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EANET NEWSLETTER

ACID DEPOSITION MONITORING NETWORK IN EAST ASIA

CONTENT

FROM ACID DEPOSITION TO AIR POLLUTION ACTION

In 2021, in a landmark decision, the IG23 adopted the text of the Annex to the EANET Instrument. Through this Annex, Participating Countries agreed to work on an expanded list of air pollutants beyond acid deposition, including among others, Particulate matter, and Volatile Organic Compounds.

In 2022, the EANET held its key meetings: the WG 2022, STM23, SAC22, and the IG24 allowing EANET Participating Countries to design the network's future directions. Alongside other important topics, in November 2022, the IG24 approved the first batch of "EANET Project Plans" funded through the EANET Project Fund, a new financial mechanism encouraging collaboration with implementation partners and co-financing from outside the EANET Network.

In parallel, throughout 2022, the EANET continued to develop monitoring activities, capacity building, and public awareness events as presented in this issue of the bi-annual EANET Newsletter.

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

It was a real pleasure for me to meet, in person, most of the representatives of the EANET Participating Countries and the Network Center for the EANET for the first time and reconnect with old friends at the 24th Session of the Intergovernmental Meeting (IG24) on the EANET held on 24-25 Nov 2022 in a hybrid set-up in Manila, Philippines.

It was the first time after 2.5 years that an EANET meeting was held in person. I saw first-hand, the commitment and passion of the EANET network, particularly the government representatives, as they deliberated and approved many important documents that provide the basis of EANET activities in 2023. Such documents included among others the Work Programme and Budget in 2023, the Progress Report of the EANET, the re-organization of Task Forces of the EANET, to better support the implementation of the expansion of scope to cover air pollution, and the EANET Project Fund mechanism.

The Work Programme and Budget of the EANET in 2023 is divided into two parts – one for Core Activities and another for Project Activities. The Core Activities consist generally of the Secretariat services of UNEP, and the technical support, particularly on acid deposition monitoring, of ACAP, serving as the Network Center, to the EANET Participating Countries. At the IG24, the Project Activities' additional funding of US$ 489,700 was approved, mainly coming from the Participating Countries themselves, for eight projects supporting traditional capacity building activities, studies and webinars, and new projects dealing with VOCs, Low-Cost Sensors, PM2.5 and ozone in major cities in the EANET region.

It is impressive that EANET was able to raise additional funding to support Project Activities considering the global economic situation and ongoing recovery from the COVID-19 pandemic.

The approval of these projects further shows the strong support of the Participating Countries to EANET, and perhaps highlights the urgency in addressing the air pollution problem in the region

At COP27 in Sharm El-Sheikh, Egypt, air pollution was heavily referenced especially since air pollution mitigation brings with it co-benefits of reducing greenhouse gases, or vice versa. A good number of events were also organized to highlight the air pollution crisis alongside the climate crisis by UNEP, WHO, the Climate and Clean Air Coalition, Clean Air Fund, and other similar-minded organizations.

The Secretariat will play a major role in 2023 to raise the profile of EANET and develop partnerships and potential collaboration on new EANET Project Plans (proposals for 2023). EANET is one of the few, if not the only, intergovernmental body in East Asia that includes developed countries and low- and middle-income countries in the region with a robust governance structure and network and as such well-positioned to take advantage of South-South and North-South cooperation on acid deposition and air quality management in the region.

The potential of EANET as a catalyst for effective science-based policymaking and project implementation in the region is huge. However, there are other intergovernmental bodies, international and local NGOs, development banks, and other institutions working on air pollution in the region, with whom it is equally important to engage and encourage collaboration to complement each other's activities and maximize on-the-ground impacts and result to concrete improvements in air quality.

The Twenty-fourth Session of the Intergovernmental Meeting on the Acid Deposition Monitoring Network in East Asia

The Twenty-fourth Session of the Intergovernmental Meeting on the Acid Deposition Monitoring Network in East Asia (IG24) took place from 24 to 25 November 2022, in a hybrid mode, in Manila, Philippines. It gathered over 70 representatives from the EANET Participating Countries, the Secretariat and Network Center for the EANET, and observers from the academia and INGO, to make important decisions on the implementation of the EANET's expansion of scope and new Project Fund, among other topics.

Hosted and Chaired by the Philippines, the IG24 started with the Welcome Remarks by the Undersecretary of the Department of Environment and Natural Resources (DENR) of the Philippines, Mr. Juan Miguel Cuna, followed by Opening Remarks by Dr. Isabelle Louis, Deputy Regional Director for Asia and the Pacific, UNEP, and by Dr. Hatakeyama, Director General, Asia Center for Air Pollution Research (ACAP).
Remarks focused on the longtime active collaboration of the Philippines as an EANET Participating Country, on the importance of the expansion of the scope of the EANET, and the establishment of the EANET Project Fund, with the ambition for the Network to contribute the collective efforts to lead both science and policy actions to improve air quality in the region.

The IG24 Session Bureau was vice-chaired by Japan and by the Republic of Korea, and Cambodia as Rapporteur. UNEP's Goodwill Ambassador for the Philippines and award-winning actress, singer, host, and environmental advocate Antoinette Taus also joined the dinner hosted by the Government of the Philippines.

Among the first agenda items, an update was provided on the approval status of the Supplementary Document (Annex) to the Instrument for Strengthening the EANET among the Participating Countries, with most of the countries having already completed this process. The Philippines reported this completion during the IG24 meeting itself, while Thailand completed it on 22 November as reported by the Prime Minister's office in the Thai national daily newspaper Matichon. Through this Annex, Participating Countries agreed to work on an expanded list of air pollutants beyond acid deposition, including among others, Particulate matter and Volatile Organic Compounds.

Alongside other important topics, the Session discussed and approved the first batch of "EANET Project Plans" funded through the EANET Project Fund, a new financial mechanism allowing collaboration with implementation partners and co-financing from outside the EANET Network.

