

The Third Session
of the Scientific Advisory Committee
on the Acid Deposition Monitoring Network
in East Asia
24-26 November 2003, Pattaya, Thailand

REPORT OF THE SESSION

Introduction

1. The Scientific Advisory Committee on the Acid Deposition Monitoring Network in East Asia (EANET) (hereinafter referred to as SAC) held the Third Session in Pattaya, Thailand, from 24 to 26 November 2003. The Session was organized by the Secretariat for EANET and the Network Center for EANET (NC).
2. The Session was attended by the members of SAC and their alternates nominated by the following participating countries: Cambodia, China, Indonesia, Japan, Lao PDR, Malaysia, Mongolia, the Philippines, Republic of Korea, Russia, Thailand and Vietnam.
3. The Session was also attended by the representative from Myanmar as observer, as well as experts from the United Nations Economic Commission for Europe (UN ECE) representing the Convention on Long-Range Transboundary Air Pollution (CLRTAP), the Chemical Coordinating Center of the Co-operative Programme for Monitoring and Evaluation of the Long Range Transmission of Air Pollutants in Europe (EMEP/NILU), Programme Coordinating Centre of the International Co-operative Programme on Assessment and Monitoring of Air Pollution Effects on Forests (PCC/ICP Forest), and United Nations University/Institute of Advanced Studies (UNU/IAS).
4. Representatives from Pollution Control Department of Thailand and Environmental Research and Training Center also observed the Session.
5. The list of participants is attached as Annex 1.

Agenda Item 1: Opening of the Session

6. The Session was opened with a welcome address by Dr. Jiang Wei, the Coordinator of the Secretariat of EANET in UNEP RRC.AP.

Agenda Item 2: Election of officers

7. Dr. Vu Van Tuan, Vietnam was elected as Chairperson of the Session. Dr. Li Guogang, China and Dr. Pojanie Khummongkol, Thailand were elected as Vice-Chairpersons. Ms. Veronika A. Ginzburg, Russia was elected as Rapporteur.

Agenda Item 3: Adoption of the agenda

8. The Session adopted the agenda as proposed by the Secretariat and NC. The following suggestion was done by expert from UN ECE for next meeting: the agenda item “Consideration of Work Program and Budget” should be put at the end of agenda in order to reflect all of the important suggestions from the session.

Agenda Item 4: Review of EANET activities since SAC2 and IG4 from scientific and technical viewpoints

9. The Secretariat and NC presented a report describing the EANET activities since the Second Session of SAC (SAC2) held in November 2002 in Bangkok, Thailand. The Secretariat reported the progress in institutional and administrative aspect after the Fourth Session of Intergovernmental Meeting (IG4) as well as the activities undertaken by the Working Group on Further Financial Arrangement for EANET. NC reported all terms of Network activities implemented in cooperation with participating countries for this period, in particular, the compilation of monitoring data, technical missions, the Fourth Senior Technical Managers’ Meeting, QA/QC activities, training activities, and research projects. NC also introduced the development of an E-learning Program on Acid Deposition Problems for Environmental Education under the cooperation with Institute for Global Environment Strategies.
The Financial Report in 2002 for Network activities was presented by the Secretariat and NC. The major clarifications were done in response to the questions raised on the floor:
 - Participants appreciated the in-kind contributions from Interim Secretariat and UNEP RRC.AP during 2002 that reduced the actual expenses of the EANET budget. However, for the following years, it was suggested that IG should carefully examine to prevent either over budget or under budget problems.
 - It was pointed out in the report that all equipment for Secretariat were bought for EANET Secretariat office in UNEP RRC.AP.
10. The results of Questionnaire Survey for National Training Activities in 2002 were presented by NC to observe the progress in line with the “Training Programs for EANET in the Regular Phase” endorsed at IG3.

Agenda Item 5: Consideration on the revisions of the national monitoring plans of the participating countries

11. NC presented an overview of national monitoring plans of participating countries. The overview was followed by the presentations of national monitoring plans in each participating country.

