

Regional Cooperation
Mechanisms for Air Quality
Management in East Asia


**Instrument for
Strengthening the Acid
Deposition Monitoring
in East Asia (EANET)
and Updates Activities**


Presented by
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Stakeholders Meeting
cum Coordination
Meeting (RSC7)


 Regional Resource Centre for Asia and the Pacific; RRC.AP / Asian Institute of Technology

 **13 EANET Participating Countries**




Cambodia, China,
Indonesia, Japan,
Lao PDR, Malaysia,
Mongolia, Myanmar,
Philippines, Russia,
Republic of Korea,
Thailand, and Vietnam.


 Regional Resource Centre for Asia and the Pacific; RRC.AP 2

 **History of Implementation Phases of
Activities of the EANET**


- Expert Meetings during 1993-1997: agreed on a regional collaborative monitoring network in order to have the aligned monitoring methodologies and techniques and be able to compare data and evaluate the state of acid deposition across the East Asian region.
 - Developed manuals and guidelines for monitoring acid deposition.
 - Wet Deposition
 - Dry Deposition
 - Soil and vegetation
 - Inland Aquatic Environment (Water and Sediment)
 - Design of the Acid Deposition Monitoring Network in East Asia (EANET)
 - Preparation for the implementation of Preparatory-Phase Activities


The participating member countries were 10 countries: China, Indonesia, Japan, the Republic of Korea, Malaysia, Mongolia, Philippines, the Russian Federation, Thailand, and Vietnam.

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 **History of Implementation Phases of
Activities of the EANET**


- Preparatory Phase (1998-2000): Meeting of IC1 to develop Design of Acid Dep. Monitoring in East Asia. Participated by 9 East Asian countries, i.e. Indonesia, Japan, the Republic of Korea, Malaysia, Mongolia, the Philippines, the Russian Federation, Thailand, and Vietnam. China was considering whether to join or not.
- Regular Phase (Since 2001): IC2 (2000), 10 East Asian participating countries issued the joint Announcement on the implementation of the EANET to cooperatively start the activities of the EANET on a Regular Basis starting from January 2001.


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 **History of Implementation Phases of
Activities of the EANET**

- Instrument for Strengthening the Acid Deposition Monitoring Networks in East Asia (EANET): IC2 (2010) meeting in Niigata, Japan, adopted the Instrument and 7 participating countries signed the Instrument. And LAST YEAR (2012) 12 of 13 participating countries have signed the Instrument which has been in operation since 1st January 2012.




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 **Instrument for Strengthening the Acid Deposition
Monitoring Network in East Asia (EANET)**

Objectives :

Same as when the EANET was established.

- to create a common understanding of the state of the acid deposition problems in East Asian region.
- to provide useful inputs for decision-making at local, national and regional levels aimed at preventing or reducing adverse impacts on human health and the environment due to acid deposition.
- to contribute to cooperation on the issues related to acid deposition among the participating countries.

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Instrument for Strengthening the Acid Deposition Monitoring Network in East Asia (EANET)

Scope of the Instrument :

- Acid deposition monitoring;
- Compilation, evaluation of data, storage and provision of data;
- Promotion of quality assurance and quality control (QA/QC) activities;
- Implementation of technical support and capacity building activities;
- Promotion of research and studies related to acid deposition problems; and
- Promotion of public awareness activities.

Extension subjected to the decision of IG

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Instrument for Strengthening the Acid Deposition Monitoring Network in East Asia (EANET)

The EANET monitoring activities covers five environmental media

- Wet deposition
- Dry deposition
- Soil and vegetation
- Inland aquatic environment
- Catchment

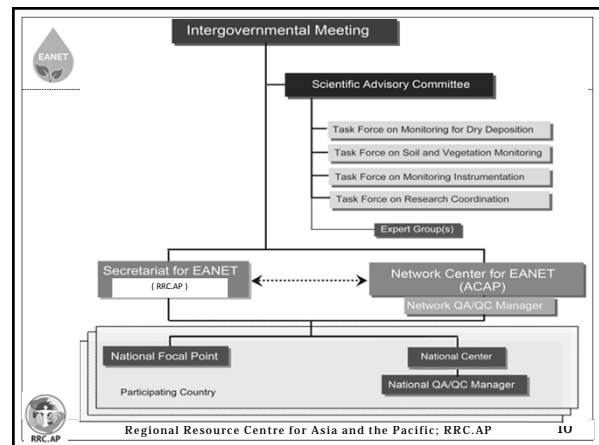
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Instrument for Strengthening the Acid Deposition Monitoring Network in East Asia (EANET)