The Estimated Income for Project Activities in 2023 is US$489,700, including funding from EANET, additional financial support from Japan (MOEJ) from the Republic of Korea (NIER), and the Asian Development Bank (ADB), and in-kind support from Japan (JARI, NIES), Mongolia, the Philippines, and Viet Nam (IMHEN, MONRE) which will allow the implementation of 8 projects. Focusing mainly on research studies and capacity building, these projects include work related to the effects of atmospheric deposition on ecosystems, Volatile Organic Compounds (VOC), Low-Cost Sensors (LCS), Particulate Matter source apportionment in major cities, training on monitoring, emission inventory and research fellowship program.

The call for EANET Projects' proposals for 2024 is open, find out more on the Call for Proposals page.

In addition to these key decisions, the IG24 also approved several important documents, including the Work Program and Budget of the EANET in 2023, and the organization of key meetings in 2023 such as the Working Group Meeting in 2023 (WG2023), the 23rd Scientific Advisory Committee (SAC23) and the 25th Session of the Intergovernmental Meeting on the EANET (IG25).

Read the Report of IG24, and discover the hybrid meeting's pictures on Flickr.

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The Twenty-second 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-second Session of the SAC (SAC22) Meeting from 18-20 October 2022, to discuss the progress of acid deposition monitoring activities since 2021.

Over 50 members of the SAC and/or their representatives from the Participating Countries of the EANET joined the virtual meeting. The SAC22 started with Opening Remarks from Mr. Bert Fabian, Coordinator, Secretariat for the EANET, and by Welcome Remarks from Dr. Shiro Hatakeyama, Director General, Asia Center for Air Pollution Research (ACAP).

Scientists from the NC 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 2021.

The Draft EANET Data Report 2021 was presented to the Session, showcasing different results and trends. In addition, the Draft Report on the Inter-laboratory Comparison (ILC) Projects 2021 was also introduced, and it showed that most samples submitted by the participating laboratories met the Data Quality Objective (DQO) of EANET.

The NC presented an overview of the National Monitoring Plans of the Participating Countries for 2022, based on the submissions made during the recent Twenty-third Senior Technical Managers' Meeting (STM23) on the EANET.

The SAC22 members were also invited to share their comments, from the scientific viewpoints, on the proposed Project Plans for 2023 to be funded by the newly introduced EANET Project Fund, and before approval at the IG24 of EANET, in November 2022.

Finally, the Network Center shared the program of the EANET Emission Inventory Webinar Workshop on Open Biomass Burning to take place on 5 December 2022, the EANET Workshop on the Relationship between the Atmospheric Environment, Human Health and Ecosystems on 31 October 2022, and the 13th International Workshop on Atmospheric Modeling Research in East Asia, on 22-23 December 2022.

The Network Center also presented the Acid Rain 2020 event, organized by ACAP, which will take place in April 2023, and reminded the abstracts' submission date is extended to 31 October 2022.

EANET Data Reports can be accessed on EANET's website and 2021 data will be available soon.

Read the Report of SAC22 here and view the photos on Flickr.

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

The Twenty-third Senior Technical Managers' Meeting (STM23) on the Acid Deposition Monitoring Network in East Asia (EANET) was held online on 28 and 29 September 2022. 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, Director General, Asia Center for Air Pollution Research (ACAP), delivered the Opening Remarks, followed by Welcome Remarks by Mr. Bert Fabian, Coordinator, Secretariat for the EANET.

After presenting the progress of EANET activities in 2021 since STM22, the Network Center for the EANET (NC) shared the results of various reports on acid deposition and related substances monitoring activities. STM23 participants were invited to discuss and share knowledge and experience to collectively review these draft publications.

The NC presented the Preliminary Draft Data Report 2021. 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 2021 and related information submitted by the Participating Countries.

The NC also introduced the preliminary draft Report on the Inter-laboratory Comparison Projects in 2021 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.

Other important matters were also discussed, including the progress on the Revision of the Technical Manuals for Dry Deposition Flux Estimation and Air Concentration Monitoring.

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.

Find out more and access EANET monitoring data.

The Working Group Meeting of EANET in 2022

The Working Group Meeting (WG2022) of EANET in 2022 was organized virtually from 24 to 25 August 2022. It was attended by over 70 National Focal Points and representatives from the 13 EANET Participating Countries, and from the Secretariat and Network Center for the EANET, to discuss proposed projects submitted to the EANET Project Fund and other matters related to the expansion of the scope of the EANET.

Chaired by Japan and co-chaired by Malaysia and Viet Nam, the WG2022 started with Opening Remarks from Dr. Dechen Tsering, Regional Director, United Nations Environment Programme for Asia & the Pacific, and by Welcome Remarks from Dr. Shiro Hatakeyama, Director General, Asia Center for Air Pollution Research.

In November 2021, the Twenty-third Session of the Intergovernmental Meeting on the Acid Deposition Monitoring Network in East Asia (IG23) approved a new financial mechanism, the EANET Project Fund.

The Working Group meeting of the EANET was organized for the EANET National Focal Points and representatives from the 13 Participating Countries to discuss the EANET Project Plans, which are project proposals, to be submitted for funding from the EANET Project Fund.
During the WG2022, eight EANET Project Plans were presented and discussed by the Session. These project plans focus mainly on the effects of atmospheric deposition on ecosystems, capacity building (related to Volatile Organic Compounds – VOCs, monitoring activities, emission inventories, and PM2.5), and research fellowship programs.

After the WG2022, the EANET Project Plans will be reviewed and discussed in October 2022 by the EANET Twenty-second Scientific Advisory Committee (SAC22) meeting, and finally submitted for approval to the 24th Intergovernmental meeting of the EANET (IG24) in November 2022.

Other important topics in line with the expansion of the Scope of the EANET adopted by IG23, were also discussed during the WG2022 and will be considered further by the IG23 in November 2022.

Read the Report of the WG2022 and discover the virtual meeting's pictures on Flickr.

