NEASPEC Expert Consultation Meeting on Transboundary Air Pollution in North-East Asia

9-10 July 2012, St. Petersburg, Russian Federation

REPORT OF THE MEETING

A. Attendance

1. The Expert Consultation Meeting (ECM) on Transboundary Air Pollution in North-East Asia was organized by the UNESCAP Subregional Office for East and North-East Asia (NEASPEC Secretariat) in collaboration with the Scientific Research Institute (SRI) "Atmosphere" on 9-10 July 2012 in St. Petersburg, Russian Federation. The meeting was attended by about 20 participants including official delegates and national experts from China, Japan, Mongolia, Republic of Korea and the Russian Federation, and a representative of the UN Economic Commission for Europe (Secretariat of the Convention on Long-Range Transboundary Air Pollution (CLRTAP)).

B. Opening Session

2. The ECM was opened by Mr. Kilaparti Ramakrishna, Director of ESCAP Subregional Office for East and North-East Asia (SRO-ENEA). In his statement, Mr. Ramakrishna underlined the importance of nurturing the spirit of close collaboration between existing subregional/regional mechanisms on transboundary air pollution in North-East Asia in order to achieve maximum efficiency and synergies. He also expressed the hope that ECM will contribute to shaping concrete joint recommendations for future activities of NEASPEC in light of the upcoming 17th Senior Officials Meeting (SOM-17) of NEASPEC to be held in October 2012 in Chengdu, China. Mr. Andrey Nedre, Director of SRI "Atmosphere", in his welcome address noted that North-East Asia, and Asia-Pacific region as a whole, are becoming one of the priority regions for Russia as the Far East of the country is expected to become a venue for large development projects in the nearest future. In this regard, working together with the subregional member States is crucial in addressing possible impacts on environment, particularly those that pertain to

transboundary air pollution management. As the Russian Federation accumulated a lot of experience in scientific approaches and policy instruments as a party to CLRTAP, NEASPEC initiatives can provide opportunities to further share this knowledge with NEASPEC member States with a view of exploring opportunities of applying CLRTAP approaches in the North-East Asian context.

3. Mr. Alisher Mamadzhanov from the NEASPEC secretariat, introduced goals and objectives of the ECM, specifically mapping the timeline for finalization of the current project and explaining the modality for submission of proposals on possible follow-up projects on transboundary air pollution by member States for consideration of SOM-17. Taking into consideration very tight schedule of the project, he invited all partners to work closely together to finalize the project report and the official document for SOM-17 in time to facilitate national consultations by member States.

C. Overview of the current activities and future plans of the major subregional/regional scientific frameworks on transboundary air pollution

4. Dr. Fan MENG from Chinese Research Academy of Environmental Sciences (CRAES), the Chinese focal point for the project, presented the summary of his review paper that focused on Chinese national policies on managing air pollution and participation of China in various subregional/regional mechanisms on transboundary air pollution. He particularly provided in-depth review of China's scientific activities within the Acid Deposition Monitoring Network in East Asia (EANET) and the Joint Research Project on Long-Range Transboundary Air Pollutants (LTP). As an example of synergies between the two mechanisms, he mentioned that LTP uses data from 2 monitoring sites of EANET in China for its modeling exercises. Dr. Meng mentioned abatement of $PM_{2.5}$ concentrations in large cities as one of the top priorities for national measures in China, citing that the country launched a large-scale $PM_{2.5}$ monitoring programme in major cities. In addition to $PM_{2.5}$, he recommended studies on troposphere ozone, some dioxins, and air-pollution-climate change interaction as current gaps and priorities for subregional cooperation while also acknowledging current scientific uncertainties regarding emission inventories (e.g. VOCs) and regional photochemistry mechanism (need for coming up with subregion-specific approaches). As a recommendation for strengthening institutional cooperation in North-East Asia, an option of establishment of a high-level coordination mechanism was mentioned as a means of promoting and coordinating scientific research and informing policy makers on required action.

