

Article

Formation of an East Asian Regime for Acid Rain Control: The Perspective of Comparative Regionalism

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Since the late 1980s, regional integration has been accelerating all over the world. Such regionalisation is likely to influence the acceleration of multilateral and regional cooperation on environmental issues. Among these, Europe's Long-Range Transboundary Air Pollution (LRTAP) regime has been cited as one of the most successful cases in the world. Thus, the Agenda 21 states that "[Europe's] experience needs to be shared with other regions of the world." In response, Japan's Environment Agency initiated the Acid Deposition Monitoring Network in East Asia (EANET), which is expected to offer a common base of understanding and to enhance regional collective efforts. This does not imply, however, that the East Asian regime formation processes addressing the air pollution issue and its outcomes will converge with European models. This is because the process of such regime formation is influenced not only by environmental concerns but more significantly by many other factors including economic, social and political interests and concerns, as observed in the case of Europe.

Thus, this article examines the potential for the formation of an East Asian regime addressing acid deposition control through a comparative analysis of European and ongoing East Asian efforts. In order to complete this task, this article applies the theoretical perspective of comparative regionalism as its analytical framework. In conclusion, the article explores processes to be considered and possible institutional arrangements in East Asia, and suggests lessons that East Asia can draw from the European efforts.

Keywords: Comparative regionalism, East Asia, Europe, Regime, Transboundary air pollution (acid rain).

1. Introduction

A resurgence of regionalism has been witnessed in world politics since the late 1980s. This trend can be observed not only in economic integration, but also in political and security areas. In the European region, which has been characterized as one of the most well-structured international regions since the passing of the Single European Act (SEA) in 1986, the European Union (EU) has been marked by acceleration in terms of legislative activity and institutional developments (Caporaso 1996). In North

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America, the North American Free Trade Agreement (NAFTA) was successfully negotiated and concluded in 1992. The recent wave of regionalism is seen not only in the developed world but also in developing regions. It ranges from the increased momentum of cooperative efforts within the Association of the South East Asian Nations (ASEAN), to the establishment of the ASEAN Regional Forum in 1994 and the initiation of the Southern Common Market Treaty (MERCOSUR) in 1995 and the Asia-Pacific Economic Cooperation (APEC) in 1989. The institutionalization of inter-regional dialogue forums has also begun, as observed in the Asia-Europe Meeting (ASEM) initiated in 1996.

This trend of regionalism is likely to influence the acceleration of multilateral and regional cooperation on global environmental issues. Collaboration within the Long-Range Transboundary Air Pollution (LRTAP) Convention can be cited as a successful example of a regional environmental initiative. The Agenda 21 states that the Convention and its protocols “have established a regional regime in Europe and North America, based on a review process and cooperative programmes for systematic observation of air pollution, assessment and information exchange. These programmes need to be continued and enhanced, and their experience needs to be shared with other regions of the world” (United Nations 1992)¹. This statement gave impetus for regional cooperative activities to address this issue in other regions².

In addition, based on the success of the Mediterranean Action Plan adopted in 1975, the United Nations Environmental Programme (UNEP) developed and endorsed other Regional Seas Programmes³. Moreover, the ASEAN, which has handled many environmental cooperative programmes since 1977, strengthened its cooperative mechanisms and developed the “Strategic Plan of Action on Environment” in the 1990s (ASEAN Secretariat 1994).

In this manner, many regional arrangements on environmental cooperation, including treaties, programmes, action plans and policy-dialogue forums, were initiated and developed in the 1990s. However, the nature and effectiveness of these arrangements vary depending on the political and economic nature of the region. Among the 13 Regional Seas Programmes initiated by the UNEP, the Mediterranean is an encouraging example, as it succeeded in bringing together countries that had never worked together in the past. On the other hand, in other situations, hostile relations have made it difficult to move ahead. As for long-range transboundary air pollution, the European region developed regional arrangements by ratifying conventions and their subsequent protocols. North America, however, developed regional arrangements in accordance with economic integration under the NAFTA.

In order to consider regional variation, it is necessary to examine the essence of environmental regionalism observed in each region or subregion. Thus, the following questions are raised: What are the similarities and differences between environmental cooperation efforts by various regions? What factors cause those differences? When considering the environment from the point of view of regionalism, can

1 The Agenda 21 is the action program for sustainable development in the 21st century adopted by the UN Conference on Environment and Development in 1992.

2 The Acid Deposition Monitoring Network in East Asia (EANET) can be cited as an example of such activities (Environmental Agency, Government of Japan 1997).

3 There are 13 regions of the Regional Seas Programmes at present, and more than 140 coastal states participating in it. They include: West and Central Africa, the Red Sea and Gulf of Aden, the North-West Pacific, South Pacific, Caribbean, Eastern Africa, East Asian Seas, South Asian Seas, Mediterranean, Kuwait (gulf), Black Sea and Southwest Atlantic.

we expect linear growth in terms of institutional development? Or can it be varied by region, depending on their attributes? This article is an investigation of these questions.

Part 2 of this article suggests the perspective of comparative regionalism as an analytical framework for this study. This Part first introduces the controversies of regionalism theory within the academic discipline of international politics. Next, the Part adopts the “fusion model” as a useful approach of comparative regionalism for analyzing regional cooperation processes on environment. The following Parts compare and analyze the European experience and ongoing Asian efforts to address the long-range transboundary air pollution (or acid deposition) issue. Part 3 analyzes the European case, and Part 4 the East Asian case. Finally, the article concludes by demonstrating the potential for the formation of a regime addressing transboundary air pollution (acid rain) control in East Asia through the comparative analysis of the two regions. It addresses whether environmental regionalism in East Asia will converge on European models, or whether, instead, a unique “Asian model” exists.

2. The perspective of comparative regionalism

2.1. *European integration and neo-functionalism*

The study of regionalism originated from the investigation of how transnational ties might lead to international integration, thereby increasing the chances for a stable international peace. In particular, it developed in accordance with the dynamic progress of European regional integration.

After the Second World War ended, Robert Schuman, then the Foreign Minister of France, urged the creation of a common coal and steel market, the lack of which had formerly triggered disputes between France and Germany. After negotiating cumulative compromises to create this market rather than to settle on short-run solutions, the six countries of Belgium, France, Germany, Italy, Luxembourg and the Netherlands signed the Treaty of Paris, establishing the European Coal and Steel Community (ECSC) in 1951; the treaty entered into force in 1952. After the smooth progress of the ECSC, the Foreign Ministers of the six countries assembled in 1955 at Messina, Italy, and agreed to aim towards integrating their countries on the economic front. In response, intergovernmental negotiations concluded two treaties establishing a European Economic Community (EEC) and an Atomic Energy Community (EURATOM). The Treaties were signed by the Six and entered into force in 1958.