12. The important changes of national monitoring plans in each participating country in comparison with the previous year were presented by representatives of countries. Some comments and suggestions were provided for their further elaboration after brief discussions:
 - Cambodia started wet deposition sampling in August 2003 after installation of wet-only sampler with analysis of pH and EC;
 - The intention to establish a background monitoring site in Lijiang, China during next year was pointed out;
 - It was clarified that one forest was selected near Bogor in Indonesia for soil and vegetation monitoring;
 - It was informed that the newest participating country, Lao PDR, has just started to collect samples on wet deposition by wet-only sampler and measure their pH and EC;
 - The analytical method for measuring of hydrogen carbonate in wet deposition in Mongolia was discussed;
 - The general description of forest and survey of tree decline will be done next year at the monitoring site in Mongolia;
 - Research activities regarding plant sensitivity to acid deposition were introduced by Philippines in the presentation. NC commented that information on plant sensitivity to acid deposition is quite important for further development of forest monitoring in the East Asian region and these activities would be informative for the EANET countries;
 - It was clarified that the high performance liquid chromatography is used to measure hydrogen carbonates in Russia;
 - The perspective to establish one new monitoring site of soil/vegetation inland aquatic monitoring next year in Russia was clarified, and another new one to be established in 2005;
 - The importance of acid deposition monitoring and related issues was highlighted for countries and regions with different stage of development to retrace possible effect of air pollution in future;
 - NC responded that 10 days sampling for wet deposition used in Vietnam new monitoring plan is not correspondent to Technical Manual but these data could be acceptable for Network with specific notes until it could be changed.

Agenda Item 6: Review of the Data Report on acid deposition monitoring in 2002

13. NC presented a draft Data Report on Acid Deposition in the East Asian Region 2002. Major discussions on this topic included the following:
- i. Wet deposition monitoring data
 - It was pointed out that the completeness of monitoring data should be checked and evaluated specifically those with low data completeness;
 - Mongolian participants pointed out that NC should check Terej monitoring data again as well as meteorological data.
 - ii. Air concentration monitoring data for dry deposition
 - It was recommended that reference condition such as temperature and pressure for estimating the conversion ratios described in Table 4.24 should be added in this table;
 - It was reconfirmed that NO₂ monitored by the chemiluminescence detection method in rural and remote sites is not adopted in the data report following the decision of the Strategy Paper for Future Direction of Dry Deposition Monitoring of EANET;
 - Unit of µg/m³ should be included in the future discussion on suitable unit for the data monitored by filter pack method;
 - Sampling period of passive sampling in Malaysia was clarified as based on protocol of the monitoring agency;
 - Regarding to chemical compositions in particulate matters monitored by four-stage filter pack, the measured concentrations in some sites seem to be very low. Therefore collection efficiency and analytical methods should be carefully examined for further verification.
 - iii. Soil and vegetation monitoring data
 - Repeat analyses are recommended for soil analysis in the Technical Manual in order to estimate within-laboratory reproducibility. It was pointed out that no country reported results of the repeat analyses this year. Two countries, which did not report the repeat analyses, commented that they would make effort to improve this point.
14. NC presented the Proposal on Detailed Mechanism of EANET Data Disclosure Procedure. After discussion the revised document “Detailed Mechanism of Article 4 of the Procedures on Data and Information Disclosure for EANET” was recommended to be adopted at IG5. The revised document and recommendation of SAC are attached as Annex 2 of this Report. Major clarifications were done as follows:
- Verified (raw) data could be disclosed for National Focal Points immediately after verification and confirmation/endorsement by SAC at the first;

- Verified (raw) data could be disclosed outside EANET one year after confirmation evaluation by SAC;
 - The additional explanation on term “verified (raw) data” was done for participants.
15. Prof. Hara presented the possible items for analysis of EANET data under the title “Wet Deposition Chemistry in East Asia” to use acid-base atmospheric chemistry as an important and useful basis for interpretation of EANET monitoring data. The correspondent analysis was presented using the averaged data from Data Reports on Acid Deposition in the East Asian Region. Suggestions and comments were as follows:
- He proposed that correspondent paper will be drafted for international scientific journal by SAC members with assistance of NC; SAC agreed with his proposal to invite at least one co-author from each participating country for revision and comments of prepared draft paper;
 - More researches are needed before modification of ion balance criteria for wet deposition monitoring;
 - The participants indicated the importance to develop more understandable outcomes of acid deposition monitoring for policy-makers and public.

