

The Eighth Session of the Scientific Advisory Committee
of the Acid Deposition Monitoring Network in East Asia
15-17 October 2008, Hanoi, Viet Nam

Report on the activities of the Task Force on Research Coordination

Chair of the Task Force

I. Background

1. The Ninth Session of the Intergovernmental Meeting (IG9) held on 19-20 November 2007 in Vientiane, Lao PDR approved the establishment of the Task Force on Research Coordination together with other Task Forces and Expert Groups based on the recommendation of the Seventh Session of the Scientific Advisory Committee (SAC7). The establishment of the new task forces and expert groups was to enable more effective implementation of the scientific activities of the Strategy on EANET Development (2006-2010) in collaboration with the NC and Secretariat of EANET.
2. SAC7 appointed Dr. Sergey Gromov as the Chairperson of the Task Force on Research Coordination and the Network Center for EANET (NC), as the secretariat. SAC7 also decided that all the chairs of the other task forces and expert groups under the Scientific Advisory Committee (SAC) should be members of the Task Force on Research Coordination.

II. Activities

II-1. First meeting of the Task Force

3. The NC, as the secretariat, consulted the chair of the Task Force on other experts to be invited as members made arrangements for the first meeting in 2008.
4. The first meeting of the Task Force on Research Coordination was held at the Acid Deposition and Oxidant Research Center (ADORC) in Japan on 25-26 June 2008. The minutes of the meeting are attached as Annex 1.

II-2. Terms of reference (TOR) of the Task Force

5. The Task Force considered and decided to recommend the following TOR for the consideration of SAC.
 - Propose the future direction of research activities for EANET
 - Review the scientific outcomes of EANET research activities

- Review the reports of EANET Research Fellowship program (2008 -) and recommend research themes when necessary
- Identify potential collaborative researches with international and regional initiatives for EANET
- Develop research ideas for potential funding and regional collaboration

II-3. Members

6. The Task Force also agreed to the following composition of the Task Force:

Dr. Sergey Gromov (Chair)	Institute of Global Climate and Ecology, Roshydromet and RAS, Russia
Dr. Hajime Akimoto	Frontier Research Center for Global Change, Japan
Dr. Wilfredo M. Carandang	University of the Philippines Los Baños College, Philippines (Chair of Task Force on Soil and Vegetation Monitoring)
Dr. Cho Seog-Yeon	Inha University, R. of Korea (Chair of Task Force on Dry Deposition Monitoring)
Dr. Duong Hong Son	Center for Environmental Research (CENRE), IMH, MoNRE, Vietnam
Dr. Hiroshi Hara	Tokyo University of Agriculture and Technology, Japan (Chair of Expert Group on Revision of Technical Manual on Wet Deposition Monitoring)
Dr. Tamara Khodzher	Limnological Institute of the Siberian Branch of the Russian Academy of Sciences, Russia (Chair of Expert Group on Revision of Technical Manual on Inland Aquatic Environment Monitoring)
Dr. Pojanie Khummongkol	King Mongkut's University of Technology, Thailand (Chair of Expert Group on Dry Deposition Flux Estimation)
Dr. Elizabeth Phillip	Forest Research Institute of Malaysia, Malaysia
Prof. Wang Ruibin	China National Environmental Monitoring Center, China (Chair of Task Force on Monitoring Instrumentation)
Prof. Katsunori Suzuki	Kanazawa University, Japan
Dr. Hiromasa Ueda	ADORC (Chair of Expert Group on Preparation on the Second Periodic Report on State of Acid Deposition in East Asia)

II-4. Major decisions at the first meeting of the Task Force

7. The major decisions of the meeting are summarized as follows:

- The meeting agreed on the terms of reference and members as shown above.
- The importance for the reports of the joint research activities to be peer reviewed was emphasized, and it was agreed that the NC will in future send the reports to the experts/members of the Task Force prior to the task force meeting for their comments from the scientific aspects. The Meeting suggested that future joint research projects should be designed with more care and should involve both internal and external experts who could closely supervise the implementation of the project and interpretation of the results.
- The Meeting decided that the list of candidate research themes for fellowship studies for 2008-2010 should be simplified with broader topics. The Meeting agreed on the revised Candidate Research Themes for Fellowship Studies in the Network Center for EANET (2008-2010). The Meeting also agreed that it would review the reports of the research fellows from 2008 since the researchers as well as their supervisors of the previous projects are no longer working in the NC.
- The Meeting suggested that the Bulletin on Science and Technology of EANET should be named EANET Science Bulletin and made other useful comments on the arrangement of the contents.
- The Meeting discussed potential funding sources for EANET research projects and suggested that researchers explore all means available, such as applying for funds from their own organizations and other research grants sponsored by various government ministries, and plan projects with regional scope thus increasing the chances of securing funds from the regional and international donor agencies.
- The Meeting agreed that the list renamed *Potential Future Research Activities (for reference)* should be submitted to SAC for information. This list would be a useful reference for discussions with potential donor agencies, applications for research grants, etc.
- The Meeting agreed to recommend to SAC the implementation of 3 high priority research projects using EANET budget in 2009 as follows:
 - i) Analysis of existing data for improving the understanding of the status of acidification in East Asia
 - ii) Studies on the suitability of various low-cost methodologies, such as passive samplers, for monitoring air concentration
 - iii) Aerosol deposition study in forests for improvement of estimation methods for dry deposition flux

