

Capitalizing on the Success of the Long-Range Transboundary Air Pollution (LRTAP) Regime to Address Global Transboundary Air Pollution

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In August 2004, scientists studying air pollution and climate change in New Hampshire discovered clouds of soot containing ozone and fine particulates emitted from factories and automobiles in Asia (Ebbert 2004). A few months later, the United Nation's Economic Commission for Europe (UNECE) began celebrating the 25th anniversary of its Convention on Long-Range Transboundary Air Pollution to Improve Air Quality (LRTAP), negotiated in response to regional transboundary air pollution that caused acidification in Sweden's lakes and waterways. LRTAP was signed in 1979 by 30 European countries, the United States, and Canada, and has since been followed by eight protocols designed to reduce emissions of specific hazardous air pollutants. Because LRTAP focuses on European states, membership in the convention has been confined to its original parties and new European states (Barrett 2003). However, as researchers in New Hampshire discovered in 2004, gains made by the LRTAP regime may soon be rivaled by the effects of polluting emissions generated in nonmember states. With the worldwide growth of industrial and mobile source emissions over the past two-and-a-half decades, the need to address transboundary air pollution from non-European (non-ECE) countries is also growing.

This paper will explore viable ways of expanding LRTAP to create a global agreement to reduce transboundary air pollution which will permit all signatories to meet their economic and social needs and other international commitments. LRTAP and its eight protocols, though originally regional in scope, offer adequate structure to address transboundary air pollution on a global scale. Three options to capitalize on the success of LRTAP in order to address the problem of global transboundary air pollution are presented. The first option would expand LRTAP by opening membership to non-ECE countries, binding them to the existing convention and protocols. The second option calls for UNECE to institute cooperative projects with other organizations and countries without imposing binding obligations. The third option would establish a new umbrella oversight structure under which LRTAP would fall; this structure would oversee the development of other regional treaties to address transboundary air pollution. This paper concludes with a general discussion about the advantages of using this last model of regional environmental agreements as an alternative to global environmental treaties.

How LRTAP Developed

In the late 1960s, Swedish scientists noticed increased acidification in the nation's water bodies, and discovered that sulfuric and nitric acid, deposited through precipitation and settling out from ambient air, was the cause. They determined that these compounds were emitted by fossil-fuel burning in other European countries. At the United Nations Conference on the Human Environment, hosted in Stockholm in 1972, the Swedish government raised concerns about transboundary air pollution, and later that year a monitoring program under the auspices of the Organization for Economic Cooperation and Development (OECD) was approved to further investigate the Swedish scientists' claims.

By 1977, a relationship between polluting emissions from some European countries and acid rain in others had been established. It was another two years before the Convention on Long-Range Transboundary Air Pollution (LRTAP) was negotiated and ratified by over 30 signatories. This convention, which demanded only that parties try to reduce transboundary air pollution, was succeeded by eight protocols which set specific reduction goals for specific compounds. One exception, the 1984 Geneva Protocol on Long-term Financing of the Cooperative Program for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP), created a financing mechanism to support scientific data gathering to monitor compliance with the convention and its protocols. It was followed by protocols to reduce sulfur dioxide emissions (1985), nitrogen oxide (NO_x) emissions (1988), volatile organic hydrocarbons (VOC) emissions (1991), additional sulfur emissions (1994), heavy metals and persistent organic pollutants (POPs) (1998), and a protocol on ground-level ozone (1999).

While the LRTAP convention alone was, to some, “a toothless agreement that failed effectively to regulate emissions or transboundary fluxes of acid rain... it... set up an assembly of signatory parties to meet annually to review the implementation of the agreement, thus providing the institutional basis for a process of regime strengthening,” (Porter *et al.* 2000). This “regime strengthening” has taken place over the past 25 years, and it demonstrates that not all “toothless agreements” are destined to remain so. LRTAP is not a perfect agreement: Not all signatories to the convention are signatories to each of the eight protocols, for instance, and it has been argued that parties to the different protocols might have achieved the same emissions reductions even without committing themselves to LRTAP (Barrett 2003). Yet relative to many other international environmental agreements, LRTAP should be regarded as exemplary for several reasons.