This series of events drew a great deal of attention from international political scientists. Until then, liberalist scholars argued that “international interactions could be turned into a variable- or positive-sum game in which all the players could benefit” (Viotti and Kauppi 1993). Regarding how the development of international cooperation, David Mitrany (1948) proposed the functional approach theory. In the approach, Mitrany emphasized the common index of need and stated that chances for international peace would be enhanced as international integration based on cooperation developed in functional, nonpolitical areas. Therefore, he argued that the functional approach helps “to mitigate the obstinate problem of equal sovereignty. In this approach, it is not a matter of surrendering sovereignty, but merely of pooling so much of it as may be needed for the joint performance of the particular task”(Mitrany 1948, 121).

With his survey of drastic progress in European integration, Ernst Haas (1958) concluded that functional contexts are autonomous with respect to other fields. This approach is called “neo-functionalism.” According to this approach, successful collaboration by states in one technical and nonpolitical area will “spill over” into collaboration in related fields because state authorities will realize that it is in their rational self-interest to expand collaboration. Neo-functionalists emphasized “an incremental and gradual process of political change that is fundamentally driven by the logic of functional self-sustaining processes” (Risse-Kappen 1996) and developed the concept of linear growth. That is, they held that “Europe was merely a starting point for a further set of comparable experiments in integration” (Fawcett 1997, 14) and paid little attention to whether each region’s unique social, economic and political attributes might influence the process in specific ways.

In 1955, however, France broke off the negotiations on financing a common agricultural policy; its government recalled its Permanent Representative, and the French Delegation refused to take part in meetings of the Council or the Permanent Representatives Committee. Following this sudden stagnation in the European integration process, the neo-functional approach also reached an impasse.

Although some scholars criticized the failure of the neo-functional approach to anticipate the appearance of strong nationally-oriented leaders such as Charles DeGaulle, Ernst Haas, one of the most famous neo-functionalists, offered a more fundamental evaluation of the theory (1976). That is, each actor pursues a variety of objectives that are mutually incompatible, but because the contemporary period is “turbulent”, each is also unsure of the tradeoffs between the objectives. Nevertheless, “some of the objectives sought by each cannot be obtained without cooperation from others.” In other words, a regional solution for dealing with a problem in one area could create negative consequences for national solutions in other areas. Therefore, Haas argued that gaining control over such complexity is a significant political task and concluded that the neo-functional approach to regional integration theory should be “subordinated to a general theory of interdependence” (Haas 1976, 199).

2.2. “The return of regionalism” and the fusion model

Consequently, regional integration study remained stagnant in the 1970s. Moves toward greater integration, however, were revitalized all over the world from the late 1980s. This trend is called “the return of regionalism” (Fawcett 1997). The first sign was when the European Community (EC) members agreed on the SEA, which brought about reformation of Community decision-making and the creation of an internal market without internal barriers or discrimination by 1992. Furthermore, the EC was developed into the European Union (EU), and additional integration of economic and monetary considerations is currently in progress. In other regions, the NAFTA was signed by the United States, Canada and Mexico in 1992, and went into force in 1994. Apart from the developed world, regional integration can be observed in the creation of the APEC, the Pacific Economic Cooperation Council (PECC), Asian Regional Forum (ARF), MERCOSUR and others.

The resurgence of regional integration trends again raised great controversy within the study of regionalism. The following questions were raised: (1) Will regional integration follow the process of “linear growth”? and (2) What is the essence of the institutional structure of the EU?

As to the former question, neo-functionalism in the 1950s and 1960s suggested that integration followed the process of “linear growth”. After European integration stagnated, however, some realists regarded the European integration as merely a product of the Cold War. They expected that after the radical transformation of the European political context, European integration would decline and return to the traditional nation-state system. However, others believed that an unstable equilibrium exists between the integration and disintegration processes, and that a cyclical up-and-down movement between “fusion and diffusion” would be observed (Wallace and Wallace 1996). Apart from those arguments, Wolfgang Wessels explored the case of the EU and developed the “fusion model” (1997). According to him, fusion meant more than a horizontal “pooling” of sovereignties, which was the early functionalist and neo-functional view. Rather, it is “a ‘merger’ of public resources located at several ‘state’ levels for which the ‘outside world . . . cannot trace the accountability, as responsibility for specific policies are diffused.” It refers to the situation where accountability becomes untraceable as responsibility for specific policies is diffused. The EU system has already created a number of public policies, and is offering its member states a number of welfare and public services. Thus, the efficiency and effectiveness of the EU are of vital importance for the prospects and stability of the region. Because the integration process of the EU was not “imposed on the nation-state” or “by power-driven European bureaucrats” but, rather, is the “logical product of fundamental choices by member governments”, its trends cannot be easily reversed (Wessels 1997, 274).

In this way, Wessels identified signs of linear growth in macropolitical trends of European integration. He, however, noted that disintegration processes can also occur simultaneously within this broader trend of integration, and cited the case of the “dark age” between 1965 and 1985. Hence, the fusion model also provides that the processes are not necessarily brought about automatically.

In short, to a certain extent, the increase of decision-making on trivial and technical tasks causes the “fusion” of public resources, which, in turn, increases the willingness of member countries to accept further decisions. In contrast, the increase of decision-making in significant and controversial matters, such as the stepping-up of regional integration, is not an autonomous process but a non-continuous one that breaks the existing equilibrium.

The double processes of “fusion model” are closely linked with the controversy over the essence of the EU institutional structure. According to Yoshinobu Yamamoto (1997), the degree of institutionalization in inter-governmental relations can be categorized into four levels: (1) anarchy⁴, or community without regime; (2) regime, or governance without government; (3) government, or government without states and (4) state. He analyzed the EU under this framework, and found that the EU can be characterized as highly institutionalized “government without states,” especially in the EC decision-making process for small-scale technical matters. On the other hand, the decision-making process for significant and critical matters, especially for decisions made by the European Council, can be designated as “anarchy”, where participating states are sovereign and claim the right to exercise complete authority over their own territories.

4 The term “anarchy” does not imply images of violence, destruction and chaos. Here, the term simply refers to the absence of any authority above the state.