- The Meeting agreed that the following experts shall be the leaders of the priority projects mentioned above and they, in collaboration with the NC, will develop the project briefs for circulation to all the Task Force members: Project i): Dr. Hiromasa Ueda, Project ii): Prof. Wang Ruibin, Project iii): Dr. Pojanie Khummongkol.
- The NC was requested to submit an estimated budget for implementation of the 3 projects to the relevant bodies of EANET for their consideration and approval. The NC will also develop a set of procedures to monitor the progress of implementation of these projects for the consideration of the Task Force and SAC.
- The second meeting of the Task Force will be held in July 2009.

II-5. Schedule

8. The schedule of the activities of the Task Force was also discussed at the first meeting. The Task Force agreed on the following schedule:

<u>April 2008</u>	Appointment of the membership of the Task Force
<u>June 25-26, 2008</u>	First meeting of Task Force.
<u>By second week of July, 2008</u>	Minutes of the Task Force will be circulated among participants
<u>15-17 October, 2008</u>	Chairman of the Task Force will report its activities to SAC8
<u>July, 2009</u>	Second Meeting of the Task Force on Research Coordination
<u>August, 2009</u>	EANET Scientific workshop on data assessment

II-6. Follow-up actions from the first meeting

9. NC prepared the minutes of the first meeting of the Task Force and circulated it among the participants of the meeting for their confirmation. As requested by the Task Force the NC coordinated the preparation of the concept papers of the high priority research projects (Annex 2) by the designated project leaders. The NC also prepared a set of draft Guidelines for Selection and Implementation of High Priority Research Project funded by EANET (Annex 3) as requested by the Task Force. The concept papers and set of guidelines were circulated among the members of the Task Force in early September 2008 for their comments.
10. The concept papers and draft Guidelines were revised based on the comments and suggestions

from the members. The Task Force agreed to submit the documents to the Eighth Session of the Scientific Advisory Committee (SAC8) for further review and endorsement.

III. Recommendations to SAC8

11. The Eighth Session of the Scientific Advisory Committee (SAC8) is invited to consider the report on the activities of the Task Force on Research Coordination by the Chair of the Task Force and endorse the followings:
 - i) The TOR of the Task Force on Research Coordination
 - ii) Membership of the Task Force on Research Coordination

12. SAC8 is also requested to review and endorse the concept papers of the High Priority Research Project and Guideline for Selection and Implementation of High Priority Research Project to be submitted to the Tenth Session of the Intergovernmental Meeting (IG10).

13. SAC8 is also invited to note the list of *Potential Future Research Activities (for reference)* which may be useful reference for researchers who are applying for external funds to conduct research activities relevant to EANET.

ACID DEPOSITION MONITORING NETWORK IN EAST ASIA (EANET)

FIRST MEETING OF THE TASK FORCE ON RESEARCH COORDINATION SCIENTIFIC ADVISORY COMMITTEE (SAC) OF EANET

(Niigata, 25-26 June 2008)

PROVISIONAL AGENDA

June 25

09:00-09:15

1. Welcome remarks Dr. Ueda

09:15-09:30

2. Explanation on Task Force/Expert Group Ms. Leong

09:30-09:45

3. Introduction Chair

09:45-10:00

4. Draft terms of reference and membership of the Task Force NC

10:00-10:15 Coffee Break

10:15-10:45

5. Objectives, scope and membership of the Task Force Discussion

10:45-12:00

6. Progress of on-going joint research activities of EANET NC

12:00-14:00 Lunch

14:00-14:30

7. Progress of EANET Research Fellowship Program NC

14:30-15:00

8. Progress of EANET Bulletin on Science and Technology NC

15:00- 15:30 Coffee Break

15:30-18:00

9. Presentation on proposed research activities for future development Members

18:00 Departure to hotel

June 26

09:00-10:00

Presentation on proposed research activities (contd.)	Members
10:00-10:30 Coffee Break	
10:30-11:30 Presentation on proposed research activities (contd.)	Members
11:30-12:00 10. Funding sources for future EANET research activities	Discussion
12:00-14:00 Lunch	
14:00-15:00 11. Summary of discussions	Chair
15:00-16:00 12. Next steps and schedule	Discussion
16:00 Close	

MEETING MINUTES

I. Agenda

The Meeting followed the issues as listed in the Provisional Agenda.

II. Welcome Remarks

Dr. Ueda, the Director General of ADORC, welcomed the members of the Task Force on Research Coordination of the EANET Scientific Advisory Committee to ADORC, Niigata, Japan (see the attached List of Participants).

III. Explanation on Task Force/Expert Group

Ms. Leong presented an overview of the Task Forces and Expert groups established under the Scientific Advisory Committee of EANET. The Meeting suggested that the links between the various Task Forces and Expert Groups and their relationship with the other bodies of EANET should be clearly explained.

