

## **Working Group 4**

### **Background Note for the Session on:**

## **Air Pollution Agreements – Going for Global Governance of the Troposphere**

### **Aims of the Session**

As understanding of air pollution has increased, the more important the global scale has come to appear. In particular, attention is increasingly focused on air pollution interactions with climate change, with the development of global approaches to reducing Short-Lived Climate Pollutants and the increasing importance given to the air quality co-benefits of climate strategies. Meanwhile the extent and significance of damage to health and to crops have become increasingly apparent as their global scale has come into focus, and tropospheric ozone and particulate matter, in particular, are increasingly seen as hemispheric problems.

Despite successful negotiation of some global agreements (e.g. stratospheric ozone and POPs), extensive scientific work at the hemispheric scale (within the Task Force on Hemispheric Transport of Air Pollution), the LRTAP Convention's extensive suite of regional protocols, and the beginnings of regional cooperation in Asia, Latin America, and Africa, it is arguable that much more needs to be done. In particular, there is no regulation at the global scale of the two transboundary pollutants that are most damaging to health – small particulate matter and tropospheric ozone.

The aim of this session is therefore to identify action that could be taken at the global scale to promote the further reduction of air pollution problems globally. It will review the need for enhanced global governance of air pollution, explore the pathways by which this might be achieved, and try to identify constructive steps forward that could be taken by the major institutions and interests involved.

### **Issues for Consideration**

After introductory presentations, it is proposed that discussion focus, inter alia, on the following broad issues:

1. **How do we develop more effective air pollution control at the global scale? What is the role of legal instruments versus voluntary programs? What functions should be carried out at the global scale, as opposed to the regional or local scale?** For instance, is the time right now to try to develop a global

framework agreement on air pollution, covering matters such as technical co-operation and standards, monitoring, public access to information, etc.? And should LRTAP follow the Water Convention (UN ECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes) and give further consideration to opening membership of the Convention to parties outside the UNECE – not least as a help in following up the work of TF HTAP on hemispheric issues?

2. **Streamlining global monitoring and assessment of air pollution.** There are now a wide range of programmes contributing to global monitoring and assessment of air pollution (most notably by WMO, EMEP, IGBP/IGAC, and the ABC programmes). Should these be better co-ordinated to ensure consistency, avoid duplication, identify gaps and take advantage of potential synergies. How might this best be done? What role might the IPCC play in coordinating assessment efforts? How might emerging information technology be used to improve information flows and assessment capabilities?
3. **The potential contribution of developments in economics, industry and trade fields.** Globalising pressures in these areas will have profound implications for air quality. How do we ensure that they act more effectively for good, in terms of promoting higher emission standards and improved air quality. What lessons can be learnt from progress in international harmonisation of vehicle emission standards? What is the role, if any, of BAT or BATNEEC here? More generally, what contribution can come from the private sector and the increasing interest in environmental impacts along supply chains?
4. **Developments in the management of shipping and aviation will also be significant.** Regulation of shipping and aircraft emissions has been slow to develop, and debate on them has largely been led from within those industries, with relatively little connection with broader air pollution strategies. What could be done to speed progress and bring these issues more into the mainstream of air quality processes and debate?
5. **Climate and air pollution.** SLCPs are critical for climate and among the most noxious (and, in the case of ozone and black carbon, least regulated) air pollutants – and one of the key global governance issues. What contribution could come from early action here, and how could it be achieved? Few people want to tie a global air pollution discussion into climate negotiations. Does this suggest that supporting and strengthening CCAC should now be a key priority? Is there a downside to the focus on SLCPs? Which air pollutants are not covered? If so, what action might be needed to minimize that downside?
6. **Resources and capacity-building.** How can we improve the efficiency of air quality management capacity building efforts and attract more resources globally? What could be accomplished at the global scale versus through efforts focused on individual regions or sectors? What is the role of the World Bank institutions, philanthropic organizations, or the private sector? Can the global scientific research community be harnessed to build management capacity?

7. **Do these complementary trends and issues now need to be pulled together through debate of a global air pollution strategy?** Where would we start? Would one possibility be development of a global air pollution watch facility which could monitor developments in these various fields, and identify opportunities for progress? What other options should be considered?

