GLOBAL ATMOSPHERIC POLLUTION FORUM

Discussion Paper

Atmospheric Pollution: Developing a Global Approach

A discussion paper for GAP Forum partners on the prospects for enhancing international co-operation on air pollution.

EXECUTIVE SUMMARY AND RECOMMENDATIONS

1 In recent years there has been significant progress in the development of effective regional inter-governmental networks for air pollution, reflecting recognition that regional collaboration by countries sharing air pollution problems can deliver considerable socio-economic benefits, which have proved self-evidently unattainable through national action alone.

2 Comparable progress has not been achieved at the hemispheric and global scales. In particular there is no framework for abating those pollutants, dispersed at hemispheric and continental scale, which are most damaging to human health. Although these air pollutants can have climate warming and cooling effects, there is also no framework for developing integrated co-benefit strategies which could optimize GHG and air pollution mitigation benefits whilst minimizing unwanted tradeoffs and fostering clean development.

3 Although a more effective inter-regional and global framework for managing air pollution is therefore urgently needed, there is no realistic prospect of achieving this through negotiation of a new global air pollution treaty, nor by widening the scope of existing conventions, such as bringing air pollution within the scope of climate negotiations or comprehensively widening the scope of an existing air pollution treaty.

4 A more effective and realistic option would be to forge a closer partnership of existing regional inter-governmental networks, integrating relevant aspects of their systems, and developing hemispheric and global processes on the basis of them. The essential institutional basis for this is the integration of relevant functions of the LRTAP Convention and UNEP.

5 Several recent developments provide a unique opportunity for progress in this direction. If built upon in the following ways they could prove a catalyst for rapid transition to a more effective international co-operation regime for air pollution:

- UNEP could extend its recent support for the expansion of regional networks, and the LRTAP Convention and UNEP could together review their operations with a view to developing an integrated secretariat and support service for them.

- The LRTAP Convention could respond to the recent report of the Task Force on Hemispheric Transport of Air Pollution (HTAP) by continuing its scientific work on a broader international basis, and by opening discussions with relevant partner bodies on its policy implications;

- To realise the emerging opportunities for air quality-driven air pollution/climate co-benefit strategies UNEP could develop an international programme on short-lived climate forcers (SLCFs) to support regional inter-governmental networks in tackling them and LRTAP could seek, as far as practicable, to incorporate the SLCFs into the Gothenburg Protocol as a basis for regional strategies to jointly address climate and pollution.

- The current review of the LRTAP Convention strategy provides an opportunity to move the Convention from a regional body to one that can be an effective partner in tackling hemispheric and global air pollution issues.

The **Global Atmospheric Pollution Forum (GAP Forum)** was established to provide a platform for co-operation among inter-governmental and non-governmental bodies concerned with regional air pollution, and for discussion of options for strengthening co-operation on hemispheric and global air pollution issues. It brings together the leading governmental and non-governmental organisations working in this field.

I INTRODUCTION

From its formation the core of the GAP Forum's work has been strengthening the work of the regional inter-governmental networks on air pollution, by providing a channel of communication, a platform for exchanging skills and experience and a framework for developing co-operation and joint action, and by encouraging wider public and political support for their work. For readers unfamiliar with the work of regional networks, and the issues currently facing them, an overview is provided in Annex 1. The networks differ widely, not only in terms of their experience and resources for air pollution control, but also in terms of the challenges facing them, their policy priorities and the cultural and governance systems which determine their approach. But the science of air pollution, its impacts and abatement options are largely common and this has already provided a fruitful basis for co-operative work particularly in areas such as emission inventory preparation, air pollution monitoring and impact assessment.

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In spite of their justified preoccupation with development, the regional networks, and other participants in the GAP Forum recognised from the start that regional programmes sit within a wider framework of air pollution management which has also increasingly to address hemispheric and global concerns and to relate effectively to climate change policies. Developments at these scales will strongly influence the work of regional networks; and the networks themselves have a major role to play in strengthening co-operation at those broader levels.

Shortly after its formation, therefore, the GAP Forum published a discussion paper on opportunities for strengthening international co-operation on air pollution (Atmospheric Pollution: Developing a Global Approach; Draft #1). It identified six areas where incremental progress could contribute significantly to more effective international co-operation, but stopped short of advocating – or even identifying – long-term strategic options for the international governance of global atmospheric quality. It has been the intention of the GAP Forum periodically to update this initial discussion paper, but recent developments make it timely not only to return to that discussion but to widen it to address, in a more explicit and urgent manner, the general question of how to put in place a more comprehensive and effective framework for managing the global atmospheric environment.

This new paper is intended as a basis for discussion among GAP Forum members. It will have achieved its purpose if it assists the emergence of a broader consensus among the GAP Forum's partners as to the strategic directions in which a new framework could be sought, and wider international understanding of the issues and options. The next section of the paper sets the context and, in particular discusses current developments which could in the next few years provide major opportunities for progress. The central part of the paper then identifies three possible strategic directions which could in principle be pursued to secure more effective international co-operation. They are not exhaustive of the possibilities, but are intended to be broadly illustrative. How best advantage might be taken of these opportunities is then briefly reviewed in a final section.

