EANET
NEWSLETTER

EANET

ACID DEPOSITION MONITORING NETWORK IN EAST ASIA

C O N T E N T

REGIONAL ACTIONS FOR CLEAN AIR

Since the beginning of 2023, the Secretariat and the Network Center have been present in Mongolia, Lao PDR, the Philippines, Thailand, and in other international forums online, to engage with local stakeholders, launch cooperation projects, build new partnerships, and promote the work of EANET over the past two decades.

The first Project Fund Activity has been launched in February, with the inception of the Volatile Organic Compound (VOC) project in partnership with the governments of Mongolia and the Philippines.

On intergovernmental affairs, National Focal Points from the EANET Participating Countries met virtually in May to discuss the revisions of important administrative documents to reflect the recent expansion of the scope of the EANET to wider air quality issues and the establishment of the EANET Project Fund mechanism.

Curious about what took place in the past months and what is coming next? Discover more inside!

By Bert Fabian
Coordinator, Secretariat for the EANET

The theme of the fourth annual International Day for Clean Air for blue skies (7 September 2023) is Together for Clean Air. The theme reflects the call of many organizations including UNEP that collaboration is key to addressing air pollution, and indeed for the three planetary crises of climate change, biodiversity loss, and pollution.

In Asia Pacific, many initiatives, projects, and studies on air pollution have been conducted over the last decades. And despite considerable efforts of many actors including government, development institutions, the private sector, and NGOs, ambient air quality levels in many cities continue to be above WHO guideline values and reach alarming levels during the dry cooler months. It is not all bad news; Sulfur dioxide and particular matter from the transport sector have been substantially reduced due to the adoption of stricter vehicle emission standards, better technologies, more effective inspection and maintenance regime, and better fuel quality. There are efforts to improve public transportation though noticeably not enough and unable to keep pace with urbanization and industrialization in many cities in the region. However, air pollution in Northeast and Southeast Asia is also influenced by open burning of agricultural waste, forest fires, and dust and sandstorms. Open burning and forest fires, especially have become a major contributor to the air pollution problems in Southeast Asia, influencing transboundary air pollution and causing major public health issues.

2023 has become a banner year for promoting better air quality. On 2-3 March 2023, ESCAP, UNEP, and the Ministry of Environment, Mongolia hosted the High-Level Forum on Clean Air to discuss the operationalization of the Regional Action Programme on Air Pollution (RAPAP) for Asia Pacific. On 16 March 2023, the inaugural Forum for International Cooperation on Air Pollution (FICAP) was organized in Gothenburg, Sweden (with online participation) to foster cooperation and share the experience in Europe especially since the UNECE Convention on Long-Range Transboundary Air Pollution (Air Convention) has had almost 45 years of experience and knowledge to share with other countries and regions. And from 29 May to 2 June 2023, the Climate and Clean Air Coalition (CCAC) and UNEP organized the Climate and Clean Air Conference in 2023: Air quality action week in the United Nations Conference Center in Bangkok, Thailand to increase the ambition and identify new opportunities to address air pollution and to get inputs in the development of their flagship project on air quality.

The Secretariat and Network Center for the EANET participated in all these meetings to reintroduce the intergovernmental initiative and its activities and achievements, but more importantly, to start developing more partnerships to address the acid deposition and air pollution problems in the region.

EANET has also organized national awareness workshops in Laos, and the Philippines, and a regional awareness workshop held in Bangkok, Thailand. One of the main activities of the Secretariat this year is to promote EANET and develop more partnerships and mobilize resources to support activities. In these events, the EANET Project Fund activities were highlighted particularly the Volatile Organic Compounds (VOC) project and the Low-Cost Sensor (LCS) project. These two topics are current key issues on air quality management in the region, and perhaps globally. Not many countries in the EANET region have ambient air quality guidelines for VOCs, and the use of LCS is not sufficiently integrated into air quality management and monitoring networks to fully take advantage of its benefits. As such, the Secretariat and Network Center for the EANET are working on these topics to provide guidance to the Participating Countries. The intergovernmental governance and structure of EANET provide an excellent opportunity to link science with policy development.

There will be more projects, activities, and events on air pollution in the region in the succeeding months, like the International Clean Air Day for blue skies celebration in September, the Better Air Quality Workshop organized by Clean Air Asia in October, and others. EANET will also be holding its Scientific Advisory Committee meeting in October, and the Intergovernmental Meeting in November. Supporting and cooperating with other organizations to advance clean air in the region is surely the only way forward.