Yamamoto argues that the “process of regional integration consists of a staggered path of macropolitical trends of gradual growth and occasional disintegration trends caused by articulation of intergovernmentalism.” Moreover, he noted that the result of the progress of regional integration and institutional arrangements can be varied by occasional inter-governmental negotiations, and, therefore, the final status of regional integration is uncertain. In other words, the fusion model identifies regional integration as resulting in multi-finality rather than the equi-finality suggested by neo-functionalism (Yamamoto 1997, 7).

2.3. Application of the “fusion model” for analyzing regional cooperation on environment

The “fusion model” explains that the process of regional integration may progress through long-term trends, but will be accompanied by the increase of the institutional arrangements. As a result, the finality of the processes may vary from time to time. This model is likely to provide a useful framework for comparative analyses of future integration processes by regions. Application of regional public policies might increase inter-regional cooperative relations, and automatically bring about progress on integration, even in regions other than the EU, such as for APEC and NAFTA. Nevertheless, careful observation of intergovernmentalism is needed, because its articulation significantly influences newly formed institutional arrangements. This model might also be applicable for analyzing regionalism/regional cooperation progress on the environment.

These days, regional and sub-regional arrangements on the environment have been increasing drastically because pressing environmental problems are occurring on the global and regional scale, including climate change, ozone depletion, acid rain (transboundary air pollution), desertification, ocean pollution and the transboundary movement of hazardous wastes. In response to these problems, many international/regional programmes on environment have already been established on both bilateral and multi-lateral bases, and some legally binding pollution control agreements and treaties have been developed. As for transboundary air pollution problems, the LRTAP Convention was concluded in 1979, followed gradually by the adoption of several protocols regulating pollutant emissions. In North America, a NAFTA side agreement on the environment also regulates pollution emissions to a certain extent, and the three participating countries have already conducted various environmental programmes.

The European LRTAP regime is considered to be the most successful; the Agenda 21 notes that “[Europe’s] experience needs to be shared with other regions of the world.” The Agenda 21 has promoted regional cooperation in other regions including South Asia, Southeast Asia and Northeast Asia. In fact, the EANET, endorsed by Japan’s Environment Agency, describes the text of the Agenda 21 as a crucial factor in triggering regional cooperation enhancement in East Asia.

Nevertheless, not all cooperative programmes of every region are progressing in a favorable manner similar to the European example. To begin with, no clear identification exists of which parts of the European experience should be shared, and which should not be shared. Specifically, the Agenda 21 identifies the objectives of LRTAP control, encourages concerned actors to establish and/or strengthen regional agreements for the control, and suggests cooperation in the areas of systematic observation and

assessment, modeling, technology transfer and others, particularly with developing countries. However, it does not prescribe concrete institutional arrangements to achieve those activities but only gives general principles whereby those activities should be conducted by “governments at the appropriate level, with the cooperation of the relevant United Nations bodies, as appropriate, intergovernmental and non-governmental organizations, the private sector and financial institutions” (United Nations 1997).

Therefore, it is necessary to examine the extent to which experiences in Europe should be shared with other regions, and the extent to which they should not be. Questions raised here are as follows: Should East Asia apply scientific knowledge accumulated in Europe? Or more concretely, should East Asia focus on European methodology for acid deposition monitoring? Or, should the region follow Europe’s comprehensive footsteps for constructing scientific tools such as long-range transfer modeling? Should the region apply the concept of critical loads? As for institutional arrangements, should the region model the overall processes leading to regime formation including the LRTAP conference agreement and adoption of the subsequent Protocol? Should the region draw lessons from particular mechanisms in the Protocol, such as the combination of international aid and emissions reduction commitments? If some European experiences should be shared, and some should not be, what causes such differences?

In order to respond to these questions, the perspectives of comparative regionalism are assumed to be instructive. Whereas “fusion” signifies a regional integration process involving the sharing of public resources, little indicates that such a process will start in East Asia. Nonetheless, if the “environment” is assumed to be a public resource to be shared among regions, each regional state stands at the starting point of such a “merger” process.

Such connections are likely to be formed through the following process: First, regional cooperation is called for once environmental issues (common issues and transboundary issues) are defined on a regional basis. As a result, international joint-study programmes for fact-finding are conducted, and many types of regional conferences for information sharing, public awareness, training and others are held. Inter-governmental meetings, where further regional collaboration is endorsed and problem-solving measures are investigated, follow the increase of such inter-state channels for responding to problems. In this way, there is a certain possibility of long-term enhancement of regional cooperation on environment.

To establish regional cooperation, however, intense negotiation must be expected between stakeholders in both domestic and international arenas. Hence, intergovernmentalism is articulated, and the result of the institutional arrangements could be varied depending on inter-state negotiations. Even if a negotiation concerns an environmental issue, the negotiations process can be influenced by many other economic, social and political factors. Thus, an analysis of the subsequent processes should not overestimate the environmental context. Furthermore, one approach for dealing with a problem might have negative consequences for other areas such as industrial policy, energy policy and even other environmental issues. Accordingly, careful observation would be needed to examine the process of intergovernmental articulation, because each actor pursues a variety of objectives that are often mutually incompatible.

The following Parts apply the fusion model to determine whether the regional cooperative process in Europe could be successful in other regions, using the LRTAP (acid rain) as a case study. Part 3 examines

the processes leading to the formation of the LRTAP regime in Europe, and Part 4 analyzes on-going regional efforts in East Asia.

3. The case of Europe

3.1. *Macropolitical trends*⁵

As indicated in the Agenda 21, Europe has established a regional regime for regulating transboundary air pollution/acid rain. According to Krasner (1983), the term “regime” refers to “a set of norms, rules, or decision-making procedures, whether implicit or explicit, that produces some convergence in the actor’s expectations in a particular issue area” (Krasner 1983, 1). Yet under Krasner’s definition, implicit norms and rules in the international environmental area are difficult to identify, as Gareth Porter and Janet Welsh Brown (1991) note. Thus, “explicit” norms, rules or decision-making procedures are the focus of this article. The European region has developed the LRTAP regime by adopting the 1979 LRTAP Convention and its protocols. The trail of macropolitical trends of the LRTAP regime formation is as follows:

