Enhancing International Cooperation on Air Pollution in East Asia by Strengthening the Scientific Epistemic Community

Mark Elder, IGES

March 7-8, 2014

International Workshop on Strengthening the International Cooperation Framework and Science-Policy Interface to Promote Air Pollution Control in East Asia 2014

Yokohama, Japan

Major Air Pollution Problems in East Asia

- Dust and Sandstorms (N.E. Asia)
- Beijing, Northern China, PM2.5 + others
- Megacities (autos, industry) (S.E. Asia, China)
- Haze (ASEAN) (forest fires, agricultural burning)

Domestic and Transboundary

- Wide range of problems
- Getting more complex
- Getting worse
- Need cooperation

(Countries cannot solve by their own efforts)

Comparison of Selected Existing Cooperation Frameworks on Air Pollution in East Asia

<table>
<thead>
<tr>
<th>Framework/Secretariat</th>
<th>Focus/Functions</th>
<th>Focus/Pollutants</th>
<th>Observations/Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>EANET/UNEP/RRC.AP</td>
<td>Monitoring, Research, Cap. Bldg.</td>
<td>Acid Rain</td>
<td>Difficult to expand the scope of activities, monitoring</td>
</tr>
<tr>
<td>ASEAN Haze/ASEAN Secretariat</td>
<td>Information sharing, Capacity building</td>
<td>Haze</td>
<td>Legally binding treaty, Not ratified by all members, Narrow focus</td>
</tr>
<tr>
<td>NEASPEC/ESCAP-SRO (Incheon)</td>
<td>Capacity building, Research, Policy Development</td>
<td>SO2 (China &amp; Mongolia), Coal power plants</td>
<td>Limited scope of activities, Limited capacity</td>
</tr>
<tr>
<td>TEMM (China, Japan Korea)</td>
<td>Dust &amp; sandstorms (DSS), Some joint research</td>
<td>DSS, Ozone</td>
<td>Focus on air pollution not extensive except for DSS</td>
</tr>
<tr>
<td>LTP/NIER-Korea</td>
<td>Monitoring, Modeling, Emission inventories</td>
<td>SO2, NOX, PM10/2.5, O3, etc.</td>
<td>Is a research project, Wider scope of research, Only 3 countries</td>
</tr>
<tr>
<td>CAA</td>
<td>Knowledge provision, Promote policy &amp; action, Facilitate communication</td>
<td>Comprehensive air pollution, Air/climate</td>
<td>Multistakeholder partnership, not intergovernmental</td>
</tr>
<tr>
<td>CCAC</td>
<td>Knowledge sharing, Awareness raising, Capacity building</td>
<td>SLCP</td>
<td>Multistakeholder, Limited E.A. membership</td>
</tr>
</tbody>
</table>

Problems with Several Existing Frameworks

- Overall: too cautious, lacking in ambition, voluntary
- Duplication & overlap, extra cost
- Insufficient scope: Need more
  - Types of pollutants
  - Emphasis on mitigation
  - Linkage between air pollution & climate change
- Insufficient funding
- Inadequate Science-Policy Interface

Clarification:
- This is not a systematic evaluation
- Existing networks have important activities and achievements
- But, air pollution problems are not solved, need to move to the next steps.
**Problem Identification**

- **Underdeveloped epistemic community**
- **Inadequate science-policy interface**
- **Governments do not well understand the science (& some scientific uncertainty)**

**Basic Problem:** Low priority of international cooperation on air pollution

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**Epistemic Community**
- Network of scientists & experts
- Some shared understandings
- Not governmental
- May try to influence policy

**Sci-Policy Interface**
- Mechanism/process/institutionalized
- Link between science & policy
- Provide knowledge & information

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**European Trajectory towards LRTAP**

- **Environmental Problems**
  - Problem recognition
  - Consensus building

- **SCIENTIFIC EPISTEMIC COMMUNITY**
  - Non-institutionalized
  - Transnational

- **Science-Policy Institutional Mechanism**
  - EMEP
  - WG on Effects
  - WG on Strategies & Review
  - Integrated Modelling Center (including cost optimization)
  - Both monitoring modeling
  - Various Centers & Task Forces

- **LRTAP FRAMEWORK**

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**Regional air pollution science-policy interface institutionalization**

<table>
<thead>
<tr>
<th>Framework</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>EANET</td>
<td>Intergovernmental recognition, Network center, Scientific Advisory Committee, Conducting Assessment Report</td>
</tr>
<tr>
<td>LTP</td>
<td>Joint research project, not international institution, Government officials attend meetings</td>
</tr>
<tr>
<td>TEMMM</td>
<td>Ozone workshop – government funded but activities suspended, Air pollution policy dialogue (March 2014) will include experts</td>
</tr>
<tr>
<td>CCAC</td>
<td>Government-led multistakeholder partnership (incl. NGOs, experts, etc.), Scientific advisory panel, Actual projects</td>
</tr>
<tr>
<td>CAA</td>
<td>Multistakeholder partnership, Governments participate</td>
</tr>
</tbody>
</table>

**Some progress, but significant limitations:**
- Inconsistent government attendance delays decisions
- Results are limited
- Openness of data is a problem
- Governments decide based on political not scientific considerations