The EANET Online Meeting on the Revision of Guidelines in 2023
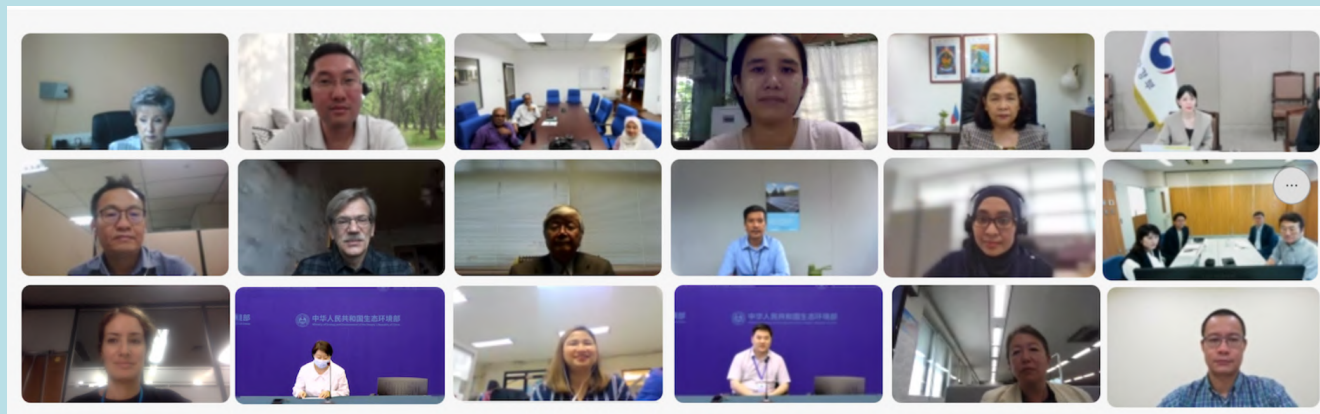
The EANET Online Meeting on the Revision of Guidelines in 2023 (OM2023) was held virtually on 10 May 2023. National Focal Points representing the EANET Participating Countries discussed revisions of important administrative documents to reflect the recent expansion of the scope of the EANET to wider air quality issues and the establishment of the EANET Project Fund mechanism.

The Session was led by the same bureau of officers as for the Twenty-fourth Session of the Intergovernmental Meeting (IG24) on the EANET in 2022.
Co-chaired by the Philippines and the Republic of Korea, the session started with Introductory Remarks from Bert Fabian, Coordinator of the Secretariat for the EANET.

Around 65 participants, members from the EANET Participating Countries, the Network Center and Secretariat for the EANET, joined the OM2023 meeting to agree on sections to be revised in the Guidelines on the Administrative and Financial Management for the Secretariat and the Network Center, and to the EANET Project Fund and Project Guideline.

In 2021, the Twenty-third Session of the Intergovernmental Meeting on the Acid Deposition Monitoring Network in East Asia (IG23) decided to expand the EANET's scope to cover wider air pollution issues with the adoption of the Annex to the EANET Instrument. At the same time, the EANET Project Fund was established to encourage collaboration outside of the EANET network and mobilize more resources.

With these changes, the EANET is developing new activities in 2023 and 2024, in collaboration with partners in its region and beyond. In early 2023 for instance, the EANET launched its first Project Activity on technical assistance related to Volatile Organic Compounds (VOCs) monitoring.

During the OM2023 meeting, the Participating Countries had the opportunity to share their views on how to best reflect the changes related to the expanded scope and the Project Fund mechanism in key administrative documents. Discussions will continue at the Working Group Meeting (WG2023) of EANET in 2023 which will be organized online from 22-23 August 2023.

Read the Meeting report here.

EANET Regional Awareness Workshop in 2023: A focus on Volatile Organic Compounds and Low-Cost Sensors

The EANET Regional Awareness Workshop in 2023 focused on the growing concerns surrounding Volatile Organic Compounds (VOCs) and the use of Low-Cost Sensors (LCS) for air quality monitoring in Northeast and Southeast Asia. Held on 30 May 2023 at the United Nations Convention Center and online, it aimed to foster collaboration on air quality management, address global challenges related to VOC pollution, and discuss the potential of LCS technology.

The Workshop was held as part of the Climate and Clean Air Conference: Air Quality Action Week, organized by the UN Environment Programme (UNEP) and the Climate and Clean Air Coalition (CCAC), and in cooperation with the Asian Institute of Technology, Regional Resource Centre for Asia and the Pacific (RRC.AP). 129 participants from 15 countries joined the Workshop.

Ms. Marlene Nilsson, Deputy Regional Director of UNEP Asia Pacific office, opened the EANET Awareness Workshop by delivering remarks highlighting the importance of alliances such as EANET to build regional solutions through data sharing and collaboration.

The first Session focused on the importance and challenges of VOC measurement in East and Southeast Asia. Presenters and panelists included Prof. Meng Fan, DDG for EANET, Asia Center for Air Pollution (ACAP), Dr. Meihua Zhu, Senior Researcher, Asia Center for Air Pollution (ACAP), Prof. Hong Li, Chinese Research Academy of Environmental Sciences (CRAES), China, Dr. Kessinee Unapumnak, Pollution Control Department (PCD), Thailand and Mr. Jundy T. Del Socorro, Environment Management Bureau (EMB), The Philippines.

VOCs have emerged as a significant pollutant in Asia, posing challenges due to rising levels and diverse emission sources and chemical compositions.

While Japan, the Republic of Korea, and Thailand have ambient VOC standards, other countries do not have such standards or guidelines. This is why the project Promoting VOCs related Capacity Building in the EANET, supported by the Ministry of the Environment, Japan (MOEJ) has been developed and launched in 2023, through the EANET Project Fund. Planned to last three years, the project is the fruit of cooperation between the MOEJ, the Network Center for the EANET, and different government and research institutes from China, Japan, Mongolia, and the Philippines, also including experts from the Republic of Korea and Thailand.