In the 1950s, fish died in lakes in Scandinavian countries, and trees withered. Although these problems were apparent in this period, their causes and effects were not well elucidated. In 1967, a Swedish scientist, Svante Oden, argued that Swedish acidification was largely attributable to the long-range transport of airborne pollutants, especially from the United Kingdom (Levy 1994), and a major controversy arose among scientists. The Government of Sweden became greatly concerned with the issue, and invited the 1972 UN Conference on the Human Environment to Stockholm. At the Conference, Norway and Sweden presented research results on the acidification issue and argued for international cooperation to reduce sulfur emissions. Other European countries were skeptical of their claims, because most of these other countries were free from acidification problems. In parallel, Sweden and Norway appealed to the Organization for Economic Cooperation and Development (OECD) to start an international monitoring programme. In response, immediately after the 1972 UN Conference, the OECD launched a monitoring programme in which nine countries participated. This programme was taken over by the United Nations Economic Committee of Europe (UN/ECE), and unified as the European Monitoring and Evaluation Programme (EMEP). The EMEP, in which Eastern European states also participated, was inaugurated in 1977. Simultaneously, negotiation over the LRTAP Convention was begun within the ECE, concluded in 1979 and signed by 35 countries. This Convention did not outline any regulations on sulfur dioxide and nitrogen oxide emissions reduction; it merely approved vague obligations to endeavor to reduce the pollution as far as possible. Nevertheless, the Convention gave the participating countries an opportunity to assemble annually to review the implementation of the agreement. Thus, the Convention opened a path for practical pollutant emissions reduction in later years.

In the 1980s, the EMEP and other international joint studies developed a better understanding of the relationship between acidification damage and the long-range transport of pollutants. In 1984, the Convention adopted the EMEP Protocol, which provided financial mechanisms for monitoring and evaluation activities under the EMEP. The following year, 21 participating countries agreed to and signed the

5 See the Appendix for a chronological table of the LRTAP regime formation process.

Helsinki Protocol to the 1979 Convention on LRTAP on the Reduction of Sulfur Emissions or Their Transboundary Fluxes. The basic provision of the Protocol required the parties to reduce their annual sulfur emissions or their transboundary fluxes by at least 30 percent from the 1980 level by no later than 1993.

Following this Sulfur Protocol, the Sofia Protocol to the 1979 Convention on LRTAP Concerning the Control of Emissions of Nitrogen Oxides or Their Transboundary Fluxes was concluded and signed by 26 countries in 1988, and went into effect in 1991. This Protocol required each party to reduce or control emissions so that its national emissions totaled or its transboundary fluxes would not exceed its 1987 level. (If its 1986 or 1988 level did not exceed its 1987 level, a party could choose the year 1986 or 1988 as an alternative base year.) Participating countries were also required to apply emissions standards or introduce pollution control measures to major stationary and mobile sources, based on the best available control technologies that were economically feasible.

In 1991, the Protocol to the 1979 LRTAP Convention Concerning the Control of Emissions of Volatile Organic Compounds or Their Transboundary Fluxes was adopted in Geneva, and in the same year, negotiations on the Second Sulfur Protocol started. The Second Sulfur Protocol, which was signed by 27 countries in 1994 and entered into force in 1998, differed from existing protocols by applying an effect-oriented approach. The Protocol sets the avoidance of exceeding critical loads as its ultimate goal⁶. In order to calculate emissions reduction percentages for each territory, the RAINS model was adopted. In addition, best available technologies, energy savings, economic instruments, technology transfer and other considerations were applied in the Protocol.

In recent years, the UN/ECE has broadened the scope of its efforts to include heavy metals and persistent organic pollutants. Negotiations over a "Protocol to Abate Acidification, Eutrophication and Ground-level Ozone" was concluded in 1999.

This chronological examination of the long-term LRTAP regime formation process demonstrates that the regional arrangements on the LRTAP issue were gradually strengthened and deepened. The arrangements started from the 1960s when many scientists acknowledged the regional-scale acidification issue. Sweden and Norway claimed the need for regional cooperation. Subsequently, an international joint-study programme for fact-finding was launched by the OECD, which was taken over and unified by the EMEP. As inter-state channels for responding to problems increased, negotiation on the LRTAP Convention was started and successfully concluded in 1999. Thereafter, the Convention adopted several protocols on pollutant emissions control. In this way, regional cooperation on the issue of LRTAP has favorably progressed and heightened over the long-term.

3.2. Process of intergovernmentalism

Favorable progress of European regional cooperation over LRTAP control, however, does not necessarily imply that few critical points have been at issue in the negotiations processes. In fact, it is likely

6 The term "critical load" is defined as "a quantitative estimate of an exposure to one or more pollutants below which significant harmful effects on specified sensitive elements of the environment do not occur, according to present knowledge" (Second Sulfur Protocol, Article I(8)).

that the parties concerned undertook difficult domestic and international negotiations in order to raise the degree of regional cooperation. Such negotiations have influenced the results of agreements from time to time.

Thus, this section tracks the processes of articulating intergovernmentalism. Particularly, this section deals with the three periods that seem significant in terms of raising the degree of the cooperation: (1) the period from problem identification to the 1979 LRTAP Convention, (2) the negotiations process of the 1985 Helsinki Protocol and (3) the negotiations process of the 1994 Oslo Protocol.

The first period begins with the identification of the problem and ends with the conclusion of the 1979 LRTAP Convention. After recognizing that serious domestic acidification was occurring and that much of it was caused by imported sulfur dioxide, Scandinavian countries—namely, Sweden and Norway—attempted to persuade the Central and Western European states to reduce their pollutant emissions. Sweden, in particular, invited the 1972 UN Conference to urge international cooperation on the issue and appealed to the OECD to inaugurate an international monitoring programme. Yet the rest of Europe, which was free from such damages, had little incentive to comply with these requests (Levy 1995). Scandinavian countries had to wait almost 10 years from fact-finding before the UN/ECE started convention preparation in 1977.

It was the 1975 Conference on Security and Co-operation in Europe (CSCE) in Helsinki that triggered the UN/ECE involvement in environmental issues (Churchill, Kutting and Warren 1995). In the 1960s, a growing tendency toward detente accelerated the CSCE process, resulting in the 1975 CSCE Final Act. The Final Act consists of three Baskets: the security issue area, the economic and environmental issue area and the human dimensions issue area. For many years, the Soviet Union and Eastern European countries promoted the idea of using large-scale cooperative projects involving common interests to stabilize relations between the West and East (Gehring 1992). Among the projects suggested by the Soviet Union, the area of environmental cooperation turned out to be the least controversial section. Together with other issue areas such as transport and energy, environmental cooperation with implications for the area of transboundary air pollution was assigned to the UN/ECE. In this way, the UN/ECE, which had facilitated the cooperation between the West and the East during the Cold War era, came to have responsibility for facilitating environmental cooperation. In 1977, the Nordic states initiated negotiations over the LRTAP Convention under the auspices of the ECE Secretariat and pressed for legally binding pollutant emissions reductions. Western European capitalist economies, especially the United Kingdom and West Germany, opposed the draft agreement. West Germany was unwilling to commit to domestic sulfur emissions control. On the other hand, the communist states whose “general ideology had held that environmental degradation was the result of the capitalist form of organization of the domestic and world economy and nothing to do with the socialist states” (Churchill, Kutting and Warren 1995) had no opposition. On the contrary, Eastern countries actively supported Nordic countries for the purpose of dividing the West⁷. As the negotiations process developed, the United Kingdom changed its stance because changes in its energy policy meant that its commitment to the Convention no longer threatened its economy. Still, West Germany did not agree to the Convention until the draft agreement