Institutional Arrangement of the EANET

- Intergovernmental Meeting (IG) : decision-making body
- Scientific Advisory Committee (SAC) : providing advices and assisting the IG with various scientific and technical matters related to the EANET activities.
- Secretariat : providing administrative and coordinative supports to the EANET such as organizing and conducting the meetings, preparing the reports and proceedings and coordinating among the network and outside, etc with UNEP designated as the Secretariat under which RRC.AP at AIT in Pathumthani, Thailand is the implementing Secretariat.
- Network Center : providing scientific and technical supports to the EANET members thru trainings, capacity building programs, technical dispatches, public awareness workshops and many research programs in various air pollution schemes such as impact assessment, modeling, emission inventory, laboratory set up, QAQC program, etc. with Asia Center for Air Pollution Research (ACAP) in Niigata, Japan designated as the Network Center.

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Instrument for Strengthening the Acid Deposition Monitoring Network in East Asia (EANET)

Financial Arrangement of the EANET

- Based on voluntary financial contributions from the participating countries and burden sharing practices in the United Nations system.
- EANET is also open to more financial and in-kind contributions from participating countries and other sources including international and regional organizations and non-governmental organizations (NGOs).

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Voluntary Contribution among Participating Countries to Secretariat budget

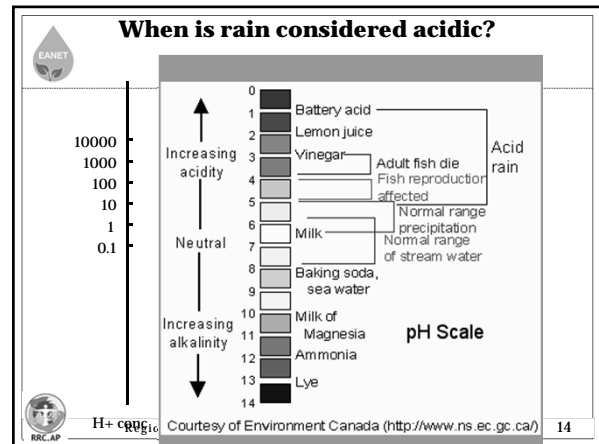
Country	UN scale of assessment 2013-2015 (%)	Scale of EANET burden sharing (%)	Estimated flat rate contribution in 2014-2015 (US \$)
Cambodia	0.004	0.019	91
China	5.148	23.951	114,891
Indonesia	0.346	1.610	7,723
Japan	10.833	50.400	241,765
Lao PDR	0.002	0.009	43*
Malaysia	0.281	1.307	6,270
Mongolia	0.003	0.014	67
Myanmar	0.010	0.047	226
Philippines	0.154	0.716	3,435
Republic of Korea	1.994	9.277	44,501
Russia	2.438	11.343	54,412
Thailand	0.239	1.112	5,334
Vietnam	0.042	0.195	935
Total	21.494	100	479,693**

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Voluntary Contribution among Participating Countries to the Network Center budget

Country	UN scale of assessment 2013-2015 (%)	Scale of EANET burden sharing (%)	Estimated flat rate contribution in 2014-2015 (US \$)
Cambodia	0.004	0.019	75
China	5.148	23.951	94,846
Indonesia	0.346	1.610	6,376
Japan	10.833	50.400	199,584
Lao PDR	0.002	0.009	36*
Malaysia	0.281	1.307	5,176
Mongolia	0.003	0.014	55
Myanmar	0.010	0.047	186
Philippines	0.154	0.716	2,835
Republic of Korea	1.994	9.277	36,737
Russia	2.438	11.343	44,918
Thailand	0.239	1.112	4,404
Vietnam	0.042	0.195	772
Total	21.494	100	396,000**

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EANET Monitoring Sites

The EANET monitoring activities covers five environmental media

- Wet deposition
- Dry deposition
- Soil and vegetation
- Inland aquatic environment (water and sediment)
- Catchment

