EANET
NEWSLETTER

ACID DEPOSITION MONITORING NETWORK IN EAST ASIA

EANET

CONTENT

ACCELERATING ACTION FOR CLEAN AIR

In 2023, the EANET expanded its efforts against acid deposition and air pollution through monitoring, capacity-building, and outreach activities.

In November 2023, the 25th Intergovernmental Meeting in Hanoi, Viet Nam, approved the Core Budget for key meetings and monitoring activities and also approved eleven EANET Projects for 2024. These projects target government officials' capacity building and address air quality management issues like VOCs, LCS, emissions inventories, and source apportionment in the region.

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

Learning more about EANET this year, I'm impressed by its various activities and achievements, gathered through extensive research, discussions with Participating Countries, SAC members, and partners at the Network Center. In its commendable 20-year journey, EANET has crafted a comprehensive database, accessible online, featuring air quality and meteorological data with impact assessments on soil, vegetation, forests, and inland water.

This wealth of information stems from 65 monitoring sites, comprising 26 urban, 18 rural, and 21 remote locations (as of end of 2022). Monitoring extends to 31 plots in 10 countries for soil and vegetation and 19 lakes/rivers in 11 countries for inland aquatic environments. A robust inter-laboratory comparison process ensures meticulous analysis of the data and results.

EANET's commitment is further evidenced by training 221 officials and experts since 2002, focusing not only on monitoring but also on broader air quality management issues. Numerous workshops and seminars have amplified their educational impact. Annual intergovernmental meetings, SAC sessions, senior technical managers meetings, and ad-hoc gatherings since 2001 have significantly contributed to enhancing national government officials' capacity to tackle air pollution.

The evolving landscape of atmospheric environmental issues, spanning three decades, underscores the need for adaptation. From sulfur-influenced total suspended particulates to finer particulates and photochemical smog, EANET has expanded its scope to address emerging concerns like Dust and Sandstorms. This adaptability is crucial given the compounded challenges posed by changing weather and meteorological patterns due to climate change.

EANET's MOU with the World Meteorological Organization fosters collaboration at the intersection of weather, air quality, and climate change. This collaboration supports the Global Atmosphere Watch, showcasing EANET's commitment to shared knowledge and experiences.

Given EANET's expansive network and expertise, I see potential for its intergovernmental role in not only strengthening regional air quality management but also promoting multilateralism for effective air pollution control. This is particularly relevant amid upcoming projects like ESCAP's Regional Action Programme on Air Pollution and the Climate and Clean Air Coalition's Clean Air Flagship program. In a landscape with ongoing efforts by organizations like Clean Air Asia, the World Resources Institute, and numerous local research institutes and NGOs, the importance of coordination and cooperation is increasingly evident to optimize resource utilization and avoid duplicative efforts.

At the recent EANET Intergovernmental Meeting in Hanoi, Viet Nam, a robust 2024 work program and budget were approved. Approximately USD 1 million is allocated for the Secretariat and the Network Center, with an additional USD 605,000 earmarked for projects focusing on capacity building for government officials and key air quality management issues, including Volatile Organic Compounds, low-cost sensors, emissions inventories, and source apportionment in the region. EANET's forward-looking approach includes exploring more partnerships and cooperation in 2024, aiming for impactful projects that effectively reduce air pollution.

The Twenty-fifth Session of the Intergovernmental Meeting on the EANET

The Twenty-fifth Session of the Intergovernmental Meeting on the Acid Deposition Monitoring Network in East Asia (EANET) (IG25) took place from 29 to 30 November 2023, in Hanoi, Viet Nam and online. Over 70 representatives from the EANET Participating Countries, UNEP and ACAP, the Secretariat and Network Center for the EANET, participated in the discussions related to the network's 2024 activities and to address air quality issues in the region.

Hosted and chaired by Viet Nam, the IG25 started with the Welcome Remarks by His Excellency Mr. Le Cong Thanh, Vice Minister, Ministry of Natural Resources and Environment (MONRE), followed by opening Remarks by Ms. Marlene Nielsson, Deputy Regional Director for Asia and the Pacific, UNEP, and by Dr. Hatakeyama, Director General, Asia Center for Air Pollution Research (ACAP).

Vice Minister Le Cong Thanh emphasized the significant challenges of air pollution and acid deposition in Viet Nam and globally.