## **The Background: Current Trends, Issues and Opportunities**

Air pollution is an issue that harms all people. As new evidence becomes forthcoming<sup>1</sup> and new assessments are made, the impact of air pollution is considered to harm more and more people globally. According to the recent global burden of disease study (Lim et. al. 2013), about 3,224,000 globally people died prematurely from outdoor PM in 2010 – up from about 1,152,000 estimated for 2004 in the previous assessment (WHO, 2009<sup>2</sup>), due partly to improvements in the methods to estimate the total burden. In addition, these methodological improvements have also resulted in estimates for deaths from indoor air pollution to go up from 1,965,000 in 2004 to 3,456,000 in 2010. This has also entailed that indoor air pollution is now the 2<sup>nd</sup> most important cause of premature death in women (up from 8<sup>th</sup>) and in men the 5<sup>th</sup> most important (up from 12<sup>th</sup>).

The development and implementation of air quality management strategies in Europe and North America have decreased the impact of air pollution in those regions, but even in these regions air pollution continues to impose significant burdens on health relative to other environmental causes (e.g. the European Commission estimated 420,000 premature deaths in the EU in 2010 from particulate matter pollution). Background tropospheric ozone concentrations continue to rise with evidence of deleterious impacts on health, ecosystems, and climate change. Total nitrogen deposition is still above critical levels that plant communities can tolerate without shifts in diversity or effects on ecosystem function, such as nitrate leaching, over many parts of Europe. Important though these impacts are in Europe and North America, they are dwarfed by the air pollution problems in many developing countries – especially in Asia, but also in cities and other parts of Africa and Latin America. The adverse effects of air pollution have major economic impacts, and threaten competitive advantages in some deeply affected countries. They also have a major impact on the quality of life for all and threaten the livelihoods of poor people.

Although the worst air pollution problems are due to local emissions sources and stagnant meteorology, research over the last decade has demonstrated that air pollutants observed in any given location are the result of local, regional, and global influences. Through the intercontinental transport of air pollutants, emission sources can contribute to the exceedance

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<sup>1</sup> Lim, Stephen S., et al. (2013). A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010, *The Lancet*, Volume 380, Issue 9859, 15 December 2012–4 January 2013, Pages 2224–2260, ISSN 0140-6736, [http://dx.doi.org/10.1016/S0140-6736\(12\)61766-8](http://dx.doi.org/10.1016/S0140-6736(12)61766-8).

<sup>2</sup> World Health Organization (2009). *Global health risks: mortality and burden of disease attributable to selected major risks*. World Health Organization Press, Geneva. ISBN 978 92 4 156387 1  
[http://www.who.int/entity/healthinfo/global\\_burden\\_disease/global\\_health\\_risks/en/index.html](http://www.who.int/entity/healthinfo/global_burden_disease/global_health_risks/en/index.html)

of air quality objectives many thousands of miles downwind. Furthermore, the control of air pollutants in one location will benefit not only those nearest the sources, but can also provide benefits far downwind. In 2010, the Task Force on Hemispheric Transport of Air Pollution<sup>3</sup> found that air pollution controls in Europe and North America potentially have greater total benefits outside of Europe and North America than they do within those regions, as the relatively small benefits downwind accrue to a very large population found in the rest of the world.

Air pollution is linked to climate change in both directions: climate change will tend to exacerbate the worst air pollution problems, and air pollution can exacerbate climate change. The linkages between the two issues have led to increasing attention on the co-benefits of long-lived greenhouse gas mitigation and air pollution emissions and the potential for synergies or trade-offs between air pollution and GHG mitigation policies. Most attention has been focused on air pollutants that have a warming influence on climate, such as black carbon, methane, and tropospheric ozone, which are often referred to as Short Lived Climate Pollutants (SLCPs). The UNEP/WMO Integrated Assessment of Black Carbon and Tropospheric Ozone<sup>4</sup> found that significant near-term climate benefits can be achieved from a dramatic reduction in methane and pollutants associated with incomplete combustion (black carbon and its co-pollutants). There are also very significant health and crop yield benefits that can accrue from the adoption of specific control measures for these pollutants.

Thus, air pollution is a global problem. Many of the local and regional sources, impacts, and other aspects of air pollution are similar in many regions of the world. Moreover, regional and global environmental as well as economic linkages make air pollution a shared problem between many jurisdictions. A variety of different international agreements or cooperative networks have developed over the years at the regional scale. However, there is no global agreement or framework for air quality management or the reduction of traditional air pollutant emissions.

## **Traditional Approaches to Global Governance**

Over the last decade, the Global Atmospheric Pollution (GAP) Forum<sup>5</sup> has worked to enhance the governance of air pollution problems around the world, including exploring the potential for a single global governance mechanism. In a 2010 discussion paper, the GAP Forum identified three functions of an effective global system: coordination of information collection and exchange; coordination of scientific and policy assessments; and, eventually, facilitation of intergovernmental agreements on emissions mitigation.