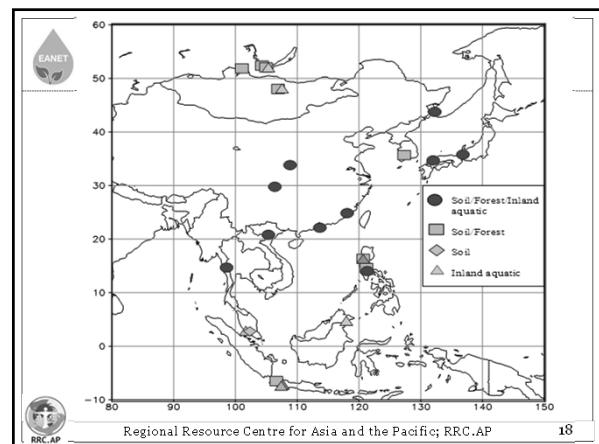
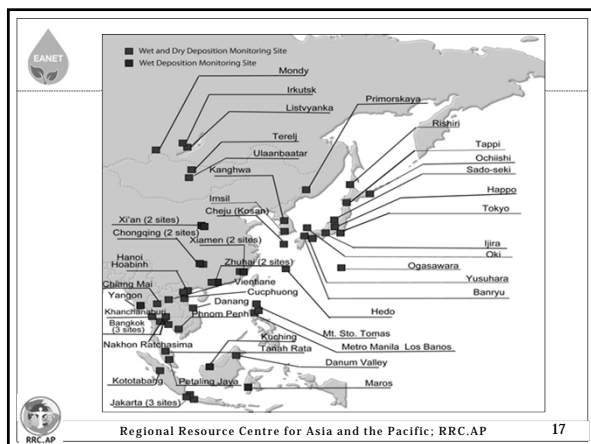
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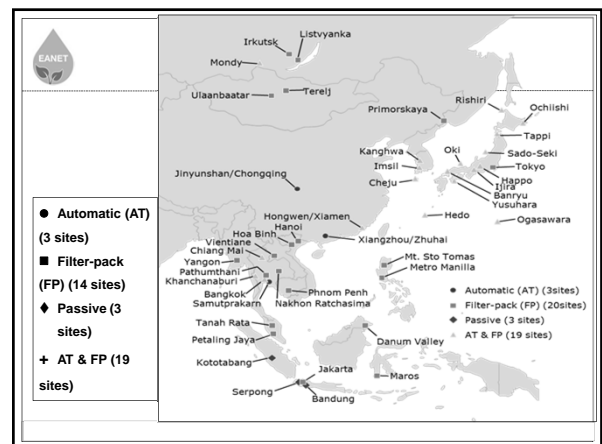
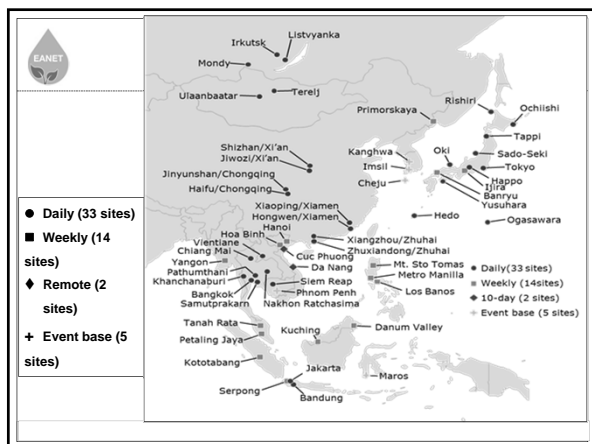
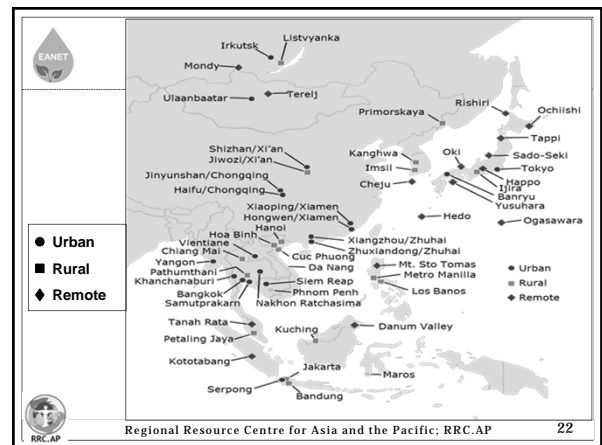
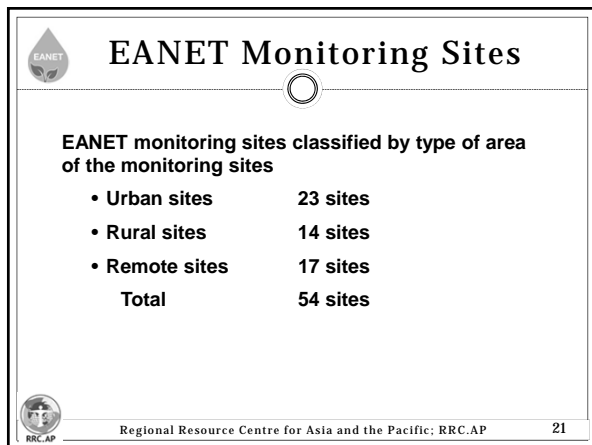
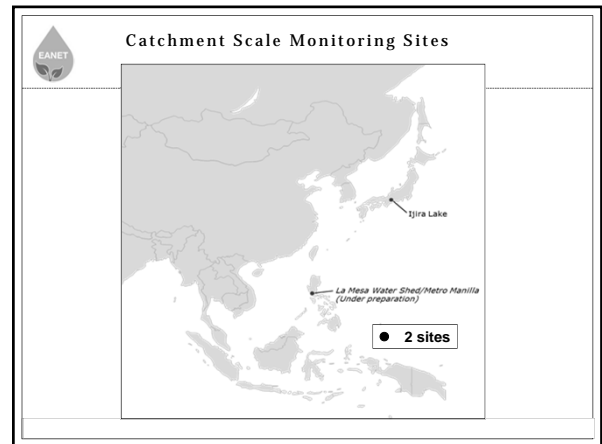
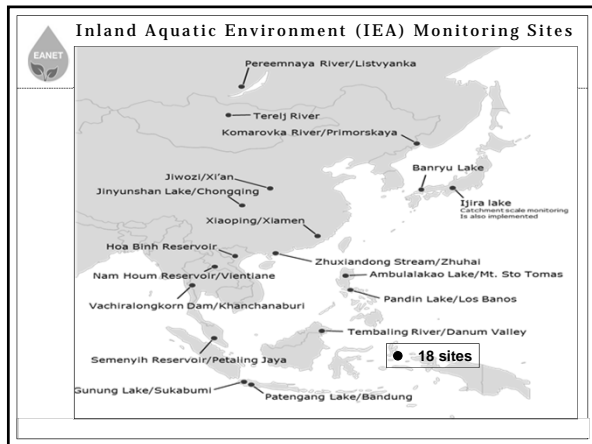
EANET Monitoring Sites