He highlighted the efforts of MONRE in developing legal frameworks and a nationwide monitoring network and expressed appreciation for the EANET's contributions over the past twenty years.

Ms. Nilsson underscored the significance of multilateralism in tackling environmental challenges, particularly acid deposition and air pollution, highlighting EANET's expanded role in policy actions and capacity building for improved air quality.

Dr. Shiro Hatakeyama highlighted the successful outcomes of the expansion of scope and the Project Fund adopted two years ago, specifically citing the Hybrid Air Quality Monitoring Network (HAQMN) project's positive results with Low-Cost Sensors (LCS).

The IG25 Session was chaired by Viet Nam, vice-chaired by Lao PDR and Cambodia, and Thailand was elected Rapporteur.

In addition to the Core Budget of the EANET to support its activities focused on monitoring, and supporting its meetings, the IG25 approved eleven EANET Projects in 2024 primarily focusing on capacity building for government officials but also concerning key air quality management-related issues such as on Volatile Organic Compounds (VOCs), low-cost sensors (LCS), emissions inventories, and source apportionment projects in the region.

The EANET Projects for 2024 received funding through the EANET Project Fund, EANET's financial mechanism allowing collaboration with implementation partners and co-financing from outside the EANET Network.

The total funding for Project Activities in 2024 is $605,000, including funding from the EANET Secretariat and NC funds, additional financial support from Japan (MOEJ), and from the Republic of Korea (NIER).

In addition to these key decisions, the IG25 also approved several important documents, such as the Work Program and Budget of the EANET in 2024, including the organization of key meetings in 2024 such as the Working Group Meeting in 2024 (WG2024), the 24th Scientific Advisory Committee (SAC24) and the 26th Session of the Intergovernmental Meeting on the EANET (IG26), and the process to finalize the revision of the EANET's Administrative and Financial Guidelines and of the EANET Project Fund and Project Guideline.

His Excellency Mr. Le Cong Thanh delivering the Opening Remarks.

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Useful Resources:

- Read the Report of IG25
- discover the meeting's pictures on Flickr.

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The 23rd Scientific Advisory Committee Meeting on the EANET

The Scientific Advisory Committee (SAC) of the Acid Deposition Monitoring Network in East Asia (EANET) held its Twenty-third Session of the SAC (SAC23) Meeting from 10-12 October 2023, to discuss the progress of acid deposition and air pollution monitoring activities since 2022. Over 50 members of the SAC and/or their representatives from the Participating Countries, the Network Center, and the Secretariat for the EANET, joined the virtual meeting.

The SAC23 started with Opening Remarks from Mr. Bert Fabian, Coordinator of the Secretariat for the EANET. He emphasized the significance of multilateralism in tackling environmental challenges and highlighted the upcoming 2024 UN Environment Assembly which will focus on climate change, biodiversity loss, and pollution. He welcomed the commitment of EANET countries to address acid deposition and air pollution through partnerships and initiatives. Welcome Remarks were delivered by Dr. Shiro Hatakeyama, Director General of the Asia Center for Air Pollution Research (ACAP), the Network Center for the EANET. Dr. Hatakeyama highlighted the importance of the activities conducted by researchers in the past year in the EANET, including the annual Data Report preparation, QA/QC activities, training, and joint research projects. He also emphasized the success of EANET's capacity-building efforts and highlighted important agenda items for discussion during the session.

Scientists from the Network Center for the EANET presented the results from activities of acid deposition monitoring, based on data provided by the EANET Participating Countries and retrieved from their national monitoring sites for 2022. These included wet, dry, soil and vegetation monitoring from all Participating Countries, as well as catchment-scale monitoring in Japan and the Philippines. The Draft EANET Data Report 2022 and the Draft Report on the Inter-laboratory Comparison Projects in 2022 were both presented and adopted at the Session.

The Network Center also presented an overview of the National Monitoring Plans of the Participating Countries for 2023, based on the submissions made during the recent Twenty-fourth Senior Technical Managers' Meeting (STM24) on the EANET.

Finally, the SAC23 members were also invited to comment, from the scientific viewpoint, on other important documents including, the Draft EANET Progress and Financial Reports, the Work Programme and Budget for 2024, the Draft Mid-Term Review of the EANET MTP, the proposed revision of the EANET's Administrative and Project Guidelines, and the EANET Project Plans submitted for 2024, before approval at the IG25 of EANET, to be held in Hanoi, Viet Nam, in November 2023.