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<sup>3</sup> HTAP (2010). Part A. Ozone and Particulate Matter (304 pages); <http://www.htap.org/>

<sup>4</sup> UNEP (2011). Near-term Climate Protection and Clean Air Benefits: Actions for Controlling Short-Lived Climate Forcers. United Nations Environment Programme (UNEP), Nairobi, Kenya, 78pp.

<sup>5</sup> Global Atmospheric Pollution Forum (GAP Forum); [www.gapforum.org](http://www.gapforum.org)

The GAP Forum evaluated a number of pathways to achieve such a system<sup>6</sup>, including the development of a new international treaty, incorporation of air pollution into existing global treaties (including the UNFCCC, the Vienna Convention, and the Stockholm Convention), and expansion of an existing regional agreement (such as the LRTAP Convention). However, there appeared to be substantial obstacles to early success in each case.

One option that has emerged from the GAP Forum as a possible way forward is to strengthen the cooperation between existing regional international air pollution agreements or networks. Bringing these activities together however requires account to be taken of the diversity of the objectives and approaches associated with the different agreements or networks in different regions. Some of the cooperative activities are treaty-based, some are completely voluntary. Some are focused only on science and assessment, some address mitigation strategies. Some are focused on a single air pollutant or issue, some have broad environmental mandates that extend beyond air pollution.

The LRTAP Convention is the oldest and most developed intergovernmental agreement on air pollution and covers a large part of the Northern Hemisphere – encompassing all of Europe, most of North America, and parts of Central Asia<sup>7</sup>. The LRTAP Convention has developed a significant scientific and negotiating support structure that has developed complex legal agreements that are compatible with the regulatory systems of North America and Western Europe, but that have proved difficult for Eastern European and Central Asian parties to implement. In contrast, the agreements that have developed in Latin America and Africa tend to employ voluntary and flexible approaches which reflect cultural diversity and allow more rapid and differentiated action. Although the approach encourages broader participation, it creates less pressure for recalcitrant parties to make progress. The GAP Forum has concluded that efforts to forge alliances between the existing intergovernmental forums must take account of deep-seated and long-standing differences among regions and states in cultural values and priorities; in their stage of economic development; and, particularly, in their governance. This means that any one current approach – such as the approach of the LRTAP Convention – is unlikely to be fully and directly transferable to other regions, or – if it is – is unlikely to achieve its objectives and be viable for the longer term without significant regional adaptation.

## **An Evolving Concept of Global Governance**

Despite the commonality of air pollution sources and impacts across the world, the exploration of global governance options has taught us that a diversity of management and institutional approaches are needed to address the problem globally. Weaving these different approaches together into a common framework is likely to prove a lengthy process yielding little early benefit. Therefore, it is useful to take a step back and think about what we want to

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<sup>6</sup> Atmospheric Pollution: Developing a Global Approach; <http://sei-international.org/rapidc/gapforum/html/reports.php>

<sup>7</sup> UNECE Convention on Long-range Transboundary Air Pollution; <http://www.unece.org/env/lrtap/>

achieve globally and in what other, less traditional, ways we might make progress in the shorter term.

Arguably, our goal is to bring about the mitigation of emissions that contribute to adverse effects on health, ecosystems, and climate change around the world. Working at the international scale, we can achieve this by enabling and motivating national governments to act to mitigate emissions within their own jurisdictions. Governments may be motivated to act based on political or legal agreements that they negotiate with other governments. They may enter into such an agreement for a variety of reasons, including but not limited to their desire to mitigate the adverse effects of air pollution. However, a political agreement does not guarantee that a government is able to act or that it will. Thus, it may be more important to focus on ensuring that governments have the capabilities needed to implement air pollution controls and that they understand the potential benefits of mitigation than it is to ensure political agreement. If governments are enabled and motivated, then effective agreements may follow.

To enable and motivate governments to act, they need access to information about how to monitor air quality, estimate emissions, assess the effectiveness of controls, estimate costs and benefits, and design and implement effective policies. They need funding to train personnel, conduct assessments, and implement policies. They need forums for sharing experiences and lessons learned. Providing access to information, funding, and expert interaction are all important functions of a global governance structure.

National governments are not the only actors that can bring about the mitigation of emissions, however. Sub-national governments, multi-national corporations, industrial associations, civic organizations, financial institutions, individual companies, and consumers can all contribute to emission mitigation. In some contexts, it may be more effective to focus efforts on enabling and motivating these actors to mitigate emissions rather than focus on national governments. Scientific and academic institutions and the public media can play important roles in efforts to enable and motivate both national governments and other relevant actors. Developments in information technology have the potential to enable access to information about air pollution, its impacts, and its control to an ever-widening audience and create greater opportunities for international expert-expert dialogue.