First, despite arguments to the contrary, the regime appears to have contributed to significant overall reductions in air pollutant emissions in Europe during the last two decades (Wettestad 1997). For example, a study by Krewitt *et al.* (1998) demonstrated that LRTAP-sanctioned reductions of sulfur and NO_x were estimated to have resulted in “avoided damage costs” of approximately 100 billion ECU per year.

Second, EMEP, the program for monitoring and evaluating pollutant emissions throughout Europe, continues to function two decades after it was created. This ongoing program, which is both human and technologically intensive, demonstrates the level of signatories’ financial commitment to meeting the goals of LRTAP.

Third, as the science behind transboundary air pollution develops, the regime’s working groups continue to meet and discuss new protocols. The eighth LRTAP protocol, on the abatement of acidification, eutrophication, and ground-level ozone, for example, is aimed at reducing sulfur, NO_x, VOCs, and ammonia from energy generation, industry, motor vehicles, and food production. The agreement’s focus reflects the signatories’ acceptance and application of an expanding base of scientific knowledge about ground-level ozone and the factors that contribute to its formation. This protocol has only lately entered into force (UNECE 2005), and new LRTAP working groups--on particulate matter, heavy metals, and hemispheric transport--have recently begun to meet to investigate new subjects of concern.

The Need for an International Agreement to Combat Transboundary Air Pollution

Natural events like forest fires, volcanic eruptions, and dust storms can severely affect regional and even global atmospheric conditions, but anthropogenic sources of airborne pollutants may pose a greater long-term risk to human health and the environment. Particularly as developing countries industrialize and grow their vehicle fleets, worldwide aggregate emissions from these anthropogenic sources will rise as well.

LRTAP was the first multilateral environmental agreement (MEA) to address anthropogenic air pollution. Now, at the beginning of the 21st century, a more extensive agreement to combat transboundary air pollution is needed in order to manage pollutant emissions from nations who are not party to LRTAP. Developing countries in particular are not only less likely than their more industrialized counterparts to be able to deal effectively with transboundary pollution, but are also more likely to suffer domestically from the ill effects of polluting emissions. Furthermore, gains made by the original parties to LRTAP over the last 25 years could be reversed as industry and vehicle use grow in non-ECE countries.

Current international treaties address emissions of some airborne contaminants, such as POPs and greenhouse gases (GHGs), but many others remain to be addressed. Excessive or prolonged exposure to pollutants like VOCs, heavy metals, NO_x, sulfur, and ground-level ozone can affect human health and the environment, yet these compounds are not regulated on a global scale. An international agreement to reduce emissions of these pollutants would not only raise awareness of the impacts of such pollutants, but reducing emissions of these pollutants would also lead to improved quality of life for people everywhere.

LRTAP as a Springboard to International Agreement

Negotiating a global environmental agreement can be arduous and, very often, only marginally effective in addressing the issues that spurred the process. Negotiating an agreement can take years, sometimes decades, while treaty language is worked and reworked in order to satisfy as many nations as possible. The product is often so watered down by the time it is ready to be signed that it is frequently not sufficiently effective to address the original issues. For these reasons, global environmental treaties can often be ineffectual means of curing environmental ills.

LRTAP's success at achieving its objectives, together with the growing need for a global agreement on how to deal with transboundary air pollution thus beg the question of whether there may be a logical way to address air pollution on a global basis using LRTAP as a model in lieu of negotiating a new and separate global transboundary air pollution treaty. The answer is a qualified yes. The LRTAP regime has demonstrated its ability to address specific pollutants with targeted reductions, to incorporate new scientific research to set appropriate emission standards, and to emphasize the need for scientific monitoring and evaluation throughout the period of development and implementation of the protocols. The following three proposals offer ways to harness the success of LRTAP to address global transboundary air pollution.

Option 1: LRTAP as the basis for a global treaty

The first option for capitalizing on the success of LRTAP is to remove the geographical restrictions from membership to the convention and to use the treaty as the basis for an

international one. In this way, the achievements of LRTAP may be upheld as the standard against which the rest of world might be measured.

One way to implement this option would be to invite countries one by one to join the agreement. For example, because Asia, led by China, is understood to be the current leading source of air pollutants like NO_x (Akimoto 2003), appealing to China to join the treaty might be a wise move for the current signatories to LRTAP. The United States and Canada might also have particular interest in bringing Mexico on board in order to standardize industrial- and mobile-source emissions targets within the North American trading bloc.