The second Session focused on Low-Cost Sensors' (LCS) Role in Air Quality Management in East and Southeast Asia. Presenters and panelists included Dr. Akie Yuba, Researcher, Asia Center for Air Pollution (ACAP), Prof. Kim Oanh, Asian Institute of Technology (AIT), Dr. Le Ngoc Cau, Ministry of Natural Resources and Environment, Institute of Meteorology, Hydrology and Climate Change (IMHEN), Viet Nam, Ms. Dang Espita-Casanova, Clean Air Asia, and Ms. Karine Léger, Airparif, France.

Discussions highlighted the potential and limitations of Low-cost sensor (LCS) technology. LCS is a portable and relatively cheaper monitoring system used for air quality monitoring, but challenges remain regarding data accuracy, calibration, and maintenance. LCS data can be valuable for non-regulatory monitoring applications and are powerful awareness-raising tools for citizen science. Efforts are being made to integrate LCS with reference-level sensors through projects like the EANET's Hybrid Air Quality Monitoring Network (HAQMN) in Asia, in Viet Nam specifically, and guidelines are being developed to replicate this integration in other countries.

LCS deployments have been conducted in the Philippines to fill coverage gaps, requiring local calibration and integration with conventional sensors. LCS are seen as complementary to traditional sensors, providing better coverage and valuable data for policymakers. Standardization, calibration, and integration need further attention to ensure the reliability of LCS for various purposes.

The workshop panelists discussed several key recommendations. Firstly, they suggested conducting research to establish VOC Air Quality Guideline Values and Standards by monitoring, reporting, and analyzing emission sources. Secondly, they emphasized the need to strengthen research on VOCs' impact on air quality and human health. Additionally, they proposed developing guidelines, standards, and policies for the use of LCS (low-cost sensors) and promoting research on calibration, correction factors, and quality assurance to ensure reliable LCS data. They also recommended creating guidelines for integrating LCS with existing monitoring networks to ensure data reliability. Lastly, they highlighted the importance of establishing regional and international platforms for sharing knowledge and best practices related to LCS.

Dr. Shiro Hatakeyama, DG, Asia Center for Air Pollution (ACAP) delivered the Closing Remarks and emphasized the importance of VOC monitoring, VOCs being the precursors of ozone and particulate matter. He highlighted the importance to expand the EANET's monitoring network to include VOCs and mentioned LCS could be considered for this expansion if their reliability can be strengthened.

Useful Resources
- Read a more detailed summary of the Workshop's content in the EANET Awareness Workshop in 2023 Event Report.
- View all Workshop's recordings on the Secretariat for the EANET's YouTube channel and the Workshop's photos on Flickr.
- Download the speakers' presentations

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National Stakeholders' Awareness Workshop in the Philippines on EANET in 2023

The National Stakeholder Awareness Workshop in the Philippines on EANET: Promoting acid deposition and air quality management in East Asia was held in Manila, on 26 May 2023, in cooperation with the Environmental Management Bureau (EMB) of the Department of Environment and Natural Resources (DENR), Philippines, and the Institute of Environmental Science and Meteorology (IESM), University of the Philippines.

It aimed at showcasing the achievements and activities of the EANET over the last 20 years, including activities involving the Philippines and encouraging cooperation between EANET and Philippine stakeholders in the implementation of the expanded scope and the EANET Project Fund activities. The Workshop was held at the Institute of Environmental Science and Meteorology, College of Science, University of the Philippines-Diliman, and gathered around 70 participants.

The stakeholder Workshop was organized back-to-back with the Volatile Organic Compound (VOC) Project Advisory Group Meeting in Manila, as part of the EANET VOC Project in 2023.

Bert Fabian, Coordinator of the Secretariat for the EANET welcomed the participants and thanked the EMB-DENR and UP-IESM for their cooperation and support.

He explained EANET's expansion of scope to cover more projects and activities on air pollution. He encouraged participants and stakeholders to do more research and activities on acid deposition and air pollution and promote partnerships and collaboration.

Presentations were delivered by Prof. Meng Fan, from the Asia Center for Air Pollution (ACAP) and Network Center for the EANET, Mr. Sammy Aytona from the Environment Management Bureau Philippines (EMB), Mr. Chadbert Aquino, from EMB, and Ms. Everlyn Gayle Tamayo from Clean Air Asia.

Prof. Fan Meng presented EANET's findings over 20 years, noting improvements in Sulfur dioxide-related air pollution in Northeast Asia but stressing the need to address particulate matter in Southeast Asia. Persistent high levels of nitrogen oxides and ozone pollution were also discussed, highlighting the importance of expanding monitoring for effective air quality monitoring and assessment. EANET is supporting such efforts as part of its individual training program primarily for government officials in the EANET countries and showcasing the network's commitment to capacity building.

Mr. Aytona presented acid deposition monitoring activities in the Philippines, including plans to enhance monitoring and raise awareness about EANET activities. Mr. Aquino emphasized the challenges and opportunities in Philippine air quality management, emphasizing comprehensive strategies and stakeholder collaboration.

Ms. Tamayo highlighted the significance of monitoring, emissions inventory, modeling, and health impact assessment, and introduced decision-making resources. Collaboration among government, industries, academia, and civil society was emphasized for effective air quality management.

Professor Hong Li (CRAES, China) emphasized setting clear goals, developing a long-term plan, and establishing strong coordination and robust emissions inventory at the local level. She suggested implementing a 10-point policy framework and continuously updating standards and intervention measures.