Agenda Item 7: Review of QA/QC activities in the participating countries

16. NC presented draft reports on the inter-laboratory comparison projects in 2002 on wet deposition, soil, and inland aquatic environment. Major discussions on this topic included the following:
- Because the oven-drying period for measurement of moisture contents was varied from 4 to 48 hours among the laboratories, it was suggested that oven-drying period was one of the effective factors for variation of measured moisture content. The oven-drying period was decided in the Technical Manual to be “overnight”, and it seems still unclear. NC was requested to show more detailed guideline for the drying period, e.g. more than 12 hours.
 - It was clarified that some outliers in a laboratory were due to calculation/writing mistakes, and the recalculated values after correcting mistakes were comparable to ones by other countries. The analytical procedures might be carried out as appropriate although calculation mistakes were made in the reporting process.
 - Interval between the repeat analyses was varied from zero (in the same day) to 31 days among laboratories. It was suggested that repeat analyses would be carried out with certain interval (e.g. several days) in order to estimate actual within-laboratory reproducibility;
 - The unstable constituents (ammonium, nitrate and pH) of inland aquatic samples during the analytical period were pointed out.

17. NC presented the results of a questionnaire survey on QA/QC activities in the participating countries. The information on participation of Indonesia in WMO intercomparison for wet deposition was clarified.
18. NC presented the report on the review of existing QA/QC activities on Filter Pack Method. Some discussion was done as the follows:
 - Inter-laboratory comparison on filter pack method should be started after the test studies in NC. The plan including start date of the regular inter-laboratory comparison will be developed taking into account the results of the test studies;
 - It was suggested that NC should carry out parallel tests such as analyzing of several sets for each artificial sample together with the inter-laboratory comparison;
 - Inter-calibration program for O₃ monitoring was remarked to be considered together with the inter-laboratory comparison taking into account a relevant program of WMO.

Agenda Item 8: Consideration of improvement of the monitoring methodologies

19. NC presented the final draft of the “Technical Document for Filter Pack Method in East Asia” prepared by NC in consultation with the Task Force on Dry Deposition Monitoring. Some discussion was done as follows:
 - Alternative methodologies could be also considered for preparation of impregnated filter in the future;
 - Cut-off diameter of aerosols sampled by filter pack will be decided taking into account the latest scientific information and experiences accumulated in East Asia in the future.This Technical Document was endorsed by SAC as proposed.
20. NC introduced the activities in line with Strategy Paper for Future Direction of Soil and Vegetation Monitoring of EANET including a progress on the development of sub-manual on forest monitoring.

Agenda Item 9: Consideration of research activities on acid deposition

21. NC presented review of on-going research activities. Some suggestions and comments were made as follows:
 - i. Joint research project with Russia
 - It was suggested that NO₂ should be included for evaluation of atmospheric acidity as a precursor of acid in the relationship between potential sum of acidic and basic compounds in the atmosphere.