5. Mr. Jiro SATO from Asia Center for Air Pollution Research (ACAP) presented the Japanese review paper prepared for the project. He briefly introduced the activities of

ACAP and provided detailed overview of EANET history and scope of operation, citing the adoption of the "Instrument for Strengthening the Acid Deposition Monitoring Network in East Asia (EANET)" as an important milestone in development of the mechanism that allows expanding the scope of activities if required by the participating countries. For example, he mentioned that ozone and PM are included in the monitoring activities of the EANET while acknowledging that high cost of monitoring equipment presents difficulties in expansion of monitored substances. He also presented some results emanating from the EANET work and the state of acid deposition for Japan that concluded that deposition of sulfates is higher than compared to that in Europe or North-America. Tropospheric ozone concentrations also depict a rising trend. He also provided overview of relevant activities within the Tripartite Environment Ministers Meeting of China, Japan and ROK (TEMM), MICS-Asia project, ABC project and mentioned the Joint Forum as a possible platform for capacity building activities and exchange of information among the existing instruments on transboundary air pollution. While introducing Japan's national priorities he underscored the measures targeted at photochemical oxidants and $PM_{2.5}$. As current gaps Mr. Sato mentioned the need to consider hemispheric transport of air pollutants in light of CLRTAP Task Force work and the necessity to adopt integrated air quality management approach while adding that currently no subregional/regional framework in East/North-East Asia provides holistic approach covering all components of transboundary air pollution management. Thus, he recommended the development of a mechanism for international cooperation that would take these gaps into account and also address the air pollution-climate interaction while tackling short-lived climate forcers (SLCFs) and applying co-benefit/co-control measures. Finally, he added that subregional frameworks should complement each other and serve as subsets of a broader framework on a regional scale.

6. Dr. Erdenebat ELDEVOCHIR from the National Agency for Meteorology and Environment Monitoring of Mongolia presented the main challenges for his country in dealing with transboundary air pollution. First, he mentioned that Mongolia actively participates in activities of EANET, NEASPEC and dust and sandstorms monitoring within the WMO observation program. He underscored that that Ulaanbaatar is of the most polluted capitals in the world due to coal burning by power plants and population making air pollution management one of the top national priorities. Furthermore, Dr. Eldevochir provided an overview of the air quality monitoring network in the country. Giving examples of international cooperation, he cited joint projects with the Russian scientific community in cities of Ulan-Ude, Tomsk and Irkutsk on automated monitoring of ozone, PM_{10}, and other substances and mentioned pilot monitoring sites that are operational along Mongolia's border with China and Russia. He expressed the interest of Mongolia in participation in capacity building activities and recommended strengthening

multilateral cooperation on transboundary air pollution in North-East Asia, for example, by expanding technical assistance projects.

7. Dr. Lim-Seok CHANG from National Institute of Environmental Research presented the national report of the Republic of Korea where he focused on in-depth review of the LTP project and national priorities in managing air pollution. He particularly mentioned uniqueness of LTP in North-East Asia as it covers both monitoring and modeling, however, also noting weak points of LTP due to limited monitoring network and absence of link with policy-making. He also shared the scientific results of three previous phases of the project and explained that the project currently undergoes a review process to identify the future direction and scope of activities. As current gaps in subregion, he underscored the need to elaborate quantitative indicators of impacts not only for acidifying substances but also ozone and PM due to their effects on health and vegetation. In this regard, he mentioned that the concept of critical loads/levels can be reconsidered in North-East Asia. Furthermore, he stressed the insignificant connection between research and policy as the weakest point of the existing mechanisms. In this regard, he recommended that the existing subregional/regional frameworks considerably boost their cooperation and joint work so that they could eventually develop into a regional comprehensive mechanism adding that the impact assessment studies can serve as a link between the existing instruments. He cited CLRTAP/EMEP as a possible model for such a mechanism. He further noted that joint scenario building can also bring scientists and policy makers together in order to discuss control measures. While mentioning the existing uncertainties in modeling results, the participants agreed that this should not preclude actions as some degree of uncertainty in scientific results is inevitable.