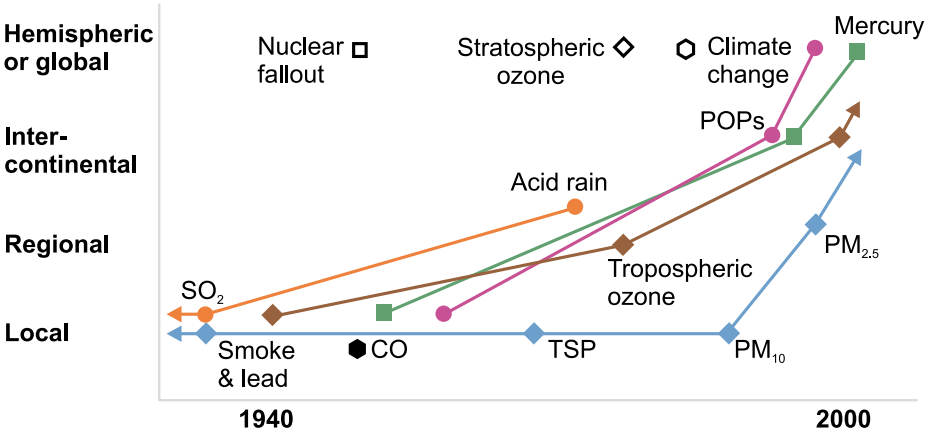

Figure 1: Evolution of the perceived scale of air pollution problems.
Points indicate approximately when scientific consensus emerged and public policy action should be considered. Some pollutants such as ozone and particulates (first Total Suspended Particles (TSP), then PM_{10} and then $PM_{2.5}$) have been reassessed over time as relevant on larger spatial scales (from Keating, T.J, West, J.J and Farell, A.E. 2004. Prospects for international management of intercontinental air pollution transport. In Inter-Continental Transport of Air Pollution ed by A. Stohl. The Handbook of Environmental Chemistry 4. Springer-Verlag, Berlin).

2 OLD CHALLENGES AND NEW OPPORTUNITIES

The Challenges

The starting point for any discussion of the international dimensions of air pollution must be the nature of the challenge which global air pollution represents to human well-being and environmental quality. It is now estimated that globally outdoor anthropogenic $PM_{2.5}$ and ozone in both urban and rural areas, accounts for 3.7 million annual premature deaths due to $PM_{2.5}$ and about 700,000 due to ozone and millions of cases of respiratory and other illnesses. It reduces crop yields, affecting food security, and damages vegetation and biodiversity.

Necessarily it is local measures which have most effect in reducing air pollution, but the transport of pollutants – at regional, hemispheric and global scales - and their residence time in the atmosphere largely determine the geographical scale at which abatement policies must be set if they are to be effective. Over time atmospheric scientists and policy-makers have been forced to shift their focus to steadily wider geographic scales, as figure 1 illustrates.

Important scientific assessments and policy initiatives have emerged from this process. The uncomfortable implication from them, and most notably from the recent report of the LRTAP Convention Task Force on Hemispheric Transport of Air Pollution (HTAP), has been that national goals for abating air pollution and its effects cannot now be achieved without increased international co-operation, not only at regional but also at hemispheric and global scales. The lesson from the 30 years' experience of the LRTAP Convention is that regionally co-ordinated and implemented policies and strategies can best secure progress.

Over the years a complex pattern of agreements and institutions (summarised in annex 2) has developed, able in certain respects at least, to address important aspects of international air pollution. In recent years LRTAP and UNEP have both begun to focus on the overall challenges in a more coherent way, and achieved some important steps forward. Nevertheless it is clear that current institutions and processes remain far from adequate. Mechanisms for identifying important emerging issues and developing agreed and enforceable solutions are limited and often weak. In particular they fall short in four fundamental respects:

- The lack of an adequate policy and regulatory framework for addressing the most damaging regional and hemispheric pollutants – particulates and ozone and its precursors such as methane;

- The absence of effective links between climate and air pollution policies in spite of largely similar sources, physical processes and necessary abatement measures. Air pollution abatement measures of the kind pursued by the regional networks could make a significant contribution to abating climate change and effective co-ordination of policies and strategies could significantly reduce the costs of achieving long-term goals in both areas with considerable benefits for the regions;

- The need to move towards integrated multi-pollutant strategies away from pollutant-by-pollutant measures, so as to ensure that measures are synergistic and cost-effective and that unwanted tradeoffs are avoided;

- The lack of a 'global voice' to highlight the importance of air pollution in wider international environmental debate and to act in concert with other global environmental conventions.


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In part, these limitations may be an inevitable consequence of the complexity of air pollution as a policy issue, particularly the range of different pollutants involved, differences in residence time in the atmosphere and the extent of geographical dis-

persion. Yet the successes which international institutions have achieved in recent decades – notably by LRTAP and UNEP -indicate clearly that even these entrenched problems can be solved. More particularly, a number of recent trends and new developments, which are the main stimulus for this discussion paper - suggest that we are now entering a period offering major opportunities for progress.


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New Opportunities

The last few years have been marked by the emergence of important new trends and developments in air pollution science, and in understanding of their implications for policy. These include the emergence of nitrogen pollution as a major area of global concern; a widening recognition of the scale of ground-level ozone pollution, highlighted by the landmark study by the Royal Society ('Ground-level ozone in the 21st Century: Future Trends, Impacts and Policy Implications', which endorsed, inter alia, the approach of the GAP Forum); and the recognition of the scope for tackling mercury at the global scale, now reflected in the international initiative under way through UNEP.

Beside these longer term trends, there have been four major initiatives by inter-governmental and non-governmental organisations (summarised in the box below) which are now coming to a culmination and could potentially provide a platform for a major step-forward in international governance of air pollution:

These developments come at the end of a period when developments in UNEP and LRTAP – the two leading inter-governmental bodies in the field - have made them appear, at least to the outsider, far better equipped to support the consolidation and strengthening of the systems for managing global atmospheric quality. Within UNEP a central focal point has emerged capable of servicing regional networks and focussing and mobilising its response to atmospheric issues at the hemispheric and global scales. For some years the LRTAP Convention's concern with 'outreach' has been somewhat vague and aspirational, but more recently has become clearly focussed and substantive as the strategic review has grappled with the implications.

There is the possibility that, in the last months of 2010 and through 2011, the four developments described above could converge and create the opportunity for a major step forward in global atmospheric governance. It is important that the response to these separate developments be seen in association, and that those developing policies within regional networks and other international and national institutions respond with a broad strategic sense of the opportunities for progress which they open up, rather than in piecemeal or incremental fashion.

This discussion paper is a contribution to the debate on how such a response might best emerge, and how advantage could be taken from the opportunities it could open up. The next section examines what a new world atmospheric regulatory regime would require, and the kinds of broad strategic options which might be open for it. The Final section then considers the implications for responses to current initiatives and developments, and what the next steps in carrying them forward might most appropriately be.