Useful Resources:

- Access EANET Data
- Read the Report of SAC23
- View the online meeting's photos on Flickr

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The Twenty-fourth Senior Technical Managers' Meeting on the EANET

The Twenty-fourth Senior Technical Managers' Meeting (STM24) on the Acid Deposition Monitoring Network in East Asia (EANET) took place in Niigata, Japan and online, on 29 and 30 August 2023. The Meeting gathered over 40 senior technical officials from the 13 EANET Participating Countries to discuss the status of the Network's monitoring activities.

Dr. Shiro Hatakeyama, the Director General of the Asia Center for Air Pollution Research (ACAP), delivered the Opening Remarks, followed by Welcome Remarks by Mr. Bert Fabian, the Coordinator of the Secretariat for the EANET.

After presenting the progress of EANET activities in 2022 since STM23, the Network Center for the EANET (NC) shared the results of various reports on acid deposition and related substances monitoring activities. STM24 participants were invited to discuss and share knowledge and experience to collectively review these draft publications.`

The NC presented the Preliminary Draft Data Report 2022. This report focuses on wet deposition, dry deposition (air concentration), soil and vegetation, inland aquatic environment, and catchment-scale monitoring. It includes a summary of the monitoring data in 2022 and related information submitted by the Participating Countries.

The NC also introduced the preliminary draft Report on the Inter-laboratory Comparison Projects in 2022 for wet deposition, dry deposition (filter pack method), soil, and inland aquatic environment.

In line with previous STM meetings' process, representatives of the Participating Countries presented their National Monitoring Plans (NMPs) and current EANET activities, including monitoring capacities, technical challenges, and future plans, while focusing on the general improvement of the activities of the EANET.
Dr. Meng Fan, Deputy Director General, ACAP, delivered the Closing Remarks. He expressed his great appreciation for the improvement of the data quality due to the efforts of the Participating Countries and hoped that the EANET monitoring, research, and capacity-building activities would continue to be strengthened through the expansion of the scope of the EANET.

Read the Report of the STM24 on the Meeting Reports page. View the STM24 photos on Flickr.

Find out more, and access EANET data on the Monitoring System page.

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Navigating Progress and Future Initiatives: Highlights from the EANET WG2023 Meeting

The Working Group Meeting in 2023 (WG2023) on the EANET was held online on 22 and 23 August 2023. Over 50 representatives from the 13 EANET countries, the Secretariat and the Network Center for the EANET, participated in the meeting to discuss past activities, proposed projects for 2024, and important administrative matters.

The completion of EANET projects in 2022 and ongoing activities in 2023 were presented during the WG2023 meeting. The Secretariat underscored its commitment to Core Activities from 2022 to July 2023. These included organizing the EANET major annual meetings, leading partnership and communication activities, and awareness sessions, such as the EANET Regional Awareness Workshop in Bangkok and National Awareness Workshops in Lao PDR and in the Philippines.
The Network Center highlighted activities spanning 2022 and 2023, including continued acid deposition and air quality monitoring, QA-QC and capacity building activities, and also Individual Training, the Emission Inventory Webinar Workshop, and the MICS-Asia Workshop. Notably, 2022 Projects were successfully completed, and eight Project Activities were launched in 2023. Among the 2023 projects was the VOC Advisory Group Meeting in Manila, a component of the broader Feasibility for Promoting VOCs' Related Capacity Building in the EANET project.

The Mid-Term Review of the EANET Medium Term Plan (MTP) for 2021-2025 was introduced during the WG2023. The Secretariat and Evaluator leading the Review presented the Inception Report for the Mid-Term Review of the MTP. Participating Countries engaged in discussions, sharing their perspectives and suggestions on the Plan's review.

EANET's Project Plans for 2024, submitted to the EANET Project Fund, came into focus during WG2023. The Network Center and Secretariat jointly introduced 12 EANET Project Plans for the upcoming year, ranging from continuing initiatives to new proposals. These projects included diverse subjects such as atmospheric deposition effects on ecosystems, VOC-related capacity building, air quality monitoring network development, and more. Participating Countries discussed potential overlaps, funding optimization, and suggestions to strengthen project proposals. Encouragement for external partnerships was highlighted.

