consider any measures for improvement?

Q3: Is there any future plans, and cooperation with other ministries, local governments, universities and research institutes?

(4) The situation of establishment/ amendment/ abolishment of air quality standard

Q1. Please describe ambient air quality standards in your country (standard values, measurement units, year of establishment and recent (about 5 years) revision/abolition if any) (attached if existing materials are available)

Q2. What are current challenges to enforce/implement ambient air quality standards and do you consider any measures for improvement?

II. Summary of the Questionnaire: Review of Efforts for Acid Deposition/Air Pollution in the Participating Countries of EANET

Questionnaire: Review of Efforts for Acid Deposition/Air Pollution in the Participating Countries of EANET

(5) The status of establishment of the standard monitoring method and the performance regulation of measurement equipment

Q1: Do you define standard monitoring methods for air pollutants? If yes, please describe. (for each substance of environmental standards) (attached if there is any existing material)

Q2: Are there any performance regulations such as the minimum detection sensitivity of measuring equipment?

Q3: How often are certifications and maintenance carried out to maintain the performance of measuring instruments, and are there any regulations on those frequencies?

Q4: Do you define handling rules for measured values? If yes, please describe. (significant figures, units of measurement, measurement frequency, smoothing of measurement signals, regulation of effective measurement numbers, statistical processing of average values, statistical processing when comparing with reference values, and other regulations / conditions, etc.) (attached if there is any existing material)

(6) The high priority challenges for countermeasures against air pollution

Q1. What are high priority challenges to tackle with air pollution?

Q2. What is the most difficult part in addressing the high priority challenges of Q1 above?

(7) The needs of cooperation for EANET

Q1. How do you perceive importance and benefits of participation in EANET?

Q2: What role do you expect EANET to play in improving the atmospheric environment in the region? What is the reason of your answer?

Q3. What kind of capacity building activities do you expect to be conducted by EANET (e.g..subject, type, targeted audience)?

Q4. Does your country participate in other air-related frameworks and/or initiatives besides EANET?

(1) The latest situation on law/regulation and policy for air pollution

Q1. Please describe the recent establishment/abolishment and implementation of the law/regulation for air pollution control (in these 5 years).

The following main points are taken up by the participating countries.

- ✓ Priority substances and progress of countermeasures differ depending on the country.
- ✓ Cambodia, Myanmar, Mongolia and Lao are making efforts to improve the law.
- ✓ In China, the law on air pollution control and management is being revised.
- ✓ In Indonesia, measures are being taken in various fields related to air pollution.
- ✓ Basic legislation has already been established in Japan and R. of Korea, and amendments have been made to review standards.
- ✓ In Malaysia, the law is being amended with an emphasis on emission control from industrial activities.
- ✓ The Philippines, R. of Korea, and Thailand are focusing on PM measures.

(1) The latest situation on law/regulation and policy for air pollution

Q2. Please describe policies for air pollution control developed and implemented recently (in these 5 years).

The following main points are taken up by the participating countries.

- ✓ In Cambodia, various industrial measures such as construction sites, industrial areas, and agriculture are being implemented, including the automobile sector.
- ✓ In China, a wide range of measures such as adjustment of industrial and energy structure, transportation, and land use have been implemented, and PM2.5 concentration has decreased.
- ✓ In Indonesia and the Philippines, measures such as emission monitoring systems using online information systems have been implemented.
- ✓ In Japan, VOC measures are also implemented targeting nitrogen oxides, photochemical oxidants, PM2.5, etc.
- ✓ Malaysia and Thailand are particularly focusing on regulations in the automobile sector, and Thailand is also implementing measures to incinerate agricultural residuals.
- ✓ Mongolia is developing legislation for countermeasures.
- ✓ There is no policy to directly implement air pollution control/measures in Myanmar.
- ✓ In R. of Korea, measures are implemented focusing on PM2.5

(2) Placement standard, classification and attribute of ambient air quality monitoring stations

Q1: Please describe classification of monitoring stations by objectives and attributes for monitoring the atmospheric environment

- ✓ Many countries such as Indonesia, Mongolia, Myanmar, R. of Korea, and Thailand, put importance to measuring industrial areas
- ✓ Measurement locations differ depending on the jurisdiction (Malaysia, Myanmar).
- ✓ Conducted local measurements such as in the city center or near emission sources (Cambodia, Indonesia).
- ✓ There are two types of monitoring station; stationary and mobile stations (Lao PDR).

Q2: Is there any placement criteria of monitoring stations? If yes, please describe.

- ✓ US-EPA compliant countries (Philippines, Thailand).
- ✓ Other countries are shown in Table 2.1.4-4.

Q3: Do you utilize simple monitoring devices such as low-cost sensors for monitoring activities by public institutions, as supplement to high-spec equipment?