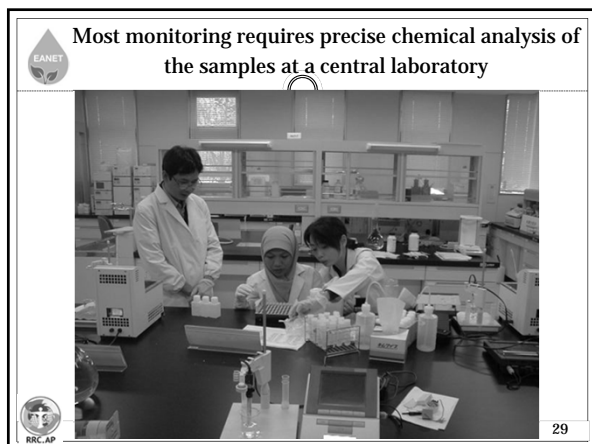
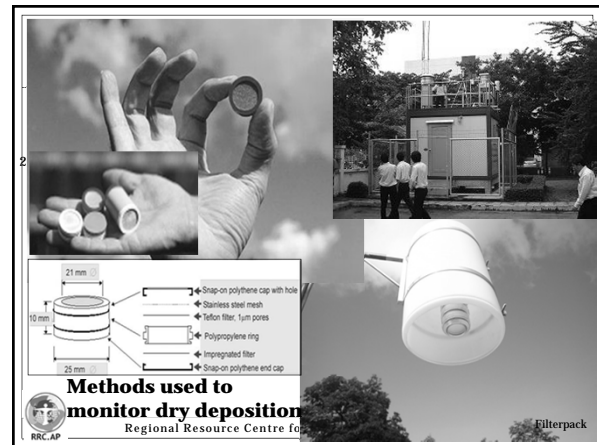
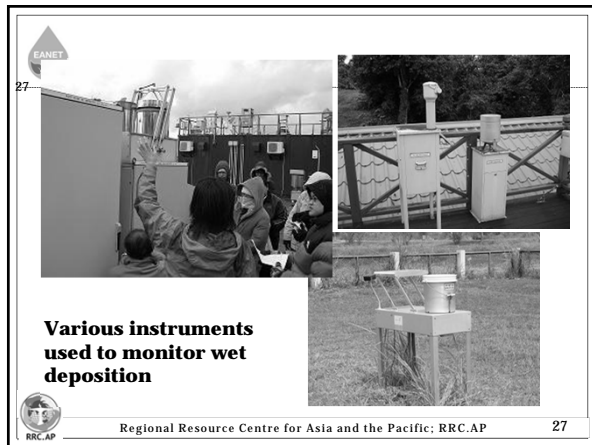
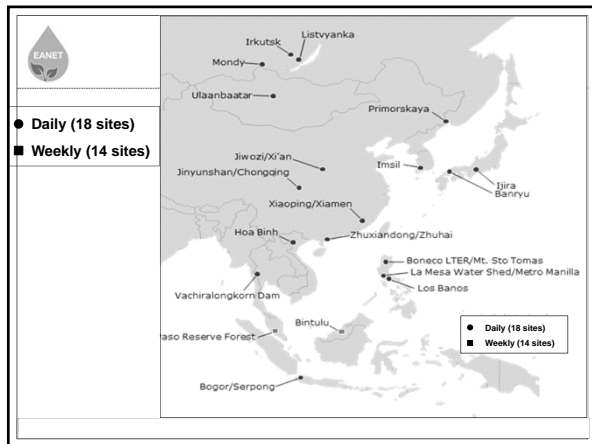
EANET monitoring sites classified by types of environmental media.