WG2023 included discussions on modifications to the EANET Project Fund and Project Guideline, and on revising the Guidelines on Administrative and Financial Management for the Secretariat and Network Center. The Secretariat presented the current Guidelines against proposed changes submitted by Participating Countries at the Online Meeting on the Revision of the Guidelines. Participating Countries engaged in extensive discussions to refine definitions and procedures.
After the WG2023, the Secretariat and Network Center will prepare a new draft of both Guidelines, integrating proposed changes from discussions, for further review by Participating Countries' National Focal Points, and including review from UNEP and ACAP, hosts of the Secretariat and the Network Center for the EANET.
The revised Guidelines, along with the EANET Project Proposal, and the Mid-Term Review of the EANET MTP, will be further discussed at the Twenty-Third Scientific Advisory Committee (SAC23) online Meeting to be held in October 2023, and during the 25th Intergovernmental Meeting (IG25) on the EANET in November 2023, in Hanoi, Viet Nam.

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Improving Air Quality: Insights and Collaboration at the EANET Workshop on VOCs Related Activities

The Workshop on Knowledge Sharing for VOCs Related Activities in EANET took place at the Asian Development Bank (ADB) Headquarters, Manila, Philippines, and online on Tuesday 14 November 2023, as a pre-event to the Better Air Quality Conference (BAQ) 2023. It gathered around 35 experts in the auditorium of ADB Headquarters, Manila, Philippines, and about 80 participants online.

Volatile Organic Compounds (VOCs) are components of air pollution that include a complex mixture of hundreds of carbon-containing gases. VOCs also include a wide variety of chemicals, some of which can cause short- and long-term adverse health effects. However, due to the unique characteristics of VOCs and the relatively high cost of measurement, VOCs monitoring and its related activities in the EANET region are still at an early stage.

Since February 2023, the EANET has launched the "Feasibility for Promoting VOCs related Capacity Building in the EANET" project as part of the first batch of EANET Projects funded by the EANET Project Fund.

The EANET Workshop on Knowledge Sharing for VOCs Related Activities aimed at providing a complete understanding of VOCs related activities from the monitoring design to policy implementation, and to foster a comprehensive understanding and collaboration in the field of VOCs by bringing together experts, researchers, and practitioners in a multidisciplinary platform.

Participants during the Workshop in ADB Headquarters.

Mr. Yu Kamei, Director of the International Cooperation Office, Environment Management Bureau, Ministry of the Environment, Japan (MOEJ) and Engr. Marcelino N. Rivera Jr. OIC of the Environmental Quality Management Division of the Environmental Management Bureau (EMB) of the Philippines, Central Office, on behalf of the EMB Director and concurrent Assistant Secretary Gilbert C. Gonzales, delivered opening remarks. Five presentations followed and covered VOC-related activities, from monitoring to emission control. Mr. Bert Fabian, Coordinator, Secretariat for the EANET moderated the Workshop.

Dr. Yujiro Ichikawa, Researcher at the Atmospheric Environment Group, Center for Environmental Science in Saitama (CESS) Japan, presented " Methods of Measuring Atmospheric VOCs and Case Study in Japan". Afterwards, Dr. Toshimasa Ohara, Research Director, Center for Environmental Science in Saitama (CESS), the SAC member of Japan for the EANET, and Dr. Kessinee Unapumnuk, Director, Transboundary Air Pollution Sub-Division, Air Quality, and Noise Management Division, Pollution Control Department (PCD), Thailand, delivered presentations on "VOCs and secondary air pollution in East Asia" and "Establishment of Environmental Standards and Guideline Values of Volatile Organic Compounds in the Kingdom of Thailand", respectively.

From the perspective of VOCs emission control, Mr. Junjie Tian, Engr., Shanghai Academy of Environmental Science, and Dr. Miao Feng, Director, Institute of Atmospheric Environment, Chengdu Academy of Environmental Science, delivered presentations on the "Prevention and Control of VOC pollution in Shanghai: progress, achievement and prospect" and "Volatile Organic Compounds (VOCs) emission control in Chengdu, China". During their presentations, they introduced the Chinese local governments' practices, the lessons learned, and the achievements made during the past decade.

