Ritsumeikan Center for Asia Pacific Studies

RCAPS

RCAPS Working Paper Series

RWP-15002

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March 3, 2016

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In East Asia, the protection of favourable environments and the resolution of transboundary pollution problems became major targets of regional cooperation. In this respect, a particularly important initiative was the launching of the Acid Deposition Monitoring Network in East Asia (EANET), which began regular-phase activities in 2001. This article evaluates the initiation, development and challenges of EANET in terms of 'regional governance'. It argues that regional governance under EANET has not developed smoothly because some members posed a suspicion about legitimacy and transparency regarding its management, and the involvement of non-state actors in the policymaking process was limited because of a failure to establish horizontal relations with state actors. Moreover, environmental cooperation through EANET is characterised as weak regulatory regionalism. This is because member countries were unsuccessful in enhancing regulatory elements through the expanded scope of the network's substances and activities due to failed coordination on the members' stance on the issue.

Keywords: EANET; Regional Cooperation, Non-State Actors, Legitimacy, Regulatory Regionalism

Introduction

For a long time, initiatives and projects for regional cooperation in East Asia stayed in a preliminary stage especially compared with Europe where regionalist ideas and projects have been advanced from the 1950s. The East Asian countries, which have a strong propensity to pay respect to maintaining sovereignty and domestic regime autonomy, have found a great difficulty in coordinating their myopic, individual interests for achieving far-reaching, collective interests. In the 1990s, however, the countries in East Asia began to promote regional cooperation in several policy fields and engage in the building of cooperative institutions.

The protection of favourable environments and the resolution of transboundary pollution problems became a major target of regional cooperation. In this respect, particularly important was the launching of the Acid Deposition Monitoring Network in East Asia (EANET). The network began its regular-phase activities in 2001, undertaking the monitoring of acid deposition in 13 participating countries with standardised methods.

The members attempted to strengthen the financial base and expand the operational scope, and such a trial led to the enactment of the EANET Instrument in 2010. Given the development of EANET, this article seeks to address three questions. How is the development of EANET evaluated in terms of 'regional governance'? How have non-state actors been involved in the development of policies and measures to manage regional air pollution issues? How have tenets and mechanisms that are essential for enhancing governance functions been maintained in the development of EANET?

By seeking answers to these questions, this article advances three arguments. First, regional environmental governance under EANET has not developed smoothly because some members posed a suspicion about legitimacy and transparency regarding the management of the network. Second, while the involvement of non-state actors in the policymaking process is institutionally guaranteed, their substantial influence in the process was limited due to a failure to establish horizontal relations with state actors. Third, environmental cooperation through EANET is characterized as weak regulatory regionalism because member countries were unsuccessful in enhancing regulatory elements through the expanded scope of the network's substances and activities due to failed coordination on the members' stance on the issue.

This article is organised as follows. In the following section, it will identify three elements of regional governance that are applied to an analysis of environmental cooperation in East Asia. The second section reviews the overall development of EANET. The following three sections examine major characteristics in environmental cooperation in terms of key tenets, actor involvement, and regulatory mechanisms.

Key Elements of Regional Governance

The main objective of this article is to articulate the major features of regional cooperation in East Asia. To attain this objective, it locates regional cooperation in the framework of regional governance.[1] Indeed, the substance of regional governance has been developed mainly through the distinctive trajectory of regional integration in Europe, particularly with a concept of 'multi-level governance' (Hooghe and Marks 2001; Bache 2008). But,

[1] Regional governance is defined as the management of conflicts created through growing interdependencies within a specific – albeit ideologically constructed – geographical region, through the creation of institutional forums, policy instruments, and networks of private and public actors (Jayasuriya 2008, 21).

several scholars have employed regional governance as a conceptual tool to analyse the essence and process of regionalism in East Asia (Jayasuiya 2008; Thomas ed. 2009; Yoshimatsu 2010; Komori 2012). The past research presents several key elements of regional governance, which are applied to an analysis of this study. Such elements are articulated in terms of tenets incorporated, actors involved, and mechanisms in the process.