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The State of Acid Deposition in East Asia – from data to policy

The EANET Awareness Workshop in 2022 "The State of Acid Deposition in East Asia – from data to policy" was organized virtually on Monday, 20 June 2022. It gathered about 100 participants from 17 different countries, scientists, and policymakers who discussed the biggest challenges and successes in acid deposition management in East Asia in the last 20 years.

Dr. Isabelle Louis, Deputy Regional Director of UNEP Asia Pacific office, opened the EANET Awareness Workshop in 2022 by delivering the opening remarks, followed by welcome remarks from Mr. Kenichiro Fukunaga, Deputy Director General in charge of Administrative Management at the Asia Center for Air Pollution Research (ACAP).

Key messages conveyed in the remarks celebrated the release of the Fourth Periodic Report on the State of Acid Deposition in East Asia (PRSAD4) and the opportunities ahead for the EANET, in line with the expansion of its scope to air pollution, including the launch of the EANET Project Fund.

Since 2006, the EANET has been developing Periodic Reports on the State of Acid Deposition in East Asia (PRSADs), published every five years, and aiming at providing high-quality data to be used for research, formulation of policies, and measures to reduce the impacts of acid deposition and related air pollutants on the environment. In 2022, the Fourth Periodic Report on the State of Acid Deposition in East Asia (PRSAD4), was released and is available online.

Prof. Meng Fan, Former Chairperson of the PRSAD4 Drafting Committee and Deputy Director General in charge of the Network Center for EANET, Asia Center for Air Pollution Research (ACAP), presented the General Lecture: Key Findings from the Fourth Periodic Report on the State of Acid Deposition in East Asia (PRSAD4). Findings and recommendations from the PRSAD4 highlighted the improvement of sulfur dioxide-related air pollution mostly in North-East Asia, while nitrogen deposition, particulate matter, nitrogen oxides, and ozone-related pollution were detected at a high level in the EANET region. The importance to continue deploying more monitoring sites was expressed.

The Panel Discussion gathered renowned scientists and key policymakers from the EANET Participating Countries. Discussions focused on the importance of regional cooperation and multilateralism to address global environmental problems including acid deposition and air pollution. Findings from the PRSAD4 were also discussed, in the specific context of Malaysia, Mongolia, Thailand, and the Philippines. Most panelists highlighted the incredible capacity-building efforts led by the EANET in the past twenty years, on emission inventories, acid deposition regulations, and monitoring support which have indirectly contributed to the development of regional policies. Finally, the panel also shared thoughts on the role EANET may play by helping fill the gap of the right to information on air pollution, as the right to a clean environment and clean air was recently included as a human right by the United Nations.

Read a more detailed summary of the Workshop's content in the EANET Awareness Workshop in 2022 Event Report.

View all Workshop's recordings on the Secretariat for the EANET's YouTube channel and the Workshop's photos on Flickr.

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The EANET Emission Inventory Webinar Workshop on Open Biomass Burning

The Network Center (NC) for the EANET organized the EANET Emission Inventory Webinar Workshop on Open Biomass Burning on 5 December 2022 gathering expert panelists from Japan, Thailand, the USA, and about 50 participants from the EANET countries. Starting with lecture presentations on methodologies to estimate emissions from open biomass burning sources, evaluate uncertainties in estimated emissions, and analyze influences of emissions using air quality models, the Workshop also included, in the second session, presentations from participants on open biomass burning emissions in their respective countries, concluded by discussions on the EANET's potential role and activities related to open biomass burning.

Dr. Savitri Garivait from the Joint Graduate School of Energy and Environment, Centre of Excellence on Energy Technology and Environment, King Mongkut's University of Technology Thonburi, Thailand, presented a comprehensive lecture introducing basic knowledge and information related to open biomass burning emissions.

First, Dr. Savitri introduced various types of open biomass burning, namely, forest fires, agricultural waste burning, and solid waste burning. Then, she presented methodologies to estimate emissions from open biomass burning such as basic equations, how to collect activity data as well as information necessary for spatial distribution and temporal variation, and selection of emission factors. To produce activity data, Dr. Savitri emphasized the importance of questionnaire surveys on local and specific data, in order to reduce uncertainties. She finally presented detailed case studies on the evaluation of the contribution of emissions from open biomass burning to the overall emissions and air pollution in Thailand and the Bangkok Metropolitan Region.

Dr. Kristofer Lasko, from the Geospatial Research Laboratory, at the Engineer Research and Development Center (ERDC), United States, provided a lecture focusing on uncertainties of open biomass burning emission inventories, especially on the amount of burned dry matter based on satellite observation data, emission factors for different biomass burning types, and land cover type maps to determine which emission factors to be applied. In his presentation, he explained the major causes of uncertainties based on satellite data including influences of cloud coverage at or near the time of burning, the insufficient spatial resolution to detect agricultural fires, and the limitation in determining actual burned amounts in the field via remote sensing data. For emission factors, Dr. Lasko emphasized the difficulty is not only the uncertainty of each factor but also the variations due to aspects such as variation in burning practices (e.g., piled residue burn vs. open field burn) and moisture. In his presentation, case studies for PM2.5 emission inventories of Viet Nam and the Southeast Asian region were also showcased.

Dr. Katsuhige Uranishi, Department of Life and Environment Engineering, Faculty of Environmental Engineering, the University of Kitakyushu, Japan, provided a lecture about how to evaluate the influences of emissions from open biomass burning on the air quality of neighboring areas using air quality models. First, Dr. Uranishi introduced the basic knowledge and settings of an air quality modeling system by using the Weather Research and Forecasting model and Community Multiscale Air Quality model (WRF/CMAQ) system as an example. He then also presented the Brute-force method, a typical methodology to estimate the contribution of PM2.5 sources using an air quality modeling system.