- ✓ Use by flexibly responding to a specific emission source, such as the building environment or monitoring of major intersections in China, and monitoring of concrete factories and roadsides in Myanmar
- ✓ Other countries are shown in Table 2.1.4-5.

(3) QA/QC system of ambient air quality monitoring in your country

Q1: Please describe programs and implementation structures for QA / QC activities (including calibration system for measuring equipment and flowmeter) (attached if existing materials are available)

- ✓ Many countries (China, Japan, Malaysia, Mongolia, Philippines, R of Korea) indicated the implementation of QA / QC activities as implementers or implementation programs, but some countries (Cambodia, Indonesia, Lao PDR, Myanmar, Thailand, Vietnam) responded in the form of program items, especially calibration and maintenance inspection items.

Q2: What are current challenges of QA / QC activities and do you consider any measures for improvement?

- ✓ In some countries (Cambodia, Mongolia, and Vietnam), they mentioned improving the quality and quantity of staff.
- ✓ Some countries (Cambodia, Indonesia, Malaysia, Myanmar, Philippines, Thailand, and Vietnam) responded the improvement of the quality and quantity of equipment.

Q3: Is there any future plans, and cooperation with other ministries, local governments, universities and research institutes?

- ✓ Some countries answered that they would cooperate with local governments (Cambodia, China, Lao PDR, Myanmar, Philippines), other stations (China, Malaysia, Myanmar, Thailand), universities and research institutes (Philippines).
- ✓ Some countries answered that the contents of cooperation were monitoring (Cambodia, China, Myanmar, Thailand), QA/QC relations (China, Indonesia), and joint research (Malaysia).

(4) The situation of establishment/ amendment/ abolishment of air quality standard

Q1. Please describe ambient air quality standards in your country (standard values, measurement units, year of establishment and recent (about 5 years) revision/abolition if any) (attached if existing materials are available)

- ✓ Myanmar was the only country that did not establish air quality standard.
- ✓ Cambodia has no recent amendments.
- ✓ With the exception of Myanmar and Cambodia, revisions have been made in the last five years.

※ See the attachment for details on the air quality standards of each country.

Q2. What are current challenges to enforce/implement ambient air quality standards and do you consider any measures for improvement?

- ✓ Issues include internal systems such as budget and human resources (Myanmar), old-fashioned equipment and fuel (Malaysia, Mongolia, Myanmar, Thailand), specific substances such as PM_{2.5} (Japan, Mongolia, Philippines), and data systems (Myanmar, Philippines), etc.

(5) The status of establishment of the standard monitoring method and the performance regulation of measurement equipment

Q1. Do you define standard monitoring methods for air pollutants? If yes, please describe. (for each substance of environmental standards) (attached if there is any existing material)

- ✓ Most countries such as China, Indonesia, Japan Mongolia, Philippines, R. of Korea, Thailand, Vietnam, use similar measurement methods
- ✓ DOAS is used to measure gas concentrations such as SO₂ and O₃ (China, no answer but Philippines).
- ✓ In the PM measurement method, the light scattering method is used (Thailand) or under consideration to use.

Q2. Are there any performance regulations such as the minimum detection sensitivity of measuring equipment?

- ✓ There are many countries without performance regulations.
- ✓ Countries that comply with US-EPA standards (Malaysia, Thailand).

Q3. How often are certifications and maintenance carried out to maintain the performance of measuring instruments, and are there any regulations on those frequencies?

- ✓ Maintenance frequency is regulated in most countries such as Cambodia, China, Indonesia, Japan, Malaysia, Mongolia, Myanmar, Philippines, R. of Korea, Vietnam.
- ✓ As the shortest maintenance frequency, many countries such as Japan and Philippines conduct every two weeks.

Q4. Do you define handling rules for measured values? If yes, please describe. (significant figures, units of measurement, measurement frequency, smoothing of measurement signals, regulation of effective measurement numbers, statistical processing of average values, statistical processing when comparing with reference values, and other regulations / conditions, etc.) (attached if there is any existing material)

- ✓ Many countries such as Cambodia, Indonesia, Mongolia, Myanmar do not have handling regulations.
- ✓ Described in detail in countries with handling regulations (China, Japan, R. of Korea)

(7) The needs of cooperation for EANET:Q1

Q1. How do you perceive importance and benefits of participation in EANET?

