

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

Progress of the scientific activities of the Strategy on EANET Development (2006-2010)

I. INTRODUCTION

1. The thirteen participating countries of EANET at the Eighth Session of the Intergovernmental Meeting (IG8) held on 29-30 November 2006 in Hanoi, Viet Nam jointly adopted the Strategy on EANET Development (2006-2010) for the future development of EANET. The Strategy identified the main goals and objectives to be achieved in five years in accordance with targets and expected results and outputs.
2. A prioritization for implementation of the activities was proposed based on applied division of available financial resources into core and additional parts of the budget. Priorities are set for the following activities:

Core Budget Priority Activities

- i) Improvement of implementation of all required monitoring items with necessary data completeness and accuracy
- ii) Evaluation of national QA/QC programs and their implementation
- iii) Preparation of periodic assessment reports on the state of acid deposition
- iv) Studies on the establishment of a sound financial basis and the further development of EANET following the outcomes of the feasibility study on an appropriate instrument

Additional Budget Priority Activities

- i) Discussion on promotion of modeling activities and emission inventories
 - ii) Promotion of capacity building for model application on urban, national and regional scales
 - iii) Establishment of the framework for reviewing substances to be monitored including other air pollutants and monitoring parameters
3. It was suggested that the document could be reviewed after the start of the period (2006) until 2010 and revised by IG if changes are necessary. The recommendations of other EANET sub-bodies and factors such as the availability of financial/human resources should be taken into account in the review.

4. To ensure smooth, efficient and transparent implementation of the scientific and technical activities of the Strategy on EANET Development (2006-2010), the Seventh Session of the Scientific Advisory Committee (SAC7) held on 10-12 October 2007 in Manila, Philippines submitted a recommendation to the Intergovernmental Meeting (IG) on the establishment of two new task forces and six new expert groups. The proposed task forces and expert groups are:
 - Task Force on Monitoring Instrumentation
 - Task Force on Research Coordination

 - Expert Group on Dry Deposition Flux Estimation under the Task Force on Dry Deposition Monitoring
 - Expert Group on Preparation of the Second Periodic Report on State of Acid Deposition in East Asia
 - Expert Group on Revision of the Technical Manual on Wet Deposition Monitoring
 - Expert Group on Revision of the Technical Manual on Inland Aquatic Environment Monitoring
 - Expert Group to review substances to be monitored
 - Expert Group for promotion of emission inventories and modeling activities under the NC

5. The new task forces and expert groups, together with task force on dry deposition monitoring and the task force on soil and vegetation monitoring established in 2000, are expected to support the NC in implementing the scientific and technical activities in the Strategy on EANET Development. Moreover, the involvement of a larger group of scientists/experts from the participating countries through the task forces and expert groups would further strengthen SAC's important role of providing advice and support to the IG on scientific and technical issues of EANET.

6. The Ninth Session of the Intergovernmental Meeting (IG9) held on 19-20 November 2007 in Vientiane, Lao PDR however agreed to the establishment of the two new Task Forces and only four of the six Expert Groups recommended by SAC. IG9 further requested SAC to reconsider its proposal on the establishment of the Expert Group to review substances to be monitored and Expert Group for promotion of emission inventories and modeling activities.

7. Therefore, currently there are four Task Forces and four Expert Groups established under SAC:
 - Task Force on Dry Deposition Monitoring
 - Task Force on Soil and Vegetation Monitoring

- Task Force on Monitoring Instrumentation
- Task Force on Research Coordination

- Expert Group on Dry Deposition Flux Estimation
- Expert Group on Preparation of the Second Periodic Report on State of Acid Deposition in East Asia
- Expert Group on Revision of the Technical Manual on Wet Deposition Monitoring
- Expert Group on Revision of the Technical Manual on Inland Aquatic Environment Monitoring