New Opportunities

Regional Co-operation: Recent activities of UNEP, in collaboration with the GAP Forum, have promoted the development of inter-governmental framework agreements in all major sub-regions of Africa (i.e. Eastern, North, Southern and West and Central) and across Latin America and the Caribbean, as well as initiating the Joint Forum on Atmospheric Environmental Issues in Asia and the Pacific. This means that, although there are regional differences in the maturity of the initiatives, there is now almost global coverage of air pollution networks (as shown in figure A1) and examples of the networks working together.

Hemispheric Air Pollution: The recent report of the LRTAP ConventionTask Force on Hemispheric Transport of Air Pollution (HTAP), which involved researchers from outside the UNECE region, has clarifyied the importance of ozone and particulates as hemispherically transported pollutants. Its conclusions echo the work of the GAP Forum over recent years in arguing the case for a new framework for co-operation through a 'confederation' or close partnership of regional networks.

The UNEP Global Assessment of Short-Lived Climate Forcers (SLCFs) ('Integrated Assessment of Black Carbon and Tropospheric Ozone, and its Precursors'): Established following the GAP Forum Stockholm Conference in 2008 on '*Air Pollution and Climate Change: Developing a Framework for Integrated Co-Benefits Strategies*', is likely to confirm the case for stronger action at international level on ozone, methane and black carbon to simultaneously reduce health and environmental air pollution effects and give short-term climate benefits to compliment essential action on long-lived climate forcers such as carbon dioxide. Indeed the implication from some studies that integrated strategies could reduce the costs of achieving long-term goals in both areas by as much as 20 per cent makes a compelling case for strengthening international machinery to allow this to happen.

New Long-Term Strategy of the LRTAP Convention: The decision of the Convention – which covers North America, Europe and the Russian Federation – to review its long term strategy affords the opportunity to open links to climate policy and endeavour to incorporate hemispheric pollutants which are also climate forcers. For some time the Convention has pursued, partly through the GAP Forum, an 'outreach ' policy to other networks, increasing communication and trying to lay the groundwork for close co-operation. But it seems clear that the strategy that may now emerge will go far beyond this, meaning that it will cease – as it must - to be just a regional institution.

3 A GLOBAL FRAMEWORK FOR AIR QUALITY: EXPLORING THE OPTIONS

In this section we outline a number of possible options for developing a more effective strategic framework for regulating global air quality which could in particular address the issues set out above. The options put forward are necessarily not exhaustive. Any number of variants could be considered. They are simply intended to clarify the main possibilities. Before that, however, a few comments are necessary on the essential underlying question of how far there is now, at global scale, the necessary bedrock of common values and interests which could make practical progress possible.

Common Values and Interests

The prospects for securing agreement to changes in international systems can depend on some more fundamental underlying consensus in attitudes and values, and, in particular, in the goals being sought. At this level the development of an international consensus on new global regulatory systems for air quality might appear to face two immediate and fundamental obstacles.

The first is the substantial - but narrowing - disparity between North and South in the scale of air pollution and the in the human capacity and physical resources to tackle it. It might be expected that this would lead to fundamental divergences of political attitude of the kind that have regularly undermined climate negotiations. In fact in the air pollution field, richer and poorer, more and less developed, can find themselves bound together by common and complementary interests. Developing nations need to reduce air pollution to protect the health of their populations and because, at a relatively early stage in the development process, clean air can become a contributor rather than an impediment to economic growth. At the same time developed countries can increasingly find that their air quality targets are unachievable – or at least far more difficult to achieve - because of pollution imported from developing regions. Though barely acknowledged, they also now have resources of human manpower, expertise, and material hardware, which are beyond what their air quality programmes any longer need, but which could make an important contribution elsewhere. At a fundamental level, therefore, needs and opportunities for the more and less developed world can be complementary and mutually supportive.

Second, cultures and regions can differ substantially in the role they assign to regulatory systems and in the importance they attach to international harmonisation and integration. For the older states of Europe, for instance, achieving international regulation and integration has been a priority commitment over many decades, whereas in the newer and emerging states of Africa or Latin America, still developing and exploring the limits of their nationhood, it may not rank as a similar priority.

In developing regions part of the answer has been provided by focusing less on agreement on legalistic restraints than on the development and adoption of positive common programmes. Sometimes agreement on such programmes can be the most effective course and by-pass the need for institutional reform, as for instance in the UNEP Partnership for Clean Fuels and Vehicles (http://www.unep.org/transport/pcfv/).

Getting the balance between such programmes and more formal international integration right is an important challenge. Positive programmes to pursue new policies at a multi-national scale can often be the most constructive immediate course, but there comes a point when – in an inter-dependent world – international legal restraints on unneighbourly practices becomes unavoidable. In a sense therefore positive multi-national programmes and restrictive international legal agreements become complementary.

Components of an Effective System

With these cautions and caveats in mind, the next issues for consideration are the essential components that are necessary for a more effective framework for protecting the global atmosphere. At a broad level, experience appears to suggest that there are three main requirements:

- **A global data/information coordination mechanism for data collection, public reporting and, to some extent at least, research**. In principle this should not present great difficulty. The World Meteorological Organization (WMO) already operates the Global Atmosphere Watch (GAW) programme which includes pollution measurement sites across the world, most of which are also part of regional networks. For CLRTAP, the European Monitoring and Assessment Programme (EMEP) and its Working Group on Effects gather data and organize research on atmospheric levels of pollution and effects, respectively, at the regional level. The CLRTAP Task Force on HTAP has already embraced regions outside UNECE in its assessment work and other international networks have their own international scientific organizations. A global system could build on these.