Another approach would be for LRTAP members to invite groups of countries to join the convention. They could work with existing regional initiatives – e.g., with the UN Economic and Social Commission for Asia and the Pacific (UNESCAP) and the Office for Sustainable Development and Environment (OSDE) of the Organization of American States (OAS) – to initiate negotiations, with the objective of having all countries in a particular region sign onto the treaty. New signatories could be given the choice of signing any or all of the existing protocols after joining LRTAP, thereby giving them the same flexibility that the original parties to the framework had.

For this approach to be equitable, original parties to LRTAP would have to allow new signatories the same amount of time as they were permitted to phase in emission reduction strategies, though they may choose to offer incentives to new signatories for coming into compliance in a shorter amount of time. Offering new signatories the option of choosing a baseline year for determining reduction targets that differ from the baseline year used by the original parties could also make joining LRTAP more agreeable.

In addition to establishing different phase-in periods and emissions-baseline criteria, current members of LRTAP may need to offer a supplementary agreement for technology transfer to new signatory countries. Such an agreement would reflect the scientific and technical knowledge developed since the original convention was negotiated, particularly in the areas of pollution prevention in industrial processes and energy production.

Another means of attracting new signatories to the treaty regime would be to create a funding mechanism above and beyond the technology transfer agreement. Such funding would be used to pay for expert training and policy development programs both before and after signing onto LRTAP, in order to assist new signatories to assess the best methods to meet their new commitments, and to expand EMEP by setting up new monitoring stations in new signatory countries.

Another incentive to attract new signatories to the existing LRTAP regime would be to offer them additional financial and technical assistance for signing all existing protocols at once. This incentive would promote complete ascension to the LRTAP framework and expedite compliance with the convention and protocols.

Option 1: Strengths

One advantage of using LRTAP as the basis of a global treaty is that its original signatories are some of the largest emitters of airborne pollutants in the world--the United States, the United Kingdom, and Germany. As other MEA negotiations have shown, these countries--

especially the United States—can be extremely reticent to sign international environmental treaties. The fact that they have already signed the LRTAP convention and some of its protocols could eliminate a major hurdle to effectively negotiating a more inclusive global treaty.

Another strength derives from the fact that new signatories would likely view the supplemental technology transfer agreement as a tangible benefit. Original parties to LRTAP would probably also view this technology transfer agreement as an assured means to export their knowledge and technology to new markets.

Option 1: Weaknesses

The main weakness of this approach is the probability of compromising the existing LRTAP agreement in an effort to make it more inclusive. Most developing countries who might want to become new parties to LRTAP in order to take advantage of financing and technology-transfer agreements do not produce a large enough portion of transboundary air pollution to warrant these concessions on behalf of LRTAP members.

Furthermore, new parties to the agreement – particularly industrialized nations outside North America and Europe, such as Japan, South Korea, and Australia, and developing countries with large populations and rapidly growing economies, such as China and India – might dislike the idea of adopting an existing treaty, negotiated without them. Even if the substance of the treaty is something they can support, such countries might, perhaps, argue for a new treaty to be negotiated, one in whose formation they could play a greater role.

While the original parties to LRTAP might view expansion of the agreement to incorporate up-and-coming polluters as a more efficient way to address the issue of transboundary air pollution than having to negotiate an entirely new agreement, an important feature of this approach is that its success depends upon the bargaining power of the regime's original members. The concept of expanding the convention and protocols to incorporate membership from non-ECE countries is predicated on the assumption that the original signatories to the treaty will suffer if new signatories do not make the same emissions reduction commitments as they have. It is thus in the original parties' best interest to get major polluting nations to commit to similar reductions in emissions.

Option 2: UNECE as a regional partner and resource

In this second model, the UNECE, as the convener of LRTAP, would pursue partnerships with nonmember countries to provide technical and financial assistance in order to reduce pollution in these countries, thereby improving overall global air quality. The approach would be one of cooperation rather than one of compromise, with the goal being to share the experience and expertise of members of LRTAP to achieve voluntary reductions in pollution emissions in other regions of the world.

In early 2004, UNECE initiated such a program in the Central Asian countries of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan. This program, entitled Capacity Building for Air Quality Management and the Application of Clean Coal Combustion Technologies in Central Asia (CAPACT), is funded through the UN Development Account (UNDA) and managed by UNECE in cooperation with UNESCAP and the UN Environment Programme's (UNEP's) Resource Centre for Asia and the Pacific.