- ii. Joint research project with Thailand
 - Since presented analysis focused on O₃ deposition velocity, an analysis of SO₂ deposition velocity was expected for the next step;
 - Because high ozone concentrations (more than 40ppb) were recorded frequently during dry season in the study at Mae Moh, the expert from UN ECE suggested a possibility of ozone effect on forest trees with referring of experience in Europe. Relevant information on assessment of ozone injury could be provided.
- iii. Joint research project with Mongolia
 - It was clarified that two sampling sites (B/C) on the slope facing the thermal power plant have different soil types and they contained relatively much base cations;
 - It was clarified that the sampling sites B/C were established near the thermal power plant and Ulaanbaatar city area, and that the air condition around the sites may have effect of these emission sources. NC commented that a possibility of transport of air pollution onto study area should be discussed later;
 - As the response on difficulty to prove cause-effect relationship for forest decline, NC commented that some possible factors related to the decline symptoms could be discussed based on the outcomes of the year 2003, such as air pollution concentrations, contents of heavy metals/sulfur in tree needles and soils, etc.
- 22. NC presented the paper on collaboration with existing initiatives on developing emission inventories and numerical modeling. Collaboration between EANET and the two initiatives of MICS-Asia phase II and the Study on Acid Deposition Control Strategy in the Kingdom of Thailand (TAcIDES) was introduced. Collaboration among MICS-Asia phase II, LTP project and Cooperative research program between Malaysia and Sweden was also introduced.
- 23. NC presented a Discussion Paper on Future Research Activities of Highest Priority. Some clarifications were done as follows:
 - Periodic reports aims to evaluate state of acid deposition based on long-term monitoring data;
 - Draft plan for short-term research activities will be prepared by NC after SAC3 to circulate among SAC members for their considerations.
- 24. Participants agreed with several proposals on scientific evaluation of EANET activities:
 - General paper on EANET activities should be prepared by NC to submit for scientific journal by the time of SAC4, after reviewing by SAC members;
 - More specific papers for the respective monitoring items could be prepared by leading scientists of NC;
 - The first periodic report on the state of acid deposition in East Asia is expected to be prepared by SAC in 2005. The Secretariat and/or NC were invited to present plan for the report to SAC4.

- The scientific workshop on evaluation of state of acid deposition in East Asia was recommended to be organized next year as the first step for initiating preparation of periodic reports on the state of acid deposition in East Asia.
- It was also suggested that in the future a summary of the periodical assessment report should be prepared for decision makers.

Agenda Item 10: Consideration of the work program and budget for 2004

25. Secretariat and NC presented the draft Work Program and Budget in 2004 for EANET to observe planned EANET activities by SAC for their comments to the Fifth Session of the Intergovernmental Meeting (IG5) that will be held immediately after this session. Major discussion were concentrated on the following topics:
 - It should be recommended to IG to put a topic to organize a preparation of periodic reports on the state of acid deposition in East Asia in Work Program and Budget as an activity of SAC.
 - It was recommended that planned WG should be designed carefully to provide SAC involvement into work on scientific issues. The reason is that 4-5 year medium-term plan and discussion of important issues related to future development require scientific outcomes of evaluation both current status and future trends of Network activities.
 - It was recommended by participating countries to start preparing the Technical Manual for Filter Pack Method in EANET along with implementation of QA/QC on this method.
 - It was proposed that activities of National Centers are better to be presented in Work Program and Budget as the separate chapter.
26. The Secretariat made a presentation on the Draft Report on Further Financial Arrangement for EANET (EANET/IG 5/6).
27. NC presented the Memorandum on More Efficient and Transparent Activities of the Network Center to receive comments from SAC members.

Agenda Item 11: Updates of other international programs on acid deposition

28. The representative from UN ECE Secretariat for CLRTAP made a presentation on the framework, institutional aspects and recent relevant activities of the Convention. The major reports and workshops were introduced as well as recent initiatives for Central Asia. The opportunities for continued collaboration between CLRTAP and EANET were presented.

29. The expert from EMEP representing the EMEP Chemical Coordinating Center presented recent developments and the future priorities of EMEP. In particular, a number of field intercomparison studies were introduced including parallel measurements in Malaysia in 2002. The EMEP monitoring strategy for 2004-2009 was briefly explained. Also the goals and organizing framework of international atmospheric research in Europe was presented. The information on future important meeting of the Task Force on Measurements and Modelling were presented followed by topics of invitation for EANET community on communication. Also he invited EANET community to participate in EMEP laboratory intercomparisons and training courses.
30. The expert from ICP-Forest made a presentation on monitoring of ozone and tree crown condition in Europe. Method and results on visual assessment of tree crown condition were introduced. Especially importance of quality assurance for observation was pointed out with referring the Photo guides and the International Cross-comparison Courses. He also mentioned ozone concentrations in European forests and availability of passive samplers.