II. STATUS OF IMPLEMENTATION OF THE SCIENTIFIC ACTIVITIES OF THE STRATEGY ON EANET DEVELOPMENT (2006-2010)

8. The status of implementation of the activities of the Strategy on EANET Development (2006-2010) is summarized in the Annex. Some of these activities are being implemented by the NC in cooperation with the participating countries and the Secretariat of EANET either as the routine tasks of the NC or as special projects of the NC. These activities include:
- Report on improvement of data completeness and application of sampling/analytical equipment at the EANET monitoring sites (1) [1]
 - A set of Standard Operating Procedures (SOPs) for operational monitoring (1) [2]
 - Establishment of new EANET sites (2) [4]
 - Databases of EANET monitoring data in NC and some participating countries (9) [11]
 - Establishment of data verification system (10) [12]
 - Progress report on performance of EANET monitoring in participating countries (12) [14]
 - Report on the evaluation of inter-laboratory comparison tests in 2001-2005 and improvement of laboratory analysis (13) [15]
 - Report on results of questionnaires on implementation of training activities in participating countries (14) [16]
 - A set of training materials (14) [17]
 - Support to current EANET monitoring activities in participating countries (15) [18]
 - Providing necessary equipment for national EANET monitoring by means of projects supported by external resources (16) [19]
 - Printed public awareness materials and updated e-learning courses and web-pages (21) [26]

9. The following Activities and Expected results and Outputs of the Strategy on EANET Development (2006-2010) are being/will be implemented through the Task Forces and Expert Groups established under SAC in coordination with the NC and the Secretariat:

Task Force on Monitoring Instrumentation

- Questionnaire survey on status of EANET monitoring instrumentation in participating countries (1) [1]
- Recommendation on use of less expensive methods to reduce monitoring costs and increase number of monitoring sites (4) [1]

Task Force on Dry Deposition Monitoring

- Technical Manual for dry deposition fluxes estimation prepared by Task Force on Dry Deposition Monitoring (3) [5]

Expert Group on Dry Deposition Flux Estimation under the Task Force on Dry Deposition Monitoring

- Technical Manual on Dry Deposition Flux Estimation for EANET (3) [5]
- Estimation of dry deposition fluxes at selected monitoring sites in selected EANET countries (3) [6]

Expert Group on Revision of the Technical Manual on Wet Deposition Monitoring

- Revised Technical Manual on Wet Deposition Monitoring (5) [7]

Expert Group on Revision of the Technical Manual on Inland Aquatic Environment Monitoring

- Revised Technical Manual on Inland Aquatic Environment Monitoring (5) [7]

Task Force on Soil and Vegetation Monitoring

- Revised Strategy Paper for Future Direction of Soil and Vegetation Monitoring (6) [8]
- Guidelines/methodologies for future catchment monitoring Activity (7) [9]
- Identification of areas or regions susceptible to acid deposition damages (8) [10]

Expert Group on Preparation of the Second Periodic Report on the State of Acid Deposition in East Asia

- Second Periodic Report on the State of Acid Deposition in East Asia (17) [21] (drafting of Implementation Plan)

Task Force on Research Coordination

- Data sets of all the mandatory items to analyze spatial distribution and trends and to estimate acid deposition fluxes for assessment of impacts (1) [3]
- Guidance on monitoring data application for assessment reports such as trend analysis, assessment indicators, numerical modeling and data presentation design (18) [22]
- Recommendation on general direction for research activities related to acid deposition problems in East Asia (19) [23]

All Task Forces and Expert Groups

- Medium Term Plan for EANET (2011-2015) (30) [43]
- Second Periodic Report on the State of Acid Deposition in East Asia (17) [21]