According to project documents, the objective is “to strengthen the capacity of air quality management institutions in Central Asia to implement the UNECE Convention on Long-Range Transboundary Air Pollution and its protocols as well as to promote the application of appropriate clean coal combustion technologies for heat and power generation from solid fuels” (UNECE 2004). At present, only two of the five Central Asian nations involved – Kazakhstan and Kyrgyzstan – are parties to the LRTAP convention, and neither of them have signed any of the framework’s protocols. However, all of the Central Asian countries are recognized by UNECE as playing an important role in preserving air quality in Europe, as they each suffer in varying degrees from urban air pollution and the effects of dependence on coal as their primary energy source.

CAPACT will meet its objectives through six work packages (WP), three of which focus on bringing one or more of the Central Asian countries into compliance with certain aspects of LRTAP with respect to air quality management, monitoring programs, and raising awareness of the importance of improved air quality. In Work Package 1 (WP1), CAPACT will develop a national plan in one of the Central Asian countries so that it may comply with selected LRTAP protocols. CAPACT will also create a subregional agreement under the Regional Environmental Action Program to raise awareness of the importance of good air quality and promote coordination among Central Asian countries in the area of air quality management. In Work Package 2 (WP2), CAPACT will focus on utilizing the Internet to share information, and in Work Package 3 (WP3) it will establish a monitoring station in one Central Asian country to meet the standards of EMEP and to link European and Asian air quality monitoring systems.

CAPACT represents the fundamental concept underlying this second option--to use UNECE as a partner to promote sound national air quality management policy and supply technology and training to other countries outside of the EU in order to reduce transboundary air pollution. The countries of Central Asia involved in CAPACT are eligible to become signatories of the LRTAP convention and protocols, but the idea of replicating this type of program in other areas of the world is not predicated on the hope of expanding membership to LRTAP to include these other regions. On the contrary, the value of this approach lies in the fact that the UNECE has technical and policy expertise that can be of use to countries outside of Europe, independent of whether or not these other countries are willing to be bound by international agreement.

Option 2: Strengths

The primary strength of this approach is its emphasis on voluntary cooperation among countries outside of LRTAP without pressure to meet strict guidelines, as ratifying a treaty would demand. Without strict emissions requirements, but with the promise of technical and financial assistance, this approach might more easily interest non-ECE countries in addressing their role in transboundary air pollution.

Another strength of this approach is the fact that it utilizes lessons learned from LRTAP efforts over the past two decades in a structured and formal way. The CAPACT program is the only formal partnership between UNECE and another group of countries outside LRTAP in the domain of transboundary air pollution, and this option would aim to replicate this initiative with other clusters of countries in South Asia, the Middle East, East Asia, Southeast Asia, Latin America, and even North Africa, for example.

In addition, with this option, the LRTAP convention and protocols would remain fully intact, and the balance that has been struck between monitoring, evaluation, compliance, and negotiating new agreements could be maintained for all current signatories. At the same time, this option would allow LRTAP signatories to build partnerships and goodwill with nonmember countries by creating an alternative mechanism to formal multilateral negotiations in an effort to combat transboundary air pollution.

This option also permits flexibility in defining the problems that need to be addressed to ameliorate air pollution in a particular location and flexibility in designing solutions to address those problems. This flexibility stems from the fact that participating countries would not be required to meet the emissions-reduction criteria of LRTAP protocols, and any new program could therefore be specific to nonmember countries' needs. This feature is demonstrated by CAPACT in the design of WP1, which focuses on developing the national air quality policies of one of the Central Asian countries in preparation for ratifying selected LRTAP protocols. It is also reflected in the design of Work Packages 4 (WP4) through 6 (WP6), which emphasize promoting clean coal technologies in light of the current level of dependence on coal for energy in the region.

The final advantage of this approach is the possibility that it could pave the way for a binding global agreement on transboundary air pollution once progress is made toward resolving countries' national air pollution problems. As technical feasibility is often an issue that holds countries back from joining MEAs, partnering UNECE with nonmember countries through a nonbinding agreement would offer them an opportunity to explore feasible solutions to national air pollution problems before obligating themselves to achieve targeted reductions. Establishing an agreement that becomes binding after feasible solutions have been identified or implemented might even produce a better, less "watered-down" agreement than negotiating an agreement that was binding from the outset.