IV. Introduction

Dr. Gromov, the Chair of TFRC, introduced the background and objectives for the establishment of the Task Force.

V. Draft terms of reference and Membership of the Task Force

The Secretariat presented the draft terms of reference and membership of the Task Force. The Meeting discussed the role of the Task Force in proposing and promoting relevant research activities for EANET and their task to review the scientific outputs from the

various EANET research activities and agreed to the Revised Terms of Reference as attached in Annex 1. The members of the Task Force are as listed in Annex 2.

VI. Progress of on-going joint research activities of EANET

The Secretariat presented the progress of joint research activities of the Network Center (NC) with Korea, Malaysia, Mongolia, Russia, Thailand, and Japan. The members provided comments and advice on the results obtained from the research activities. The importance for the reports of the joint research activities to be peer reviewed was emphasized. It was agreed that before future meetings, the NC will:

- i) Send the reports to a suitable expert(s) for peer-review and the comments be circulated during the meeting, or
- ii) Circulate the reports to all the Task Force members at least a month in advance to provide the members sufficient time to study the reports and suggest improvements.

The Meeting suggested that future joint research projects should be designed with more care and should involve both internal and external experts who could closely supervise the implementation of the project and interpretation of the results. More careful checks of the results of some of the projects are necessary.

VII. Progress of EANET Research Fellowship Program

The Secretariat presented the progress of the EANET Research Fellowship Program implemented by the NC. The Meeting was informed that the guidelines for implementation of this program was established and adopted at IG7 and, following the guidelines, the selection of suitable candidates shall be done by the NC. It was also noted that the objectives of this activity is different from other research activities as this program also aims to encourage young scientists from the region to carry out relevant research on acid deposition and related pollutants using the EANET database.

The Meeting considered that the list of candidate research themes for fellowship studies for 2008-2010 proposed by the Secretariat and decided that it should be simplified with broader topics. The Meeting agreed on the revised Candidate Research Themes for Fellowship Studies in the Network Center for EANET (2008-2010) (Annex 3).

The Meeting also agreed that it would review the reports of the research fellows from 2008 since the researchers as well as their supervisors of the previous projects are no longer working in the NC.

VIII. Progress EANET Bulletin on Science and Technology

Ms. Leong informed the Meeting of a new activity of the NC to publish an EANET Bulletin on Science and Technology once every two years. This activity is being implemented by an Editorial Committee established in NC for EANET. The Meeting was informed that Volume I of the Bulletin will contain the reports of the EANET research fellowship program (2005-2007), joint projects of EANET with participating countries, and abstracts of published papers relevant to EANET. The Meeting offered some useful suggestions regarding the name of the bulletin, "EANET Science Bulletin", and arrangement of the contents.

IX. Presentations on proposed research activities

Dr. Gromov

Dr. Gromov proposed some research activities by the Task Force. He also identified future research directions and proposed how to coordinate these activities with existing regional initiatives such as MICS-Asia, GAINS, CAD, ABC, WMO-GAW, APN, CAI-Asia, GEOSS.

Possible research directions:

1. Investigation of SRRs (source-receptor relationships) including transregional and transboundary effects
2. Development and implementation of CL (critical loads) approach
3. Relationship between regional air pollution and health impact disaster

Prof. Wang Ruibin

Prof. Wang presented on the environmental issues faced by the region. He suggested research should focus on selected environmental issues which are of interest to all countries and will help to understand the changing trends in the environment.

Representative and accurate data are important and, to understand the present state of the environment, he suggested the following studies:

1. Assess and review the regional representative of monitoring sites and parameters
2. Comparison study on different methods and how to unify the data from different methods
3. Further development of QA/QC methods

Dr. Hajime Akimoto

Dr. Akimoto made a presentation on Global/Hemispherical/Regional and Urban Air Pollution. On the hemispherical level, the transport of ozone and aerosols are of greatest concern. He presented the interim results of TF HTAP from the models on annual mean surface ozone from 20% NO_x reductions and sensitivity of surface ozone to NO_x sources during season of maximum ozone production.

Prof. Katsunori Suzuki

Prof. Suzuki informed on Research on Atmospheric Environment in Kanazawa University which has 2 components: Noto Supersite for aerosol monitoring and Research on integrated management regime of atmospheric environment in East Asia. He suggested that research direction for EANET should be i) a combination of ground monitoring, remote sensing and modeling for comprehensive assessment of regional acid deposition, and ii) an integrated approach for studying impacts of acid deposition, aerosols, climate change and others.

He also offered some suggestions for funding EANET research projects:

- Support from international organizations, such as World Bank and ADB although it has become more difficult lately to obtain their funds
- Collaborative projects with universities and research institutions since there is a big potential for funding there

Dr. Tamara Khodzher

Dr. Khodzher made a presentation on The Lead Isotopic Ratios in the Atmospheric Precipitation as Indices of the Atmospheric Admixtures Transportation on Long Distances which was funded by the Russian Science Support Foundation and the Ministry of Environment of Japan. She informed that data of the isotopic lead ratios in precipitation and the use of the HYSPLIT model allowed the researchers to track trans-boundary

transportation of atmospheric pollutants in the Premorskaya Territory. These ratios could serve as tracers of the pollutants transportation over long distances.