Dr. Toshimasa Ohara (CESS, Japan) showcased Japan's success in mitigating air pollution while maintaining economic growth. He highlighted the reduction of bio emissions but emphasized the challenge of addressing chemical ozone. He expressed hope for EANET's role in addressing air quality problems in the Philippines.

Dr. Kessinee Unapumnak (PCD, Thailand) presented Thailand's Air Quality Management Framework and shared activities such as area-based management, sectoral approach, public relations management, and increasing public awareness. She emphasized the importance of inter-ministerial cooperation and effective policy implementation.

Professor Gangwoong Lee (HUFS, Republic of Korea) emphasized the potential contribution of citizens in reducing Volatile Organic Compounds (VOCs). He praised the Philippines' efforts in monitoring PM2.5 and VOCs and encouraged the country to persist in its air quality improvement endeavors.

The EANET workshop concluded with experts emphasizing the importance of clear goals, long-term planning, and strong coordination in air quality management. They highlighted the need for continuous updates of regulations, citizen involvement, and evidence-based policies. Dr. Shiro Hatakeyma, Director General of ACAP, delivered the closing remarks.

Interested in participating in an EANET Project? Find out more on the EANET Project Fund.

Useful Resources
- Read the meeting notes.
- Read the Event Survey
- Download the meeting presentations:
- From data to policy – 20 years of EANET, presentation by Prof. Meng.
- Acid Deposition Monitoring in the Philippines, presentation by Mr. Aytona.
- Air quality management Challenges and Opportunities in the Philippines – presentation by Mr. Aquino
- Air quality management Challenges and Opportunities in the Philippines – presentation by Ms. Tamayo

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National Stakeholders' Awareness Workshop in Lao PDR on EANET in 2023

The National Stakeholder Awareness Workshop in Lao PDR on EANET: Promoting acid deposition and air quality management in East Asia was held in Vientiane, on 2 May 2023, in cooperation with the Natural Resource and Environment Research Institute (NRERI), Ministry of Natural Resource and Environment (MoNRE), Lao PDR. It aimed at showcasing the achievements and activities of the EANET over the last 20 years and encouraging cooperation between EANET and Lao stakeholders in the implementation of the EANET's expanded scope and Project Fund activities.

The Workshop was held at the NRERI, and gathered about 45 participants from government agencies, academic institutions, and NGOs. It was co-chaired by Mr. Lonkham Atsanavong, Director General of the NRERI, MoNRE, and Mr. Bert Fabian, Coordinator of the Secretariat for the EANET.

The National Stakeholder Awareness Workshop in Lao PDR on EANET was inaugurated by the Opening Remarks of Mr. Lonkham Atsanavong and the introduction to the Workshop's objectives by Mr. Bert Fabian.

These were followed by presentations by Dr. Keiichi Sato, Head of Atmospheric Research Department, Asian Center for Air Pollution (ACAP), Network Center of the EANET; Mr. Vanhna Phanphongsa, Deputy Director, Environmental Laboratory, MoNRE, Lao PDR; and Ms. Bounmany Soulideth, Deputy Head of Division, MoNRE, Lao PDR and current Head of the ASEAN Technical Working Group on Transboundary Haze Pollution.

Dr. Keiichi Sato presented the overall progress of air quality monitoring activities in the EANET region over the past two decades, specifically focusing on the dissemination of monitoring data, capacity building, and regional cooperation, within the framework of the EANET. Mr. Vanha and Ms. Bounmany presented the status of acid deposition monitoring and air quality management in Lao PDR as well as the transboundary haze pollution and general air quality issues in Lao PDR.

In his presentation, Mr. Vanha highlighted interest in Laos for future collaboration on capacity building activities, specifically related to supporting maintenance, Ion Chromatography (IC) instrument & air quality monitoring stations QA/QC, training on PM2.5/ PM10 monitoring, ambient air quality monitoring, atmospheric data analysis, ambient air data mapping, emission inventory tools, and air quality modeling.

The objective of the panel discussion on Strengthening Acid Deposition and Air Quality Management in Lao PDR was to offer a forum to share information on air quality management and haze pollution. Representatives from government agencies NGOs, and other development institutions participated actively in the panel discussion and shared their thoughts on the air pollution issues in the country.

The alarming increase in the heat index in Lao PDR and in the region in April 2023, combined with wildfires and high air pollution, has led to a collective agreement to raise awareness about the detrimental effects of air pollution. The government of Laos is taking various measures to address air pollution and raise public awareness about its impacts, including conducting public awareness activities led by the Ministry of Public Health and the Ministry of Natural Resource and Environment and collaborating with relevant sectors to prevent air pollution from the agricultural sector. The National University of Laos (NUOL) has also introduced a supplementary curriculum on air pollution and air quality control.

The collaboration between the government and local communities was emphasized, involving engagement with local authorities and residents in educational programs. In the agricultural sector, the cassava farming practice is becoming a significant concern, leading to nutrient degradation in the soil and farmers resorting to clearing more land. Facing this issue, support is being provided to community-managed areas for sustainable crop preparation, discouraging the shifting of cultivation sites and promoting the use of plant residues to reduce burning.