- **An assessment mechanism for identifying and assessing emerging issues and presenting information for policy development**. Globally, such a mechanism could be analogous to the International Panel for Climate Change (IPCC) producing assessment reports for policy application. Regionally, it is already included within CLRTAP's activities, partly through its integrated assessment programme, and partly through expert task forces which, together, provide the necessary information on which to base policy and action. Again, a global system could be built on, or at least modelled on this. Other regional networks, particularly in Asia e.g. ABC, EANET and the Malé Declaration, are also producing regular assessment reports.

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- **A negotiating platform or platforms to develop agreed policies and abatement measures for relevant geographical scales or national groupings.** Such platforms exist for international legal instruments such as UNFCCC globally and CLRTAP regionally. In the case of UNFCCC and its Kyoto Protocol, these are separate entities from the assessment mechanism of IPCC. For CLRTAP, which is a framework convention like UNFCCC, the negotiating platform provided by the meeting of the Parties (Executive Body) also directs the scientific data collection as well the assessment mechanism. CLRTAP's close interlinkages between science, assessment and policy have been seen as a major advantage in its work, but they may be difficult to replicate generally. However, in some developing regions such integrated processes are beginning to emerge (see Table 1).

Strategic Options

In discussions within the GAP Forum and elsewhere in recent years, three broad approaches have emerged:

- Negotiate a completely new global legal instrument;
- Extend an existing international legal instrument; which might involve
  - either merging with climate systems under UNFCCC
  - or widening the LRTAP Convention to provide a global rather than regional framework agreement,
- Build on existing regional networks and agreements to develop a global umbrella organization.

In this section we seek to assemble some of the key considerations:

NEGOTIATING A NEW GLOBAL LEGAL INSTRUMENT

Establishing a new, more integrated and comprehensive system would require an initiative through a UN body or one of its agencies to promote some form of new convention or instrument. This has obvious appeal, since all three requirements listed above could be incorporated in such an instrument (as they are with CLRTAP) from the start.

However, there could be many problems with the negotiations. The issue is not currently on the agenda of any UN body and it is questionable if it is currently seen as having sufficient political priority to command the necessary time and attention. Past experiences of the significant time and resources required for such negotiations, as well as recent experiences of failures of some political negotiations to achieve agreement on environmental issues, e.g. negotiations on the follow-up to the Kyoto Protocol, have made political leaders reluctant to initiate negotiations unless a clear outcome is foreseen. Getting widespread agreement for air pollution negotiations could be difficult, given that the issue is often perceived differently in different regions of the world and, in addition, current progress on tackling air pollution problems differs widely from region to region. Furthermore, coordinating the various existing institutions which have interests in air pollution could also pose a challenge, unless they all were convinced that there were common benefits from negotiating a new instrument. Some might even see such a new instrument as increasing the current complexities and causing further delays to regional action. Overall, it seems likely that negotiations would be long and complex and prospects for success in the near future far from certain.

EXTENDING AN EXISTING INTERNATIONAL LEGAL INSTRUMENT

Adapting and extending an existing legal convention to cover hemispheric and global air pollution would not necessarily be simpler and quicker than negotiating a wholly new agreement. The historical baggage of the existing agreement, and vested interests among its members, might well make it complex and time-consuming. Nevertheless the chances are that it would be simpler, and it would also have the merit of avoiding the further proliferation of international agreements and institutions.

Two options then present themselves:

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- to bring relevant air pollutants within the scope of UNFCCC and the climate negotiations;

- to expand the geographical application of the framework agreement of the LRTAP Convention so that its scope is not restricted to countries within the UNECE Region.

Extension of UNFCCC could, in particular, secure some integration of climate and air pollution policies, and allow the impacts of hemispheric air pollutants which are also climate forcing gases to be tacked. Further, because of the structures already in place within the UNFCCC system, it would mean that all the three requirements for a viable international system would be met. Thus, it might seem the simple and obvious approach, building on the recognition that two of the main air pollutants for which there are no adequate global negotiating and policy mechanisms (ozone and aerosols) are also climate forcers. In principle it could address the key issues of the disconnection between air pollution and climate policy and the need to focus strongly on what are the main current international air pollutants.

In addition, there is already a basis to build upon. There is a relevant chapter in an IPPC report, since IPCC is already looking at short-term climate forcers, and there are pre-existing negotiating systems in UNFCCC. If it were then to forge a link with regional air pollution networks it might be possible for UNFCCC to develop a balanced general atmospheric policy which gives adequate attention to air pollution.

However, it seems likely that fundamental shifts of political attitude would be necessary if the issue was to be given sufficient priority. In addition, there would still be no obvious mechanism for addressing non-climate forcing air pollutants at the global scale. However, the overriding consideration is that, given the difficulties that UNFCCC has experienced in negotiating a follow-up to the Kyoto Protocol, the possibilities for expanding the scope of UNFCCC must currently be remote. Equally, there would be the strong possibility that the relatively benign and harmonious approach which has generally prevailed in international air pollution negotiations would be lost, as the scientific priority which has driven air pollution negotiations yielded to the imperatives of economic competition that have so often prevailed in climate negotiations.

An alternative option, extending the LRTAP Convention to a global scale could be seen to have the advantage that all major air pollutants have so far been addressed through existing CLRTAP protocols and scientific studies. It should also be relatively simple because the LRTAP Framework Convention was drafted in general terms, for universal application, and its links to the UNECE region were a subsequent and incidental rather than necessary feature. The basic 'framework convention' could apply to all parties, but existing and future protocols need only have application for relevant regions or grouping of members who would negotiate and ratify them.

On the other hand, the UNECE is deeply entwined in the current legislation, and, while possible, extracting it to widen its application might be less easy than assumed. Extension to the global scale is seen as a very major step by the current CLRTAP Parties; the Executive Body of the Convention discussed possibilities for such an extension two years ago and decided against such action at that stage, largely on grounds of cost and practicality in addition to legal complexity. There was at that stage also a sense that the step was premature, though it kept open the option of returning to the issue at a later time.