10. The activities of the Task Forces and Expert Groups are reported in greater detail under Agenda Item 8. Besides their current tasks, the subsidiary bodies of SAC are also expected to contribute to other related scientific activities of EANET as requested by SAC including the development of two important EANET documents in the future, namely, the Second Periodic Report on State of Acid Deposition in East Asia and the next Medium Term Plan of EANET (2011-2015).
11. Some of the above activities will be implemented through the following three high priority research projects to be proposed by the Task Force on Research Coordination to SAC for possible funding using the EANET budget:
 - i) Analyses of existing data for improving the understanding of the status of acidification in East Asia
 - ii) Aerosol deposition studies in forests for improvement of estimation method for dry deposition
 - iii) Studies on suitability of various low cost methodologies, such as passive samplers, for monitoring air concentrationsThe NC has included the budget for these research projects in the Draft Work Plan and Budget of the NC in 2009, which will be submitted to IG10 for its consideration and approval.
12. In the current situation, several activities which have been identified as priority items in the Strategy on EANET Development (2006-2010) could be fully addressed. These activities require qualified experts from participating countries to jointly study the issues from scientific and technical aspect and make recommendations to SAC. The establishment of an expert group to review substances to be monitored and an expert group for promotion of emission inventories and modeling activities may assist SAC and the NC to implement these activities in a comprehensive and transparent manner and provide practical recommendations that are acceptable to all countries:

Expert Group to review substances to be monitored

- Transparent framework for reviewing substance to be monitored (25) [33]
- Recommendation on monitoring parameters, measurements and equipment for EANET sites (25) [34]
- Reports on environmental/health effects of priority substances and their monitoring requirements with available information such as good practices and results of case studies in EANET regions (26) [35]
- Action plans for monitoring priority substances (26) [36]

EG for promotion of emission inventories and modeling activities

- Recommendation on improvement of regional atmospheric transport/chemistry deposition models (20) [24]
- Support to initiatives of participating countries on atmospheric modeling and its applications (20) [25]
- Proposals on promotion of modeling activities and emission inventories (23) [30]
- Designation of suitable standard models of each scale for research training application (24) [31]
- Promotion of training courses on application of the standard models including cooperation with other organizations (24) [32]

III ACTION REQUIRED

13. The Session is invited to review the progress of implementation of the scientific activities of the Strategy on EANET Development (2006-2010) and provide guidance and comments.
14. In view of that there are still priority activities in the Strategy on EANET Development (2006-2010) that could not be fully implemented, and these activities require qualified experts to jointly study the issues from a scientific and technical aspect and make recommendations to SAC, the Session may wish to reconfirm to IG its desire to establish the following:
 - Expert Group to review substances to be monitored
 - Expert Group for promotion of emission inventories and modeling activities

Note:

Numbers in parenthesis beside each activity refers to the number allocated to each “Activity to be undertaken” and “Expected results and Outputs” in the Strategy on EANET Development (2006-2010).

Annex

Targets, Expected Results and Outputs, and Status of Implementation of the Activities of the Strategy on EANET Development (2006-2010)

i. Promotion of acid deposition monitoring

| No. | Activities to be undertaken | Targets | Expected results and Outputs | | Implementation period | Status |
|-----|--|--|------------------------------|---|-----------------------|---|
| (1) | Improvement of implementation of all required monitoring items with necessary data completeness and accuracy | To provide complete sets of high quality monitoring data in terms of accuracy, complete (up to 100%) coverage of all mandatory parameters and appropriate application of sampling/ analytical equipment in all the participating countries | [1] | Report on improvement of data completeness and on application of sampling/analytical equipment at the EANET monitoring sites (including recommendation for improvement of equipment and proposal on cooperation with equipment makers for technical support and maintenance of equipment) | 2007-2008 | Report will be drafted by NC at the end of 2008 |
| | | | [2] | A set of Standard Operating Procedures (SOPs) for operational monitoring | 2006-2008 | Will be reported at SAC8 |
| | | | [3] | Data sets of all the mandatory items to analyze spatial distribution and trends, and to estimate acid deposition fluxes for assessment of impact (e.g. critical load analysis, catchment analysis, etc.) | 2006-2010 | Will be reported at SAC10 |
| (2) | Consideration and efforts on appropriate distribution of monitoring sites | To increase the density of monitoring sites | [4] | Establishment of new EANET sites | 2007-2010 | 2 new wet and 1 dry deposition sites so far |
| (3) | Development and application of monitoring methods for dry deposition considering current country- | To ensure the implementation of improved/ modern methods for dry deposition | [5] | Technical Manual for dry deposition fluxes estimation prepared by Task Force on Dry Deposition Monitoring | 2008-2010 | Will be implemented by EG on DDFE |