Agenda Item 12: Other issues

31. Dr H. Akimoto made a presentation on Atmospheric Brown Cloud-Asia (ABC-Asia) project. He introduced a new concept on the linkage between air pollution and climate change and some studies on impact of air pollution under the project. He suggested its future relevance to EANET including monitoring of black carbon in wet deposition.

Agenda Item 13: Consideration and adoption of the report of the Session

32. This report was considered and adopted.

Agenda Item 14: Closing of the Session

33. All the participants expressed their gratitude and appreciation for the efforts made by the Network Center and Secretariat for having arranged this important meeting.

The Session was closed by the Chairperson.

Annex 1

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Annex 2

**Recommendation of the Third Session of the Scientific Advisory Committee
on
the Detailed Mechanism of Article 4 of the Procedures on Data and Information
Disclosure for EANET**

The Scientific Advisory Committee (SAC) considered at its Third Session the “**Proposal on Detailed Mechanism of EANET Data Disclosure Procedures** (EANET/SAC 3/6/2)” from scientific and technical viewpoints, and recommends that the following issues should be taken into account when the Intergovernmental Meeting (IG) will consider this **Detailed Mechanism of Article 4 of the Procedures on Data and Information Disclosure for EANET** at its Fifth Session.

1. Annual data reports were disclosed according as a first step of application of Procedures on Data and Information Disclosure for EANET started from Data Report 2000.
2. It was pointed out that the disclosure of the data obtained through EANET activities from the start of the regular phase is quite valuable in promoting understanding of acid deposition phenomena in the East Asia region.
3. Most participants of SAC at its Third Session (SAC3) substantiate that, from scientific and technical viewpoints, verified data and information obtained through EANET activities during the regular phase should be disclosed.
4. The Network Center made some preparedness for ensuring of raw data dissemination and will do further for development of data access. The EANET website and CD publishing should be used for sharing of data and information among the participating countries and disclosure of data to the public or outside of EANET without any charge for data receiving.
5. Taking into account the importance of this issue as the realization of **Procedures on Data and Information Disclosure for EANET** this mechanism should be considered by Session of IG and endorsed as presented in revised **Detailed Mechanism of Article 4 of the Procedures on Data and Information Disclosure for EANET (EANET/SAC 3/6/2 rev)**..

Detailed Mechanism of Article 4 of the Procedures on Data and Information Disclosure for EANET

1. Annual data reports (summarized data)

Annual data reports for the data obtained in and after 2000 shall be disclosed outside EANET immediately after finalization by the Network Center (NC) under the guidance of the Scientific Advisory Committee (SAC).

NC shall distribute copies of the reports to relevant organizations/experts outside EANET and send them upon request. NC shall upload the data and information in the reports to the EANET website.

2. All the data and information (verified “raw” data)

2.1. Data and information that could be disclosed

According to the Procedures, all the data and information that are obtained through the EANET activities should be disclosed outside EANET after 2002.

“All the data and information” shall be all of the verified (raw) data and information that were obtained in the regular phase (starting in January 2001) and submitted from the participating countries to NC following “Data Reporting Procedures and Formats for Acid Deposition Monitoring in East Asia”, taking the level of data quality in the preparatory phase into account.

2.2. Starting time of disclosure

Among the EANET participating countries, verified (raw) data shall be disclosed immediately for the National Focal Points after verification and endorsement by SAC, and disclosed for scientists upon their requests. The data and information shall be disclosed outside EANET one year after the confirmation/evaluation by SAC.

2.3. Way of disclosure

The data and information shall be disclosed upon request by CD and through the EANET website with registration for download.