Above and beyond this, however, are considerations of perception and equity. It is essential that any global instrument for managing atmospheric quality is 'owned' by all regions and by North and South alike. Whatever the practical advantages to them of this course, it is likely that parties from East and Southern Asia and from the rest of the Southern Hemisphere might feel that, by adapting a UNECE Convention they were inheriting something essentially reflecting Northern and Western values, even though, in legal substance that is not an argument that could be sustained.

BUILDING ON EXISTING REGIONAL NETWORKS AND AGREEMENTS

A third option, to build on existing regional and global air quality networks and agreements, opens up a wider range of possibilities. It is also close to the 'confederation' or partnership of existing regional networks which the Report of the Task Force on Hemispheric Transport of Air Pollution urged.

In its discussions this has appeared to the members of the GAP Forum to open up a wider range of possibilities, and to be a more practical and realistic, if less complete and tidy, solution. The case for this course is in part that it does not raise to such a great extent the difficulties inherent in developing new international agreements

The core of the option would be increased co-ordination – even integration – of the LRTAP Convention and the air pollution activities of UNEP in respect of regional networks. Fortunately, they are largely complementary. LRTAP brings a relatively long and successful history of air pollution science and management across much of the Northern Hemisphere. As a result of providing the secretariat for many of the regional networks in the Southern Hemisphere, UNEP brings closer engagement with the regional air pollution problems of the Southern Hemisphere and the crucial linkages of air pollution policy to economic development and to climate change.

The option raises three questions: Could it be achieved? Would it deliver what were identified earlier as the three essential components of a comprehensive and effective global regime? And how in practice could such an approach allow an effective integration of air pollution and climate policies?

Implementation Options: The different ways in which UNEP and LRTAP might most productively integrate their activities and responsibilities is a matter that is best left to the two organisations to assess bilaterally. But for the partners in the GAP Forum concerned to promote more effective international co-operation, it is important to be confident that at least one practicable and effective option is open. For this purpose we sketch here one option, recognising that it may not necessarily be the most appropriate one.

The key step should be developing a Joint Secretariat - perhaps by moving the LRTAP Secretariat from UNECE to a global UN body in Geneva, which might for instance be the European Office of UNEP. If it was serviced through UNEP, this could provide a basis for more effective co-operation among regional networks at the global and hemispheric scales and, in particular, provide reassurance to the developing regions when most of the practical input was necessarily coming from LRTAP and the Northern Hemisphere. A joint secretariat of LRTAP and UNEP in Geneva


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would also allow closer links with WMO and thus help consolidate existing expertise in global atmospheric issues. Whatever the servicing arrangement, the benefits of closer links could be significant.

It would have to be recognised that linking LRTAP and the relevant part of UNEP would not be linking like with like. They are basically different kinds of institution – one an international treaty organisation, the other a special programme of the UN without its own free-standing treaty. This could complicate a Joint secretariat's operations, but there is no reason to believe that it need prevent it.

Meeting the three core requirements: Linking the regional networks through a common secretariat would however provide the catalyst for providing progressively the three components identified as necessary for an effective system:

A global data/information coordination

Data/information coordination mechanisms at the regional scale are well developed in many regions. EMEP under CLRTAP was established even before the Convention and incorporated into it when the Convention was adopted in 1979. EANET was established specifically to develop a monitoring network, while other regional networks, even if they have aspirations to move towards assessment and even a negotiating platform for policy action, are currently developing their data/information mechanisms. All the regional networks differ greatly, in substance and objectives, but that need not be an obstacle. EMEP, as the oldest existing mechanism, and as one closely linked to a legal instrument, could provide some indication of a suitable mechanism for global coordination. Indeed, the globalisation of EMEP would provide much of the coordination required globally and, since EMEP as an entity does not appear to be constrained in the same way as CLRTAP (though funding and guidance for its work is currently through CLRTAP), there might be potential for creating a global EMEP (GMEP?). On the other hand, WMO's GAW programme already provides some of the functions of a global EMEP and coordinates the collection of pollution measurements from sites across all regions. Most of these are already regional monitoring sites and they also conform to the more stringent requirements of a GAW site. An alternative approach would therefore be for WMO to consider how it might further develop its GAW network to achieve something more analogous to EMEP on a global scale.

Another aspect of data/information coordination is the measurements and observations on the effects of air pollution. Traditionally, this has fallen outside the remit of EMEP. CLRTAP's Working Group on Effects is responsible for this area of work. Other regions also mostly separate their pollutant measurement activities from the observation of effects, probably because these involve different experts with different skills. But it is important to bring the two sets of data together in any subsequent assessment. Since effects measurements lie outside of the remit of WMO, new arrangements would have to be devised to provide the necessary measure of global cover and co-ordination.

In an informal way, the GAP Forum is providing a degree of coordination, and exchange of information and experience, between the regional networks and agreements. While this has proved a useful first step towards a global process, the GAP Forum's scope and resources are limited so a major intergovernmental organization is needed to take the process further.

Global Scientific and Policy Assessment

Developing a global assessment mechanism is more challenging. However, simply bringing together pollution measurements and effects observations moves some way towards assessing the impacts of current pollution levels. It may also provide sufficient information for modelling future impacts under possible future pollution scenarios.

Globally, WMO already provides a level of assessment through its GAW programme results, though this is not likely to be sufficient to move towards global policy development. A more refined model for assessment is evident in the work of IPCC and this model could lend itself to an effective mechanism for assessing air pollution at the global scale.

IPCC was established by UNEP and WMO "to provide the world with a clear scientific view on the current state of climate change and its potential environmental and socio-economic consequences". It is a scientific body set up to review and assess scientific, technical and socio-economic information, but it does not conduct research or monitor climate-related data. A similar process, if established to assess air pollution data across the globe, would be in an excellent position to guide policy, whether it is regionally or globally focused. While some have argued that IPCC is too separated from the UNFCCC process that it feeds, where there is currently no global process to negotiate policy action, as in the case of air pollution, a global assessment mechanism could be a useful way forward. As they have already done in the case of IPCC, WMO and UNEP are the obvious bodies to develop such a mechanism for air pollution. And similarly to IPCC, the scientific and technical expertise needed to support the mechanism for air pollution is already available from all regions of the world.