Dr. Pojanie Khummongkol

Dr. Pojanie informed of direct and indirect measurement of dry deposition, and proposed the following research projects for improvement of estimation method for dry deposition:

1. Aerosol deposition study to forests (direct and Indirect methods)
2. Ammonia deposition flux estimation (direct and Indirect methods)
3. Flux estimation models intercomparison
4. Flux estimation model intercomparison with field observations

Dr. Elizabeth Phillip

Dr. Phillip presented her views on proposed research activities for future development. She informed that in response to the threat of acid deposition, EANET need to:

1. Provide trends, projections and map sensitive areas/high risk using the mammoth data available
2. Benchmark and issue authoritative publications similar to IPCC
3. Conduct research on impacts on biodiversity in the mega-biodiversity countries of SEA. Further research on impacts on groundwater and lakes, marine ecosystems and human health are also required
4. Conduct impact assessment on leaf litter, seedling regeneration, pest and disease outbreak and nutrient cycling
5. Research on adaptation mechanism of natural ecosystems such as vulnerable species and critical ecosystems

Dr. Hiroshi Hara

Dr. Hara made a presentation on Scientific Research Subjects in EANET Activities which focused on atmospheric deposition chemistry. He proposed the following research activities for future development of EANET:

1. Full Utilization of the Measurements
 - Role of Rainfall
 - Incorporation of Gas and Aerosol
 - Precipitation-Chemistry Model Development
2. Roles of Asian Field of Atmospheric Chemistry
 - Asian dust (Kosa)
 - Volcanic SO₂ and HCl
 - Seasalt Particles
 - VOC from Vegetation

Dr. Hiromasa Ueda

Dr. Ueda reported research works of EANET. He highlighted the following future requirements:

1. Integration of present and future scopes
 - Environmental acidification and eutrophication
2. Reinforcement of activities in Task Forces and Expert Groups and coordination and harmonization among activities
 - Warning (alert) of risk on human health and environmental disasters
 - Regional environmental management (Optimal number of sites, Monitoring data analysis, Trend analysis, Modelling work, Emission inventory)

Dr. Wilfredo Carandang

Dr. Carandang made a presentation on Acid Deposition and Related Researches in the Philippines, and suggested the following research topics.

1. Qualitative and quantitative studies on the sensitivities to acid rain of more tree species
2. Evaluation of the change in element concentration of pollutants on the morphology and physiology of vegetation surrounding power plants
3. Use of remote sensing techniques for assessing acid deposition effects on forest and agricultural systems
4. Acid deposition effects on a landscape/watershed level
5. Establishment of threshold limits for acid deposition relative to forest types
6. Determination of the feasibility of the application of the critical load concept in the development of air emission reduction policy
7. Application of the appropriate transboundary models to determine the influence of local and external air pollution sources in the country's air quality
8. Application of the less expensive methods of monitoring including passive samplers
9. Contribution of ocean/seawater spray on the acidity of deposition
10. Contribution of coal fired power plants and geothermal power fields on the acidity of deposition
11. Promotion of emission inventories and modeling for application in policy formulation and air pollution control

Dr. Duong Hong Son

Dr. Son made a presentation on Research Activities on Air Quality in Viet Nam, and suggested some research activities relevant to EANET:

1. Estimate horizontal dry deposition by model then validate by observational data such as from EANET specific studies
2. Air quality forecast system, and its cost-benefit study
3. Emission Inventory as a pilot study and air quality modeling

X. Funding sources for future EANET research activities

The Secretariat explained briefly the funding sources of the current research activities of EANET. The Meeting discussed potential funding sources for EANET research projects and suggested that researchers explore all means available, such as applying for funds from their own organizations and other research grants sponsored by various government ministries, and plan projects with regional scope thus increasing the chances of securing funds from the regional and international donor agencies. The establishment of an EANET research fund could also be proposed by SAC for consideration of IG.

XI. Summary of discussions

The Secretariat presented a list of Proposed Future Research Activities of EANET. The Meeting considered the list prepared by the Secretariat as very comprehensive and useful as a reference for discussions with potential donor agencies, applications for research grants, etc. The Meeting therefore agreed that the list renamed *Potential Future Research Activities (for reference)* (see Annex 4) should be submitted to SAC for its information since it is a useful reference.