Prof. Fan Meng, Deputy Director General of the NC for the EANET, Asia Center for Air Pollution Research (ACAP) delivered closing remarks. The session was marked by active discussions and exchange of information, including with online participants. The event exemplified EANET's commitment to fostering a multidisciplinary platform for experts, researchers, and practitioners to collectively address the challenges of VOCs in air pollution.

This activity was implemented by the EANET and funded by the Ministry of the Environment, Japan, (MOEJ) and the Environmental Management Bureau (EMB) of the Philippines, through the EANET Project Fund.

Find out more about the EANET Project Fund.

Useful Resources:
-Read the Panelists' Presentations
-Read the Q&A Report
-View the Photos on Flickr
-View the recordings on YouTube

EANET and NIER's Technical and Training Capacity Building Program in 2023

The Technical and Training (TNT) program of the National Institute of Environmental Research (NIER), Republic of Korea, and the EANET Capacity Building Program have joined forces in 2023 to provide training on acid deposition and air quality management in the EANET Participating Countries.

Since 2002, the EANET has trained over 200 government officials and researchers, on acid deposition and air quality management through its individual training and capacity-building activities conducted mainly at the Asia Center for Air Pollution Research (ACAP) in Niigata, Japan, which hosts the Network Center for the EANET.

The National Institute of Environmental Research (NIER), part of the Ministry of Environment in the Republic of Korea, was established in 1978. It serves as the country's primary research institution for various environmental aspects. NIER is based in Incheon and operates 12 air quality monitoring stations and 4 river research centers.

The institute conducts extensive research and policy development on environmental health, climate, air quality, water resources, and energy, and collaborates on international projects aimed at global environmental protection.

The combined TNT and EANET Capacity Building Program in 2023 has been approved at the Twenty-fourth Session of the Intergovernmental Meeting (IG24) on the EANET, as a Project Activity, co-funded by the EANET Project Fund and the Republic of Korea.

In 2023, the Program was organized in two sessions. Each session was divided into two parts happening alternatively in the Republic of Korea and in Japan. Eight government officials and researchers (four per session) from the EANET Participating Countries were selected to participate in the training, based on their submitted applications that indicate their professional backgrounds, technical implications in monitoring activities, and motivation.

Session 1 took place in Japan from 14 to 20 May 2023, and in the Republic of Korea, from 20 May to 2 June 2023.

During the training in Japan, participants visited the National Institute for Environmental Studies, Japan, in Tsukuba City, where they received briefings and tours of the Earth Area Study and regional study laboratories. While at the Asia Center for Air Pollution Research (ACAP), in Niigata, participants attended lectures covering various atmospheric environmental issues. The training program included lectures on various topics, such as the ecological impacts of atmospheric deposition and air pollution in Europe, the USA, and Asia. It also covered methods for monitoring soil, vegetation, inland aquatic environments, and catchment areas.

Furthermore, the program included lectures on quality assurance and quality control (QA/QC) activities in EANET, data reporting procedures, an inter-laboratory comparison project, the analysis of EANET monitoring data (Periodic Report on the State of Acid Deposition in East Asia), and an introduction to emission inventory and air quality modeling. Finally, participants also visited the EANET Niigata-Maki monitoring site.

In the Republic of Korea, participants received the training in the NIER premises, in Incheon, where lectures were delivered by senior researchers from NIER's Climate and Air Quality Research Department. These experts provided insights into their main responsibilities, ongoing projects, and the specialized tools and instruments used in their divisions.

Additionally, the trainees had the opportunity to visit the Atmospheric Environment and Climate Change Laboratory at Seoul National University (SNU) and Ulsan National Institute of Science and Technology (UNIST). During these visits, they attended lectures conducted by professors from the Graduate School of Public Health, SNU, focusing on international projects like CASA, which is a clean air initiative for ASEAN member states.