Table 3.7.2 The evaluation of benefits on participation in the EANET (detailed information)

Countries	Creation of common understanding of the state of acid deposition problems	Provided the cooperation platform for information sharing among PCs	Provided capacity building in various aspects to PCs	Provided useful information and scientific evidences to PCs	Remarks
Cambodia					Through the participating with EANET, Cambodia, especially MoE
China	Gave periodic assessment on the state of acid deposition of the region	Made great achievements in the cooperation on the acid deposition issues and has grown into the most important cooperation mechanism in East Asia	Help PCs to improve the abilities	Sharing air pollution monitoring and control tech	
Indonesia		Be able to compare the policies between member countries in terms of policies for ambient air quality standards			
Japan		Shared high quality monitoring data among PCs	Implemented regular quality control activities among PCs	Developed common manuals and guidelines. Accumulated high-quality data	
Lao PDR	No answer				
Malaysia	Improvement in monitoring strategies of air pollution and acid deposition		Importance in long term planning towards upgrading monitoring equipment. Human capacity building		
Mongolia	Created a common understanding on the state of acid deposition problems	promoting cooperation and research in acid deposition and air pollution problems	active participation in scientific activity including research fellowship is beneficial.		
Myanmar	public awareness events, and dissemination of information.		capacity of relevant ministries, stakeholders, policy makers, public and education sectors through monitoring activities, training and research activities	Increase knowledge and understanding of issues related to the consequences of air pollution and acid deposition on human health and natural environment	
Philippines				Monitoring results are used for the design and development of actions plans	
Korea	Promote understanding and exchange among countries with different backgrounds and encourage their amity				
Russia	Not submitted				
Thailand	Public awareness activities	Established as an important initiative for regional cooperation	Capacity building and research activities, emission inventory, develop policy-relevant reports	Monitoring result which shows the state of acid deposition and its effect	
Viet Nam	Creating a common understanding of the state of acid deposition problems in East Asia	Contributing to cooperation in solving acid deposition problem among member countries		Providing useful inputs for decision makers at regional, national and local levels to prevent and mitigate adverse effects of acid deposition on the environment	12

(7) The needs of cooperation for EANET:Q1

Table 3.7.1 The Benefits of Participating in the EANET (overview)

	Created common understanding of the state of acid deposition problems	Provided the cooperation platform for information sharing among PCs	Provided capacity building in various aspects to PCs	Provided useful information and scientific evidences to PCs	Remarks
Cambodia					Mismatched answer*
China	✓	✓	✓	✓	
Indonesia		✓			
Japan		✓	✓	✓	
Lao PDR					No answer
Malaysia	✓		✓		
Mongolia	✓	✓	✓		
Myanmar	✓		✓	✓	
Philippines				✓	
Korea	✓	✓			
Russia					Not submitted
Thailand	✓	✓	✓	✓	
Vietnam	✓	✓		✓	

(7) The needs of cooperation for EANET: Q2

Q2: What role do you expect EANET to play in improving the atmospheric environment in the region? What is the reason of your answer?

Table 3.7.4 Expectations for the EANET (Detailed information)

Countries	Provide technical and financial support	Provide capacity building	Promote public awareness	Enhancement of monitoring network	Provide the platform for international collaboration, communication and information sharing
Cambodia	Support focusing on air pollution researches, regulations, guidelines, and activities plan preparation, air quality monitor and analyzer	The knowledge of air pollution, research capacity, and the implementation of air pollution reduction measures			
China					Play a positive role in the technology exchange of advanced monitoring technology
Indonesia					In terms of resources and science / research that are useful for maintaining ambient air quality
Japan				Promote monitoring and quality control, which is its specialty, with the overall scope of air pollution.	Strengthen cooperation with other regions such as Europe
Lao PDR	No answer				
Malaysia		Training in technical know-how and quality maintaining strategies with regard to air pollution monitoring. Training with air pollution modelling activity and short-term and long-term policy strategies			Platform for international collaboration in the field of air pollution on a regional scale
Mongolia		Research on analysis on the relation of air pollution and acid deposition including related chemical substances	Public awareness on acid deposition and air pollution	Enhancement of monitoring network	
Myanmar			A better understanding of the consequences of air pollution/acid deposition and its impact on human health and the natural environment in regional to global through EANET		
Philippines	Provision of monitoring equipment (e.g., Ozone generator and the corresponding calibrator)	Trainings/capacity building activities			
Korea					As a communication platform of East Asia for the countries with diverse environmental techniques and experiences
Russia	Not submitted				
Thailand			Put more effort in broadening public awareness and public participation into EANET activities	Other emerging air pollutants particularly PM2.5, ozone, VOCs and climate change related air pollutants should also be included under EANET	Leading initiative for regional cooperation, not only EANET but also with other initiatives and international agencies. Providing understandable useful inputs to policy makers and encourage them to play an increasingly important role in promoting EANET at international fora as well as in their countries
Vietnam			Raising awareness		Joining hands in solving acid deposition problem

(7) The needs of cooperation for EANET:Q2

Table 3.7.3 Expectations for the EANET (Overview)

	Provide technical and financial support	Provide capacity building	Promote public awareness	Enhancement of monitoring network	Provide the platform for international collaboration, communication and information sharing
Cambodia	✓	✓			
China					✓
Indonesia					✓
Japan				✓	✓
Lao PDR	No answer				
Malaysia		✓			✓
Mongolia		✓	✓	✓	
Myanmar			✓		
Philippines	✓	✓			
Korea					✓
Russia	Not submitted				
Thailand			✓	✓	✓
Vietnam			✓		✓

(7) The needs of cooperation for EANET:Q3

Q3. What kind of capacity building activities do you expect to be conducted by EANET (e.g. subject, type, targeted audience)?