Local government entities are also encouraged to collaborate with research institutes and other sectors to manage and prevent air pollution. The World Bank, in partnership with the NRERI, is developing an environmental and waste management project, aiming to enhance communication and access to educational resources through the development of online platforms including a mobile application, for public air quality monitoring.

The National Awareness Workshop participants highlighted the status of air quality monitoring stations, identified major sources of air pollution, and emphasized the importance of capacity building and international cooperation in addressing the transboundary haze issue. While efforts are made to improve the air quality assessment, these need to be further strengthened. Collaboration among various local and international stakeholders is key to addressing the air quality issue in Lao PDR.

Interested in participating in an EANET Project? Find out more on the EANET Project Fund.

Useful Resources
- Read the meeting notes (in Lao).
- Read the Event Survey
- Download the meeting presentations:
- EANET – 20 years of activities and impact (by Dr. Keiichi Sato)
- Status and challenges in acid deposition monitoring and air quality management in Lao PDR (by Mr. Vanhna Phanphongsa)
- Status of the Transboundary Haze Pollution in Lao PDR (in Lao, by Ms. Bounmany Soulideth)

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EANET joins forces in Mongolia with regional and global partners to fight air pollution at the High-Level Forum on Clean Air

EANET, as one of the existing intergovernmental bodies in Asia, collaborated in the organization of the High-Level Forum on Clean Air, alongside the Ministry of Environment and Tourism of Mongolia, the United Nations Economic and Social Commission for Asian and the Pacific (ESCAP), and the UN Environment Programme (UNEP), held in Ulaanbaatar, Mongolia from 2 to 3 March 2023. The Forum supported the operationalization of ESCAP's recently adopted Asia-Pacific Regional Action Programme on Air Pollution (RAPAP).

The Forum gathered around 100 participants including high-level representatives from governments, national experts, researchers, and representatives from regional organizations working on air pollution.

The Forum aimed at presenting and discussing the implementation of the Asia-Pacific Regional Action Programme on Air Pollution (RAPAP), adopted at the 7th session of the ESCAP Committee on Environment and Development in 2022. Various sessions were organized, including a ministerial roundtable, sessions on air quality management, monitoring, best practices, capacity building, air quality data and standards, and partnerships through the RAPAP.

Stakeholders from a wide variety of countries, from Asia and beyond, organizations, and sectors shared their experience in actively leading air pollution-related actions, showing the abundance of expertise in the domain.

Among key high-level representatives, H.E. Mr. Oyun-Erdene Luvsannamsrai, Prime Minister of Mongolia; H.E. Mr. Naseer Ahamed, Minister of Environment of Sri Lanka; Ms. Armida Alisjahbana, Under-Secretary-General of the United Nations and Executive Secretary of ESCAP, and Ms. Dechen Tsering, Regional Director, Asia and the Pacific Office, UN Environment Programme, joined the hybrid event.

*Watch Prof. Meng's presentation
(at 35'06")*

The EANET, as a key regional intergovernmental organization for East Asia, along with the North-East Asia Clean Air Partnership (NEACAP), was invited to share its expertise in several sessions.
Prof. Meng Fan, Deputy Director-General of the Network Center for the EANET, shared EANET's two decades of experience during Session 2: Air Quality Monitoring Session. He highlighted the trends of air pollution and acid deposition in the EANET region, including the decrease of sulphur dioxide over time, and the increase of ozone, in Southeast Asia specifically. He also explained the impacts of acidification in forests and inland waters in the region.

Mr. Bert Fabian, the Coordinator of the Secretariat for the EANET, was invited as a panelist in Session 3: Best Practice Sharing and Capacity Building. In his presentation, he explained the role of EANET in strengthening the data-science-policy link over the past two decades, highlighting the capacity-building and training activities achieved by the Network, and presented the new Project Activities in 2023. He called for increased cooperation amongst various partners in support of Project activities in 2024.

Mr. Kwon-Ho Jeon, a Senior coordinator at the National Institute of Environmental Research (NIER), Republic of Korea, presented NIER's training activities particularly on the upcoming TNT and Capacity Building Program in 2023, a partnership between NIER and EANET.
The High-Level Forum offered a meeting point for many organizations and government representatives. Several stakeholders mentioned ongoing participation in the EANET, such as Ms. Uranchimeg Tserendorj the Director-General of the Natural Resources Policy Coordination Department from the Ministry of Environment and Tourism, Mongolia, and Undersecretary Juan Miguel Cuna of the Department of Environment and Natural Resources, Philippines.

EANET will explore opportunities to cooperate amongst various partners to complement the implementation of the RAPAP. EANET will continue to play a key role in Northeast and Southeast Asia in air quality and acid deposition management.
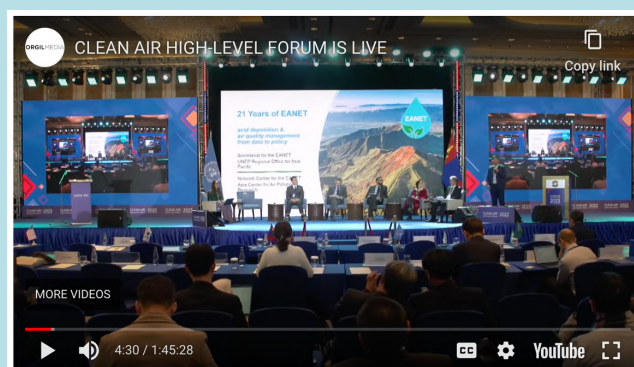
*Watch Mr. Fabian's and Mr. Jeon's presentations
(at 4'20" and 11'53")*

Interested in finding out more about EANET's monitoring activities and findings? Read the Fourth Periodic Report on the State of Acid Deposition in East Asia (PRSAD4).