Option 2: Weaknesses

For all of the advantages of a nonbinding approach to addressing transboundary air pollution, one disadvantage of such an approach is the fact that no recipient country would be obligated to meet strict criteria for reducing emissions even after significant investments of time and resources were made by LRTAP member countries. In following this course of action UNECE would be required to provide resources without a guarantee of return on their investment (although it may be argued that assisting a country to reduce emissions of air pollutants to any degree is a good thing, whether or not it is done in the context of a binding agreement).

Another weakness to this approach is the fact that it perpetuates the "benefactor" relationship of "Northern" countries to "Southern" countries. While this relationship is reinforced in virtually all realms of international relations, consciously perpetuating it should not be taken lightly.

Option 3: LRTAP regime as the first building block in a new global framework

The final approach for capitalizing on the success of the LRTAP regime is to establish an international transboundary air pollution treaty umbrella structure under which LRTAP would fall. This framework would allow for the creation of other regional agreements

similar, but not necessarily identical, to LRTAP while keeping the LRTAP regime intact. Other regional agreements under the international framework would be negotiated independently from LRTAP, but could incorporate the most successful and appropriate features of the original regional transboundary air pollution treaty.

An important facet of this approach is the fact that it would require the support of an international organization to create and maintain the umbrella oversight structure. The United Nations Environment Programme (UNEP) is the most appropriate candidate to assume this responsibility for two reasons. First, UNEP is involved in activities in a large number of countries, particularly in developing countries which are of primary concern vis-à-vis their growing emissions. Second, UNEP has experience in managing a number of MEAs, including the Convention on Biological Diversity and the Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and Their Disposal. Moreover, UNEP has experience managing the Regional Seas Programme, a program that could serve as a model for this global transboundary air pollution framework approach. The Regional Seas Programme consists of multiple regional conventions, each of which focuses on protecting a particular sea or region of a sea. With 17 regional programs, 13 of which have adopted action plans (UNEP 2005), the Regional Seas Programme has helped to promote coordination between countries in and across regions to protect marine environments. The concept of regional agreements designed to foster cooperation within regions, and the employment of UNEP as the oversight body promoting coordination of these agreements, offer a strong model for addressing transboundary environmental issues such as transboundary air pollution.

Another reason for selecting UNEP to administer an umbrella structure for regional agreements to address global air pollution is that UNEP already manages regional initiatives to address air quality in certain regions of the world, such as West Asia (Middle East) and East Africa. The organization is thus well-positioned to help countries expand their existing programs and converge toward binding agreements.

Regional agreements under this approach could address transboundary air pollution from a number of countries, or from just a handful. Regions could be defined as clusters of countries, such as South Asia (including India, Pakistan, Bangladesh, and Sri Lanka), for example, or as more extensive regions, like Sub-Saharan Africa. The objective would be to group countries which are not only near each other but which experience the causes and effects of transboundary air pollution similarly, or to group them according to overall pollution producers and pollution receptors.

Option 3: Strengths

With this option--as with the second option--the LRTAP regime could remain fully intact while the issue of global transboundary air pollution was being addressed, which might appeal to LRTAP members who want to ensure the sustained success of LRTAP. This approach might also permit countries in other regions to negotiate new binding agreements which capitalize on the past experience of the LRTAP convention and protocols without having to adopt its specific regime. For example, countries negotiating a new regional agreement to counter transboundary air pollution might decide that in their case, designing a protocol to address sulfur and NO_x emissions together might be more effective and efficient than negotiating separate agreements, as was done for LRTAP.

This option, like the second option, allows for significant flexibility in defining the particular problems of each region, and therefore designing appropriate regional solutions. An umbrella structure administered by UNEP could lend technical assistance and basic direction to help with the negotiations, while leaving it up to the specific countries involved in negotiations to decide for themselves their best course of action. Indeed, in the case of the Regional Seas Programme, countries--not UNEP--are the initiators and implementers of the regional action plans. Such autonomy creates a sustainable paradigm that could be applied to a regional program that addresses transboundary air pollution. This approach would also promote regional cooperation to address environmental problems that have both national and regional impact, which is especially important for developing countries experiencing increased levels of pollution as a result of economic growth and industrialization.