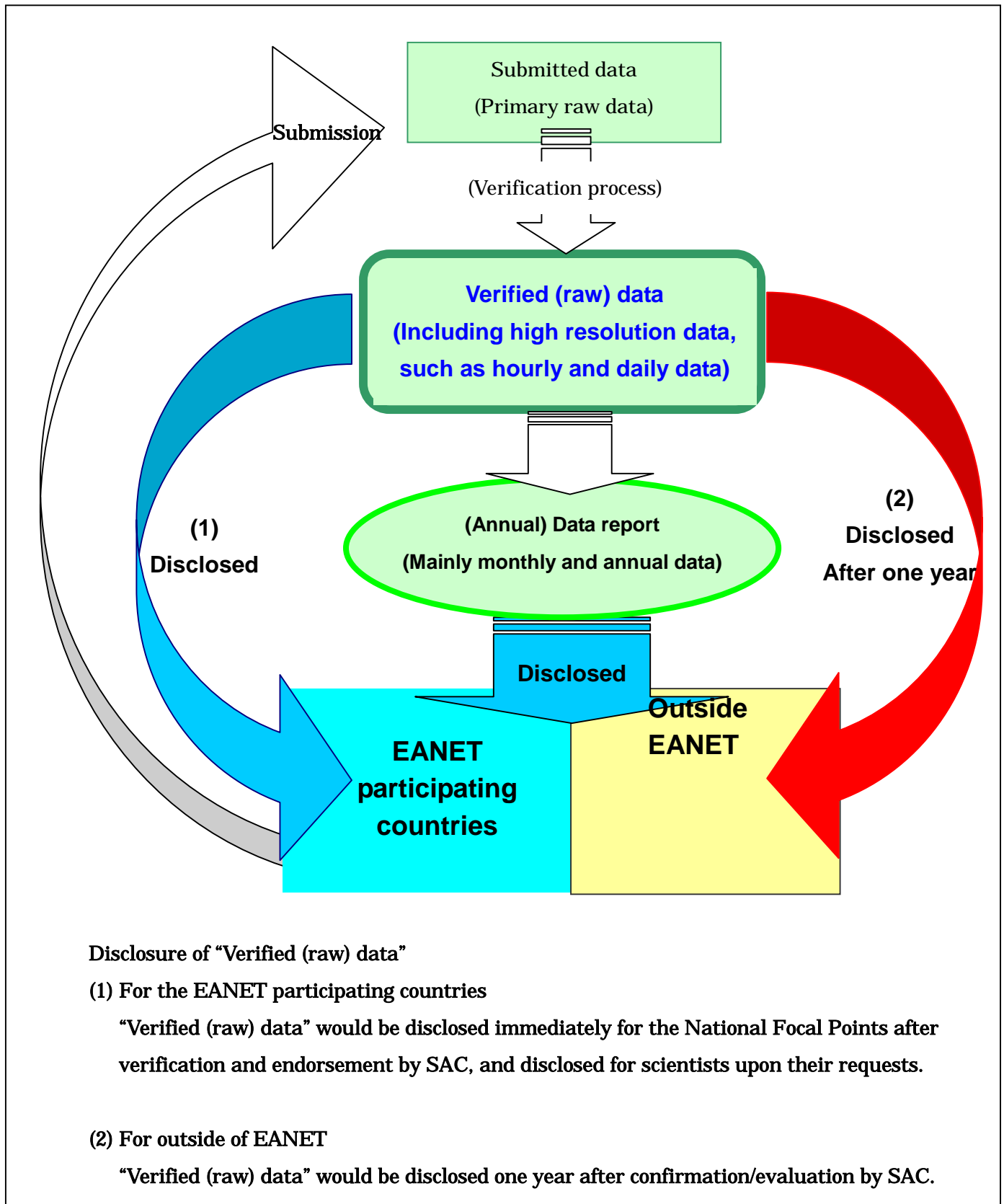


Figure 1. Procedures on data disclosure