The trainees also explored NIER's Jeju monitoring station and the National Air Emission Inventory and Research Center under the Ministry of Environment of the Republic of Korea. At these locations, they received presentations on the Republic of Korea's policies and strategies for managing air pollution, emphasizing comprehensive monitoring, analysis, and forecasting of air pollutant sources.
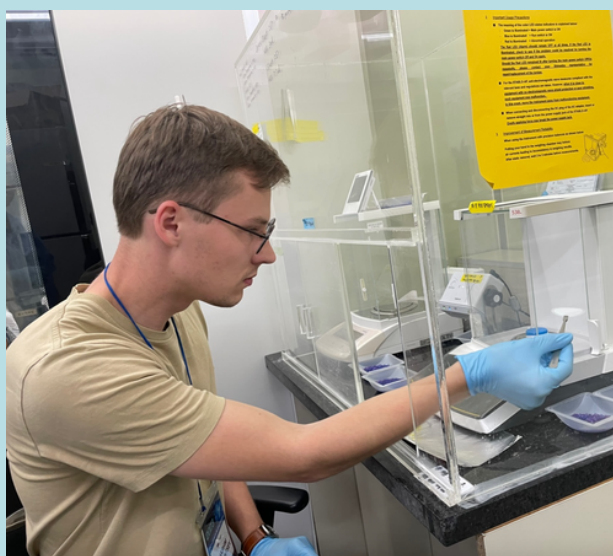

Lecture at the Seoul National University's Graduate School of Public Health

The Second session started in Incheon, Republic of Korea, from 10 to 24 September 2023 and in Niigata, Japan, from 24 to 30 September 2023.

In the Republic of Korea, the program included visits to key organizations under the Ministry of Environment of the Republic of Korea, including the National Air Emission Inventory and Research Center and the Jeju Island Air Quality Monitoring Center. Participants also visited University laboratories actively involved in air pollution research.

To address trainees' requests for hands-on experience, the 1st program was arranged by the Atmospheric Environment and Climate Change (AECC) Lab at Seoul National University's Graduate School of Public Health, which has been collaborating with NIER on Korea-China joint research since 2017. During this session, trainees conducted pretreatment and analysis of air pollutant sources, collected samples, and analyzed monitoring results using analytical instruments. They also explored UNIST's facilities for monitoring and analyzing air pollutant sources and learned about various international projects related to air pollution research in the East Asia Region. The National Air Emission Inventory and Research Center provided insights into forecasting air pollutant movement and related policies, while the Jeju Island Air Quality Monitoring Center introduced its monitoring and analysis instruments and cooperative efforts with other NIER monitoring centers across the country, as well as the Korea Meteorological Administration, to improve the accuracy of forecasting the concentration of particulate matter.

Hands-on experiment at the Laboratory of Seoul National University

Session 2 at ACAP was designed to offer hands-on training in wet and dry deposition monitoring. The aim of the training was to enhance participants' expertise and skills in atmospheric deposition, specifically focusing on the filter pack method and ion chromatography. The laboratory sessions included various technical exercises covering topics such as pH and electrical conductivity measurements, filter pack sampling, and the standard operating procedures for inorganic ions analysis. The exercises were complemented by practical demonstrations of laboratory techniques.

Additionally, the training program featured a site visit to the Niigata—Maki Station. During this visit, participants had the opportunity to observe wet-only samplers (both weekly and daily), the filter pack system, automatic monitors for SO_2, NO_x, O_3, $PM2.5$, and $PM2.5$ components, as well as meteorology monitors. This visit familiarized participants with the field equipment used in air quality monitoring.

The feedback survey indicated that all 8 participants found the program to be valuable and it is anticipated that the experience and knowledge gained from the program will be shared with their colleagues in their respective countries, further enhancing expertise in air quality management in the EANET Participating Countries.

The combined TNT and EANET Capacity Building Program in 2023 has been co-funded by the EANET Project Fund and the Republic of Korea. Find out more about EANET's Project Fund and Project Activities.

View the photos of the training on Flickr.

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EANET Training on Air Quality Monitoring Systems Using Low-Cost Sensors

The EANET Training on Air Quality Monitoring Systems Using Low-Cost Sensors took place on 6 and 7 September 2023, in Hanoi, Viet Nam, and online. The event was jointly organized by the ADB, the Network Center for the EANET, and the Vietnam Institute of Meteorology, Hydrology, and Climate Change (IMHEN) and gathered 100 participants, online and in person, from the EANET Participating Countries and beyond, to learn about LCS equipment operation, quality assurance, data accuracy, early problem detection, and effective use of monitoring data.

Ms. Karma Yangzom, Principal Environment Specialist at the Asian Development Bank (ADB), delivered Opening Remarks expressing gratitude for joining the Vietnam project with IMHEN.

She highlighted the significance of the hybrid method in addressing monitoring resource constraints, emphasizing the need for meticulous use of LCS to ensure sensor functionality and data verification, emphasizing the importance of high-quality, verified data, and underlining the workshop's objective to research proper LCS utilization while expressing appreciation to EANET for hosting the workshop with hopes of providing valuable information to participants.