Unlike the second option of establishing voluntary partnerships between UNECE and non-member countries, this option would promote the establishment of a set of binding emission guidelines and compliance measures, thereby obligating the parties to meet their commitments and remain accountable to one another, to UNEP, and, by extension, to parties of other regional agreements.

A final benefit of establishing an umbrella structure within UNEP to manage regional transboundary air pollution agreements is that it could contribute to improved coordination for all international agreements pertaining to the atmosphere, including the Montreal Protocol for Ozone-Depleting Substances and the Stockholm Convention on Persistent Organic Pollutants, and even with the United Nation's Framework Convention on Climate Change and the Kyoto Protocol.

Option 3: Weaknesses

The most obvious weakness of this approach is that it would add a new level of bureaucracy over and above LRTAP, of which LRTAP members might be wary, although this reticence could be partially addressed by heavy inclusion of UNECE input when drafting the agreement to define UNEP's role in the oversight of the LRTAP framework. A second weakness of this approach is the fact that different regional agreements will most likely set different emissions reduction criteria, different deadlines and monitoring requirements, and call for overall different approaches to address transboundary air pollution.

Choosing the Best Option

The strengths and weaknesses of the three proposed options are summarized in Table 1. Option 1 appears to be the least desirable for two reasons. First, in order to expand membership in LRTAP, a high level of agreement and coordination between original parties to the treaty would be necessary. The power to make decisions about whom to bring into the regime, when, and under what conditions could not be left to LRTAP's secretariat, therefore getting agreement on such issues would likely require a complicated internal negotiation process. Second, Option 1 could completely change the dynamic of the existing LRTAP regime, which is the very thing meant to be preserved in seeking an alternative to negotiating a new transboundary air pollution agreement from scratch.

Table 1. Summary of proposed options

Proposed option	Strengths	Weaknesses
1. LRTAP regime as the basis for a global treaty	World's largest polluters are already parties; technology transfer agreement offers tangible benefit to new and original parties	Compromises effectiveness of the existing LRTAP agreement in an effort to make it more inclusive
2. UNECE as a regional partner and resource	Focuses on voluntary cooperation without pressure to make commitments; promises technical and financial assistance to developing countries; utilizes lessons learned through previous LRTAP efforts; LRTAP convention and protocols remain fully intact; provides a way for LRTAP signatories to build partnerships and goodwill with non-member countries; allows for flexibility in defining problem and designing solutions; may pave the way for a binding global agreement	No obligation for non-ECE countries to meet binding criteria even after investments of time and resources are made; perpetuates traditional North-South relationship
3. LRTAP regime as a building block in a new global framework	LRTAP convention and protocols remain fully intact; gives leeway to countries in other regions to negotiate agreements capitalizing on past experience of LRTAP; allows for flexibility in defining problem and designing solutions; promotes establishment of binding emissions guidelines; promotes regional cooperation to address environmental problems that have both national and regional impact; may contribute toward improved coordination for all international agreements pertaining to the atmosphere	Adds a new level of bureaucracy above LRTAP; different regional agreements mean different levels of emissions reductions

Option 2 would keep the existing LRTAP framework intact, making this option more attractive than Option 1. Option 2 is also attractive because of its focus on voluntary and cooperative participation on the part of non-ECE countries. Indeed, CAPACT, as an example of the potential application of this approach, has a promising future. However, it has only recently been initiated, so it is unknown how effective it will ultimately be in reducing transboundary air pollution generated in Central Asia. In addition, the participating countries are members of UNECE, so technically the program is not reaching outside the basic purview of the UNECE.

A drawback of Option 2 is that the voluntary participation of non-ECE states that underpins this approach might not be acceptable to some of the original parties to LRTAP. If this is the case, then advocating this cooperative but non-binding approach to address transboundary air pollution might meet with internal resistance and might significantly limit the availability of funding for outreach activities upon which Option 2 depends.

Option 3 depends heavily on UNEP to play a leadership role in initiating more regional efforts to combat transboundary air pollution. Yet with the experience provided by the Regional Seas Programme, UNEP has become familiar with overseeing such regional agreements. Implementing Option 3 would require much coordination between UNEP and UNECE to work out the extent of autonomy of LRTAP's secretariat and administrative procedures, at least initially. Like Option 2, this option would for the most part preserve the existing LRTAP regime, making it an attractive option to original LRTAP parties. Yet unlike the second option, it would necessarily lead to the generation of other binding regional agreements.