7 Interview with Mr. Bjorkbom (who had long been involved with the LRTAP negotiations process as a Swedish delegate, or as a Chairman of the LRTAP Working Group on Strategies), March 2000.

was weakened by including the phrases “economically feasible” and “best available technology” (Churchill, Kutting and Warren 1995). Thus, the formation of the LRTAP regime was triggered by the CSCE process, which had little to do with environmental issues. Further, the negotiation was also influenced by ideological matters between the East and the West.

During the second period involving the negotiations process of the 1985 Helsinki Protocol, 10 Western countries (four Nordic countries, Austria, Canada, France, West Germany, the Netherlands and Switzerland) assembled in Ottawa in March 1994 and agreed to commit to a 30 percent reduction of sulfur emissions⁸. Three months after the Ottawa conference, West Germany hosted a multilateral conference on forest and water source conservation from acidification problems, where the 30 percent club was extended to include 18 countries. The Munich Conference differed from the Ottawa Conference in that it was discussed within the ECE forums. In addition to the enhancement of environmental cooperation, the Munich Conference also had a hidden political purpose—the mitigation of tension between the East and the West. According to Yonemoto (1998), East-West relations became very strained in 1983 when the Strategic Arms Limitation Talks (SALT) II negotiations were aggravated by West Germany’s admission of the disposition of a Pershing missile in its territory. Hence, holding the international conference on environmental issues was a “superb policy choice” to mitigate tension.

West Germany may also have been persuaded to change its attitude towards controlling emissions by evidence that acidification significantly damaged German forests. Further, West Germany was influenced by its domestic political situation because West Germany wanted to avoid allowing the green movement and the antiwar movement to unite into a major social movement. For those reasons, West Germany supported the Protocol actively. The United Kingdom and United States remained in opposition to the Protocol requirements, and did not sign. The United Kingdom was concerned that the use of 1980 as the base year did not take into account the substantial reductions that the United Kingdom had made in sulfur emissions before 1980 (Churchill, Kutting and Warren 1995). Alternatively, the United States explained that its pollution control regulations already far exceeded those in Western Europe and Canada. Greece, Ireland, Portugal and Spain did not sign the Protocol either, because those countries were rather behind compared to other countries in the region and had all negotiated increases in their sulfur dioxide emissions from large combustion plants by the year 1993 under the EC Large Combustion Plant Directive.

The 1985 Protocol also received general criticism on a number of grounds, including its arbitrary selection of a 30 percent reduction target and base year without scientific justification. This contributed to its failure to obtain agreement from the United Kingdom and the United States. Some of this criticism was reflected in the 1988 Sofia Protocol. In comparison, 1994 Oslo Protocol explicitly contained scientific considerations. The main characteristic of the Oslo Protocol is that, unlike the other protocols, it included the concept of critical loads and a computer model in the text, so that it directly reflected scientific knowledge in its provisions. The emissions reduction targets agreed by the other protocols were arbitrary and were not based on scientific evidence but were products of negotiation, feasibility

8 During this period, there was limited knowledge on abatement options, and the 30 percent was taken as a feasible commitment. Thus, the percentage was not based on a scientific determination. The group of the countries that committed to the 30 percent reduction was called the “Thirty-Percent Club”.

examination and compromise. The introduction of the Regional Air Pollution Information and Simulation (RAINS)-model⁹ reduced the room for such criticisms.

Yet if every site were required to reduce acid deposition below critical loads throughout Europe, a 100 percent reduction would be necessary in some cases, which was impracticable. Therefore, the gap between present deposition rates and critical loads was narrowed by 50 percent, because this would still protect 96 percent of Europe by area. The first draft of the protocol was submitted by Sweden, Germany, the Netherlands and Austria, and agreed upon by France. This draft turned out to be too expensive; hence, the RAINS model was adjusted to exclude certain areas¹⁰ (in Scandinavia, Germany and the Netherlands) from its calculation, and the target was revised based on a 60 percent gap. According to this draft, each country suggested its own targets. At this point, the states whose suggestions met their RAINS scenario projections were Austria, Belarus, Finland, Germany, Greece, the Netherlands, Norway, Portugal, Russia, Slovenia, Sweden and Switzerland. The rest were required to revise their proposals, including their expected compliance dates, and further negotiations were continued.

With respect to negotiations positions, the Southern front of Greece, Italy, Spain and Portugal was not enthusiastic about committing to the Protocol, because it was not as affected by acidification problems and was more concerned about abatement costs. The Eastern European countries were also concerned about costs, although their environmental degradation was much worse than that of Southern Europe to neglect. Nevertheless, Eastern European countries made efforts to meet the Protocol requirements. This may be because additional protocol provisions were introduced that made it easier for them to meet the targets. These included several guidelines on sulfur emissions reduction options, standards for best available technologies and technology transfer provisions. The expansion of the EU also influenced the negotiations to some extent. The Southern and Eastern European countries were eager to participate in the EU. However, acquisition of EU membership required a number of conditions to be achieved, including common EU environmental policies. Thus, interest in joining the EU may also have given the Southern and Eastern European countries incentive to commit to the Protocol.

This Part examined both macropolitical trends as well as processes of intergovernmentalism in the LRTAP regime formation in Europe. First, a chronological analysis of the long-term LRTAP regime formation process showed that the degree of regional cooperation on the LRTAP issue strengthened and heightened gradually. On the other hand, observation of the intergovernmental processes demonstrated that, as for drastic raising of the degree of cooperation, not only issues with environmental origins but also regional political, social and economic conditions influenced the result of negotiations. For example, the development of the CSCE process, which originally had nothing to do with addressing acidification, gave significant support to Nordic countries in facilitating regional initiatives on the acidification issues. Also, the drastic change of West Germany's stance towards the issue was brought about not

9 The RAINS-model was developed by IIASA as a tool for the integrated assessment of alternative strategies to reduce acid deposition in Europe (Alcamo et al. 1990). The RAINS 7.2 model describes the pathways of emissions of sulfur dioxide, nitrogen oxides and ammonia and explores their impacts on acidification and eutrophication. The various sub-models are organized into three modules: (1) the emission-cost module (EMCO), with parts for nitrogen oxides, sulfur dioxide and ammonia; (2) the acid deposition and ecosystems impact module (DEP) and (3) the optimization module (OPT) (Alcamo, Shaw and Hordijk 1990).