However, the creation of a new 'IPCC-type' institution may be an unnecessary

duplication. An alternative course would be to expand the role and remit of the Task Force on Hemispheric Transport of Air Pollution. The Task Force has established a reputation for outstanding scholarship. Its membership has not been confined to the UNECE region but has drawn in experts from across the Northern Hemisphere, in particular from Asia, and over the least few months it has begun to outreach to the Southern Hemisphere.

It could report either to the combined Secretariat, or could be established, as with IPCC, on a more independent basis.

A global negotiating platform

The development of global systems for information/monitoring and science policy assessment is important in itself, but it is the establishment of a global negotiating platform which is ultimately the critical step. Co-operation within a partnership of regional networks serviced through a common secretariat would go some way to secure this. But transparency and accountability – and indeed long-term acceptability – require the development - not immediately but not too long-delayed, -of an intergovernmental negotiating platform.

A way forward would be for the regional networks jointly to initiate a process for the development of a Framework Agreement. This could be done by starting afresh with the preparation of a new framework convention, or it could be done by opening the LRTAP Convention to countries generally, and amending certain of its provisions.

The end result would be a framework convention codifying commitments and procedures on such matters as monitoring and reporting, information exchange, public access to information, and on the role of certain sub- or associated bodies such an as 'IPCC/HTAP' type mechanism. It would also include provision for the establishment of negotiating fora for specific problems, engaging on each occasion the relevant sub-set of members which might be at regional, hemispheric or global scale

Linking with Climate Change Policy: It was suggested in the Introduction that an essential requirement for any satisfactory global framework for air pollution was that it could allow the effective integration or air pollution and climate policies. How could this be achieved under this option?

The key point is that those air pollutants that are also climate forcers operate primarily at regional or hemispheric scale. That is therefore the scale at which policies to give effect to any climate-driven abatement targets will need to be implemented, even though the targets and priorities may be set through UNFCCC at global level. In effect therefore, in addition to their other roles in global and hemispheric air pollution, the regional air pollution networks could act as implementing agents for relevant aspects of global climate change policy. This need not involve unduly onerous procedures or obligations. There could simply be an understanding that the regional networks – acting individually or collectively as appropriate - would have regard for climate targets and priorities in the preparation of regional air pollution policies bearing on the short-term forcers i.e. they would simply recognise the co-benefits that air quality management can have for climate.

The implication therefore is that the third option could allow all those requirements identified earlier as necessary for a more effective global framework, to be achieved, and would allow more effective linkage with climate policy. It could be achieved even though the various elements brought together were not custom-built in the first place to achieve these purposes.

The other critical consideration is practicality. As the climate change negotiations painfully demonstrate, progress in the negotiation of new international conventions tends to be slow and laborious, particularly when participants are as numerous and interests as diverse as at the global scale. The obstacles are familiar and predictable: the constraints imposed by wider political conflicts, which may not themselves be directly related to air pollution; the costs of action and the inevitable competition for economic advantage, often seen in the context of economic development; Inter-organizational rivalries and vested interests; and the 'inter-connectedness' of issues – how to separate the relevant issues from other linked problems. In these circumstances the benefits of a strategy which builds incrementally on existing systems and processes appear formidable.

4 'WHAT IS TO BE DONE...?'

Lenin's question is, as always, at the heart of the matter. How does one move from a visions and objectives to practical action? What can be done now?

The final option explored above - based on integrating existing institutions – may resolve many practical problems, but it cannot tackle all of them. Although the process could be carried through very largely by political agreement and administrative process, rather than by more rigid and protracted legal procedures, it is bound to be incremental, and most likely in its turn to be prey to delays, conflicts of interests, and the vagaries of political will. It would need the blessing of both the UNEP Governing Council and the Executive Body of the LRTAP Convention, and neither could be assumed. Even with that, there will inevitably be the delays inherent in any inter-governmental process.

In these circumstances, responses to the four recent developments highlighted at the beginning of this paper assume a particular significance.

Early and appropriate action on those issues could play a crucial catalytic role in the development of a more effective framework for international co-operation, whether along the lines outlined above or on some other basis. Moreover, they would be likely to be equally relevant if the conclusion were to pursue another of the strategic options, or one not covered here.

What then does this discussion paper suggest might best be the response to the various opportunities highlighted in the Introduction?

FURTHER STRENGTHENING OF REGIONAL AIR POLLUTION NETWORKS

Although in some regions little more than embryonic, regional air pollution networks are now in place throughout the world. They vary enormously in resources, capacity and experience. Rather than that representing a problem, however, it represents the major opportunity for fruitful co-operation and shared progress which developing a partnership or confederation offers. There are, however, immediate problems. A number of them operate on a tenuous and fragile basis, at the mercy of the vagaries of fashion among donor bodies. More stable funding of their work is an urgent requirement. At the same time the networks in the developing regions need to adapt to new needs and opportunities. Necessarily their main preoccupation will be with developing core systems and infrastructure for air pollution monitoring, assessment and policy implementation but they may need to strengthen their work in two directions. One, which some are already pursuing, is strengthening the essential link to the processes and institutions of regional economic development. The other is exploring how far they can also take account of climate-pollution interactions and promote integrated regional strategies. Some networks, such as APINA in Southern Africa and the Latin American network are already doing this, so there is already a basis to build upon.

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THE REPORT OF THE TASK FORCE ON THE HEMISPHERIC TRANSPORT OF AIR POLLUTION (HTAP)

At its meeting in December 2010 the Executive Body of the LRTAP Convention will have to decide what action to initiate following the HTAP report. As it no doubt recognises, it cannot simply leave the report to stand simply as an important scientific assessment. It requires a response, in both policy and institutional terms – particularly the latter because agreed policies at the appropriate geographical scale will not emerge without an appropriate institutional mechanism to develop them.