The Meeting noted that there are several high priority research projects (see Annex 5) that should be implemented by EANET, such as studies on the suitability of various monitoring methodologies, quantification of acid deposition, and scientific assessment of the data

accumulated through EANET monitoring, which are all urgently required for improving knowledge and understanding of the state of acid deposition in the region. These projects are unlikely to obtain funding from external funding agencies. The Meeting therefore agreed to recommend to SAC the implementation of the following 3 priority projects using EANET budget in 2009:

- i) Analysis of existing data for improving the understanding of the status of acidification in East Asia
- ii) Studies on the suitability of various low-cost methodologies, such as passive samplers, for monitoring air concentration
- iii) Aerosol deposition study in forests for improvement of estimation methods for dry deposition flux

The Meeting agreed that the following experts shall be the leaders of the identified projects and they, in collaboration with the NC, will develop the project briefs for circulation to all the Task Force members:

Project Title	Project Leader
Analysis of existing data for improving the understanding of the status of acidification in East Asia	Dr. Hiromasa Ueda
Studies on the suitability of various low-cost methodologies, such as passive samplers, for monitoring air concentration	Prof. Wang Ruibin
Aerosol deposition study in forests for improvement of estimation methods for dry deposition flux	Dr. Pojanie Khummongkol

The NC was requested to submit an estimated budget for implementation of the 3 projects to the relevant bodies of EANET for their consideration and approval.

The NC will also develop a set of procedures to monitor the progress of implementation of these projects for the consideration of the Task Force and SAC.

XI. Next Steps and Schedule

The Meeting adopted the Revised Schedule of Activities in Annex 6.

The Secretariat will circulate the minutes of the meeting to all members by the second week of July. The Chairperson will report the outcomes of the meeting at SAC8.

LIST OF PARTICIPANTS

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Revised Draft Terms of Reference

1. Propose the future direction of research activities for EANET
2. Review the scientific outcomes of EANET research activities
3. Review the reports of EANET Research Fellowship program (2008 -) and recommend research themes when necessary
4. Identify potential collaborative researches with international and regional initiatives for EANET
5. Develop research ideas for potential funding and regional collaboration

List of Members

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Annex 3

**Candidate Research Themes for Fellowship Studies
in the Network Center for EANET
(2008-2010)**

1. Improvement of sampling methodologies for wet and dry deposition, including QA/QC
2. Analysis of important components in wet and dry deposition
3. Air pollution transport modelling (particularly dry deposition)
4. Analysis of available EANET data for trends, relationship with climate, etc.
5. Studies on effects of acid deposition and related air pollutants on ecosystems, materials and human health.

Note: The above themes are only a guide for potential applicants. Other research topics may be proposed, considering their benefits to EANET.

Potential Future Research Projects of EANET (for reference)

1. Research activities for improvement of understanding of status of acidification in East Asia

- Analysis of existing data for improving understanding of status of acidification in East Asia
- Trend analysis of pollutants using long-term historical records

2. Research activities for improvement of monitoring methodologies

Wet deposition monitoring

- Study on the role of carbonic and organic acids and their influence on wet deposition
- Studies to determine the suitability of various sample preservatives
- Studies to assess the comparability of new and old sampling procedures and instrumentation
- Studies to determine the extent of contribution of natural emissions to acidity of precipitation
- Evaluation of stability of organic acids in sampling at tropical sites

Dry deposition monitoring

- Studies to develop a Technical Manual on dry deposition flux estimation to be applied in the East Asian region
- Studies on the suitability of various low-cost methodologies, such as passive samplers, for monitoring air concentration
- Review of current publications for preparation of a Technical Manual on Air Concentration Monitoring for EANET
- Comparison of the performance of various PM_{2.5} instruments in the tropical region
- Review of recent progress in monitoring PM in connection with the regulation by PM₁₀, PM_c (10-2.5)
- Evaluation of the denuder sampling method and comparison with filter pack method in the tropical region
- Studies of the effect of artifacts in using filter pack in the tropical region

Improvement of QA/QC

- A comprehensive evaluation of the results from the inter-laboratory comparison projects to improve current analytical methodologies
- Review of existing guidelines on preparation of SOPs and audits
- Review of current QA/QC manuals and preparation of a EANET QA/QC Manual separated from the Technical Manuals
- Harmonization of data management procedures of EANET with other regional and international monitoring networks
- Field inter-comparisons within East Asia, and with other regional/international programs

- Consideration of certification or evaluation of automatic monitoring equipment

3. Research activities for monitoring and evaluating effects on ecosystems

Promotion of catchment-scale monitoring

- Evaluation of ecological effects of acid deposition
- Evaluation of experience and development of technical documents on catchment monitoring
- Development of a biogeochemical model for catchment scale analysis

Research on sensitivity of environmental media

- Evaluation of the status of soil acidification in East Asia
- Evaluation of the effects of ozone on plants
- Evaluation of potential damage of acid deposition and areas susceptible to damage by atmospheric pollutants
- Evaluation of temporal/spatial changes of river water
- Evaluation of effects on aquatic life quality including development of bio-indicators

4. Research activities with new directions

Improvement of understanding on state of the environment in East Asia

- Evaluation of contribution of acidic pollutants from international shipping and flights routes
- Long-range transport of air pollutants in East Asia
- Investigation of long-term changes of ozone and its precursors in East Asia
- Investigation on potential synergies of acidic deposition, ozone and particulate matters with climate change
- Emissions, transport and deposition of fine particulates and their precursors
- Assessment of emissions, transport, budget, fluxes and effects of sulfur and nitrogen in East Asia
- Application of satellite data and monitoring data provided by other activities

Promotion of emission inventories

- Application of emission inventories for environmental assessments, cause-effect relationship and socio-economic projections
- Development/adoption of harmonized guidelines to prepare emission inventories in East Asia
- Studies on applicability of current emission estimation methods to East Asia, such as emission factors, etc.