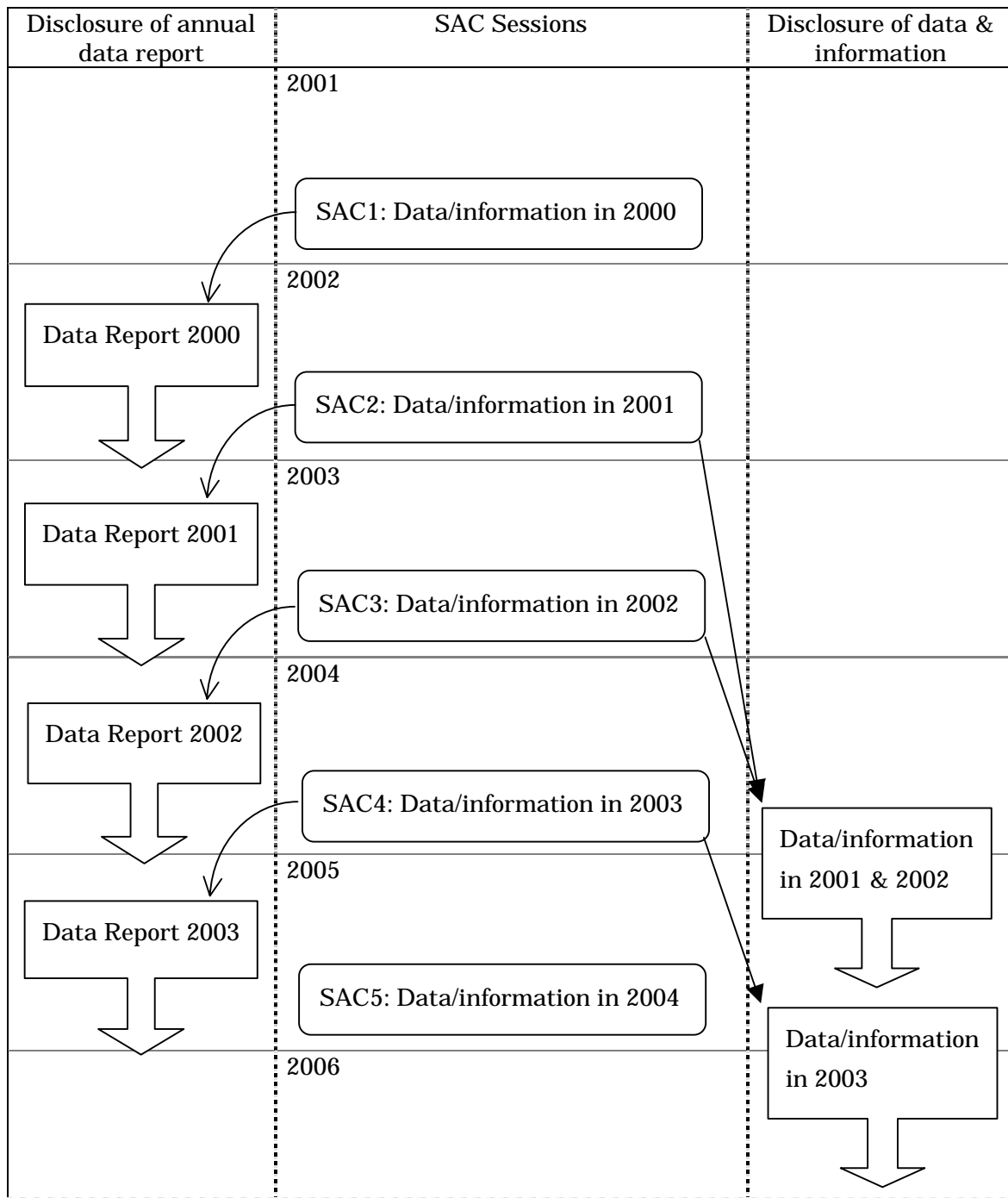


Figure 2. Expected schedule for data disclosure