With its essential scientific work complete, and with the support of the GAP Forum, the Task Force would be well-placed to widen its role, particularly because it has already drawn in a range of experts and interests across China, India and the rest of the Northern Hemisphere. Steering and reporting processes would of course have to change, since it has in a sense outgrown the UNECE region.

In line with options sketched earlier, any decisions on its future should leave open – indeed should facilitate – the possibility that it be developed as a kind of assessment process paralleling IPCC. Thus, the Task Force could ultimately provide one of the essential requirements for that wider 'confederation' (or partnership) of regional networks which it concluded was necessary.

UNEP REPORT ON THE SHORT-TERM CLIMATE FORCERS (SLCFS)

As with the HTAP Report, the crucial implications of the UNEP SLCF report, and other current studies (such as the LRTAP Review of Black Carbon) which it is likely largely to confirm, cannot be ignored. Since the short-term forcers are all regional and hemispheric pollutants, the body which succeeds the HTAP Task Force might provide one of the fora for carrying policy forward in this area also.

However, the scale and urgency of the issue, from the climate perspective, means that this would not be a sufficient response. A new global initiative will be needed for which UNEP is the only appropriate source. Unlike the partnership which should succeed the HTAP Task Force this is likely to need to be geared to urgent short-term action, but the partnership could make an important contribution to it.

THE LRTAP LONG-TERM STRATEGY

Like the work on hemispheric pollution and on the SLCFs, this reaches a crucial decision stage at the end of 2010. Ultimately it is an internal matter for the Convention, but the importance of the Convention means that the wider atmospheric science and policy community has a major interest. From that perspective there are two important steps:

- It is important that the new strategy should reinforce and extend the Convention's commitment to outreach and co-operation with other Networks. This need not be at the expense of continuing air quality issues within the UNECE region: a new and appropriate balance can be found.

- It is also important that the Convention seek to incorporate the short-lived climate forcers – black carbon, ozone and methane as fully as possible within the revision of the Gothenburg Protocol. The Protocol could then provide one important model for the integration of air pollution and climate at regional scale.


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ANNEX 1

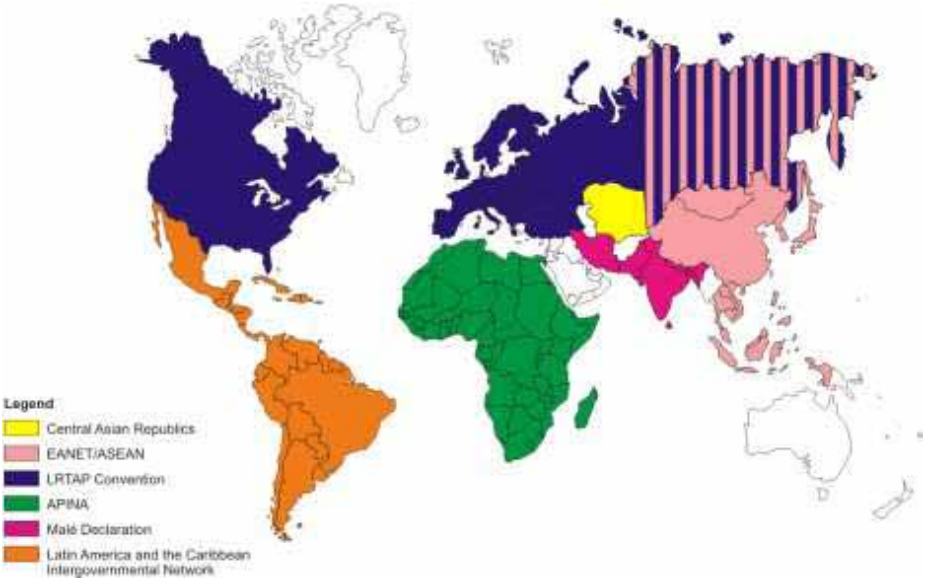

Figure A1: Geographical coverage of the existing regional air pollution networks

Notes:
- There is some overlap between networks, e.g. the LRTAP Conventional and EANET (the pink striped region), and EANET and ASEAN;
- The status of the networks, and their connectedness to regional policy developments varies from region to region as described in the Table 1
- The Malé Declaration on Control and Prevention of Air Pollution and its Likely Transboundary Effects for South Asia, Acid Deposition Monitoring Network in East Asia (EANET) , the Association of Southeast Asian Nations (ASEAN), as well as the Central Asian Environment Convention, Pacific Regional Environment Programme (SPREP), and the South Asia Cooperative Environment Programme (SACEP) Secretariats, have agreed in principle to meet in a Joint Forum on Atmospheric Environmental Issues in Asia and the Pacific' to promote co-operation and co-ordination.

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Table 1: Status of existing regional air pollution networks in developing regions