Promotion of modeling works

- Collaboration with existing modeling activities on long-range transboundary transport of air pollution, such as MICS-ASIA
- Modeling studies combining atmospheric transport and ecological effects
- Research study of cost function for reducing pollutants
- Studies for cost-effect/benefit analysis on acidification/eutrophication
- Promotion of integrated assessments to support decision-making process

Assessment of impacts on human health

- Assessment and review of pollutants with potential harmful effects on human health
- Review of the emissions of heavy metals, its dispersion, relationship to acidification, and health impacts in East Asia
- Consideration of appropriate monitoring parameters and methods for human health impact

Assessment of other impacts

- Investigation/evaluation on impacts of surface ozone to the agricultural products and production/yield loss including economical aspect
- Review of studies on effects of corrosion due to acid deposition on building materials in East Asia

Estimation of future status/scenarios

- Consideration of future scenario of emission
- Consideration of future status of air pollution in East Asia by modeling

5. Activities to promote cooperation with other regional and global initiatives and contribute to conservation of global environment and sustainable development

- Pilot studies on acid deposition in East Asia with interested countries or regional/international initiatives
- Supporting initiatives of TF HTAP of CLRTAP by contributing to their Assessment Report and participating in their model inter-comparison studies on hemispheric transport
- Collaboration with WMO in regional activities promoted under its programmes
- Joint programs with WHO, UNEP and relevant organizations on effects of fine particulates on life expectancy in East Asia
- Collaboration with LTP in modeling activities in Northeast Asia
- Collaboration with SIDA on their research programs in Asian region, particularly corrosion studies
- Collaboration with IIASA on Integrated Assessment Model (RAINS/GAINS) for acidification/eutrophication and global warming

High Priority Research Projects proposed by the Task Force on Research Coordination for EANET Funding

- i. Analysis of existing data for improving the understanding of the status of acidification in East Asia
- ii. Studies on suitability of various low cost methodologies, such as passive samplers, for monitoring air concentrations
- iii. Aerosol deposition studies in forests for improvement of estimation method for dry deposition

Revised Schedule of Activities

Activity	Dates
The First Meeting of the Task Force on Research Coordination	25-26 June, 2008
Minutes of the Task Force will be circulated among participants	by 2 nd week of July, 2008
Chairman of the Task Force will report its activities to SAC8	15-17 October, 2008
Second Meeting of the Task Force on Research Coordination	July, 2009
EANET Scientific workshop on data assessment	August, 2009

Concept Paper of High Priority Research Projects

Title of Project	1. Analyses of existing data for improving the understanding of the status of acidification in East Asia
Purpose/Objectives	<p>Preparation of the second Periodic Report will start in 2010 by the Drafting Committee (DC). It is necessary to provide various kind of information to DC for the understanding of the status of acidification in East Asia.</p> <p>Main objectives of this project are as follows;</p> <ol style="list-style-type: none"> (1) Evaluation of the appropriate methods for analyzing the state of acid deposition. (2) Preliminary analyses of EANET data 2005-2009 for improving the understanding of the status of acidification in East Asia among DC. (3) Providing the accurate information of the status of acidification in East Asia through the appropriate data analysis.
Background Information	<p>In November 2006, EANET published the First Periodic Report on the State of Acid Deposition in East Asia, and will start preparing the Second Periodic Report, which will be completed in 2011. This report provides an assessment of the state of acid deposition based on the data acquired from monitoring activities in EANET.</p> <p>However, it was pointed that analysis of the monitoring data in the first report was not enough for the assessment of the state of acid deposition. So, more detailed data analyses are requested for the preparation of the next periodic report. Furthermore, such data analyses are essential for implementing the updated EANET monitoring and should be performed as a routine work.</p>
Scope/Activities	<ol style="list-style-type: none"> (1) One researcher will be invited for conducting the evaluation of analytical methods on acid deposition. (2) Adoption of the appropriate methods for analyzing the state of acid deposition, i.e., statistical methods, visualization method (mapping, graphics), numerical model calculation etc. (3) Evaluation of accumulative indicators for the data of chemical species. (4) Preliminary analyses of EANET data 2005-2009 <ol style="list-style-type: none"> 1) Appropriate usage of visualization method to show spatial distribution and temporal variation (including animation) 2) Preparation of detailed meteorological and diffusion field data sets for EANET region and for some mega-cities, after collecting meteorological reanalysis data set 3) Analyses: Spatial distribution of wet deposition and its