First, regional governance incorporates several fundamental tenets. Since the word of governance emerged in the 1980s, it has been used as a tool to understand and analyse various political, economic, and social phenomena and evolutions in them. The concept of governance is employed in diverse contexts from corporate management and economic development to state administration and global public affairs. Presupposed that the word of governance has distinctive values as an independent concept, it should include core tenets that are applied to a wide range of context. Legitimacy and transparency are two representative tenets.[2]

Legitimacy is defined as 'a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions' (Suchman 1995, 574). Legitimacy has been considered as a key tenet for linking governance to democracy, and Scharpf (1997) elucidates democratic legitimacy from two dimensions of 'input-oriented' and 'output-oriented'.[3] However, legitimacy matters in governance in the broader context because the effective process of governance is sustained by actors' positive evaluation of a regime and institution that holds the rightfulness and accountability. When the actors concerned believe that a given regime or institution incorporates the fair decision-making process, they give support to the regime or institution and feel obligated to observe the rules, principles, and procedures formulated under it.

Transparency implies that behaviour and motives of individuals or organisations readily knowable to interested parties through both the guarantee of ready access to information and the disclosure of unsolicited information (Hale 2008, 75). While transparency provides the foundation for accountability that requires organisations to reveal the facts of behaviour and explain its motives, it enhances the regulatory effects of

[2] Other tenets include accountability, efficiency, responsiveness, and so on.

[3] While input-oriented legitimacy is relevant to the involvement in the political process of citizens who are asked to comply with rules, output-oriented legitimacy is pertinent to the effectiveness of rules and decisions made at the political process to produce tangible outcomes (Scharpf 1997, 152-55).

discourse and rules adopted in the organisations. Transparency is vitally important to maintain organisational legitimacy because it ensures compliance with requirements and bolsters the perception that the governance of the organisation and the rulemaking process are consistent with declared standards (Koppell 2010, 58).

The second element of regional governance is sustaining coordination and coherence among various actors with different purposes and objectives. The Weberian distinction between the public and private has become difficult to ascertain because of the complex ways in which such ideal types interact and integrate within new networked and multilevel governance arrangements or the emergence of various forms of privatized governance such as private legal arbitration (Hameiri 2009, 435-36; Jayasuriya 2010, 106-7). Thus, governance goes beyond traditional notions of government or formal-public authority by relaxing the boundaries between the state and society or between public and private sectors. Indeed, states remain vital and active participants in regional public affairs, but they are no longer the sole actors who initiate and dominate the actual process of the affairs. Various non-state actors such as non-governmental organisations (NGOs), private economic actors, and research institutes are required to assume important parts of projects for regional governance. Indeed, an ideal form of governance requires the participation of various actors in the process of shaping public policy. However, the degree and mode of private actors' participation vary according to different areas of public policy. A critical point is that the participation of non-state actors weakens the dominance of policy-making by state actors and transforms the basic configuration of policy-making from hierarchical to horizontal.

This study focuses on research institutes as key non-state actors influencing the process of public policy-making. A group of researchers or experts has distinctive characteristics compared with other groups in that they pursue the truth about the real world on the basis of shared beliefs and consensual knowledge. In general, research institutes can help policymakers to formulate a feasible public policy by providing objective interpretation of facts in their research areas and advice on a set of technical solutions to problems in the areas. Since their interpretation and advice are authorised with professional knowledge and insights, policymakers who need policy input and legitimacy pay respect to suggestions from research institutes. In particular, the interpretation and advice are crucial for international policy agendas that are accompanied by high degree of

uncertainty with transnational issue-linkages and policy effects. Such uncertainty is a major factor that motivates policymakers to solicit and use advice from researchers, especially when a crisis or shock occurs (Haas 1992, 14-16).

Furthermore, research institutes can provide a venue to promote 'social learning'.[4] The researchers can create collective understandings on even politically sensitive issues and redefine state interests by framing facts and solutions objectively from the scientific and technocratic standpoint. Such objective policy goals and fact evaluation facilitate social learning that 'involves reinterpretations of national and elite interests on the basis of new knowledge that affects fundamental beliefs and ideas behind policy' (Stone 2002, 6). The researchers' involvement in social learning contributes to state actors' definition of problems and search for solutions to them beyond political considerations by helping them to shift their policy orientation from 'the logic of consequentialism' to' the logic of appropriateness'.[5]

The third element is relevant to mechanisms by which the development of regional governance is realised. A key aspect in the mechanisms is 'regulatory regionalism'. Regulatory regionalism implies that domestic agencies and institutions accept and implement regionally perceived and coordinated disciplines, standards, and rules, and thereby the states in a given region develop a regulatory regime to manage common concerns and risks with which the region is facing. Through the process of regulatory regionalism, some parts of a state's domestic governance are 'regionalised' as state agencies and actors increasingly act as regulators bringing to bear regional disciplines on domestic social and political structures (Hameiri 2013, 321). Regulatory regionalism as new mechanisms of regulatory governance enables the states to pursue inter-state cooperation through common national regulations and policy harmonisation, which is expected to carry fewer negative connotations for sovereignty and national autonomy (Higgott and Timmermann 2008, 59).