8. In the concluding presentation of the session, Ms. Kristina Volkova from SRI Atmosphere presented the report of the Russian Federation that focused on the experience the country accumulated as a result of its participation in different regional and global environmental conventions and instruments that deal with transboundary air pollution, noting that the Russian Federation became the successor of USSR in those agreements, as for instance, is the case with the LRTAP Convention. She provided in-depth review of the CLRTAP structure and the goals and objectives of it protocols. As recent examples, she mentioned the ratification of the Stockholm Convention on POPs by Russia in 2011. She continued with outlining the country's environmental protection legislation and regulations, especially touching upon those related to air pollution. Ms. Volkova informed the participants that the State air quality monitoring network comprised 685 stations across the country as of 2010, including 4 stations under EANET. EANET activities cover only the Asian territory of Russia.

D. Overview of cooperation of the Russian Federation with the UNECE LRTAP Convention: Lessons for the North-East Asian subregion

9. In this session the participants took stock of Russia's experience as a Party to CLRTAP, noting that USSR was one of the initiators of the Convention. Ms. Volkova provided overview of Russia's participation in some of the CLRTAP's protocols and shared achievements of Russia in abating most of the polluting substances regulated under the Convention. Dr. Victor Shatalov, representative of the Meteorological Synthesizing Center-East (MSC-E) of EMEP based in Moscow, explained the role and responsibilities of the Center in the work of EMEP and CLRTAP. He stressed that the Center serves as the main scientific body of the Convention working on modeling of POPs and heavy metals, noting that both of these pollutant groups can be transported on regional and global scale. He provided results from the work of the Task Force on Hemispheric Transport of Air Pollution to reiterate this point. As the regular monitoring stations do not usually measure heavy metals and POPs concentrations, the data on emission inventories should be obtained from alternative sources, which makes effective exchange of information a prerequisite for success of modeling exercises. He further introduced the GLEMOS multi-media model used by EMEP as an effective modeling tool and provided some results from the model for mercury. While reporting on the S-R relationship for mercury on global scale, Dr. Shatalov underlined noticeable contribution of the East Asian emissions to Europe. He concluded his presentation by inviting the experts in Asia to closely cooperate with the Center and EMEP through exchange of information on global emissions data, monitoring and modeling.

E. Recent developments and emerging issues in multilateral cooperation on transboundary air pollution

10. The representative of the CLRTAP secretariat Mr. Krzysztof Olendrzynski briefed the participants about the provisions of the revised Gothenburg Protocol that was recently adopted by the Parties to the Convention. He also added that UNECE fully supports the NEASPEC initiatives on transboundary air pollution as a part of the long-term strategy and outreach activities of CLRTAP. He further underscored that based on the decision of the Executive Body of CLRTAP all scientific bodies of the Convention are required to work on black carbon (BC), including aspects of emissions inventories, modeling, deposition and abatement techniques. As the revised Gothenburg Protocol became the first international agreement to target BC, this development has attracted a lot of attention from global community, including that involved in climate change negotiations. The revised Protocol also contains flexible provisions for countries with

economies in transition by taking into consideration their specific conditions. As one of the emerging recent issues, Mr. Olendrzynski mentioned the WHO press release dated 12 June 2012 about carcinogenic effects of diesel engine exhaust on human health, which may have large-scale policy and technical repercussions for countries in Europe and Asia.