- Deposition monitoring sites :
 - 54 wet deposition sites
 - 45 dry deposition sites
- Ecological survey sites :
 - 20 soil survey sites
 - 18 forest/vegetation survey sites
 - 18 inland aquatic environment (lakes/river) sites
- Catchment scale monitoring sites : 2 sites

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Instrument for Strengthening the Acid Deposition Monitoring Network in East Asia (EANET)

Responsibilities : Participating Countries

- Monitoring
- Reporting
- QA/QC program
- Promote research activities, education and training program, public awareness, exchange information
- With in close communication, coordination and collaboration with the Secretariat and the Network Center through the National Focal Points (NFPs), National Centers, and National Quality Assurance and Quality Control (QA/QC) Managers.
- Voluntary financial contribution to support the EANET activities of the Secretariat and the Network Center.


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 **Current State of Acid Deposition in East Asia**




The 2nd Periodic Report on the State of Acid Deposition in East Asia (PR SAD2) published by the EANET in March 2012 indicated that


- EANET Data compilation from 2005-2009
- Acid rain remains prevalent across East Asia.
- The annual average pH of rainwater is lower than 5.0 (the threshold for acid rain) at 60% of monitoring sites, and values of less than 4.6 have been recorded in several locations while in some locations the higher than pH 6 have been seen due to the contribution of alkaline species such as NH₃ from agriculture and calcium carbonate in soil dust.
- H₂SO₄ remains the primary contributor to acid rain across the region, therefore, the regional sulphur emission control is still needed to be improved.


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 **Current State of Acid Deposition in East Asia**




- Contribution of HNO₃ to acid rain is almost equal to that of H₂SO₄, the control of nitrogen emission is also important in the region.
- However, despite continued acidification in the region, the impact of acid deposition on eco-system functions still appears limited.
- No decline in tree growth nor in the number of species in vegetation has been observed during monitoring, and overall forest functions and structures apparently remain sound.
- Tree decline symptoms observed at some sites were generally considered to stem from pest infestation as a direct cause.
- Declining trend in lake/stream water pH with corresponding increase in sulphate concentration was also observed at several sites during the same period.


