

**The East Asian Workshop
on Acid Deposition
6-8 October 1999
Bangkok, Thailand**

**The East Asian Workshop
on Acid Deposition
6-8 October 1999
Bangkok, Thailand**

Workshop Summary

1. The East Asian Workshop on Acid Deposition was held in Bangkok, Thailand during 6-8 October 1999. It was co-organized by the Pollution Control Department (PCD), Ministry of Science, Technology and Environment of the Royal Thai Government and the Japan International Cooperation Agency (JICA), in cooperation with the Interim Secretariat and the Interim Network Center (INC) of the Acid Deposition Monitoring Network in East Asia (EANET).

I. Attendance

2. The Workshop was attended by approximately one hundred participants. They included the representatives of the East Asian countries such as Brunei, Cambodia, China, Indonesia, Japan, Republic of Korea, Laos, Malaysia, Mongolia, Myanmar, the Philippines, Russia, Singapore, Thailand and Vietnam (from environmental/meteorological and donor coordination agencies). Representatives of international organizations included the Asia-Europe Environmental Technology Center (AEETC), Asian Institute of Technology (AIT), the United Nations Environment Programme (UNEP), the United Nations Economic and Social Commission for Asia and the Pacific (UN/ESCAP), the United Nations Economic Commission for Europe (UN/ECE) and the World Bank. Representatives of bilateral donors and experts from other parts of the world, including those from Canada, the Netherlands, Sweden and U.S.A. also attended the workshop.

II. Major objectives

3. The major objectives of the workshop were:

- (i) to disseminate the latest knowledge and understanding on the problems associated with acid deposition among government officials in respective countries;
- (ii) to review the current status of acid deposition monitoring in the region;
- (iii) to discuss topics that have transboundary, regional nature, and should be dealt with in a cooperative manner among relevant countries, donor agencies and international organizations, such as emission inventories, and simulation models;
- (iv) to promote regional cooperation through the sharing of national experiences against acid deposition; and
- (v) to identify future actions to develop an East Asian region-wide cooperative program to address the problem, such as a region-wide emissions mitigation strategy.

III. Conduct of the Workshop

4. The workshop commenced with an opening address by Dr. Arthit Ourairat, Minister of Science, Technology and Environment, the Royal Thai Government. It was followed by the welcoming addresses by Mr. Mutsuo Mabuchi, Envoy Extraordinary and Minister Plenipotentiary, the Embassy of Japan in Thailand and Mr. Kenji Iwaguchi, Resident Representative, JICA Thailand Office.

5. The workshop elected Dr. Saksit Tridech, Director-General, PCD as the Chairperson, and Mr. Tang Dingding, Director, Division of General Affairs, Department of International Cooperation, State Environmental Protection Administration (SEPA), China, Mr. Aca Sugandhy, Assistant Minister, State Ministry of Environment, Indonesia, Mr. Katsunori Suzuki, Acting Director General, Acid Deposition and Oxidant Research Center (ADORC), Japan and Mr. Pornchai Taranatham, Inspector General, Ministry of Science, Technology and Environment (MOSTE), Thailand as the Vice-chairpersons.

6. During the technical sessions, presentations were made by representatives of East Asian countries and various resource persons. The title of the presentations and the name of the speakers are presented in the program of the workshop.

IV. Major conclusions and recommendations

General

7. Unless concrete actions be taken, the problem associated with acid deposition would become increasingly serious in East Asia, taking into account the future economic growth and consequent increase of air pollutants emissions. Regional cooperation for addressing this problem should have high priority. It is particularly crucial to share common recognition on future risks, effect on air quality, and possible damages on terrestrial and aquatic ecosystems and the needs for future mitigation measures.

8. Awareness and support of the general public, as well as policy makers, relevant agencies and the private sector are essential. More public education and information campaigns should be encouraged.

9. Data and information on acid deposition and its effects in East Asia, particularly in tropical regions, are not sufficient. Therefore, research and studies, including those on ecological and related human health impacts in tropical regions, should be significantly strengthened.

10. To effectively promote measures to address the problem, three steps should be taken, namely (i) analysis of the present status through appropriate monitoring of acid deposition; (ii) development of scientific basis for mitigation measures, including emission inventories and simulation models; and (iii) selection and implementation of cost-effective mitigation measures. Steps (i) – (iii) could be taken in parallel, where appropriate, and regionally coordinated.

(i). Acid deposition and its monitoring in East Asia

11. There is evidence of damage due to air pollution and acid deposition in some parts of the region. However, an overall assessment of the present status of the acid deposition and its impacts has not been carried out in this region.