11. During the discussion that followed the presentation, the participants exchanged ideas on the emerging issues for multilateral cooperation on tranboundary air pollution, focusing on consideration of SLCFs, $PM_{2.5}$ and ground-level ozone. As such, the Japanese delegation invited countries to actively participate in the Climate and Clean Air Coalition and its work on SLCFs. Chinese delegation in its turn reiterated the national efforts of the country to tackle $PM_{2.5}$ pollution citing that secondary conversion from SOx and NOx presents a particular challenge. CLRTAP representative mentioned that in Europe PM sources are mostly in residential sector, thus, biomass burning should be discouraged from air pollution point of view adding that indirect measures like reforestation also help control PM pollution. Korean delegation noted that for multilateral cooperation both local and transboundary pollution aspects are important as they are linked. For example, secondary $PM_{2.5}$ levels can be decreased by targeting other pollutants. Moreover, international cooperation is important in designing regulations, tools and solutions for targeting local pollution issues.

F. Institutional and knowledge gaps in subregional/regional frameworks and relevant needs and priorities

12. At the beginning of the session, SRI "Atmosphere" – the implementing agency in Russia, made a presentation outlining recommendations on strengthening subregional cooperation in North-East Asia. The recommendations included a proposal to establish a subregional program for monitoring and assessment of transboundary air pollution under NEASPEC. In order to have a clear focus for the follow-up activities of NEASPEC, it was recommended that member States jointly decide on the spectrum of target pollutants, which will be subject to monitoring, modeling and evaluation and priority impacts to be studied – health, crops, etc. It was also recommended to gradually develop and adopt a subregional institutional structure of such a programme, which can include national scientific centers from different member States which would focus on different aspects of work under the program.

13. In this regard, SRI also presented a possible idea for a follow-up activity under NEASPEC which might serve as a direct continuation of the current project. The proposal involves preparation, approval and launch of a joint pilot subregional modeling activity using a single universal model (e.g. CMAQ) on the basis of necessary data to be provided by involved member States. The project will be informed by the outcomes of the current

NEASPEC project as well as other relevant mechanisms, especially EANET and LTP. The proposed possible budget of the 3-year pilot project is 250,000 USD to be funded through voluntary contribution of the Russian Federation to ESCAP or some other sources of funding.

14. The participants provided their comments on the Russian proposal. The Japanese delegation expressed concern about creating new frameworks noting that the priority should be given to strengthening of existing ones. SRI responded that NEASPEC can serve as such a platform, thus, there is no need to come up with a completely new mechanism. The Korean delegation expressed their support to the proposal and noted that the LTP project would be interested in including Russia as a partner. The Chinese participants also noted that the inclusion of monitoring data from Russia and adding new monitoring substances would benefit current work on modeling in the subregion. Mr. Olendrzynski reiterated that the subregion needs an umbrella organization that would consolidate work of the existing instruments and not replace any of them. He further suggested that the ultimate proposal on follow-up activities under NEASPEC first focus on policy goals and propose technical proposal separately. Mr. Andrey Nedre, Director of SRI, underlined that as the review papers showed a lot of work has already been accomplished in the subregion and considerable scientific knowledge accumulated. Thus, the next step should be focused on showing that the comprehensive framework is feasible by conducting a pilot project.

G. Options for a strengthened subregional framework on transboundary air pollution in North-East Asia

15. At the outset of this session, Mr. Olendrzynski presented a possible scenario for short to long-term development of a comprehensive framework for managing transboundary air pollution in North-East Asia based on the review papers that were prepared within the project and on experience of institutional development of CLRTAP. He first noted that the NEASPEC project produced a substantial diagnosis of existing capacities and identified relatively strong parts of the existing initiatives. Thus, showing a clear need for consolidating existing efforts for the benefit of the subregion. Short-term policy objectives of a possible comprehensive framework may include reaching consensus on policy objectives and priorities, which may cover improvement of regional ambient air quality with a view of mitigating related health impacts ($PM_{2.5}$ and ozone precursors) and reducing damage to crops and natural vegetation. Next step would involve agreeing on division of work between countries of the subregion and development of mandates for scientific centers already operational under the existing instruments and consideration of funding options. The Senior Officials Meeting (SOM) of NEASPEC could serve as the

decision making body for the initiative and NEASPEC secretariat would provide secretarial support.