Finally, Dr. Uranishi explained simulation examples for the evaluation of PM2.5 transboundary transport, through case studies in Japan. Because uncertainties are not only in open biomass burning emissions but also in the modeling systems, Dr. Uranishi emphasized that the model performance must be evaluated with observation data prior to estimating air pollution levels or impact. He also recommended reviewing past studies to find appropriate settings of air quality modeling systems to target specific problems.

Participants, in the second session, shared various information about open biomass burning emissions in their respective countries. The presentations covered major sources of open biomass burning emissions and how the emissions are estimated or evaluated in each participant's country. They also considered how open burning influences air quality and what current control measures are in place in each represented country. These presentations and practical activities were followed by discussions on the EANET's Project Activities related to open biomass burning emissions including national emission inventories to be organized in 2023.

Participants expressed interest to attend future capacity-building activities related to emission inventories not only from open biomass burning but also other sources. The monitoring of emission sources to determine local emission factors was also suggested. The NC for the EANET, the organizer of the Workshop, will consider the possible future activities to the EANET Project Fund.

Useful Resources

- View the Outline and Program
- Download the Webinar Workshop's presentations
  - Development of emission inventory from biomass open burning (forest fires, agricultural burnings, and solid waste burnings) for Thailand and northern ASEAN (presented by Dr. Savitri Garivait)
  - Characterizing biomass burning emissions and uncertainty (presented by Dr. Kristofer Lasko)
  - Evaluation of PM5 transboundary transport over Northeast Asia caused by biomass burning using air quality model (presented by Dr. Katsushige Uranishi)
  - Presentations from participants

Photo credits: featured photo of Pom Coong Village, Viet Nam (2020) by Patrick McGregor on Unsplash ; other photos: all rights reserved to EANET.

Intensive training for city government officials: EANET-Clean Air Asia Workshop on Emission Inventory Development for the Management of Emissions from the Transport Sector

The Network Center for the EANET (NC) and Clean Air Asia organized the EANET-Clean Air Asia Workshop on Emission Inventory Development for the Management of Emissions from the Transport Sector, an intensive training for city government officials held on November 23, 2022, in Manila, Philippines, as a side-event to the 24th Intergovernmental Meeting (IG24) on the EANET. It was attended by more than 90 participants, in-person and online, representing 14 countries from the EANET Region and beyond, gathered to learn about the different tools to calculate emissions from the transport sector and discuss the importance of using data for policy.

Developing an emission inventory is critically important for air pollution management purposes. The accurate estimation of emissions from various sources such as factories, power plants, cars, households, etc… allows the production of basic data, using scientific tools like environmental assessments, for policy-makers to prevent the adverse effects on human health and ecosystems of air pollution.

Presentations and panel discussion with Ms. Everlyn Tamayo, Dr. Didin Agustian Permadi, Dr. Shaojun Zhang, Ms. Kathleen Dematera-Contreras, Dr. Raymund Abad and Mr. Myron Alcanzare introduced the general principle of the emission inventory, outputs, and typical actions to be applied to policy development.

Participants also worked on an exercise on motor vehicle emissions by using a desktop program/application developed by Dr. Permadi with support from Clean Air Asia, allowing participants to apply the methodology to their respective countries/cities.

Through the workshop, participants learned about the variety of methods and tools to calculate emissions from the transport sector, while noting that the final approach to be implemented would vary depending on the objectives and available resources of the personnel or city. Calculating emissions under different scenarios was recommended as it provides an overview of the impact of measures or policies. Finally, the importance of high-quality data was emphasized to build capacity and strengthen the engagement between policymakers and researchers performing the emissions inventory.

The development of an emission inventory is a powerful and essential tool for understanding the status of air pollutants emissions and considering the effectiveness of mitigation measures. EANET activities related to the development of emission inventories will continuously be conducted in the future. In 2023, EANET will organize a webinar workshop for capacity building on emission inventories related to combustion sources and explore all possibilities to strengthen cooperation with other organizations, including Clean Air Asia.

This workshop was conducted as part of the EANET Project Activities in 2022. Find out more about the EANET Project Activities and how to participate in the EANET Project Fund.

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Workshop on the Relationship between the Atmospheric Environment, Human Health and Ecosystems

The Network Center for the EANET organized the Workshop « Relationships between the Atmospheric Environment, Human Health, and Ecosystems » virtually, on 31 October 2022. It gathered renowned East Asian and European researchers and experts from academia (Hokkaido University, Japan, and Nanjing University of Information Science and Technology, China), international organizations (CLRTAP-UNECE, WHO, IIASA), and the Network Center for the EANET, who shared scientific findings on the effects of atmospheric deposition on human health and ecosystems as well as best science-based practices for policymakers. About 50 participants joined the Workshop.

Prof. Kayo Ueda, from the Graduate School of Medicine of Hokkaido University, analyzed the effects of air pollution on human health in Japan, Thailand and beyond, and showed how exposure to specific air pollutants could cause various health outcomes aside from respiratory diseases. She also explained how to estimate the mortality using epidemiological evidence and emphasized improving air quality could prevent millions of pollution-related deaths per year.

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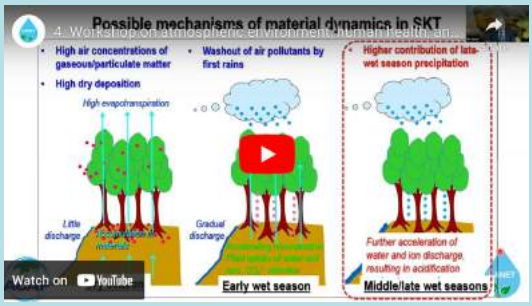
Prof. Zhaozhong Feng, from the Nanjing University of Information Science and Technology, explained the results of his research on the effects of ozone on crop production in Asia. After presenting the trends of surface ozone concentrations at the global scale, he highlighted the impacts of ozone on crops and yield loss in China, Japan, and the Republic of Korea.

Results from his work demonstrated that China showed the highest relative yield loss compared to Japan and the Republic of Korea. It also estimated the total ozone-induced annual loss of crop production at US$ 63 billion, revealing the need to take necessary mitigation actions for ozone emission control and adaptive agronomic measures against the rising surface ozone levels across East Asia.