Policy coordination and common regulations in the region develop as a meso-level instrumental expression of the desire to mitigate risks and challenges with complex and de-

[4] The social learning is defined as a deliberative 'process whereby agent interests and identities are shaped through and during interaction' (Checkel 2001, 561).

[5] While the logic of consequentalism is relevant to the rational choice approach that treats the interests and preferences of actors are constant during the process of interaction, the logic of appropriateness

bounded nature that political borders and calculable time-frames are unable to limit their impacts on the domestic society (Hameiri and Jayasuriya 2009, 30-32). The de-bounded form of governance enables participants to frame particular issues as common risks and deepen the shared understanding about necessary measures to manage them. In advancing regulatory regionalism, states incorporate the transmission of internationally accepted standards and codes of conduct, which become focal points to guide the states' behaviour to desired directions. Such standards and codes emanate from the perceived best practice of international public policies, which are often developed in regional projects in other parts of the world.

In summary, this article seeks to analyse regional cooperation in East Asia in terms of the governance perspective. It takes up the three elements of regional governance – key tenets of legitimacy and transparency, the non-state actors' involvement, and regulatory regionalism –, and elucidates how these elements are incorporated into the process of regional cooperation to advance the formation of regional governance in East Asia.

In order to attain this research objective, this article adopts the case study approach. The process of regional cooperation began with ministerial meetings in East Asia, and specific regional institutions to advance common regional interests have been produced through incremental talks at the meetings. For instance, the ASEAN Plus Three members have, through annual ministerial meetings, developed the Chiang Mai Initiative Multilateralisation (CMIM) and the ASEAN Plus Three Emergency Rice Reserve (APTERR), two representative institutions with a foundation agreement for operations and decision-making as well as an independent administrative body to manage the operations (Sohn 2012; Briones 2011). However, even these institutions are still premature as independent institutions for the target of a governance analysis largely because of its short history of existence as institutions. In this respect, there is an exceptional regional institution that has a 15-year history of existence with relatively solid administrative bodies and substantial activities: the Acid Deposition Monitoring Network in East Asia (EANET). EANET was formally launched in 2001 after eight-year predatory discussions as a main institution to tackle acid deposition problem in East Asia. This long process of cooperation is suitable for analysing the essence of cooperative processes and the reflection of governance elements.

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relates to rule-guided and deliberative behaviour that is associated with particular identities to particular

The Road from the EANET Launching to the EANET Instrument

As East Asia as a region achieved rapid industrialisation, an increasing risk regarding the excess atmospheric deposition of acidic substances was recognised among scientists, government officials, and researchers. In order to take concrete actions to meet such a risk, the first expert meeting took place in October 1993 in Japan to discuss transboundary air pollution problems, and three subsequent expert meetings were organised between 1995 and 1997. Government officials and scientists from ten countries in East Asia discussed the state of acid deposition, effects on ecosystems, and future steps towards regional cooperation, and reached an agreement on the necessity of establishing a regional monitoring network with standardised monitoring methods and analytical techniques.

On the basis of shared recognition formed through the four expert meetings, the first intergovernmental (IG) meeting of EANET was organised in March 1998 in Japan. The government representatives from ten countries – Japan, China, South Korea, Mongolia, Russia, Indonesia, Malaysia, the Philippines, Thailand, and Vietnam – discussed the tentative Design of EANET and agreed to start the preparatory-phase activities of EANET from the following month to 2000. At the second IG meeting in October 2000, participants issued the Joint Announcement on the Implementation of EANET, which contained the network's three objectives: to create a common understanding of the state of acid deposition problems in East Asia; to provide useful inputs for decision-making at the local, national and regional levels; and to contribute to cooperation on issues pertinent to acid deposition among the participating countries. It also evaluated that the preparatory phase ended successfully, and decided to begin the regular-phase activities of EANET from 2001. The two pillars of the activities were to implement the monitoring of wet and dry depositions and those impacts on soil, vegetation and inland aquatic environments by using common methodologies, and to promote quality assurance and quality control (QA/QC) activities for gaining high quality monitoring data. At the third IG meeting in November 2001, participants adopted the Rules of Procedure for EANET, which addressed rules for admission and withdrawal, sessions of the IG meeting, and relevant bodies. Moreover, the first meeting of the Scientific Advisory Committee (SAC) was organised in the same month.