Overall, Option 3 would appear to be the best choice among the three proposed approaches for creating an international framework for reducing transboundary air pollution. As previously discussed, regional initiatives to combat air pollution are already underway around the world. If UNEP can harness the momentum generated by these initiatives and bring together countries willing to make commitments toward reducing pollution, then the establishment of an international regime to control transboundary air pollution is achievable. Combining the technology-transfer and capacity-building mechanisms highlighted in Option 2 with the UNEP oversight feature and emphasis on binding commitments of Option 3 could prove even more effective than implementing Option 3 alone. Such a hybrid approach would achieve useful short-term improvements in non-ECE countries while establishing pathways toward binding long-term agreements.

Benefits of a Multiregional Treaty Approach

Negotiating regional environmental treaties under an umbrella oversight structure offers substantial benefits to the international environmental treaty-making process. First, the process allows countries with common interests or needs to establish a collective approach to resolving shared environmental problems without having to make concessions to countries in regions with different interests and needs.

Second, as a lack of scientific knowledge is often cited as the reason for inaction or lack of participation by some nations in MEAs, pursuing regional agreements helps alleviate the need to convince all “nonbelievers” of the need for action. A solution prescribed in a

regional agreement thus may serve as an example to other countries, demonstrating the impact of a treaty on a region's economy and policies which may help to change the position of the government and civil society in other countries. Technology developed for use by parties to a regional treaty in order to meet their obligations also help to demonstrate to other countries that feasible options exist for achieving results. Such evidence may change skeptics' opinions in treaty negotiations, and might even lead them to institute unilateral changes to reduce pollution in their countries.

Regional agreements are not as susceptible to sabotage as are global treaties by the desires or stubbornness of one or two powerful countries during the negotiation process, and therefore are likely to offer more effective solutions to environmental problems. Using regional agreements as building blocks for an international agreement may therefore result in a more effective treaty than one negotiated as a global treaty. As in the case of LRTAP, a successful regional agreement can also serve as the template for similar agreements in other regions. In this way, applying the regional treaty approach may lead to an expedited negotiations process and expedited treaty implementation.

Finally, a regionalized approach to developing MEAs offers an alternative to the standard method of negotiating a global treaty, and even if the approach is applied on a limited basis, it creates options for countries and therefore improves their BATNAs (Best Alternatives To a Negotiated Agreement). Specifically, if a country or group of countries approaches an international treaty negotiation confident that they can opt for a more regional agreement which will more effectively address their critical issues, then these countries may communicate their demands more forcefully in the treaty. More importantly, if other parties negotiating the international agreement realize that these countries are likely to walk away from the table because they have other options available to them, the other parties may be more willing to accept the demands of these countries.

Conclusion

The LRTAP treaty is a dynamic framework which has successfully addressed transboundary air pollution emitted from most European countries, the United States, and Canada. The time has come to pay attention to the issue of transboundary air pollution on a more global basis. The question is whether and how the development of a global agreement to address this issue might benefit from the LRTAP experience.

While expanding membership to LRTAP is a good idea in theory, the mechanics of expansion, combined with the potential for upsetting the balance achieved within the current LRTAP regime, makes this the least desirable of the three options outlined in this paper. Replicating a program like CAPACT in other regions of the world under the auspices of UNECE would be an easier approach for reducing pollutant emissions, particularly in developing countries. However, such a program would be nonbinding in terms of emissions reductions, and could be expensive for UNECE countries to implement.

Capitalizing on UNEP's experience with the Regional Seas Programme to create an umbrella structure that oversees regional transboundary air pollution agreements is the most promising of the three proposed options. Although it would create an extra level of bureaucracy above the present LRTAP secretariat, the primary function of the umbrella organization would be to offer guidance in developing regional agreements and structure for

implementing them. LRTAP would remain intact, and participation in voluntary emissions reduction programs as precursors to binding agreements, per the second proposed option, could also be encouraged.

While LRTAP presents a special case because it was negotiated in response to a specific set of issues that appeared regional at the time, the idea of promoting regional agreements assembled under an umbrella structure as an alternative to negotiating a single global treaty could be very powerful. Not only would this approach provide leverage for countries who are ready to take action to do so on a regional basis, but it would also offer countries an alternative--or perceived alternative--to participating in an international treaty negotiation, which might spur other parties to work harder toward developing a satisfactory global agreement for all.

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