Regional Network	Region	Countries	Strategy Generation and Policy Assessment	Co-ordination	Technical Activity
Air Pollution Information Network for Africa (APINA)	Africa	Core countries in Southern African Development Community (SADC) region but outreach to rest of Africa	Regional policy framework agreements at ministerial level in SADC, West and Central, Eastern and North African sub-regions covering all aspects of the air pollution issue	APINA Coordination by the School of Mines, University of Zambia and APINA managed by IES, University of Zimbabwe	Emissions inventories; atmospheric transport modelling; deposition monitoring; impact assessment; integrated assessment modelling; mitigation assessment
Atmospheric Brown Cloud (ABC) http://www.rrcap.unep.org/abc/index.cfm	Asia	Includes: China, India, Japan, Rep. of Korea, Maldives, Nepal, and Thailand	The specific objectives of ABC are to develop the science and capacity to study the issue of aerosols and related pollutants. Develop knowledge concerning mitigation measures; and raise awareness on the issue, among the general public as well as the policy makers.	ABC Secretariats at: UNEP-RRC-AP and Center for Clouds Chemistry and Climate of the Scripps Institution of Oceanography (SIO), USA	Emissions inventories; atmospheric transport modelling; deposition monitoring; impact assessment; integrated assessment modelling
Central Asian Republics http://www.unece.org/energy/capact/	Central Asia	Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan	Emerging - Kyrgyzstan and Kazakhstan are Parties to LRTAP Convention	Assistance from UN-ECE project Capacity-building for Air Quality Management and the Application of Clean Coal Combustion Technologies (CAPACT)	Deposition monitoring, mitigation assessment
EANET http://www.eanet.cc/	E Asia	Cambodia, China, Indonesia, Japan, Lao PDR, Malaysia, Mongolia, Myanmar, Philippines, Republic of Korea, Russia, Thailand, and Viet Nam	Provide useful inputs for decision making at various levels with the aim of preventing or reducing the adverse impacts on the environment, and promote cooperation among countries.	UNEP/RRC-AP is secretariat and Asia Center for Air Pollution Research (ACAP), in Japan, is the Network Centre	Deposition monitoring
Malé Declaration	S Asia	Bangladesh, Bhutan, India, Iran, Maldives, Nepal, Pakistan and Sri Lanka	Strengthening the regional policy framework for air pollution reduction	Network Coordination by UNEP/RRC-AP together with SACEP. NFPs (countries) have ultimate responsibility 8 countries covered	Emissions inventories; atmospheric transport modelling; deposition monitoring; impact assessment; integrated assessment modelling; mitigation assessment
ASEAN Haze Action Plan Agreement on Transboundary Haze Pollution http://haze.asean.org/index.php	SE Asia	Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand, Singapore, Vietnam	ASEAN Agreement on Transboundary Haze Pollution came into force in November 2003; now ratified by 9 countries	Regional Haze Action Plan (RHAP) - Co-ordination and Support Unit (CSU) at ASEAN Secretariat. Focal points exist in each country	Joint efforts in monitoring, preventing and mitigating transboundary haze pollution resulting from land and forest fires
Inter-Governmental Network on Air pollution in Latin America and the Caribbean	Latin America and the Carib-bean	Argentina, Brazil, Chile, Mexico, Bahamas, Cuba, Haiti, Jamaica, Guyana, French Guyana, Suriname, Venezuela, Bolivia, Paraguay, Uruguay, Belize, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Panama, Ecuador, Columbia, Peru, Dominican Republic, Antigua and Barbuda, St Lucia etc	Ministerial support for formation of the inter-governmental network, preparation of framework agreement	UNEP ROLAC	In discussion

ANNEX 2

MULTI-NATIONAL AIR QUALITY AGREEMENTS AND INSTITUTIONS

The tables below provide a simple overview of key players in the global and regional efforts to understand and combat air pollution. They are not exhaustive.

They cover, in order, international agreements intended specifically to control some aspect of air pollution; international agreements which, while not specifically designed to tackle air pollution, relate directly or indirectly relevant to it; and, finally, the range of international organisations which will have a direct or indirect interest in air pollution

Table 2. Treaties (Conventions/Protocols/agreements) made to control air pollution, their regional scope and specific aims.

Agreement	Geographic scope (Number of Parties)	Main aim
1979 CLRTAP	UNECE (51)	Prevent and reduce air pollution (framework Convention) Framework Convention and seven binding protocols dealing with specific substances or groups of substances
Vienna Convention	Global (196)	Protection of the Ozone layer
1987 Montreal Protocol	Global (196)	Limit emissions of controlled substances that affect the ozone layer
2001 Stockholm Convention	Global (172)	Protect human health and the environment from Persistent Organic Pollutants
UNEP Mercury Initiative (convention under negotiation)	Global	Protect human health and the environment from mercury releases
Malé Declaration	South Asia (8)	Control and prevention of air pollution
ASEAN Agreement	South-east Asia (11)	Prevent and monitor transboundary haze pollution
Acid deposition Monitoring Network in East Asia (EANET)	East Asia (13)	Preventing or reducing the adverse impacts on the environment, and promote cooperation among countries

Notes:
In general, "a treaty is an agreement under international law entered into by actors in international law, namely sovereign states and international organizations". Such treaties can be known as (international) agreements, protocols, covenants, conventions, exchanges of letters, etc., but all of these agreements under international law are equally treaties with similar standing.
While most treaties and agreements are negotiated under the United Nations or one of its regional or intergovernmental organizations, the organization does not remain an overarching body once the treaty enters into force. Even though the terms of the treaty may limit membership to those who are states recognized by the United Nations or are members of a United Nations region, treaties are administered by their parties and governed by meetings of their parties .

Table 3. Agreements that have a direct or indirect interest in the control of air pollution

Agreement	Geographic scope (Number of Parties)	Main aim
1992 Convention on Biological Diversity	Global (193)	Conservation of biological diversity, the sustainable use of its components
1994 UN Convention to Combat Desertification	Global (193)	Combat desertification and mitigate the effects of drought
1992 UN Framework Convention on Climate Change	Global (194)	Stabilize GHGs in the atmosphere to prevent dangerous anthropogenic interference with the climate system
1997 Kyoto Protocol	Global (192)	Annex I Parties to achieve emission limitations and reductions of GHGs
Regional seas (HELCOM, OSPARCOM, BARCOM)	European regional seas	
1989 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal	Global (174)	Prohibit export of hazardous wastes and ensure proper disposal of hazardous wastes
1998 Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade	Global (134)	Responsibility and cooperation on the international trade and use of certain hazardous substances

Table 4. Principal international organizations with global or regional interests in air pollution

Organization	Interest
United Nations Environment Programme (UNEP)	Environmental protection – including control of air pollution
World Meteorological Organization (WMO)	Meteorological measurements and movement of air pollution
World Health Organization (WHO)	Human health issues including those related to indoor and outdoor air pollution
Food and Agriculture Organization (FAO)	Effects of air pollution on food and agricultural production
Regional Econ Dev Organisations	
European Union	Has interests in air pollution control within the EU and its Member States
International Maritime Organization (IMO)	Developing and maintaining a comprehensive regulatory framework for shipping
International Civil Aviation Organization (ICAO)	Works to achieve its vision of safe, secure and sustainable development of civil aviation through cooperation amongst its member States

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