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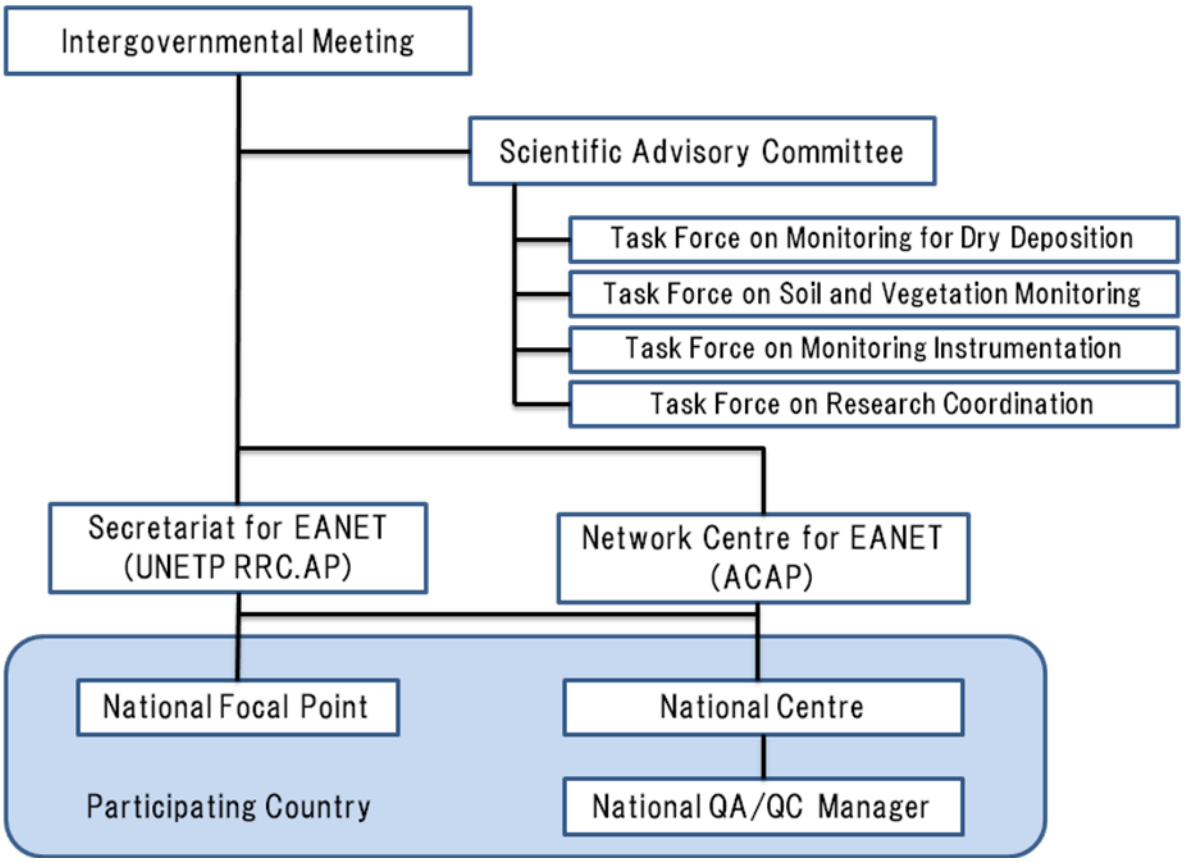
situations (Risse 2000).

Figure 1 **The Organisational Structure of EANET**



Source: Made by the author with data from the EANET homepage.

By that time, the network's institutional framework was established with four main bodies: the IG meeting as the decision-making body, the SAC, the Secretariat, and the Network Centre that provides member governments with scientific and technical support (Figure 1). The UNEP Regional Resource Centre for Asia and the Pacific (UNEP RRC.AP) in Bangkok, Thailand was appointed as the Secretariat. The Acid Deposition and Oxidant Research Centre (ADORC, currently the Asia Centre for Air Pollution Research, ACAP) located in Niigata, Japan, was designated as the Network Centre.[6]

After the start of the regular phase in 2001, EANET produced cooperative results on several fields. The number of participants increased from 10 in 2000 to 13 by 2005 with