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EANET kicks off its first Project Fund Activity on Volatile Organic Compounds

Under the leadership of the Ministry of Environment of Japan and with the technical support of the Network Center for the EANET, the first EANET Project Activity launched its online kick-off meeting on 15 February. It gathered over 40 participants mainly from Japan, Mongolia, the Philippines, the Republic of Korea, and Thailand, involved in sharing or receiving technical assistance related to Volatile Organic Compounds (VOCs) monitoring.

Since the recent expansion of the scope of the EANET from acid deposition monitoring to wider air pollution action, the Network has started to carry out activities related to additional chemical species, including Volatile Organic Compounds (VOCs).

VOCs are "compounds that have a high vapor pressure and low water solubility. Many VOCs are human-made chemicals that are used and produced in the manufacture of paints, pharmaceuticals, and refrigerants" according to the US-EPA. In addition, several emission sources such as biogenic emissions, forest fires, waste burning including plastic, automobile exhaust, fossil fuel burning, and stock farming can produce VOCs. Exposure to VOCs may have various dangerous health effects from eyes, throat, and nose irritation to more serious conditions such as liver, kidney, or central nervous system damage, sometimes leading to cancer.

VOCs are also precursors of particulate matter and ozone. It is important to measure VOCs to better understand how to mitigate air pollutants emissions.

VOCs monitoring is complex due to its complicated source characteristics and costly measuring technology. For this reason, its monitoring is still at an early stage in Asia.

The "Feasibility for Promoting VOCs related Capacity Building in the EANET" project is part of the first batch of EANET Projects funded by the EANET Project Fund. Supported by the Ministry of the Environment, Japan, the project is coordinated by the Network Center for the EANET.

Through this project, experts in VOCs from the Center for Environmental Science in Saitama (CESS), in Japan will share their knowledge and assist the government officials from Mongolia and from the Philippines to develop their 3-year national implementation plan. During the kick-off meeting, Government representatives from the Philippines and Mongolia shared their plans and priorities for tackling VOCs.

In addition, a VOC Advisory Group composed of experts from the NC and EANET countries has been brought together and will also give guidance on feasible measurement methods, data analysis, identification of the target species to measure VOCs, and feasible reduction measures.

At this stage, the implementation partners are environmentalists from Mongolia and from the Philippines. However, the project's goal is to serve all the EANET countries and be further replicated.
The next meeting will take place in person in Manila in May 2023 to continue discussions on the feasibility and methodology of VOCs management.
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Interested in finding out more about the EANET Project Fund? Read more on how to fund or submit an EANET Project.

Capacity Building in the EANET –
The Individual Training 2022

The EANET Individual Training in 2022 was successfully organized by the Network Center for the EANET (NC) in November and December 2022. It consisted of virtual lectures and in-person laboratory training and aimed at providing technical support and capacity building to participants from the EANET Participating Countries on acid deposition monitoring.

The Individual Training has been a regular activity conducted yearly by the NC in Niigata, Japan, to improve the various monitoring skills of the representatives from the EANET Participating Countries. In 2022, due to COVID-19-related travel restrictions, the EANET Individual Training took place online. 28 government officers and researchers from 7 EANET Participating Countries (Cambodia, Indonesia, Malaysia, Myanmar, the Philippines, Russia, and Viet Nam) completed the online course, from November 1st to 18th 2022.

This year's session started with Opening Remarks from Dr. Shiro Hatakeyama, Director General of ACAP, followed by an introduction of the participants and of the EANET. Lectures on atmospheric deposition (including wet and dry deposition), the effects on ecosystems, and related monitoring methods, were presented.

The second week of the training focused on data monitoring including automatic monitor maintenance of particulate matter and ozone monitors, data analysis, sampling methods, pretreatment, and electric conductivity and pH measurement for dry/wet samples and inorganic carbon measurement.

Finally, during the last week of the training, participants learned about the EANET quality assurance and quality control activities, data reporting, and data evaluation procedures. An introduction to the Inter-Laboratory Comparison Project 2021 was also provided. The virtual lectures were followed by onsite laboratory training in Niigata, Japan, in December 2022.

The Individual Training allowed participants to deepen their knowledge of acid deposition monitoring, data evaluation, and reporting, in close relation to their on-the-ground laboratory work. In addition to matters specific to the East Asian region, broader topics, including lectures on atmospheric deposition, data management, maintenance of equipment, and coordination for monitoring activities, were delivered by scientists and researchers from the NC.

The expected outcome of the EANET Individual Training was for participants from both the virtual lectures and in-person laboratory training to disseminate experience and knowledge to colleagues in their country, allowing them to actively carry on monitoring acid deposition and air pollution activities. The NC continuously provides support in this dissemination effort.

The Individual Training program is a 2022 EANET Project activity, which received support from the governments of Japan and the Philippines.

Find out more about the EANET Individual Training through the Program of EANET Individual Training 2022 or contact the NC.