Dr. Le Ngoc Cau, the Director of the Center of Environmental Research at the Vietnam Institute of Meteorology, Hydrology, and Climate Change (IMHEN), expressed gratitude to the Asia Center for Air Pollution Research, ACAP (the Network Center for the EANET) and ADB for their support in the project to establish an air quality system, highlighting the costliness of such systems in urban areas and the potential of LCS as a more affordable alternative if data accuracy can be ensured. The LCS has been installed in two provinces in Vietnam as part of the project, providing participants with a deeper understanding of its capabilities, and he thanked all the participants and EANET for organizing the workshop.

Dr. Le Ngoc Cau delivered a presentation on IMHEN's role, its air quality monitoring system, air quality modeling, and EANET activities in Vietnam. He highlighted the installation of a PM2.5 monitor in Hoa Binh station in 2015 and the collaborative installation of LCS at the same station with the Network Center. Dr. Cau emphasized the importance of verifying LCS data for reliability and the need to figure out how to integrate LCS and conventional monitoring data. They expressed interest in further collaboration with international organizations.

Ms. Karma Yangzom shared experiences from Asian countries regarding the use of Air Quality sensors in ADB projects aimed at enhancing awareness and efforts to improve air quality. She highlighted the stability of AQ Mesh sensors, which only require sensor replacements every two years, and emphasized the use of LCS to present air quality information to the public. She highlighted the importance of ensuring the reliability of the data generated from the LCS.

Dr. Akie Yuba, a Senior Researcher from ACAP, provided a report on LCS technical studies in Vietnam and Myanmar, which were carried out as part of EANET Project Activities. In Hoa Binh, Vietnam, five LCS units were installed, with a specific focus on PM2.5 and other parameters. In Yangon, Myanmar, LCS units, specifically GBiot and Haz Scanner, were utilized for monitoring PM2.5, O3, NO2, and meteorological data during both monsoon and non-monsoon seasons. A good correlation was observed in the data, though different values were displayed in the slopes, emphasizing the need for blackout preparedness to prevent electricity voltage fluctuations.

Dr. Hiroaki Minoura, a Guest Researcher at ACAP demonstrated, along with Dr. Yuba, how to install an LCS, how to initiate it, to connect it to a data server, and how to retrieve LCS data when there are data communication issues.

Dr. Kazuhiro Misaka, Director of Green Blue Corporation, a private company specializing in the inspection, and maintenance of environmental monitoring and measurement equipment, delivered a presentation on data screening and analysis obtained with LCS and the Hybrid Air Quality Monitoring Network (HAQMN), accompanied by Dr. Akie Yuba and Dr. Hiroaki Minoura.

Dr. Misaka explained the process of screening raw LCS data and removing noise signals. Dr. Yuba discussed the screening and validation of hourly LCS data, while Dr. Minoura covered topics related to data interpretation, visualization, and trend analysis.

In the last session, Dr. Alison Simcox from the U.S. Environmental Protection Agency (US-EPA) was invited to share insights on LCS experiences. She clarified that LCS data was not deemed an official guideline, and further studies on its functionality were being considered. Two key questions were introduced: the challenges encountered by LCS and Hybrid Air Quality Monitoring Networks (HAQMN) in Asian countries and potential collaborations for promoting LCS in these regions. Commenting on the wrap-up for the way forward, challenges related to technology and policy in utilizing LCS were emphasized, with a focus on the need for capacity building to address issues such as calibration and data interpretation. Dr. Alison stressed the importance of understanding the purpose of LCS usage, whether it was identifying wildfires, creating smoke maps, or monitoring global changes in PM2.5.

Mr. Kenichiro Fukunaga, Deputy Director General of ACAP, delivered the Closing Remarks and conveyed his gratitude to various organizations and participants for their contributions to the workshop and to the EANET Low-cost sensor project. He expressed expectations for the expansion and enhancement of LCS activities in monitoring, research, and capacity building.

Useful Resources:
- Read the Panelists' Presentations
- View the workshop's photos on Flickr.
- View the video on how to use LCS on YouTube.