| No. | Activities to be undertaken | Targets | Expected results and Outputs | | Implementation period | Status |
|-----|--|---|------------------------------|--|-----------------------|--|
| | specific monitoring methodology | (especially in tropical region) including estimation of dry deposition fluxes in at least three EANET countries (as research studies) | [6] | Estimation of dry deposition fluxes at the selected monitoring sites in selected EANET countries | 2009-2010 | Will carry out when Technical Manual is completed |
| (4) | Consideration on possible application of less expensive methods of monitoring including passive samplers | To provide more extensive data sets on acid deposition in EANET | [1] | Recommendation on use of less expensive methods to reduce monitoring cost and increase numbers of monitoring sites | 2007-2008 | Will be implemented by TF on MI |
| (5) | Review and revision of the monitoring Manuals including operation manuals of monitoring equipment | To provide participating countries with revised guidelines for monitoring | [7] | A decision on the revision of Technical Manuals: for Wet Deposition Monitoring of EANET, and for Monitoring on Inland Aquatic Environment | 2007 | Will be implemented by EG on TM for WDM & EG on TM for IAE |
| (6) | Review of Strategy Paper for future directions of soil and vegetation monitoring | To clarify particular objectives, ways, and milestones for ecological monitoring | [8] | A revised Strategy Paper for Future Direction of Soil and Vegetation Monitoring of EANET | 2007-2008 | Will be submitted by TF on S&V at SAC8 |
| (7) | Promotion of the future catchment monitoring in line with Strategy Paper | To provide the scientific data on effects of acidification on terrestrial ecosystem based on the elemental budget calculations | [9] | Guidelines/methodologies for the future catchment monitoring | 2007-2010 | Will be implemented by TF on S&V |
| (8) | Evaluation of monitoring data with application of approach for assessment of impacts (e.g. critical load analysis, catchment analysis, etc.) | To identify areas which has potential for damage by acid deposition | [10] | Identification of area or regions susceptible to acid deposition damages | 2008-2010 | Will be implemented by TF on S&V |

ii. Compilation, evaluation, storage and provision of data

| No. | Activities to be undertaken | Targets | Expected results and Outputs | | Implementation period | Status |
|------|---|---|------------------------------|---|-----------------------|------------------------------|
| (9) | Compilation and storage of monitoring data including assistance to participating countries on developing their national databases | To maintain the EANET database of monitoring data for support to reporting and scientific studies on acid deposition in East Asia | [11] | Databases of EANET monitoring data in NC and some participating countries | 2006-2010 | Database is maintained by NC |
| (10) | Evaluation of appropriateness of monitoring data | Improvement of data quality by data verification | [12] | Establishment of data verification system | 2007 | Will be formalized in 2008 |
| (11) | Promotion of access to monitoring data for data users | Provision of EANET data through Internet | [13] | Website for data downloads system and communication system. | 2006-2010 | Under consideration by NC |

iii. Promotion of quality assurance and quality control (QA/QC) activities

| No. | Activities to be undertaken | Targets | Expected results and Outputs | | Implementation period | Status |
|------|---|--|------------------------------|--|-----------------------|--|
| (12) | Evaluation of national QA/QC programs and their implementation | To review and develop national QA/QC programs of EANET | [14] | Progress report on performance of EANET monitoring in participating countries (including recommendation for QA/QC activities) | 2008-2010 | Will be submitted by NC to SAC10 |
| (13) | Research on evaluation of inter-laboratory comparison project results to clarify and solve problems of laboratory analysis in the participating countries as well as for data quality assurance | To introduce measures for improvement of regular measurements by evaluating the results of inter-laboratory comparison projects on the regular phase | [15] | Report on the evaluation of inter-laboratory comparison tests in 2001-2005 and improvement of laboratory analysis | 2007 | One evaluation method was proposed in 2007 |