Capacity Building in the EANET – The Individual Training 2022 Laboratory Session

As part of the EANET Individual Training in 2022, a session in the laboratory was held by the Network Center for the EANET (NC) in December 2022. It aimed at providing practical capacity building to representatives from the EANET Participating Countries on wet and dry deposition monitoring.

The Individual Training has been conducted as a regular activity yearly by the NC in Niigata, Japan, to improve the various monitoring skills of the representatives from the EANET Participating Countries.

In 2022, the laboratory session of the training was held in person in Niigata, Japan, at the Asia Center for Air Pollution Research (ACAP). A representative from the Environmental Management Bureau (EMB) of the Department of Environment and Natural Resources (DENR) from the Philippines completed the training.

Held from 11 to 17 December 2022, the training aimed at developing professional expertise and knowledge of wet deposition (precipitation sample) and dry deposition (4 Stage Filter Pack).

The laboratory session consisted of various technical exercises focusing on specific topics and practical outputs including pH and electric conductivity, filter pack sampling, and standard operating procedures of inorganic ions analysis. Through these exercises, laboratory work techniques were demonstrated and explained. These included maintaining a steady temperature during the measurements of pH and electric conductivity, how to clean laboratory wares, and understanding differences in the sampling when using a gas volume meter or a gas flow meter, for filter pack sampling.

The training also included a site visit at the Niigata – Maki Station, where the trainee observed automatic rainwater samplers, sampling setups for water-insoluble and water-soluble organic carbon, and filter pack samplers for particulate matter, gases, and carbons. This activity helped familiarize him with the field equipment used for air quality monitoring. In addition to the original training program, instructors shared knowledge on black carbon analysis (sampling, analysis, and instrument operation), atmospheric microplastics analysis, and PM2.5 data processing.

The expected outcome of the laboratory session of the Individual Training is for the participant to disseminate experience and knowledge to colleagues in his country. The NC continuously provides support in this dissemination effort.

The Individual Training program is a 2022 EANET Project activity, which received support from the governments of Japan and the Philippines.

Find out more about the EANET Individual Training through the Program of EANET Individual Training 2022 or contact the NC.

View the photos on Flickr.

The 13th International Workshop on Atmospheric Modeling Research in East Asia

The Network Center for the EANET co-organized the 13th International Workshop on Atmospheric Modeling Research in East Asia with the community of MICS-Asia, on 22-23 December 2022. About 60 participants joined the virtual workshop. The workshop provided capacity-building opportunities for air quality modeling to the EANET. Participants learned methodologies to utilize air quality models to analyze and evaluate the atmospheric environment.

According to the United States Environment Protection Agency (EPA), air quality modeling is "a mathematical simulation of how air pollutants disperse and react in the atmosphere to affect ambient air quality." Through these calculations, researchers and policymakers develop predicted scenarios and design strategies to reduce the adverse effects of air pollution.

Over the years, the EANET has maintained a close relationship with the community of Model Inter-Comparison Studies for Asia (MICS-Asia). The International Workshop on Atmospheric Modeling Research in East Asia is a regular workshop of MICS-Asia which has received support from the EANET throughout the previous Medium Term Plans and was part of the EANET Project Activities in 2022.

Summaries of previous MICS-Asia workshops are available in the Reports of the Session of the Scientific Advisory Committee (SAC) on the EANET.

Four working groups were established as part of the MICS-Asia Phase IV: the Air Quality Model working group, the Air Quality and Climate Model working group, the Emission Inventory working group, and the Observation working group. MICS-Asia Phase IV working groups focus on specific issues including the intercomparison of air quality models, the study of the influence of climate change on the status of air quality, the development of reliable emission inventories for model working groups, and the survey and collection of data to establish trends of concentrations of air pollutants in East Asia.

Among other sources, MICS-Asia experts referred to the results of the EANET's 4th Periodic Report on the State of Acid Deposition in East Asia (PRSAD4) and to the EANET monitoring data to conduct their research.

During the workshop, international experts in modeling and impact assessment studies shared various presentations based on research activities in Asia and beyond.

Dr. Christian Hogrefe, from the U. S. Environmental Protection Agency, introduced the Air Quality Modelling Evaluation International Initiative Phase 4 (AQMEII4) which applies detailed dry deposition diagnostics to a range of air quality models and their deposition schemes. Dr. Baozhu Ge, from the Institute of Atmospheric Physics, Chinese Academy of Science, shared a presentation on the enhanced wet deposition of nitrogen induced by a landfalling typhoon over East Asia.

Dr. Natsumi Kawano, from the Center for Environmental Science, in Saitama, Japan, gave a presentation on the impact of future climate change on tropospheric ozone in Japan using the WRF-CMAQ modeling system and the RCP8.5 scenario.

Dr. Syuichi Itahashi, from the Central Research Institute of Electric Power Industry, Japan, shared a presentation on the changes in transboundary aerosol components due to the emission variations in East Asia. Dr. Xiao Tang, from the Institute of Atmospheric Physics, Chinese Academy of Science, gave a presentation on high-resolution aerosol data over China simulated by the NAQPMS modeling system and an inversed emission inventory. Dr. Naoyuki Yamashita, from the Forestry and Forest Products Research Institute, Japan, shared a presentation on the critical load of soil acidification and surface water eutrophication in the EANET Participating Countries, and Dr. Baiyao Xu, from Nanjing University, China, gave a presentation on the impacts of meteorological factors and ozone variation on crop yields in China related to the carbon neutrality objectives in 2060 and based on RegCM-Chem-YIBs.