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EANET Experts discuss monitoring and management issues for VOC: Insights from the Manila Advisory Group Meeting

The EANET Volatile Organic Compound (VOC) Project Advisory Group Meeting was held in Manila from 24-26 May 2023 including laboratory and VOC monitoring site surveys, resulting in finalizing activities in the Philippines and Mongolia and other recommendations for the VOC project's progress.

The Network Center for the EANET, organized the EANET VOC Advisory Group Meeting in Manila, Philippines, as part of the EANET « Project for the feasibility for promotion of VOCs related capacity building in EANET » Project Activity in 2023.

The first meeting for the project took place in February 2023. As part of this project, it was decided to create an Advisory Group, composed of experts from Japan, the Republic of Korea, China, Thailand, and from the Network Center, to give guidance on feasible measurement methods, data analysis, identification of the target species to measure VOCs, and feasible reduction measures.

During the meeting, the Advisory Group members considered methods like DOAS (Differential Optical Absorption Spectroscopy), canister sampling, sorbent tubes, and passive samplers. They emphasized the importance of source identification and reducing toxic VOCs, and discussed the use of low-cost sensors.

A laboratory survey was conducted at the Environmental Research and Laboratory Services Division (ERLSD), Environmental Management Bureau (EMB), and the Institute of Environmental Science and Meteorology (IESM), College of Science, University of the Philippines. On the following day, the mission continued with a VOC monitoring site survey at the Region III Air Quality Management Section (AQMS) in Pampanga.

This survey aimed to assess the monitoring of volatile organic compounds in that specific area. The next morning, a summary discussion and bilateral meeting took place between the Philippine representatives, the Network Center, and Secretariat for the EANET.

Site visit in Pampanga, Region III

This meeting provided an opportunity to share their findings, insights, and recommendations. Finally, on the afternoon of 26 May, the National Stakeholder Awareness Workshop: Promoting acid deposition and air quality management in East Asia was held to address air quality management challenges and explore potential solutions tailored to the specific context of the Philippines.

The VOC project Advisory group meeting involved thirty-six participants and facilitated in-depth information exchanges and discussions among project stakeholders and advisory group members. Recommendations for the project plan were compiled based on the insights gained from the laboratory and monitoring assessments during the mission.

The Advisory Group emphasized that the final goal of the project is to reduce Ozone and PM2.5 pollution. For this purpose, understanding the status of VOCs and exploring the best solutions for their reduction is key. The Advisory Group discussed VOCs measurement methodologies and a methodology for estimating Secondary Organic Aerosol (SOA) contribution and source apportionment of VOCs.

Among their recommendations, the Advisory group considered prioritizing monitoring of BTX (Benzene, Toluene, Xylene) in the Philippines and Mongolia. Methods such as Canister/Gas Chromatography/Flame Ionization Detection/Mass Spectrometry (GC/FID/MS) and Differential Optical Absorption Spectroscopy (DOAS) were recommended to be compared. Sampling should be conducted for 24 hours over two weeks at various locations. Capacity building for Volatile Organic Compounds monitoring was considered crucial. Re-establishing Canister/Sorbent Tube-GC/FID/MS methods (TO14/14a/15/15a) in the lab is recommended. Training, consumables, and support for monitoring and analysis were considered important. Developing Standard Operating Procedures (SOPs) for VOCs monitoring and formulating air quality guidelines are the key objectives.

The mission in the Philippines received financial contributions from the Ministry of the Environment, Japan (MOEJ) and significant in-kind contributions from the Philippines, for which the organizers expressed their appreciation.

The VOC project has been funded by The Ministry of Environment, Japan (MOEJ), through the EANET Project Fund.

Useful Resources:

- Read the meeting highlights on the Environmental Management Bureau's (EMB) website.
- View the EANET VOC Project Advisory Group Meeting photos on Flickr

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2024 Calendar of Events

AUGUST
(Date TBC)
The Working Group Meeting (WG2024) on the EANET in 2024, online meeting.

SEPTEMBER
(Date TBC)
The Twenty-fifth Senior Technical Managers' Meeting (STM25) on the EANET, hybrid meeting.

OCTOBER
(Date TBC)
The Twenty-fourth Scientific Advisory Committee (SAC24) meeting on the EANET, hybrid meeting.

NOVEMBER
(Date TBC)
The Twenty-sixth Session of the Intergovernmental Meeting (IG26) on the EANET will be organized in Kuala Lumpur, Malaysia, and online.

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