[6] The major tasks of the Network Centre are to compile, evaluate and store the EANET monitoring data, provide data upon requests by the participating countries, and prepare data reports. In addition, the centre plays a role in promoting QA/QC activities in member countries by giving technical assistance.

three new members being accepted from Southeast Asia.[7] The number of monitoring sites increased from 69 (38 wet deposition and 31 dry deposition) in 2001 to 101 (54 wet deposition and 47 dry deposition) by 2014 (Wangwongwatana 2015, 4). Moreover, the network has developed a common set of formats and guiding principles for monitoring, and high-quality data sets were produced through the implementation of QA/QC activities at the national level and under the Inter-laboratory Comparison Project schemes.

When EANET began regular-phase activities in 2001, it did not have a formal official document that stipulates the principles, the scope of activities, and the functions of administrative organs. At the seventh IG meeting in 2005 in Niigata, Japan, participants adopted the Niigata Decision, which decided that participating countries 'should begin a process to discuss an appropriate instrument and legal status to provide a sound basis for financial contribution to EANET'.[8] The result of discussions would be reported to the tenth IG meeting in 2008. Discussions on a foundation document of EANET were confronted with great difficulty due to the members' diverse views on legal status, the scope of substances, and the scope of activities. The issue of legal status concerned whether the members would continue activities with a loose agreement as international networks or enhance the EANET consolidation with a formal framework agreement or a protocol. While the scope of substances concerned whether the scope should be expanded from 'acid deposition' to 'regional air pollution', the scope of activities regarded whether the instrument should expand the scope of activities from the existing monitory alone to emission inventory and simulation modelling, and eventually region-wide preventive measures.

Talks on a foundation document took a long time to reach a conclusion. It was agreed at the tenth IG meeting in 2008 that the document would have a form of non-legally binding text, and the Instrument for Strengthening EANET was finally adopted at the twelfth IG meeting in November 2010. It took five years to realise the decision to adopt an appropriate document of EANET. Despite the long process of discussion on the instrument, its final text is short and simple with just 17 items, containing main provisions regarding activities (Item 4 to 9) and administrative organs (Item 10 to 13). The instrument does not include items with legally-binding nature such as protocols, signature, dispute settlement,

[7] Cambodia, Laos, and Myanmar joined EANET in 2001, 2002, and 2005, respectively.

and decision-making of the IG meeting. The instrument spells out concrete tasks of the four organs, but does not provide their operational rules. As for the scope of substances and activities, it was finally agreed to 'monitor acid deposition' in East Asia. During prior discussions, phrases to extend the scope – 'monitor, prevent and control' and 'regional air pollution' – were presented, but the instrument did not adopt these phrases.

In summary, EANET was launched in 2001 in order to resolve transboundary air pollution problems in East Asia. The network, which was formed among 13 countries in Northeast and Southeast Asia, began its activities after sufficient preparatory phases, and holds organisational bodies involving the Secretariat and the Network Centre. The members sought to develop EANET as an autonomous institution by establishing tighter institutional frameworks with a foundation document.

Legitimacy and Transparency in Managing EANET

In the development of EANET, Japan's presence was particularly important. The four sessions of expert meetings in 1993-1997 were crucial for providing common technical manuals and guidelines for monitoring acid deposition as well as designs of EANET. The meetings were organised under leadership by Japan that prepared for a blueprint for concrete cooperation and contributed all operational costs. After the launching of EANET, Japan continuously provided financial and technical support. While the ACAP sent its experts to research centres in participating countries to assist to enhance technical levels and human resource capabilities, the Japan International Cooperation Agency (JICA) provided officials from participating countries with technical training and expertise (Miyazaki 2007, 28).

China was a main member who posed a question about legitimacy of EANET management. The development of EANET was sustained by Japan that hosted all expert meetings, financing activities, and drafting the design of the network. China was cautious about the EANET development under Japan's dominance, and hoped to reduce its influence. For instance, the Chinese delegate expressed, at the fifth working group meeting on EANET in August 2000, a preference for designating the UNEP as the Secretariat because this UN agency 'is in a better position in coordinating among national

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[8] The Seventh Session of Intergovernmental Meeting. Available at <http://www.eanet.asia/event/ig/ig07.pdf>.

environmental authorities, which are in many countries designated as national focal points'.[9] In 2002, the Secretariat was transferred from the Japanese Ministry of the Environment to the UNEP RRC.AP.