10 These areas were very sensitive because of the natural acidity of their underlying rocks, so the effects of acidification in this area were distorted (Churchill, Kutting and Warren 1995).

only by the discovery of its own acidification damage, but also through other political reasons, including mitigation of the tension between the West and the East, and avoidance of tying the environmental movement to the antiwar movement. In the case of the Oslo Protocol, accumulated scientific knowledge and data narrowed the room for diplomatic compromise significantly, by applying the concept of critical loads as well as the RAINS model. In addition, a number of devices, including technology transfer, made it easier to draw agreement from vetoing countries. The process of the EU expansion also influenced the negotiations, by giving the Eastern and Southern European countries an additional incentive to adopt the Protocol.

In short, the analysis in this Part indicated that the LRTAP regime developed gradually and favorably after scientific evidence was first revealed. However, not only environmental concerns but also many other factors including economic, social and political contexts have influenced and promoted the regime formation.

Is there any possibility that a LRTAP regime similar to the European one could be formed in other regions? An analysis of the ongoing regional cooperative process on the LRTAP issue (or acid deposition issue) would be instructive in examining the potential for regime formation in other regions. Thus, the following chapter examines the case of the East Asian region.

4. The case of East Asia

4.1. *Macropolitical trends*¹¹

While Europe has been developing its LRTAP regime for more than a quarter of a century, East Asia has had less than ten years of regional effort on the acidification issue. East Asian countries have just reached a common understanding that the region needs to promote cooperation on the acidification issue, and no conventions/protocols addressing the issue exist there. Because of the gap between the two regions, it might be difficult to perform a direct comparative analysis of the two regions. Nevertheless, it is meaningful to analyze the case of East Asia in this Part because this region has been expanding its regional cooperation on the issue in recent years. A detailed analysis of ongoing regional efforts would throw light on similarities and differences between Europe and East Asia. In addition, comparative analysis would be instructive in predicting the future progress of regional cooperation on environment in East Asia.

The Agenda 21, adopted by the 1992 UN Conference on Environment and Development (UNCED) in Rio de Janeiro, was one of the most important instruments to highlight the necessity of addressing the acid deposition issue on a regional basis. The Agenda 21 points out that “transboundary air pollution has adverse health impacts on humans and other detrimental environmental impacts, such as tree and forest loss and the acidification of water bodies”. It calls for governments at appropriate levels to take action on pollution control by suggesting that governments “establish and/or strengthen regional agreements for transboundary air pollution” and cooperate, particularly with developing countries, in the areas of assessment, modeling, technology transfer and others (United Nations 1994, Article 9.28 (a), 82).

11 See the Appendix for a chronological table of regional initiatives addressing the acidification issue in East Asia.

Thereafter, the need for regional cooperation on the research and monitoring of acid deposition was repeatedly stressed at several regional conferences, including the First and the Second Northeast Asian Conference on Environmental Cooperation in 1992 and 1993, and the Third Environmental Congress for Asia (ECO-ASIA) in 1994. Until then, Northeast Asian countries, including South Korea and China, had asserted that addressing “transboundary” air pollution or local environmental issues in China or South Korea constituted interference in domestic affairs. In the 1990s, however, South Korea became increasingly concerned about pollutants coming from China. In addition, at the First Northeast Asian Conference on Environmental Cooperation, the representative of China admitted that acidification damage in China was also aggravated, and suggested the promotion of regional cooperation in order to control the pollutants. Japan and South Korea welcomed China’s shift in position. Some point out that China’s shift is likely related to Japan’s introduction of a new policy that Japanese economic development assistance should be environmentally sound.

From this background, “the Environment Agency of Japan has been advocating the establishment of an Acid Deposition Monitoring Network in East Asia” (EANET), in order to develop a common understanding of acid deposition in the region (Environment Agency, Government of Japan 1997, 1). The Environment Agency of Japan held four Expert Meetings between 1993 to 1997, inviting experts from all interested countries in East Asia¹², together with U.S. National Acid Precipitation Assessment Program (NAPAP) representatives and other concerned international organizations¹³. At the first meeting, participants recognized that “considering the expanding economies in the region, it was feared that adverse effects of acid precipitation would become a critical problem in certain areas in the future although evidence of the effects of acid precipitation on ecosystems has yet to be determined” (Environmental Agency, Government of Japan 1997), and reached the conclusion that regional cooperation was essential. In particular, participants agreed that there was a need to develop guidelines suitable for collaborative monitoring to address the region’s lack of reliable monitoring data created partly from the use of different monitoring methods by different countries, and partly from the lack of skills and funding in certain countries. Accordingly, the fourth EANET Expert Meeting finalized three technical manuals and one guideline for monitoring acid deposition. Also, it concluded the “Design of an Acid Deposition Monitoring Network in East Asia”, which addressed major activities, institutional and financial arrangements of the EANET.

In response, the Japanese Prime Minister conveyed Japan’s intention to promote the establishment of an acid deposition monitoring network in East Asia, as a part of the Japanese Initiatives for Sustainable Development Toward the 21st Century, at the 1997 UN General Assembly Special Session on Environment and Development. Simultaneously, the Japanese government initiated training programmes inside and outside Japan and provided monitoring-related equipment to developing countries in the region as a part of Japanese overseas development assistance (ODA). Moreover, it suggested holding an inter-governmental meeting of the EANET in March 1998, together with a Working Group Meeting in preparation for the inter-governmental meeting. Participants at the first inter-governmental meeting agreed to

12 They include China, Indonesia, Japan, South Korea, Malaysia, Mongolia, the Philippines, Singapore, Thailand and Russia.

13 They include the United Nations Environmental Programme (UNEP), the EMEP, the World Bank and others.

inaugurate the Preparatory-Phase of the EANET Activities from April 1998 with a timeframe of two years. As for the institutional arrangements, an interim scientific advisory group consisting of representatives of each participating country was designated to implement tasks concerning scientific aspects of the monitoring activities. Also, a working group consisting of participating countries' representatives was also designed to carry out tasks concerning review of the preparatory-phase activities and preparation for future full-operation activities. The interim secretariat was located inside the Environment Agency of Japan, and the interim network center was newly established and located in Niigata, Japan (Interim Secretariat of EANET 1998). As for financial arrangements, the Government of Japan offered to cover the operational costs for the interim network center as well as the secretariat during the preparatory phase on a voluntary basis. Currently, preparatory-phase activities are in progress. The Environment Agency of Japan intends to begin full operation of the EANET by the end of the year 2000, after completion of the preparatory phase. A number of matters, including financial mechanisms and institutional arrangements, must still be settled.