Dr. Hiroyuki Sase is the Head of the Ecological Impact Research Department of the Asia Center for Air Pollution Research (ACAP), Network Center (NC) for the EANET. His presentation focused on the effects of atmospheric deposition on forest ecosystems.



Dr. Sase presented the changes in atmospheric deposition in the EANET joint research sites including Thailand, Japan, and Russia, and explained the different responses of forest ecosystems in various climatic zones. Key findings from the EANET sites showed that although atmospheric deposition had decreased, recovery from acidification and/or from nitrate saturation had not been necessarily observed in forest ecosystems.

Ms. Anna Kaplina, Secretariat, Convention on Long-range Transboundary Air Pollution (CLRTAP), United Nations Economic Commission for Europe (UNECE), presented the history and successes of the UNECE Convention on Long-Range Transboundary Air Pollution over the last 40 years. Among these achievements, she highlighted the decrease in emissions from 40% to 80% since 1990 in the UNECE region, resulting from the expertise, policy guidance, and capacity building among the 51 Parties.

Dr. Dorota Jarosinska, World Health Organization (WHO) Regional Office for Europe, European Centre for Environment and Health, presented the Work of the Task Force on Health under the CLRTAP and the relevant work of WHO beyond this cooperation. She highlighted, among other points, the key role of the WHO Global Air Quality Guidelines, which form robust public health recommendations, support informed decision-making worldwide, and include a comprehensive assessment of the evidence on air pollution.

Dr. Zbigniew Klimont, a scientist from the International Institute for Applied Systems Analysis (IIASA), shared his presentation on the Integrated assessment modeling contribution to Air Convention protocols by taking the example of the Gothenburg Protocol (1999), introducing also scientific tools such as the Greenhouse gas Air pollution Interactions and Synergies (GAINS) model aiming at seeking win-win solutions in policy-oriented cooperation.

Useful Resources

- View the videos of the Workshop on the EANET Secretariat's YouTube channel
- View the Workshop's photos on Flickr
- Download the Workshop's presentations:
  - Effects of air pollution on human health (presented by Dr. Ueda)
  - Effects of ozone on crop production in Asia (presented by Dr. Feng)
  - Effects of atmospheric deposition on forest ecosystems (presented by Dr. Sase)
  - 40 years of success: The UNECE Convention on Long-Range Transboundary Air Pollution First Global Conference on Air Pollution and Health (presented by Ms. Kaplina)
  - Work of the Task Force on Health under the CLRTAP and relevant work of WHO beyond cooperation with CLRTAP (presented by Dr. Jarosinska)
  - Integrated assessment modelling contribution to Air Convention protocols (presented by Dr. Klimont)

Photo credits: featured photo of Schronisko PTTK Hala Kondratowa, Zakopane, Poland (2018) by Marcin Szmigiel on Unsplash.

EANET Seminar: Learnings on Reducing Emissions from Open Burning

The Network Center for the EANET organized the Seminar « Learnings on Reducing Emissions from Open Burning » in a hybrid format, in Suwon, Republic of Korea, and online, on 6 September 2022, with the Asia Pacific Clean Air Partnership (APCAP) (UNEP) and the Institute for Global Environmental Strategy (IGES) as co-organizers. The Seminar focused on good practices to reduce emissions from open burning and presented sustainable alternatives to improve air quality in the region. 144 participants from 17 countries from the Asian region and beyond joined the Seminar.

Moderated by Ms. Maria Katherina Patdu, Associate Programme Officer – Asia Pacific Clean Air Partnership (APCAP) (UNEP), the Seminar started with the Opening and Welcome Remarks by Dr. Shiro Hatakeyama, Director General of the Asia Center for Air Pollution Research (ACAP) in charge of the NC for the EANET, and by Dr. Mushtaq Memon, Regional Coordinator for Chemicals and Pollution Action Subprogramme, UNEP Regional Office for Asia and the Pacific.

Dr. Memon also co-moderated the second part of the Seminar.

Remarks emphasized the new role of the EANET with the expansion of its scope from acid deposition to air pollution (including PM2.5), and the technical and financial challenges leading to open burning practices in the region.

Dr. Supat Wangwongwatana, a Senior Instructor of the Faculty of Public Health, at Thammasat University, Thailand, presented the various causes of open burning in Thailand, with a particular focus on Northern Thailand's situation and showed the direct impacts on air quality, the environment, and public health. In his presentation, he highlighted the challenges and needs for more government-driven incentives, policies, technical assistance, and education toward non-burning agricultural practices.

Ms. Etwin Sabarini, Programme Coordinator, Measurable Action for Haze-Free Sustainable Land Management in Southeast Asia (MAHFSA), ASEAN Secretariat introduced the ASEAN Agreement on Transboundary Haze Pollution. She explained the history, objective, and framework of the ASEAN Agreement on Transboundary Haze Pollution and focused her talk on the ASEAN Peatland Management Strategy (APMS) initiative aiming at conserving peatlands, the largest carbon store in the ASEAN region.

Ms. Do Van Nguyet, Director at Live & Learn for Environment and Community, then shared examples of good practices from Viet Nam, including their collective action to control open burning in Hanoi. These included: policy development, monitoring, and technical assistance with a special focus on multi-stakeholder engagement.

Dr. Eric Zusman, a Senior Policy Researcher and Area Leader at the Institute for Global Environmental Strategy (IGES), presented priority actions in Southeast Asia to reduce open burning, and possible solutions, while analyzing barriers to their implementation based on the example of Thailand. To deal with these barriers, he explained the polycentric system approach, where different governing authorities may organize themselves in non-hierarchical relationships, and he emphasized the need to mix solutions of alternatives to open burning.