**Overall observations on current science-policy interface in East Asia**

- **An epistemic community on air pollution emerging, but not well-developed**

<table>
<thead>
<tr>
<th>Positive Trends</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expanding personal networks linking scientists in different countries</td>
<td>Progress is gradual</td>
</tr>
<tr>
<td>Increasing international/regional scientific conferences</td>
<td>Participation by different countries is variable, only a few countries represented sometimes</td>
</tr>
<tr>
<td>Some networks with governmental participation</td>
<td>Sometimes research is obstructed instead of promoted</td>
</tr>
<tr>
<td>CCAC has more well developed science-policy interface</td>
<td>Limited Asian country membership</td>
</tr>
</tbody>
</table>

- A science panel may survey existing knowledge
- Still, new knowledge and advanced research is still needed

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**How can the development of the epistemic community be accelerated?**
Possible Trajectory of Development of Epistemic Community & Science Policy Interface

**STAGE 1**
- Transnational
- Not directly linked to governments
- Not linked to specific cooperation frameworks

Possible Modalities
- International conferences
- Linkages between national academic societies and science bodies
- Joint (multinational) research projects

**STAGE 2**
- Linked to specific cooperation frameworks
- Institutionalization

Science-Policy Interface
- Which cooperation framework?
- Functions? (New research, assessment, etc.)
- Structure? (Network Center, advisory committee, etc.)
- Nature of connection to governments

Options for Functions/Scope of an International Cooperation Framework

Desirable Functions
- Monitoring
- Modelling
- Assessment
- Research
- Capacity Building
- Emissions Reduction/Mitigation

Scope of Pollutants - Options
- Multi-pollutant (more comprehensive)
- Climate/air
- SLCP
- Expandable

Geographic Scope
- Global/regional/ subregional?
- NE Asia & SE Asia – together or separate?

Need similar considerations for Science-Policy Interface

Key issue in East Asia

Which of these aspects to focus on?

Making progress (conferences, joint research), but more needed. (e.g. IUAPPA 2016)

More scientific capacity building

More research & cooperative research

Stronger regional epistemic community

Common understanding of air pollution problems

Institutional framework to provide scientific advice to policymakers

How can the epistemic community & science policy interface be integrated into the system of international cooperation frameworks?
Possible Options for Strengthening the International Cooperation Framework

<table>
<thead>
<tr>
<th>OPTIONS</th>
<th>DISCUSSION</th>
</tr>
</thead>
</table>
| Global Convention on Atmosphere| • Comprehensive  
• Legally binding – enforcement power  
• Need coordination with existing initiatives  
• Long time to negotiate           |
| Global standards to link to regional/sub-regional initiatives | • Voluntary/non-legally binding  
• Harmonization of regional initiatives  
• Easier to agree                  |
| Strengthening of existing regional/sub-regional initiatives | • Limited past achievement  
• Does not solve overlapping/duplication  |
| Merge existing regional/sub-regional initiatives or create a new alternative initiative (e.g. NEA or EA LRTAP) | • New mechanism or reform of existing initiative(s)  
• Better chance to address present challenges  
• May reduce overlapping/duplication  
• Not easy to negotiate             |

What is ASPAC?

The aim is to synthesize scientific knowledge on air pollution in the Asian region to reach a common understanding among scientists and policy makers, and to develop an international initiative for an integrated approach to air pollution and climate change reflecting the views of Asian scientists.

- Original idea focuses on synthesis, similar to IPCC for climate change.
- There are also other needs regarding the science-policy interface in East Asia.
  - Should these other functions be included in ASPAC or separate?

Some Considerations for ASPAC

<table>
<thead>
<tr>
<th>Aspects</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functions/Objectives</td>
<td>Synthesis/Assessment, new science, capacity building</td>
</tr>
<tr>
<td>Geographic Scope</td>
<td>Broader (Asia, East Asia), narrower (NEA)?</td>
</tr>
<tr>
<td>Institutional Structure</td>
<td>Science panel? Network center?</td>
</tr>
<tr>
<td>Linkage (or not) to Governments</td>
<td>How to link or communicate?</td>
</tr>
<tr>
<td>Linkage (or not) to Existing International Frameworks?</td>
<td>Which framework?</td>
</tr>
<tr>
<td>How to create?</td>
<td>Who will decide?</td>
</tr>
<tr>
<td>Membership</td>
<td>Criteria? Who selects?</td>
</tr>
<tr>
<td>Governance</td>
<td>How decisions are made? Procedures?</td>
</tr>
<tr>
<td>Funding</td>
<td>Who funds?</td>
</tr>
<tr>
<td>Secretariat</td>
<td>Competing candidates</td>
</tr>
</tbody>
</table>

Now is good timing: Positive trends for cooperation

<table>
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<tr>
<th>Aspect</th>
<th>Converging Trends</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceptions of severity</td>
<td>Growing convergence, esp. NEA</td>
</tr>
</tbody>
</table>
| Prioritization of air pollution     | Increasing prioritization in general  
Some convergence on priority pollutants (PM2.5), emerging interest in ozone.  
Less interest in CCAC in East Asia |
| Strengthening domestic policies     | China, Japan, Korea                                                              |
| Recognition of transboundary aspects| Chinese government funding transboundary research  
China’s domestic policies address domestic regional transboundary air pollution |
| International cooperation frameworks | Overall greater (modest) proactive stance by several countries                  |
| Scientific epistemic community     | Gradual expansion of international cooperation                                   |

Challenges

- Different views on how to strengthen the science policy interface
- Differences in how to strengthen cooperation frameworks
- Variety of similar initiatives & frameworks
- Some differences in interest in focus areas
Thank You!

Mark Elder, IGES
elder@iges.or.jp  www.iges.or.jp

Acknowledgments: This research was supported by the Environment Research and Technology Development Fund (S-7-3) of the Ministry of the Environment, Japan.