Table 3.7.6. Expected Capacity Building for the EANET (Detailed information)

Countries	Monitoring	Data collection/ QA/QC	Research/ analysis	Policymaking	Others
Cambodia			Air quality data analyze, air pollution inventory, air quality Modelling	Laws, regulations, guideline developing	
China	Monitoring technology, Especially VOC				Pollution control technology
Indonesia					Mutual exchange of information, knowledge and technology between member countries in terms of ambient air quality
Japan	Conduct necessary trainings for new comers		Organize workshops/seminars regarding emission inventory and modeling for researchers and policy makers		
Lao PDR		Training on data interpretation		Use the data for further implementation	
Malaysia	Air pollution and acid deposition monitoring quality strategies		Air pollution modelling and analysis	Relating analysis to national policy via policy reports and workshops	
Mongolia	Measurement traceability	Inter Comparison Project	Research fellowship,		
Myanmar		Data quality checking and Research activities on air quality and acid deposition impacts on environment and related with climate change using observation data and satellite data.			Individual training
Philippines	Series of training with regards to Air Quality Monitoring improvement	QA/QC and best practices, calibration and preventive maintenance	Development of Country specific Emission Factors for Emission Inventory		
Korea		Operate programs for QA/QC managers of PCs to exchange information		Share status and tendency of air quality in the region, operate policy and technology exchange program for air pollution prevention, etc.	Operate programs for the public and civil societies to increase their awareness
Russia	Not submitted				
Thailand	Individual Training for monitoring	Air quality management on PM2.5, Ozone and VOCs	Individual training for emission inventory and data analysis	policy development on air pollution and acid deposition based on scientific monitoring data	Promote public awareness
Vietnam			Air pollutant emission inventory, mapping pollutants		16 Clean air tech Promotion

(7) The needs of cooperation for EANET:Q3

Table 3.7.5 Expected Capacity Building for the EANET (Overview)

	Monitoring	Data collection/ QA/QC	Research/ analysis	Policy making	Others
Cambodia		✓	✓	✓	
China	✓				Pollution control technology
Indonesia					Information sharing
Japan	✓	✓	✓	✓	
Lao PDR			✓	✓	
Malaysia	✓		✓	✓	
Mongolia	✓	✓	✓		
Myanmar		✓	✓		
Philippines	✓	✓	✓		
Korea		✓		✓	public awareness
Russia					Not submitted
Thailand	✓	✓	✓	✓	public awareness
Vietnam			✓		Clean air tech promotion

(7) The needs of cooperation for EANET:Q4

Q4. Does your country participate in other air-related frameworks and/or initiatives besides EANET?

Table 3.7.7 Participation in Atmospheric International Framework Other than the EANET

Countries	Climate & Clean Air Coalition (CCAC)	Asia Pacific Clean Air Partnership (APCAP)	The Tripartite Environment Ministers Meeting (TEMM)	North-East Asia Clean Air Partnership (NEACAP)	ASEAN Agreement on Transboundary Haze Pollution (AATHP)	Environmental Persistent Organic Pollutants Monitoring Project in East Asian Countries (POPsEA)	Asia Co-benefits Partnership (ACP)	Others
Cambodia	✓	✓			✓	✓		
China			✓	✓			✓	
Indonesia					✓	✓	✓	
Japan	✓	✓	✓	✓		✓	✓	
Lao PDR		✓			✓	✓		
Malaysia		✓			✓	✓		World Meteorological Organization Global Atmospheric Watch (WMO GAW).
Mongolia	✓	✓		✓		✓		
Myanmar					✓			
Philippines	✓	✓			✓	✓		Asia Pacific Mercury Monitoring Network (APMMN)
Korea	✓	✓	✓	✓				Korea-Japan bilateral channel, Korea-China bilateral channel, NEASPEC, IMPROVE
Russia				✓				Not submitted
Thailand	✓	✓			✓	✓	✓	
Vietnam	✓				✓	✓		

Actions required

The Working Group Meeting in 2021 Session 1 (WG2021-1) is invited to review “Summary of the Questionnaire: Review of Efforts for Acid Deposition/Air Pollution in the Participating Countries of EANET” and may wish to consider, discuss, provide comments, as appropriate.

**Thank you for your
attention!!**

**Cherry blossoms
around ACAP in April**