12. Many countries of the region had initiated the effort to carry out acid deposition monitoring. Some countries have established national networks on acid deposition monitoring, but the monitoring methodologies were different from country to country, and therefore, comparative analysis of the monitored data was difficult. In April 1998, countries of the region had started the preparatory-phase activities of the Acid Deposition Monitoring Network in East Asia (EANET) to overcome these incompatibilities. Such efforts should be further strengthened.

13. Many participating countries of EANET still require intensive capacity building for obtaining reliable and comparable monitoring data, particularly regarding quality assurance/quality control (QA/QC) activities. EANET bodies should intensify their efforts to provide appropriate support to the

participating countries.

14. The workshop welcomed the willingness to join the EANET activities expressed by other ASEAN countries which have not participated in the preparatory-phase activities of EANET.

(ii). Emission inventories and modelling

15. Some countries have started to develop emission inventories of air pollutants and modelling activities to effectively promote mitigation measures. These approaches should be widely adopted among the countries of the region. Experience in advanced countries of the region could be a good example for other countries.

16. Studies on adequate emission factors applicable to the region should have high priority in developing emission inventories. Studies on future emission scenarios are also crucial to appropriately assess the potential risks of acid deposition.

17. Demonstration projects for developing emission inventories, simulation modelling, and mitigation strategies and action plans should be undertaken to facilitate such activities among the countries of the region.

18. Integrated assessment modelling should be pursued in the future as a tool to support adequate policy decisions. Modelling should include chemistry/transport, analysis and evaluation of resulting environmental impacts and cost-effectiveness of mitigation measures. Such models are expected to cover SO_x, NO_x, VOCs, ozone and other pollutants in an integrated manner.

(iii). Mitigation measures

19. There are various options for mitigation measures. Some countries have initiated mitigation measures, particularly in the field of energy. Such measures include: improvement in energy efficiency, cleaner fuels, alternative sources of energy, introduction of cleaner production and pollution prevention. Some other countries have successfully adopted end-of-pipe technologies for significant emitters, such as large power plants, to reduce emissions in an effective and efficient manner. Since these measures can be adopted in parallel with the development of emission inventories and models, the countries of the region are encouraged to consider such options.

20. Since the countries of the region are at significantly different stages in addressing acid deposition, it is important to adopt country-specific measures, taking account of the stages in their respective countries, while promoting regionally coordinated actions.

21. Acid deposition is closely linked with local air pollution and climate change. To effectively and efficiently promote the environmental protection, particularly protection of the atmospheric system in the region, due consideration should be given to coordination of measures to tackle the associated problems.

Regional cooperation

22. It is useful to learn lessons from the experience of the North American and European countries in addressing acid deposition. It is also very effective and informative to learn from the experience of the countries in the region. Regional cooperation such as the exchange of information and experience and joint research activities should, therefore, be facilitated among the countries of the region to tackle the problem.

23. Many international organizations as well as individual donor countries have been taking initiatives in this field in East Asia. Close communication, coordination and cooperation among such initiatives should be further strengthened with the view to achieve synergy effects. The roles of respective international organizations in this field should further be elaborated.

24. In addition to the efforts of the countries in the region, considering significant potential impacts

of acid deposition in East Asia, relevant international organizations such as the Asian Development Bank (ADB), UNEP, UN/ESCAP and the World Bank, and bilateral donor agencies are encouraged to attach further importance to this regional problem, and to intensify their support for the countries in the region by assisting them in addressing it.

V. Priority actions

25. The following actions should be considered:

- (i) Efforts should be continued by each country to establish appropriate policy, legal, institutional and financial instruments to effectively promote acid deposition monitoring and obtain reliable and comparable data among the countries of the region.
- (ii) Considering the importance of accurate data, EANET should be formally established as quickly as possible, hopefully in the year 2000. The EANET's efforts in this regard, should cover monitoring and broad research activities including development of emission inventories and regional models as well as mitigation measures. EANET should also promote exchange of experience, dissemination of scientific findings, technological information etc. related to acid deposition through workshops, seminars and fora at technical and policy levels.
- (iii) Capacity building to address the problem associated with acid deposition, including strengthening of monitoring activities, emission inventories and modelling, and mitigation measures, should be enhanced in the countries of the region. Multilateral and bilateral aid agencies are encouraged to provide strong support for the purpose.
- (iv) A few demonstration projects for developing emission inventories, simulation modelling, and mitigation strategies and action plans may be undertaken in a few countries of the region to facilitate such activities among the countries of the region.
- (v) On the basis of a common understanding of the component of the long-range transboundary air pollution including acid deposition, and based on available emission inventories, monitoring and modelling results, and mitigation measures, concerted actions to abate such problems should be undertaken. The preparation of a regional legally-binding instrument should be explored in the future, with reference to the example of the UN/ECE region. Alternatives such as political declarations, intergovernmental cooperative programs and action plans may also be developed.