In parallel with these monitoring activities, emissions monitoring and estimation activities have been considered in the region. This would form a second step towards constructing a scientific infrastructure to address the acidification issue in the region. South Korea has taken initiatives on this and has hosted Expert Meetings on long-range transboundary air pollutants annually since 1995 in which South Korea, China and Japan have participated. Separately, the Economic and Social Committee of Asia and the Pacific (ESCAP) in collaboration with Japan (together with the EANET interim secretariat and network center) held an Expert Meeting on Emission Monitoring and Estimation, and recommended that a project on the issue be initiated. In response, the ESCAP examined the potential for implementing a project on the issue under the framework of the Northeast Asian Sub-regional Programme on Environmental Cooperation (NEASPEC) organized by the ESCAP. It has not been accepted by participating countries yet because the geographical coverage of the proposed project is broader than that of the NEASPEC.

4.2. Processes of intergovernmentalism

Although regional cooperation on the acidification issue in East Asia has only begun in recent years, macropolitical trends within recent years shows that regional initiatives on the issue have been expanding and developing favorably. This does not necessarily mean that each country has been cooperative on regional activities including the EANET, nor that each country is willing to build an acid deposition regime in future. Whereas domestic and international negotiations are needed to increase the extent of cooperation, such negotiations might result in the stagnation of the cooperation process. Hence, this section traces the process through which intergovernmentalism is articulated. In particular, it focuses on the process from conclusion of the EANET Expert Meetings and opening of inter-governmental meetings, to the inauguration of the preparatory-phase activities of the EANET¹⁴.

After the Japanese suggestion to establish the EANET was accepted at the 1997 UN General Assembly Special Session on Environment and Development, Japan invited officials from each country to the

¹⁴ The process of such intergovernmental articulation is described based on the "minutes" of each EANET meeting, as well as the author's personal interviews with persons concerned, including officials of some countries and international organizations.

EANET Working Group Meeting held in November 1997. The main agenda of the Working Group Meeting was "Design of the Network" and "Implementation of Preparatory-Phase Activities". The former was adopted by the Fourth Expert Meeting of the EANET, and the latter was drafted by the Japanese Environment Agency. At the beginning of the First Working Group Meeting, the two documents were presented by Japan. The documents, however, were not given full support by every country's delegation. In particular, China and South Korea were concerned about the "Design of the Network".

During the whole processes of the EANET negotiation, use of the term "transboundary acid rain issue" was very influential to China. China did not wish to be seen by other countries as causing pollution that threatens environmental conditions in territories outside China. Meanwhile, China has admitted that local air pollution, including environmental degradation attributable to acid deposition, is getting worse within China. Hence, China considered monitoring and relevant scientific activities to be quite significant. Most countries in East Asia are developing countries, with limited scientific, human and financial resources. Therefore, China asserted that, considering the current picture of East Asia in terms of social and economic levels, certain developed countries in the region should provide substantial financial support for the establishment and operation of the network. Despite its earnest attitude toward joining the EANET, the Chinese delegation announced that the Chinese government could not participate in the preparatory phase activities. This was because, according to China, it had been in the process of drastic administrative reform and was not ready to prepare for EANET membership¹⁵.

In contrast, South Korea's concerns revolved around more diplomatic and procedural matters. South Korea expressed its view that the Expert Meetings were informal and unofficial meetings not with officials but with pure scientists through non-diplomatic channels. Therefore, the decisions made in the Expert Meetings had no legal basis. According to South Korea, the results of the Expert Meetings could be a good starting point for formal discussion but could not be regarded as official conclusions. Instead, South Korea suggested rethinking the processes to reach consensus on some important issues, including their obligations and the location of the interim secretariat and the interim network center.

The financial support of EANET has been one of the most critical matters in the negotiations processes. Since the inauguration of the Expert Meetings, Japan has covered all running costs involved with EANET activities¹⁶. This principle was in place for the preparatory phase of the EANET. For the full-operation of EANET, Japan hopes that each participating country will acknowledge their membership by sharing the burden to some extent. However, it seems that the rest of the countries desire that Japan contribute most or all of the running costs on a voluntary basis. After all, the parties had welcomed the Japanese agreement to cover all of the operational costs during the preparatory phase. As for the "Design of the Network" aiming at full operation, the drafted provision that "funding for the operation of the Network will, in principle, be shared by the member countries" was agreed as a tentative provision. The provision also clarifies that "funding mechanisms for the operation of the Network will be established

15 In November 1998, during the visit to Japan of Mr. Jiang Zemin, President of the People's Republic of China, the president stressed the enhancement of environmental cooperation between China and Japan, and noted Chinese willingness to gain EANET membership. Currently, China has full official membership and has turned out to be one of the most earnest members of the EANET.

16 Operational costs contributed by the central government (Environmental Agency) include travelling costs to the meetings for each participant and research/study costs. The conference costs were partly donated by local governments that hosted the meetings: Toyama Prefecture, Tokyo Metropolitan Area, Niigata Prefecture and City, Hiroshima City and Yokohama City.

and the details of financial contributions will be clarified at the second intergovernmental meeting.” The prospects for such a mechanism are still uncertain.

This Part analyzed both macropolitical trends as well as processes of intergovernmentalism on the regional efforts toward the acidification issue in East Asia. First, the observation of the macropolitical regional efforts showed East Asia is gaining momentum toward regional cooperation on this issue. In particular, the EANET endorsed by the Japanese government has completed Expert Meetings, started inter-governmental negotiations and inaugurated preparatory-phase activities. In addition, South Korea has also hosted Expert Meetings on the issue, and the ESCAP is offering a forum for continuous discussion of the issue. From this point of view, regional cooperation on the issue has expanded and deepened gradually.

On the other hand, observation of the intergovernmental processes showed that negotiations were influenced not only by environmental issues but also by the social, economic and political situation in the region. It seems that East Asia has difficulty reaching a consensus in many aspects, due to lack of economic, social and political homogeneity.