	<p>seasonal variation</p> <p>4) Analyses: Spatial distribution of dry deposition and its seasonal variation, after calculating dry deposition fluxes from air pollutant concentrations monitored by filter pack method and automatic instruments</p> <p>5) Long-term and short-term trends of acid deposition and effects on ecosystems, based on EANET data from 1998 (preliminary phase) to 2009, together with other data observed and monitored in participating countries</p>
Cost Estimate	<p>Total US\$ 35,000</p> <p>Items : Personnel expenses 21,000\$ (3,500\$/month x 6 months)</p> <p>Meteorological data set, 10,000\$</p> <p>Soft ware for analysis, 4,000\$</p>
Timeframe/Schedule	2009
Output	<p>(1) Preparation of the guideline on the analytical procedures for EANET data</p> <p>(2) Preliminary analysis of EANET data from 2005 to 2009 using appropriate analytical methods.</p>
Proposed Funding Source	EANET budget

Title of Project	2. Aerosol deposition studies in forests for improvement of estimation method for dry deposition												
Purpose/Objectives	Application of direct measurement method to determine aerosol deposition flux and velocity in forest canopy in the tropical region.												
Background Information	Scientific information on the aerosol deposition flux in the tropical region are non existent while substantial data for the northern hemisphere are available in publications. This study will supplement the EANET countries in the tropical regions to be able to estimate the aerosol depositions and hence, the total depositions which include both the wet and dry depositions can be determined.												
Scope/Activities	<ol style="list-style-type: none"> 1. Direct measurement of aerosol deposition flux will be conducted in the forest in Thailand, 2. Principal aerosols to be study consist of SO_4^- and NO_3^- 3. Seasonal effects on the acid deposition will be determined, 4. Seasonal differences in the tropical region will be compared with the available inferential model applied for the sub-temperate region. 												
Cost Estimate	<p><u>Total 30,000.00 USD</u></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">Personnel cost</td> <td style="text-align: right;">8,000</td> </tr> <tr> <td>Travel cost</td> <td style="text-align: right;">1,000</td> </tr> <tr> <td>Equipment</td> <td style="text-align: right;">10,000</td> </tr> <tr> <td>Consumables</td> <td style="text-align: right;">11,000</td> </tr> <tr> <td></td> <td style="text-align: right;">-----</td> </tr> <tr> <td style="text-align: right;">Total</td> <td style="text-align: right;">\$30,000</td> </tr> </table>	Personnel cost	8,000	Travel cost	1,000	Equipment	10,000	Consumables	11,000		-----	Total	\$30,000
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Total	\$30,000												
Timeframe/Schedule	2009												
Output	<ol style="list-style-type: none"> 1. Values of aerosol deposition flux in the tropical region 2. Improvement of the estimation method using the outcome of this study to relate with the inferential method for the flux estimation 												
Proposed Funding Source	EANET budget												

Title of Project	3. Studies on suitability of various low cost methodologies, such as passive samplers, for monitoring air concentrations
Purpose/Objectives	<p>This project aims to establish a distributed network of sites to monitor air concentrations of gaseous and particulate species using various monitoring methodologies, including the low cost methodologies, over a period of one year. The purpose of the monitoring is to acquire a complete dataset from the monitoring activities conducted under various types of climatic conditions for comparison. The study is expected to determine the suitability of using the low cost methodologies for monitoring of air concentrations in the East Asian region.</p> <p>The low cost methodologies which have been proposed for monitoring of gaseous and particulates species in EANET are the filter pack, passive sampler and denuder methods. These samplers which will be operated side by side with existing automatic instruments, which are expected to produce the most accurate set of results, during the test period.</p> <p>The main activities of this project are as follows:</p> <ol style="list-style-type: none"> (1) Planning of the project (2) Preparations for the monitoring activities (3) Countries carry out the monitoring over a period of a year (4) Chemical analysis of the samples collected (5) Assessment of the data and information (6) Reporting the results to the Scientific Advisory Committee (SAC) of EANET <p>The project will be implemented as an activity of the Task Force on Monitoring Instrumentation (TFMI) under the SAC. The Network Center (NC) as secretariat of the Task Force will coordinate the tasks.</p>
Background Information	<p>High quality, long-term data on wet and dry deposition from a dense network of sites in the East Asian region are required before a comprehensive assessment of the state of acid deposition in East Asia could be performed. Presently, the number of monitoring sites in the region is limited, mainly due to the high cost of establishing, operating and maintaining monitoring stations, including the purchase of expensive automatic monitoring instruments.</p> <p>One of the solutions proposed to overcome this problem is to adopt low cost methodologies such as filter packs, passive</p>