iv. Implementation of technical support and capacity building

| No. | Activities to be undertaken | Targets | Expected results and Outputs | | Implementation period | Status |
|------|--|--|------------------------------|--|-----------------------|--|
| (14) | Promotion of systematic training and education, and cooperation in training activities implemented by the participating countries and other relevant organizations | To improve training activities by considering feedback of trainees and using better training materials | [16] | Report on results of questionnaires on implementation of training initiatives in participating countries and by other relevant organizations | 2006-2010 | Reported annually by NC |
| | | | [17] | A set of training materials (textbooks, reviews of basic knowledge with exercises, special topic brochures) | 2006-2010 | Textbooks completed, some brochures produced |
| (15) | Promotion of technical support for monitoring in the participating countries | Improvement of capability for EANET monitoring in participating countries | [18] | Support to current EANET monitoring activities in participating countries | 2006-2010 | Implemented annually by NC |
| (16) | Promotion of technical assistance by other relevant organizations | Improvement of capability for EANET monitoring in participating countries | [19] | Providing necessary equipment for national EANET monitoring by means of projects supported by external resources | 2006-2010 | Implemented annually by NC |

v. Producing periodic reports on the state of acid deposition in East Asia

| No. | Activities to be undertaken | Targets | Expected results and Outputs | | Implementation period | Status |
|------|---|---|------------------------------|---|---|--|
| (17) | Preparation of periodic assessment reports on the state of acid deposition | To provide scientific assessment for the public, scientists and policy makers | [20] | The first periodic report (end of 2006) | 2006 | Completed |
| | | | [21] | Preparation of the next periodic report | 2009-2010 | Implementation plan is drafted by EG on PRSAD2 |
| (18) | Studies for supporting assessment on the state of acid deposition by means of trend analysis, assessment indicators, numerical modeling, etc. | To provide scientific instruments for assessment of monitoring data such as trend analysis, assessment indicators, numerical modeling, etc. | [22] | Guidance on monitoring data application for assessment reports such as trend analysis, assessment indicators, numerical modeling and data presentation design | 2007-2008 (before start of preparation of next periodic report) | Will be implemented by TF on RC |

vi. Promotion of research activities related to acid deposition problems

| No. | Activities to be undertaken | Targets | Expected results and Outputs | | Implementation period | Status |
|------|---|--|------------------------------|--|-----------------------|---------------------------------|
| (19) | Consideration on general directions of research activities by SAC | Consideration and preparation of general directions of research activities in a transparent manner | [23] | Recommendation on general direction for research activities related to acid deposition problems in East Asia | 2006-2008 | Will be implemented by TF on RC |
| (20) | Promotion of inter-comparison studies and validation of existing models on acid deposition in East Asia | Clarification of the differences among related models and recommendations on the harmonization of models | [24] | Recommendation on improvement of regional atmospheric transport/chemistry/deposition models | 2007-2010 | SAC to reconsider |
| | | | [25] | Support to initiatives of participating countries on atmospheric modeling and its application | 2007-2010 | SAC to reconsider |

vii. Promotion of public awareness

| No. | Activities to be undertaken | Targets | Expected results and Outputs | | Implementation period | Status |
|------|---|--|------------------------------|---|-----------------------|-----------------------------------|
| (21) | Promotion of public awareness for EANET among the general public, policy makers, private sectors and local governments on acid deposition and its effects | To increase understanding and knowledge level of the general public, etc on acid deposition and its effects | [26] | Printed public awareness materials and updated e-Learning courses and Web-pages | 2006-2010 | Implemented and updated by NC |
| (22) | Efforts to help high-level policy makers to understand the importance of acid deposition problems in East Asia and EANET activities | To make high-level policy makers understand the importance of acid deposition problems in East Asia and EANET activities | [27] | Dissemination of information at a special session in high level meetings | 2006 | Possibly in 2009 |
| | | | [28] | Dissemination of information at other regional meetings | 2006-2010 | Implemented by Secretariat and NC |
| | | | [29] | New Report for Policy Makers | 2008-2009 | Under implementation |

viii. Other relevant activities including those for future development and new researches**viii-1. Modeling activities and emission inventories**