Dr. Alison Simcox, from the United States Environmental Protection Agency (US-EPA), shared an overview of agricultural burning and smoke management in the USA. After explaining the history of agricultural burning practices, she detailed the recent changes in practices and the role of the Environmental Protection Agency (US-EPA) focusing on the Smoke Management Program (SMP) and on alternatives to burning in the USA, such as no-till farming.

Ms. Azka Ghaida, an Air Quality and Climate Research Analyst at the World Resources Institute (WRI) in Indonesia, presented the use case of crop residue open burning in Indonesia by explaining the cause of the phenomenon, the government's action, the barriers, and the solutions such as education and community involvement, sustainable farming and farm management practices.

Dr. Ken Yamashita who is Head of the Planning and Training Department at the Network Center for the EANET (ACAP) thanked all panelists and participants and summarized the Seminar by highlighting the key points of the challenges such as technical, and financial limitations but also cultural barriers, and opportunities including mixed alternatives and operating in polycentric governance systems, to reduce open burning practices from ASEAN, Thailand, Indonesia, Viet Nam, and the USA.

Useful Resources

- View the full recording of the Seminar on the EANET Secretariat's YouTube channel
- Download the Seminar's Program
- View the Seminar's photos on Flickr
- Download the Seminar's presentations:
- Open Burning of Biomass and Possible Solutions (presented by Dr. Supat Wangwongwatana)
- ASEAN Haze Framework – International experiences of agricultural open burning cases (presented by Ms. Etwin Sabarini)
- Collective action to control Open Burning in Hanoi (presented by Ms. Do Van Nguyet)
- Sharing Good Practices to Reduce Open Burning (presented by Dr. Eric Zusman)
- Reducing Emissions from Open Burning: Overview of US Agricultural Burning & Smoke Management (presented by Dr. Alison Simcox)
- Crop Residue Open Burning in Indonesia (presented by Ms. Azka Ghaida)
- Seminar Summary (presented by Dr. Ken Yamashita)

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EANET Seminar on Expanding Monitoring Systems using LCS

The Network Center for the EANET organized the Seminar on Expanding Monitoring Systems using Low-Cost Sensor (LCS) online on 21 July 2022. It gathered representatives, experts, and practitioners of air quality monitoring from the EANET Participating Countries, and other participants from international organizations, academia, and monitoring-related service providers. 127 participants joined the Seminar.

The Seminar started with the Opening and Welcome Remarks by Dr. Shiro Hatakeyama, Director General of the Asia Center for Air Pollution Research (ACAP) in charge of the NC for the EANET, and by Dr. Mushtaq Memon, Regional Coordinator for Chemicals and Pollution Action Subprogramme, UNEP Regional Office for Asia and the Pacific. Remarks were followed by an Introductory Presentation by Mr. Taku Ohmura from the Overseas Environmental Cooperation Center, Japan (OECC) on the Overview of issues and opportunities of using LCS for air quality administrations and surveys.

Key presentations by Dr. Supat Wangwongwatana, a Senior Instructor of the Faculty of Public Health, at Thammasat University, Thailand, and by Dr. Alison Simcox from the United States Environmental Protection Agency (US-EPA), delved into the limitations and opportunities of Low-cost sensor technology (LCS) for measuring air quality in the contexts of Thailand and of the United States.

Dr. Keiichi SATO, Head of the Atmospheric Research Department at ACAP, in charge of the NC for the EANET, then introduced the results of a survey on a Hybrid Air Quality Monitoring Network (HAQMN) and related technical studies in five EANET countries, namely Japan, Indonesia, Myanmar, Thailand, and Viet Nam.

His presentation was followed by discussions and presentations by Ms. Karma Yangzom, a Principal Environment Specialist from the Sustainable Development and Climate Change Department, at the Asian Development Bank (ADB), on ADB's experience with LCS as part of the Technical Assistance (TA) 9608 on "Strengthening Knowledge and Actions for Air Quality Improvement", and by Ms. Maria-Katharina Patdu's presentation, an Associate Programme Officer, from the Asia Pacific Clean Air Partnership (APCAP), at UNEP Regional Office for Asia and the Pacific, on air quality data challenges and opportunities in developing Asia.

While the lack of precision of LCS and the variety of qualities and standards of sensors, may lead to data misinterpretation and presentation issues, keynote speakers and panelists mentioned that the cost-efficiency of LCS and the wide use of these air quality sensors by "citizen-scientists" educate the public and inspire behavioral changes. In addition, the effective utilization of regular monitoring data for the quality control of LCS, the importance of consistent city, regional, and country-level monitoring, and the continued cooperation with other networks and international organizations, were also key points presented to mitigate the limitations of LCS.

Useful Resources

- Download the Workshop's presentations
  - Issues of LCS and Efforts Against the Issues: Thailand's Experiences (presented by Dr. Supat Wangwongwatana)
  - US-EPA's efforts on wise use of LCS (presented by Dr. Alison Simcox)
  - Results of the survey on HAQMN and technical studies in some EANET Participating Countries (presented by Dr. Keiichi Sato)
  - Experience in using Low-Cost Sensors under ADB TA 9608 (presented by Ms. Karma Yangzom)
  - Air quality data challenges and opportunities in developing Asia (presented by Ms. Maria Katherina Patdu)

Workshop on National Air Quality Monitoring Systems and Methodologies with Related Partners

The Network Center for the EANET organized the Workshop on National Air Quality Monitoring Systems and Methodologies with Related Partners online on 6 July 2022. It gathered scientists and researchers, government officers, technicians including Quality Assurance/Quality Control managers, and representatives of international organizations who discussed how to improve the EANET monitoring system. 180 participants from 17 different countries and regions joined the Workshop.

Moderated by Ms. Yao Dong, Assistant Deputy Director General of the Asia Center for Air Pollution Research (ACAP) in charge of the Network Center (NC) for the EANET, the Workshop started with Opening and Welcome Remarks by Dr. Shiro Hatakeyama, Director General of ACAP in charge of the NC for the EANET and followed by Mr. Toshiyuki Yamasaki, Director of the International Cooperation Office, Environmental Management Bureau, the Ministry of the Environment, Japan.