16. As mid-term objectives of such an initiative providing policy relevant technical guidance for development of abatement strategies and action plans to combat air pollution in a comprehensive and efficient manner was mentioned in addition to setting up a dedicated international scientific program to support the initiative with an agreement/memorandum formalizing the arrangement. As a possible name for such a joint international initiative in North-East Asia on Transboundary Air Pollution - NEATAP Initiative - was cited. It was further suggested that the follow-up project of NEASPEC, which may be presented and adopted at the next SOM, can initiate elaboration of a proposal on NEATAP as a kind of an umbrella policy oriented framework and consider modalities of its operation as described in para. 15 above, including governing body, research centers, secretariat and funding aspects.

17. Following this presentation, the floor was opened for comments by participants. The Russian delegation suggested that one way to prioritize transboundary air pollution in NEASPEC work may involve establishment of a Working Group with regular meetings of experts having relevant mandates of their respective countries. A representative of the Republic of Korea noted that the project proposal outlined by SRI (para. 13) would cover the technical component of the suggested Initiative while a possible Working Group mechanism may focus on policy aspects to gradually elaborate required steps for solidifying subregional cooperation. A representative of Japan noted that the Joint Forum of UNEP already provides a forum for exchange of experience of different frameworks and we should consider what would be an added value of a possible NEASPEC Initiative. Responding to this, Mr. Kilaparti Ramakrishna drew attention of the meeting to the fact that the Joint Forum is not an intergovernmental instrument per se, but a platform for exchange of experience. Additionally, SRO-ENEA maintains close collaboration with UNEP on different environmental issues and would ensure proper coordination of activities. Some other participants commented that the proposal for a follow-up project under NEASPEC would need some additional consideration by member States and the relevant authorities would be expecting an official project proposal be made available in time for the SOM-17 deliberations.

H. Summary of recommendations and outcomes of the meeting

18. The meeting reviewed the progress made on the NEASPEC project on transboundary air pollution (TAP) since its inception through national reports prepared for and presented at the ECM. The participants identified work of a number of subregional/regional entities that is relevant to the goals of the current project and came up

with some areas where further work needs to be done by NEASPEC. One way forward was advanced by SRI "Atmosphere". The idea proposes a modeling study of TAP with inclusion of the Russian territory to complement the existing activities on modeling in the subregion and promote adoption of common methodologies and increase international cooperation in the North-East Asia. The meeting participants provided comments on the proposal and invited the Russian Federation to further elaborate it and consider submitting the official proposal to SOM-17 through secretariat as early as possible to allow adequate time for national consultations by member States.

19. Noting that currently no subregional/regional framework in East/North-East Asia provides holistic approach covering all components of TAP management, the meeting recommended the development of a mechanism for international cooperation that would strengthen subregional frameworks and increase their geographic scope so that they could work closely with each other to jointly address relevant challenges related to local and regional air pollution issues in North-East Asia and beyond. In this regard, the meeting reviewed options for possible development of subregional cooperation in mid to long-term perspective with a view of establishing a type of an umbrella policy oriented framework in support of scientific efforts on addressing TAP. Another possible approach that was discussed included establishment of an Expert Working Group under NEASPEC to make further recommendations on TAP areas of work of NEASPEC for the benefit of the whole subregion. It was suggested that such options should be outlined in the final project report for information of member States and possible action of NEASPEC in the future.

20. Furthermore, the meeting reviewed in detail the experience of Russia's cooperation with CLRTAP and was informed about recent developments in the work of the Convention, including adoption of the revised Gothenburg Protocol. Many of the new decisions taken by the Convention, including its work on BC, PM, ground-level ozone and the related implications for air pollution-climate interaction, health impacts and damages on agricultural production were cited as possible avenues of cooperation of NEASPEC with CLRTAP.

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