

SUMMARY OF THE CONFERENCE ON TRANSBOUNDARY AIR POLLUTION

IN NORTH-EAST ASIA

17-19 DECEMBER 2008, TOKYO, JAPAN

1. Transboundary air pollutions have been recognized as one of most serious regional environmental challenges in North-East Asia. Among air pollutants, sulphur dioxide (SO₂), particularly, emitted from coal-fired power plants is a major regional environmental issue in North-East Asia. The emissions from tall stacks disperse pollutants into the upper atmosphere, contributing to transboundary pollution with impacts occurring considerable distances from the source of the pollution. However, limitations of climatic modeling and relevant data have made it difficult to achieve scientific and political consensus on the relative impacts from transboundary pollution.
2. In order to build scientific consensus and the basis of coordinated multilateral actions, North-East Asian countries have undertaken a wide range of collaborative activities under various multilateral environmental mechanisms such as North-East Asia Subregional Programme for Environmental Cooperation (NEASPEC), Acid Deposition Monitoring Network in East Asia (EANET) and Joint Research on Long-range Transboundary Air Pollutions in Northeast Asia (LTP). In particular, NEASPEC and the Asian Development Bank (ADB) have undertaken a series of technical assistance (TA) projects to support collaboration among Northeast Asian countries to mitigate transboundary air pollutions from coal-fired power plants.
3. Based on the outcomes of two projects, completed in 1998 and 2004, respectively, ADB and ESCAP as the secretariat of NEASPEC in consultation with NEASPEC countries have developed a third regional technical assistance (RETA) project titled "Mitigation of Transboundary Pollution from Coal-fired Power Plants in North-East Asia".
4. The International Conference on Transboundary Air Pollution in North-East Asia was jointly organized by NEASPEC and Acid Deposition and Oxidant Research Center (ADORC), the Network Center of EANET, as an activity of the component on knowledge dissemination of the RETA project in Tokyo on 17-19 December 2008. The Conference was attended by 44 experts from China, Japan, Mongolia and the Republic of Korea and the Russian Federation. The list of participants is attached herewith.
5. The Conference focused on assessing the current situation of sulphur dioxide emissions from coal-fired power plants, and required responses; discussing the current state of national and multilateral actions on mitigating transboundary air pollutions; building a

common view on subregional actions; and serving as a subregional forum for dialogue among major stakeholders. *The summary of presentations and discussions is as follows.*

6. **Assessment of transboundary air pollution:** According to the modeling result, gaseous NO_x and SO₂ do not transport very far while secondary air pollutants, ozone, and sulfate aerosol show the obvious trajectory of long-range transport. For example, a study shows that 20% of increase of foreign SO₂ emissions was responsible for 0.4% increase of SO₂ concentration in Tokyo while 20% increase of sulfate caused 6.8% increase of sulfate concentration in Tokyo. Among wet and dry deposition of sulfate and nitrate, wet deposition seems to affect more extensive area with more intensity. Air quality model showed ability for the assessments for current situation and prediction of future. Therefore modeling study is essential for control policy making. Due to uncertainties of pollutant source and lack of regional survey, however, model still needs to be compared with measured data and more simulations are needed. In the meantime, regional air quality model could be applied to trace atmospheric fate of Persistent Organic Pollutants (POPs) or to climate change studies by defining climate forcing of aerosols or GHG gas sources and sinks, for instance.

7. **National policy and progress in controlling air pollution from coal-fired power plants:** Discussions on national progress in controlling air pollution from coal-fired power plants noted a significance technical and policy improvement in all NEASPEC member countries. In particular, the environmental performance of coal-fired power plants in Japan and the Republic of Korea shows that the level of air pollution emissions from the power plants is far below the national standards. The Conference noted that major driving forces of the good performance are not only stringent national regulations but also strong demands of local government and citizens for good environmental quality. Concerning the increasing installation of coal-fired power plants in China, the Conference had intensive discussions on national policy and progress in China. The Chinese Government has significantly strengthened laws, regulations and policies including power tariff policy or emission charge for sulfur dioxide to reduce air pollution emissions from thermal power plants. Due to such efforts, the total installed capacity of flue gas desulfurization (FGD) units in China in early 2008 was around 55% of the national coal-fired generating capacity whereas it was only 14% in 2005. Accordingly SO₂ emission of power industry fell by 9.1% while the national thermal power generating output grew by 13.8%. In terms of domestic technical capacity, China is making its effort to introduce mature and advanced technologies from Germany, Japan, U.S., etc., and undertaking EPC (Engineering, Procurement and Construction) projects by specialized domestic company. Some domestic companies even have developed mainstream FGD technologies with their own intellectual property rights. The localization rate of

desulfurization equipment in China at the moment has reached a high level of 80~90%. According to the National 11th 5-year plan of China, SO₂ emissions of thermal power industry should be remained less than 10 million ton and emission intensity per unit electricity-generated will be reduced by 50% compared to 2005. 355GW of coal-fired generating units equipped with FGD will be put into operation during the period while 50GW of small thermal power units will be phased out.

8. **Regional/ subregional networks:** The conference had an opportunity to share information of two regional/subregional networks, EANET and LTP, for monitoring and modeling transboundary air pollutions in North-East Asia. Activities of EANET focus on three areas, namely, monitoring, research and public awareness. In the context of monitoring, EANET operates 52 and 42 sites for wet and dry acid deposition monitoring, respectively, in East Asia and carries out inter-laboratory comparison projects for quality assurance and quality control (QA/QC). The high priority of EANET research projects include analyses of existing data on acidification, studies on suitability of various low-cost methodologies, and studies on aerosol deposition in forests. The work of LTP currently focuses on calculating source-receptor relationship for sulfur and nitrate, developing a new model for examining the relationship and preparing future emission scenarios. LTP in particular conducts model inter-comparison study using three selected models, i.e., Community Multi-scale Air Quality (CMAQ) of China, Regional Air Quality Model (RAQM) of Japan and Comprehensive Acid Deposition Model (CADM) of the Republic of Korea. Furthermore, the Conference had presentations on experiences and the current activities of Clean Air Initiative (CAI) - Asia and UN Convention on Long-range Transboundary Air Pollution (CLRTAP) in Europe. The two presentations particularly address the significance of having co-benefits approach, linking air pollution control with greenhouse gases (GHG) emission reduction as Low CO₂ strategies could result in less SO₂, NO_x and PM emissions with increased economic efficiency in investing resources for air quality control.

9. The last session on the way forward had various suggestions for effective responses to air pollution in North-East Asia. Suggestions include the need for (a) the improvement of national emission inventory and operation of a well-coordinated subregional emission inventory; (b) networking among experts and institutions pollution control technology, in particular, in Mongolia; (c) human capacity-building for monitoring and expansion of monitoring sites; (d) exchange of knowledge and technique of FGD; (e) development of joint work on co-benefit approach; (f) joint activities between EANET and LTP for discussing specific areas and sharing information; and (g) enhanced participation of stakeholders in joint activities.