Remarks emphasized the introduction of new monitoring substances such as (but not only) ammonia, particulate matter, and volatile organic compounds, following the expansion of the scope of the EANET as decided by the IG23 and the need to adapt EANET's monitoring system accordingly.

The new EANET Project Fund mechanism, allowing the EANET and other organizations to collaborate on acid deposition and air-quality related projects, was also introduced.

Among its key activities, the EANET is currently monitoring atmospheric substances at 64 monitoring sites in the EANET Participating Countries. The monitoring focuses on five items – wet deposition, dry deposition (air concentration), soil and vegetation, inland aquatic environment, and catchment-scale monitoring.

The Workshop on National Air Quality Monitoring Systems and Methodologies with Related Partners was funded by the Ministry of the Environment, Japan, and implemented by the Network Center for the EANET. Its goal was to share a wide range of national and international experiences in the field of atmospheric monitoring while discussing the current development and future challenge of monitoring systems and related methodologies in the EANET region.

The first session introduced the EANET monitoring activities and was followed by case studies from Japan, the Republic of Korea, and China. In addition, specific monitoring methodologies including QA/QC activities were also introduced.

In the second session, a panel discussion, followed by an open discussion, took place to exchange ideas on specific country challenges and discuss how to link EANET's work with urban monitoring. Members of the EANET Scientific Advisory Committee (SAC) and from other organizations, such as Clean Air Asia, joined the discussion.

Closing remarks were provided by Dr. Fan Meng, Deputy Director General of ACAP in charge of the NC for the EANET, who summarized the highlights of the Workshop and thanked all speakers and participants for their active contribution.

Among the key outcomes of the Workshop, Dr. Meng emphasized the question of linking EANET's work with city-level monitoring and the challenge to measure volatile organic compounds and secondary pollutants.

Useful Resources

- View the full recording of the Workshop on the EANET Secretariat's Youtube channel
- Download the Workshop's Program
- View the Workshop's photos on Flickr
- Download the Workshop's presentations:

- Development and role of monitoring system in EANET and the case study of Japan
- Latest National and Local/City Monitoring System in the Republic of Korea
- Study on the Co-control of PM2.5 and Ozone Pollution in Beijing, Tianjin, Hebei, and Surrounding Region of China
- Monitoring methodologies and QA/QC activities in the EANET
- Introduction to EANET Project Fund and Project Activities 2022-2023

- Find out more on the topic of the nitrogen cycle, touched upon during the panel discussion, by reading Prof. Akimoto's et al. related research papers:

- Review of Comprehensive Measurements of Speciated NOy and its Chemistry: Need for Quantifying the Role of Heterogeneous Processes of HNO3 and HONO (2020)
- Rethinking of the adverse effects of NOx-control on the reduction of methane and tropospheric ozone – Challenges toward a denitrified society (2022)

Experts from the Network Center for the EANET receive the Academic Award of the Japan Society for Atmospheric Environment for two Years in a row

Dr. Tsuyoshi Ohizumi and Dr. Hiroyuki Sase received the Academic Award of the Japan Society for Atmospheric Environment (JSAE) at the 62nd and 63rd Annual Meetings of the JSAE in 2021 and 2022 respectively. Dr. Ohizumi serves as the Head of Data Management Department of the Asia Center for Air Pollution Research (ACAP), Network Center (NC) for the EANET, and Dr. Sase as the Head of Ecological Impact Research Department of the ACAP, NC for the EANET. Prior to these two awards, Dr. Junichi Kurokawa, Principal Researcher of the Data Management Department of ACAP, received the Creative Work Award for Young Scientists of JSAE under the award-winning title of "A study on emission inventory in Asia" in 2013.

Dr. Ohizumi received the Academic Award of the Japan Society for Atmospheric Environment at the 62nd Annual Meeting of the JSAE in 2021 for his studies of the transboundary transportation of air pollutants by observation of sulfur isotopic composition.

Through his work, seasonal differences and major routes of inter-regional transport of pollutants were clarified by streamline analysis of air mass that causes acid precipitation and observation of fluoride and other substances in atmospheric deposition. In addition, the long-term interregional transport of sulfur oxides, the cause of acid rain, was also quantitatively evaluated by observing stable isotope ratios of sulfur in atmospheric deposition at sites along the Sea of Japan.

In 2022, Dr. Sase received the Academic Award of the Japan Society for Atmospheric Environment at the 63rd Annual Meeting of the JSAE for his various studies on the atmospheric environment and its effects on forest ecosystems in Japan and other East Asian countries.
Through EANET activities and joint research with the Participating Countries of the EANET, his work has significantly contributed to understanding the effects of acid deposition and air pollution on forest ecosystems in the East Asian region through field observation and data assessments over many years.

The Japan Society for Atmospheric Environment (JSAE) is an interdisciplinary organization that brings together experts in a wide range of fields with the aim of contributing to atmospheric environment conservation.
JSAE has four awards for achievements in the field of the atmospheric environment: the Academic Award, the Meritorious Contribution Award, the Technical Development Award, and the Best Paper Award.

Dr. Ohizumi and Dr. Sase received the Academic Award, the highest honor for researchers. The purpose of the Academic Award of JSAE is to honor members for their academic achievements in the field of atmospheric environment research, their social contributions to the promotion of atmospheric quality administration, and for their contribution to the development of JSAE.

Find out more about EANET's research activities on the EANET Research Portal.