| No. | Activities to be undertaken | Targets | Expected results and Outputs | | Implementation period | Status |
|------|---|---|------------------------------|--|-----------------------|---------------------------------|
| (23) | Discussion on promotion of modeling activities and emission inventories | Clarification of future direction on modeling activities and emission inventories in EANET. Clarification of necessary measures to implement modeling activities and to develop emission inventories | [30] | Proposals on promotion of modeling activities and emission inventories | 2007-2008 | Some activities were initiated. |
| (24) | Promotion of capacity building for model application on urban, national and regional scales | To enable interested participating countries to use existing models for their own objectives | [31] | Designation of suitable standard models of each scale for research/training application | 2007 | Some activities were initiated. |
| | | | [32] | Promotion of the training courses on application of the standard models including cooperation with other organizations | 2006-2010 | Some activities were initiated. |

viii-2. Selection and review of priority substances to be assessed

| No. | Activities to be undertaken | Targets | Expected results and Outputs | | Implementation period | Status |
|------|--|---|------------------------------|---|-----------------------|-------------------|
| (25) | Establishment of the framework for reviewing substances to be monitored including other air pollutants and monitoring parameters | To establish the framework for reviewing substances to be monitored and necessary parameters for regular monitoring as well as equipment for that purpose | [33] | Transparent framework for reviewing substances to be monitored | 2006-2007 | SAC to reconsider |
| | | | [34] | Recommendation on monitoring parameters, measurements and equipment for EANET sites | 2006-2007 | SAC to reconsider |

| | | | | | | |
|------|---|--|------|---|-----------|-------------------|
| (26) | Investigation on environmental/human effects of priority substances and their monitoring requirements such as monitoring equipment, sampling and analytical methods | To clarify the necessity, monitoring approaches and necessary activities to organize the monitoring of priority substances | [35] | Reports on environmental/human effects of priority substances and their monitoring requirements with available information such as good practices and results of case studies in EANET region | 2008-2009 | SAC to reconsider |
| | | | [36] | Action plans for monitoring priority substances | 2010 | SAC to reconsider |

viii-3. Promotion of formation of an “Epistemic Community”

| No. | Activities to be undertaken | Targets | Expected results and Outputs | | Implementation period | Status |
|------|---|---|------------------------------|--|-----------------------|----------------------|
| (27) | Improvement of communication and sharing common understanding on a wide range of issues on the atmospheric environment in East Asia among the scientists, researchers and government officials of the participating countries | To support formation of the Epistemic Community by EANET scientists, researchers and government officials | [37] | Creating a network of experts concerning a wide range of issues of the atmospheric environment within EANET | 2006-2010 | Under implementation |
| | | | [38] | Periodic issue of Newsletter | 2006-2010 | Under implementation |
| | | | [39] | Regional Workshop on Acid Deposition in one of the participating countries of EANET for scientific community, national governments, civil society, academia, private sector and other international experts and agencies | 2006 | Completed |

viii-4. Improvement and development of institutional arrangement

| No. | Activities to be undertaken | Targets | Expected results and Outputs | | Implementation period | Status |
|------|--|--|------------------------------|---|-----------------------|----------------------|
| (28) | Further improvement of the guidelines for transparency and efficiency of EANET | To strengthen EANET activities. To promote efficiency and transparency of EANET | [40] | More transparent and efficient activities of EANET bodies including SAC, Task Forces and other sub-bodies | 2006-2010 | Under implementation |
| (29) | Studies on the establishment of a sound financial basis | To support a process of development of an | [41] | Report on future development of EANET to establish a sound financial basis | 2006-2008 | Under implementation |

| | | | | | | |
|------|---|--|------|--|-----------|----------------------------------|
| | and the further development of EANET following the outcome of the feasibility study on an appropriate instrument | appropriate instrument | | | | |
| (30) | Consideration on future activities with discussions on possibilities of future development of EANET including a possibility to establish additional institutional structures, if necessary. | Improvement of structures of EANET to promote active participation. Preparation of the Medium Term Plan for next period | [42] | Second report on future development of EANET | 2009-2010 | Will be implemented in 2009-2010 |
| | | | [43] | Medium Term Plan for EANET (2011-2015) | 2009-2010 | Will be implemented in 2009-2010 |