Results from the MICS-Asia Phase IV working groups' research activities and collaboration with international experts will allow to improve the scientific understanding of air quality issues in the region, but also provide informed knowledge for policy-making in Asia.

Useful Resources
- Summary of the 13th International Workshop on Atmospheric Modeling Research in East Asia
- Agenda
  - Panelists' presentations:
  - AQMEII Phase 4: Diagnostic analysis of atmospheric deposition through grid and point model intercomparisons (presented by Dr. Christian Hogrefe)
  - Enhanced wet deposition of nitrogen induced by a landfalling typhoon over East Asia (presented by Dr. Baozhu Ge)
  - Changes in transboundary aerosol components due to the emission variations in East Asia (presented by Dr. Syuichi Itahashi)
  - High-resolution aerosol data over China simulated by NAQPMS and an inverse emission inventory (presented by Dr. Xiao Tang)
  - Critical load of soil acidification and surface water eutrophication in EANET participating countries (presented by Dr. Naoyuki Yamashita)
  - Impacts of meteorological factors and ozone variation on crop yields in China concerning carbon neutrality objectives in 2060 based on RegCM-Chem-YIBs (presented by Dr. Beiyao Xu)

The Network Center for the EANET releases the Data Report 2021

Composed of acid deposition monitoring data gathered in 2021 and endorsed by the Scientific Advisory Committee (SAC) in 2022, the "Data Report 2021" and the "Report of the Inter-laboratory Comparison Project 2021" have been uploaded in open access on EANET website.

In the context of the recent adoption in March 2022 by governments at UNEA-5.2 of a key resolution supporting the establishment of a comprehensive science policy panel on the sound management of chemicals and waste and preventing pollution, the importance of referring to high-quality data has never been greater.

Covering in 2022 the area of 13 countries, from Irkutsk (Russia) in the North to Lombok (Indonesia) in the South, Ochiishi (Japan) in the East, and Mandalay (Myanmar) in the West, the Acid Deposition Monitoring Network in East Asia (EANET)'s total surface is extremely wide and diverse.

Since 1998 (during the preparatory phase activities of the Network), the EANET has deployed monitoring stations in urban, rural, and remote locations to monitor acid deposition. These monitoring sites gather high-quality data related to the deposition of major acidifying species and related chemical substances such as sulfate (SO_4^{2-}), nitrate (NO_3^-), hydrogen (H+) in precipitation, sulfur dioxide (SO_2), nitrogen dioxide (NO_2), ozone (O_3), and particulate matter (PM) in ambient air.

Monitoring data are used to evaluate the state of acid deposition as well as its impacts on ecosystems. Data on the atmospheric wet deposition of acidic components and other relevant pollutants have for example been used to understand the impacts of pollution on forest ecosystems, such as for the study led by EANET scientists in the dry evergreen forest of Sakaerat, in Nakhon Ratchasima Province, in northeastern Thailand.

Monitoring activities carried out in 2021 are presented in the Data Report 2021 (published in December 2022) and available in open access online.

Over the years, EANET scientists and monitoring officers have improved the collective knowledge and skills of the Network, among others on the quality assurance and quality control (QA/QC) of the data. The Report of the Inter-laboratory Comparison Project is conducted each year among the EANET analytical laboratories, based on the quality assurance/quality control (QA/QC) programs of the Network. The objectives of this project are to recognize the analytical precision and accuracy of the measurement in each participating laboratory, to give further opportunities to improve the quality of the analysis, and to improve the reliability of analytical data through the assessment of suitable analytical methods and techniques.

EANET data is available for non-commercial use for scientists, researchers, students, mobile app developers, etc… and anyone who wishes to understand the state of acid deposition and air pollution in East Asia over the last two decades.
By widely sharing data, EANET aims at improving the global knowledge on acid deposition, as well as providing collaboration opportunities to improve public health and ecosystems' restoration.

The "Data Report 2021" and the "Report of the Inter-laboratory Comparison Project 2021" are available in open access online, for non-commercial use only.
Users may also access customized data, such as hourly, weekly, and bi-weekly data on wet and dry deposition monitoring, by registering on the monitoring portal.
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Download the "Data Report 2021" and the "Report of the Inter-laboratory Comparison Project 2021"
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2023 Calendar of Events

AUGUST

23-24 August 2023
The Working Group Meeting (WG2023) on the EANET in 2023, online meeting.

29-30 August 2023
The Twenty-fourth Senior Technical Managers' Meeting (STM24) on the EANET, Niigata, Japan, and online.

SEPTEMBER

11-22 September 2023
TNT and Capacity Building Program, Session 2, held in Rep. of Korea

24-30 September 2023
TNT and Capacity Building Program, Session 2, held in Japan

OCTOBER

10-12 October 2023
The Twenty-third Scientific Advisory Committee (SAC23) meeting on the EANET, hydrid meeting.

NOVEMBER

29-30 November 2023
The Twenty-fifth Session of the Intergovernmental Meeting (IG25) on the EANET will be organized in Hanoi, Viet Nam, and online.

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