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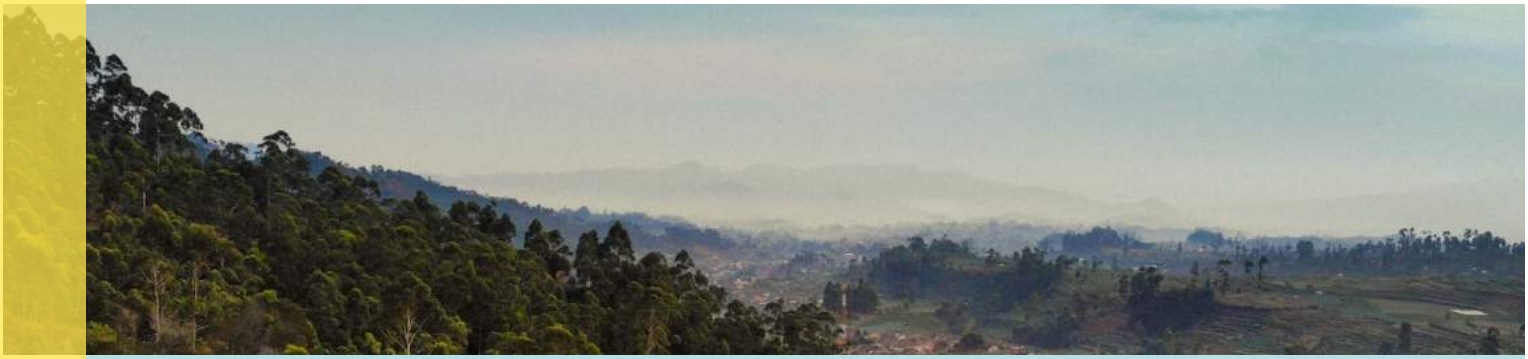
The EANET/IIASA International Workshop on Strengthening the Science-Policy Interface for Clean Air and a Sustainable Future in Asia – Join us on 19 December 2022!



In many parts of Asia, the single greatest threat to human health and to a sustainable future is air pollution. A growing body of modeling research has employed emissions inventories, scenario development, and benefit estimation techniques to identify technological and behavioral changes that can limit that threat. The multiple benefits resulting from these interventions offer cost-effective solutions to air quality, public health, and other sustainable development concerns. One would therefore anticipate that the results that would translate easily into policy. However, this is not always the case. Frequently, there can be a disconnect between scientifically based models and the policies they seek to influence. It is therefore critical to discuss not only the most recent scientifically-based models but how that work can effectively interface with decision makers. In short, if models are going to matter, they need to be supported by efforts to strengthen the science-policy interface for clean air.

The EANET/IIASA International Workshop on Strengthening the Science-Policy Interface for Clean Air and a Sustainable Future in Asia will take place on Monday 19 December 2022, from 13:30-17:00 (Tokyo Time: UTC +9).

The primary objective of this half-day workshop is to provide learning opportunities on the state-of-the-art modeling analysis that can strengthen that interface in Asia.

This workshop consists of three sessions as follows:

- Session 1 – Multiple development benefits of coordinated actions to tackle air pollution: This session is jointly organized by the Acid Deposition Monitoring Network in East Asia (EANET) and the International Institute for Applied Systems Analysis (IIASA). The modeling analysis employed by a project activity of EANET is presented along with modeling analysis results from ongoing collaborative research projects between IIASA and the Ministry of the Environment of Japan (MOEJ) on multiple development benefits of coordinated actions to tackle air pollution.
- Session 2 – Exploit synergetic linkages among SDGs: This session presents modeling analysis results from ongoing collaborative research projects between IIASA and MOEJ on synergies of achieving several sustainable development goals.
- Session 3 – How to implement and promote a science-policy dialogue: This panel discussion session will discuss how we can design science-policy dialogue to reflect implications from modeling analysis to policy development and to co-design models by incorporating social and institutional dimensions of feasibility.

Expected targeted participants are policymakers, scientists, researchers, practitioners, and technical officers of local/national governments working on air pollution-related problems in the EANET Participating Countries of EANET and beyond.

Read the Program and register for the Workshop on EANET website.

The 13th International Workshop on Atmospheric Modeling Research in East Asia – Join us on December 22nd-23rd 2022!

The EANET has developed a close relationship with the community of Model Inter-Comparison Studies for Asia (MICS-Asia) which is a project aiming at improving air quality and climate models not only by enhancing scientific understanding of the atmospheric environment but also by developing a common scientific understanding for policy-making in 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. Summaries of previous MICS-Asia workshops are available in the Reports of the Session of the Scientific Advisory Committee (SAC) on the EANET.

Air quality models are effective scientific tools to understand the status of the atmospheric environment and evaluate the effects of mitigation measures. However, extensive experience is necessary to utilize air quality models effectively, and participating in workshops led by experienced researchers is a practical way to develop skills and expertise on this matter.

The International Workshop on Atmospheric Modeling Research in East Asia provides capacity-building opportunities for air quality modeling to the EANET. Its goal is to allow participants to become familiar with a methodology to analyze the status of atmospheric environment-related substances, including processes of atmospheric chemistry and physics, using air quality models. In addition, participants will learn from examples of the application of air quality modeling systems to evaluate recent atmospheric environmental problems as well as from the latest information on air quality modeling systems including settings and model configuration.

This workshop targets participants from the EANET Participating Countries who are experts in air quality modeling and are willing to improve their knowledge of air quality models' implementation and want to learn about the latest information on recent air quality modeling systems. The workshop is also suitable for technical officers, practitioners, and policymakers from the Region who are involved in air quality management issues and interested in utilizing air quality modeling systems.

Read the Program and register for the Workshop on EANET website.

EANET Events Calendar in 2022-2023

DECEMBER 2022

19 December 2022

The EANET/IIASA International Workshop on Strengthening the Science-Policy Interface for Clean Air and a Sustainable Future in Asia.
REGISTER NOW

22-23 December 2022

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

AUGUST 2023

August

The EANET Working Group Meeting in 2023 (date TBC)

SEPTEMBER 2023

September

The EANET 25th Senior Technical Managers' Meeting (date TBC)

OCTOBER 2023

October

The Twenty-third Scientific Advisory Committee Meeting (date TBC)

NOVEMBER 2023

November

The Twenty-fifth Session of the Intergovernmental Meeting of the EANET (date TBC)

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