Over the last decade, a number of efforts have been organized to promote emissions mitigation in specific sectors, engaging with the private sector and non-governmental organizations (e.g. the Partnership for Clean Fuels and Vehicles (PCFV)<sup>8</sup>, the Global Methane Initiative (GMI)<sup>9</sup>). Initiatives such as Clean Air Asia<sup>10</sup> have focused on municipal governments as the primary actors. Taken together with the existing intergovernmental regional agreements and networks, these various initiatives form a patchwork of efforts that cover many of the issues, needs, and regions that comprise the global air pollution arena, albeit with varying strengths and weaknesses and some important gaps.

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<sup>8</sup> Partnership for Clean Fuels and Vehicles (PCFVs); <http://www.unep.org/transport/pcfiv/>

<sup>9</sup> Global Methane Initiative (GMI); <http://www.globalmethane.org/gmi/>

<sup>10</sup> Clean Air Asia; <http://cleanairinitiative.org/portal/index.php>

In our session, we will explore the strengths and weaknesses of this existing patchwork with respect to the goal of enabling and motivating air pollution mitigation. Slicing through the patchwork in different ways, we will discuss:

- *The LRTAP Convention*: Countries in Eastern Europe and Central Asia are having difficulty ratifying the Convention's protocols and implementing the mitigation obligations. The Convention has deep technical expertise that is provided primarily by Western European and North American countries. The LRTAP Convention needs to find a way to harness its expertise in the West to enable and motivate action in the East. If successful, the approach may provide an example for how to enable and motivate mitigation in other parts of the world.
- *The Ground Transportation Sector*: Cars and trucks are one of the most important sources of air pollution everywhere in the world. Given the global trade in cars and trucks and the influence of US and EU standards, transportation may be the sector that comes closest to having a global governance structure. The patchwork of intergovernmental agreements, public-private partnerships, and non-governmental institutions active in the transportation sector have had some important successes and continue to have significant challenges. The experience in this sector may have lessons for other sectors.
- *The Climate and Clean Air Coalition to Reduce Short Lived Climate Pollutants (CCAC)*. The CCAC is an important example of some of the features of the current patchwork. The CCAC is open to participants globally, but is focused on "a coalition of the willing." The coalition includes national governments as well as intergovernmental and non-governmental organizations, but they have differentiated roles. The CCAC is focused on facilitating mitigation efforts for a specific set of pollutants (black carbon from incomplete combustion, methane, and hydrofluorocarbons). It is a voluntary effort with few obligations for partners who can pick and choose how they want to engage. The CCAC has established a secretariat at UNEP which has the potential to network with other efforts. Most importantly, some member countries have pledged a significant amount of funding that will be made available for collectively agreed to projects.

## Questions for Discussion

Resolving the questions identified earlier in this note, and others which may emerge from the presentations, will require the session to take into consideration a broad range of issues including the following:

- Are enabling and motivating mitigation of air pollution the appropriate objectives of a global effort?
- What is needed to achieve these objectives? What functions are best performed or are needed at a global scale? What functions may be better addressed on a regional or sectoral basis?
- How important is funding as opposed to expertise and information exchange?
- Given these functions, what would be a reasonable scope for a “global framework agreement on air pollution” and what are the advantages and disadvantages of such an agreement?
- What are the potential roles for existing global intergovernmental organizations (including UNEP, WMO, IMO, ICAO, ...) with respect to enabling and motivating air pollution mitigation?
- What are the potential roles for private sector organizations and public-private partnerships?
- How can non-governmental actors (including individual firms and the public) be enabled and motivated to mitigate air pollution?
- How can information technology be harnessed to improve global governance? What are realistic expectations?
- What can the LRTAP Convention learn from work in other regions of the world about improving the participation of Eastern Europe and Central Asia? What can the LRTAP Convention contribute to the global governance structure?
- What lessons are available to be learned from the formation of the CCAC? Why has it been successful in attracting attention? What has been the role of the UNEP/WMO Assessment in the formation of the CCAC? What challenges does it face?
- Would global assessment of air pollution, its emissions, benefits of mitigation and strategies help to promote action by different stakeholders?
- What should the following organizations do to advance the evolving vision of global governance for air pollution:
  - LRTAP Convention

- CCAC
- WMO
- UNEP
- GAP Forum
- Other Existing Regional Agreements
- World Bank Group
- ...

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