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 **Current State of Acid Deposition in East Asia**




- Results of soil and inland water monitoring in some parts of the region showed symptoms of nitrogen saturation/eutrophication due to excess deposition of nitrogen species (nitrate and ammonium). Deposition loads of S and N were very high in these areas.
- O₃ concentrations monitored in Japan, Korea, Thailand and Russia demonstrated common seasonal variations – highest in spring, lowest in summer, and second-highest in autumn. Monthly average O₃ concentrations from 2005-2009 were higher than those for the previous 5-year period (2000-2004).


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 **Future Development of the EANET**

Rationale for Future Expansion of the Scope of the EANET




- Acid deposition may have been marginalized these days because the impacts of acid deposition to human health and ecosystems have not become so clear yet in East Asia.
- It may not be of interest of financial authorities in some participating countries for only acid deposition issue and in other outside financial support funds.
- Some other air pollution problems, i.e. O₃ and PM2.5, have been highlighted as either a domestic, regional, or hemispherical problem.
- Integrated (co-benefit/co-control) approach for mitigating air pollution and climate change will yield more efficient mitigation & measures policy.


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 **Future Development of the EANET**

Possible Future Expansion of the Scope of the EANET




- The Instrument for Strengthening the EANET is allowed for its extended scope.
- The present scope of the EANET covers monitoring of major acidifying species and related chemical substances.
- The 13th Session of the IG on the EANET in 2011 suggested to take the Recommendations of Executive Summary of the 2nd Periodic Report on the State of Acid Deposition Monitoring in East Asia (PR SAD2) related to the future development of the EANET into the discussions of the next Sessions of Working Group of Future Development and Scientific Advisory Committee for the EANET.

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 **Future EXPANSION of the EANET**

Possible Future Expansion of the Scope of the EANET



Recommendations Expansion of Scope from PR SAD2

- Continue an ongoing monitoring regarding the deposition of acid and other related atmospheric air pollutants, and extending to include relevant components i.e. O₃ and particulate matter (PM).
- Strong links between acid deposition and climate change. Air pollutants causing acid deposition (such as O₃ and aerosols) contribute to climate change, while climate change affects acid deposition through influences such as precipitation variations.
- Extending the assessment of acid deposition to include other relevant air pollutants and climate change should be coordinated in order to improve the EANET's treatment of emerging issues.

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Future Development of the EANET
Possible Future Expansion of the Scope of the EANET

- to address the origins of harmful emissions by reaching out to policy developers and decision makers with scientific knowledge and policy advice.
- to support information to the policy development toward environmental sustainability in the future.
- promotion of research activities on modeling and emission inventories.

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On-going Discussion on the Future Development of the EANET

- Future development of the EANET should be in a stepwise manner.
- O₃ and PM_{2.5} monitoring should be added to the monitoring items at the EANET sites with high priority within the present scope of EANET.
- Technical support and capacity building for air concentration monitoring including O₃ and PM_{2.5} should be strengthened.
- Inter-linkage between acid deposition, air pollution, climate change, and co-benefits/co-control approach should be investigated. As such, monitoring of black carbon may also be considered for connecting acid deposition, air pollution, and climate change.
- Extended assessment of the state of acid deposition and air pollution should be made with the aid of modeling and emission inventories.

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On-going Discussion on the Future Development of the EANET

- Assessment of the impact on human health by O₃ and PM_{2.5} in combination with monitoring, modeling, and emission inventory should be considered.
- Public awareness activities and the establishment of epistemic community, including information dissemination should be promoted in order to achieve a common understanding on acid deposition and its inter-linkage with other atmospheric pollution and climate change among different stakeholders.
- Relevance to climate impact of monitoring species may also be considered in the expanded scope.
- New expertise associated with mitigation measures may need to be addressed under the EANET, which will require the expansion of the scope as well as institutional reform in some countries.


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Future Development of the EANET
Challenges for Future Expansion of the Scope of the EANET

- Some agreed only monitoring of O₃ and PM.
- Expansion could mean burdens technically and financially
- Revision of the Instrument needed.
- The EANET title changed.

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Thank you for your attention



More information: www.eanet.asia
Secretariat: www.rrcap.ait.asia
Network Center : www.acap.asia

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