	<p>samplers and denuders. These methodologies have been effectively used other monitoring networks. However, they have not been extensively tested in the East Asian region which has diverse ecosystems, climatic conditions and other unique features.</p> <p>The Strategy on EANET Development (2006-2010) included an activity to improve implementation of all required monitoring items with necessary data completeness and accuracy. One of the outputs expected from this activity is a recommendation on use of less expensive methods to reduce monitoring cost and increase number of monitoring sites.</p> <p>The Task Force on Research Coordination at its first meeting in June 2008 discussed the need to carry out a study to determine the suitability of various low cost methodologies, such as passive samplers, for monitoring air concentrations in EANET. It was felt that a comprehensive study on a regional scale is necessary to identify all the factors that could affect their performance before these methods could be applied throughout the region. It was recommended that this be a priority project for implementation by the TFMI using EANET funds. The NC was requested to coordinate with the Chair of the TFMI to develop the proposal and request for funding at the next session of the Intergovernmental Meeting.</p>
<p>Scope/Activities</p>	<p>EANET countries will be invited to participate on a voluntary basis through the members of the Task Force. One of the criteria for selection of a monitoring site will be that it should be located near to automatic analyzers that are currently operated by the participating countries. Data from the automatic instruments will be used for comparison with the data from the low cost methodologies. Countries that are currently operating automatic instruments at or near their EANET sites are China, Indonesia, Japan, Malaysia, Mongolia, Philippines, Republic of Korea, Russia, Thailand and Vietnam.</p> <p>The following steps will be followed:</p> <ol style="list-style-type: none"> (1) Suitable sites will be selected in the region (2) The NC will coordinate the purchase of equipment and consumables (3) The NC will provide each site with passive samplers for monitoring O₃, SO₂, NO_x, NO₂ and NH₄ (4) The NC will provide each site with a 4-stage filter pack set for monitoring of gas species and particulates (5) All the exposed samples will be returned to the NC where they will be sent for chemical analysis at 2 assigned analytical laboratories

	<p>(6) The NC will compile all the necessary data and information for assessment by the TFMI</p> <p>(7) The NC will prepare the final report to SAC</p>														
Cost Estimate	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">Travel Costs</td> <td style="text-align: right;">8,000</td> </tr> <tr> <td>Communication</td> <td style="text-align: right;">2,000</td> </tr> <tr> <td>Equipment</td> <td style="text-align: right;">50,000</td> </tr> <tr> <td>Consumables</td> <td style="text-align: right;">20,000</td> </tr> <tr> <td>Expenses of the participating countries</td> <td style="text-align: right;">20,000</td> </tr> <tr> <td></td> <td style="text-align: right;">-----</td> </tr> <tr> <td></td> <td style="text-align: right;">Total US\$ 100,000</td> </tr> </table> <p>The equipment will consist of filter pack kits, an automatic ozone generator and calibrator (as a traveling standard). Passive samplers are considered as consumables.</p>	Travel Costs	8,000	Communication	2,000	Equipment	50,000	Consumables	20,000	Expenses of the participating countries	20,000		-----		Total US\$ 100,000
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Timeframe/Schedule	<p>The project will start in early 2009 for duration of 12 months. Monitoring shall be conducted at the sites during the first 2 weeks (1 to 14th day) of each month. The passive samplers, filters from the filter packs will be posted to the NC periodically. Other information including the data from the automatic analyzers will be submitted by the countries to the NC.</p>														
Output	<ol style="list-style-type: none"> (1) A set of data from selected sites in the EANET region using various monitoring methodologies, including low cost methodologies (2) An assessment report from the TFMI (3) Recommendation on future dry deposition monitoring methodologies, if possible. 														
Proposed Funding Source	EANET budget														

Guidelines for Selection and Implementation of High Priority Research Projects

Task Force on Research Coordination

Project Identification

1. Any member of the Task Force on Research Coordination (TFRC) may propose research projects to be implemented by EANET. The Network Center (NC), as secretariat, shall compile the list of proposed projects for consideration of the TFRC.
2. The TFRC at its meeting shall consider the list of proposed projects and identify the high priority research projects which should be submitted to SAC for its consideration. A project leader shall be appointed by the TFRC for the selected projects.
3. The project leader shall prepare a brief concept paper using the standard format attached.
4. The NC as the Secretariat shall circulate the concept paper to members of TFRC for comments. The project leader shall revise the paper based on the comments from members of TFRC, if necessary.
5. The Chair of TFRC shall submit the proposal, concept paper and necessary budget to SAC for its consideration.
6. If appropriate, SAC will make a recommendation to IG to use EANET budget to fund the high priority projects.
7. Based on the recommendation of TFRC and SAC, the NC shall include the budget for the research project in its work plan and budget for consideration and approval by IG.
8. Upon approval, the NC shall notify the TFRC and the project leader.
9. The project leader shall develop a detailed project implementation document and commence implementation of the project when funds are available.

Project Implementation

1. The TFRC shall be responsible for monitoring the progress of the project. The items to be monitored shall include the expenditure, activities, output completion and workflows against the implementation plans, output delivery and progress made towards achieving the objectives of the project.

2. The project leader shall prepare and submit progress reports once every 6 months. The progress report shall include information on:
 - collaboration with partners
 - delivery of planned activities or outputs and results
 - accumulated impact of the project
 - possible delays in project delivery and remedial actions to be taken
 - project budget performance
3. The NC as the secretariat shall circulate the progress reports to all relevant parties for their comments and will convey the comments to the project leader and members of the TFRC.
4. After completion of the project, a final report shall be submitted by the project leader to the TFRC. The TFRC shall submit a report to SAC.

NOTE: Funding is subject to the availability of the NC research funds.

Attachment**Format of Concept Paper**

Title of Project	
Purpose/Objectives	
Background Information	
Scope/Activities	
Cost Estimate	
Timeframe/Schedule	
Expected Output	
Proposed Funding Source	