Considering all the above, East Asia seems to be tracing the footsteps of the European experience steadily through the processes of fact-finding, expert group meetings and inauguration of an international monitoring programme in its ten-year history. Because East Asia is about to inaugurate the full-operation of the Monitoring Network, the current stage in East Asia seems to be equivalent to the middle of the 1970s in Europe, when the EMEP had not yet been established.

Nevertheless, both cases reveal that the negotiations processes have been significantly influenced by social, economic and political concerns rather than purely environmental concerns. In the case of Europe, such external factors have positively influenced the regime formation. In East Asia, there is great potential that such factors will negatively influence the promotion of cooperative initiatives on the environment.

5. Conclusion

Transboundary air pollution is one of the most critical issue areas among global environmental problems, as indicated in the Agenda 21. The East Asian region, which anticipates economic expansion in the next millennium, is facing the threat that adverse effects of acid precipitation will significantly impact certain areas in the future. In order to respond to this issue, regional cooperation is essential. Therefore, the Agenda 21 recommended that the European experience should be shared with other regions. But to what extent should it be shared, and to what extent should it not be? The European region has a history of development of the LRTAP regime for more than a quarter of a century. Will a similar regime for transboundary air pollution (acid rain) control be formed in East Asia? Or is there a distinct “Asian Model”? This article inquired into these questions.

In order to respond to the questions, this article provided a comparative analysis of the European experience and East Asian ongoing regional efforts on the issue. In order to distinguish the points at issue, the article employed a perspective of comparative regionalism—the “fusion model”—as an analytical framework.

The analysis of the European case showed that the LRTAP regime was strengthened gradually in the long-term. In the short-term, however, the process was significantly influenced not only by environmental concerns but also by economic, social and political issues. For example, in the early years, the CSCE process pushed the UN/ECE to open the LRTAP Convention. Also, aggravated relations between the West and the East contributed considerably to promoting the 1985 Oslo Protocol. In recent years, introduction of scientific knowledge into protocol text succeeded in narrowing the room for diplomatic negotiations or compromises that could weaken the protocol.

In the case of East Asia, regional cooperation only began in the 1990s. Considering that East Asia is about to inaugurate an international (inter-governmental) monitoring network on acid deposition, the current stage of East Asia is roughly equivalent to the middle of the 1970s in Europe, when the OECD initiated the international joint-study programme. Thus, it seems difficult to compare the cases of Europe and East Asia directly. Nevertheless, cooperative efforts on the issue in East Asia are gradually expanding and are likely to follow in the footsteps of the European experience. More detailed observation of the negotiations process shows that it does not have environmental origins but that economic, social and political issues have influenced the results of negotiation to a certain extent.

Taking all of these issues into account, both the European and East Asian cases consist of macropolitical trends of linear growth and occasional intergovernmental articulation processes. Nevertheless, social, economic and political concerns rather than environmental concerns alone have significantly influenced the negotiations processes in both Europe and East Asia. In the case of Europe, such external factors promoted the regime formation processes. In contrast, in the East Asian case, external factors seem to have had a negative impact on building cooperative mechanisms. To begin with, during the regime formation process in Europe, the environment was considered a less controversial issue than others. However, environmental concern has become one of the more problematic and critical issue areas of international politics these days, particularly in the context of North-South relations. This shows that the negotiations process in East Asia will be different from that of Europe.

Similarly, institutional arrangements in East Asia will not mirror those of Europe. In the process of negotiations, China repeatedly stressed that most countries in East Asia are developing countries, which have limited resources in terms of science, personnel and finances. According to China, certain developed countries in the region must give financial support for the establishment and operation of the EANET out of consideration for the variety of social and economic levels in the region. On the other hand, South Korean concerns lie in different areas. It has criticized Japan's leadership as overly strong by stating that "even though the Japanese Government has facilitated years of discussions at the expert level, more intensive and formal consultation is needed at the governmental level in each country".

The concerns of China and South Korea demonstrate negotiational difficulties resulting from the region's lack of economic homogeneity. Japan, the only fully developed country in the region, has been providing technical and financial support to conduct monitoring activities in most countries in East Asia, including China, but excluding South Korea. Thus, the EANET is likely to function as a substantial support mechanism for developing countries. As long as Japan shows its willingness to provide substantial financial assistance, developing countries will be open to strong Japanese leadership.

Unlike many other East Asian countries, South Korea does not receive substantial support from Japan because it is no longer a developing country. Nevertheless, after its recent economic crisis, South Korea is far from wealthy and is not willing to share much of the burden of operating EANET. In addition, South Korea does not view the EANET as a truly international project, because everything, including document drafting, training workshops and finance, is prepared by the Japanese government. Moreover, South Korea is developing similar types of projects on environmental data collection and evaluation under the framework of the NEASPEC, which is supported by the UN/ESCAP. For these reasons, South Korea is not willing to share the burden of operational costs for the EANET and may even be losing interest in the EANET. Such lack of coordination on environmental cooperation in Northeast Asia makes the issue considerably more complex than in Europe.

The principle that the financial burden and leadership are interlinked is broadly accepted internationally, as “two sides of the same coin.” If this principle is applied to East Asia, however, it will be difficult to encourage East Asian countries to participate equally in EANET, due to their lack of economic homogeneity. In addition, Japan has two faces as both an economic giant and the defeated aggressor. Japan must manage this difficulty in order to enhance further regional cooperation on environment.

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Appendix

Table. Chronological table of regional initiatives of/towards LRTAP regime formation.

	Europe	East Asia
1950s	Identification of the issue by Scandinavian countries	
1969	Feasibility Study of International Monitoring Programme (OECD)	
1972	Inauguration of the OECD Monitoring Programme Stockholm Conference	
1977	Establishment of EMEP (supported by UN/ECE)	
1979	LRTAP Convention	
1984	Protocol on Long-term Financing of the Cooperative Programme for EMEP	
1985	Helsinki Protocol (Sulfur)	
1988	Sofia Protocol (NO _x)	
1991	Geneva Protocol (VOCs)	
1992	Oslo Protocol (Further Reduction of Sulphur)	UNCED: adoption of Agenda 21
1993	Aarhus Protocol (Heavy Metals)	EANET 1st expert meeting (Japan)
1994	Aarhus Protocol (POPs)	
1995	Gothenburg Protocol (Acidification, Eutrophication and Ground Ozone)	1st Expert Meeting on long-range transboundary air pollutants (South Korean, Japan and China)
1998		EANET: 1st intergovernmental meeting EANET: inauguration of preparatory phase activities
1999		Expert Meeting on emissions inventory and estimation (ESCAP/ Japan)
2000		EANET: full operation (expected)