South Korea should have become the main supporter of EANET. Not only did the country, the sole developed country among EANET members except for Japan, have capabilities to make scientific evaluations of atmospheric deposition of acidic substances, but it also stood in the same position as Japan in facing a transboundary risk of acid deposition originating in other countries, most notably China. However, the Korean delegate was the main actor who posed the brake on the EANET initiative. The delegate posed a question about a procedure to launch EANET, arguing that since the expert meetings were informal and unofficial gatherings made through non-diplomatic channels, decisions made at the meetings had no legal base, and consequently, the results of the meetings could not be regarded as official conclusions (Takahashi 2000, 112).

South Korea's reluctance to advance the EANET initiative had much to do with its perception of legitimacy in EANET management. In particular, Seoul believed that functions of the Network Centre, which were totally assumed by Japan alone, should be divided among several sub-centres following an example of the European Monitoring and Evaluation Programme (EMEP).[10] For instance, Japan should measure acid substances and operate as a comprehensive chemical analysis centre; South Korea should function as a centre for research on long distance transboundary air pollution; and China should install and operate an emission analysis centre (KEI 2005, xi). Accordingly, South Korea attempted to entice an additional network centre to its territory.

In order to develop EANET as an equitable regional institution, it was necessary to establish a system to share necessary costs among participating countries. Moreover, insofar as the UNEP RRC.AP assumed the Secretariat of EANET, it was desirable to show that the UN body's operation was sustained with funds shared by the broader membership, not those offered by a specific country (Kanie and Sodeno 2013, 39-40). At the fifth IG meeting in 2003, participants reached a common agreement on the financial issue to 'make

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[9] The Fifth Working Group Meeting on EANET. Available at <http://www.eanet.asia/event/wg/wg05.pdf >.

[10] The EMEP is managed by five centres: the Centre on Emission Inventories and Projections; the Chemical Coordinating Centre; the Meteorological Synthesizing Centre-West; the Meteorological Synthesizing Centre-East; and the Centre for Integrated Assessment Modelling.

effort on a voluntary basis to contribute to the budget to be directly spent by the Secretariat using fully the latest UN assessment scale-based burden sharing' from the 2005 budget, and 'to review the possibility of developing an international agreement to provide a sound basis for financial contribution'.[11]

During the fourth IG meeting in 2002, the Chinese government proposed contributing US$15,000 voluntarily to the secretariat budget annually.[12] This amount was small compared with the UN assessment scale-based burden (US$24,560), a criterion agreed at the fifth IG meeting in 2003 (Hara 2009, 8). But, this voluntary contribution had positive effects on the financial burden sharing issue. In addition to China, South Korea sustained EANET activities by providing contributions to the Secretariat budget. In 2007-2009, it provided US$18,100–23,600, which were equivalent to 4.3-6.9 per cent of the total budget (Table 1).

Table 1 **Members' Contributions to the EANET Secretariat Budget (thousand $; %)**

	2007		2008		2009	
Japan	300.0	87.2	367.4	89.9	382.2	90.3
South Korea	23.6	6.9	18.4	4.5	18.1	4.3
China	15.0	4.4	15.0	3.7	15.0	3.5
Thailand	2.7	0.8	3.8	0.9	3.8	0.9
Malaysia	2.6	0.8	3.8	0.9	3.8	0.9
Total	343.9	100.0	408.4	100.0	422.9	100.0

Source: Compled by the author from budget data of the Japanese Ministry of the Environment.

However, both China and South Korea still held a suspicion on legitimacy of EANET management and the transparency of the Network Centre. It was agreed at the eighth IG meeting in 2006 that the core budget of the Network Centre would be

[11] The Fifth Session of Intergovernmental Meeting. Available at <http://www.eanet.asia/event/ig/ig05.pdf>.

[12] The Fourth Session of Intergovernmental Meeting. Available at <http://www.eanet.asia/event/ig/ig04.pdf>.

contributed by participants on a voluntary basis from the 2008 budget (Yamashita 2009, 130). While Thailand and Malaysia made contributions to the budget for the Network Centre, China and South Korea did not make any contributions to this budget (Kanie and Sodeno 2013, 52). South Korea and China considered that the ACAP lacked transparency in terms of administration and budget as a network centre of an international institution like EANET.[13] While all ACAP's senior executives except for a deputy director-general are Japanese, EANET-related affairs in the centre's total budget was difficult to identify due to the integration with domestic air pollution affairs. The ACAP undertook tasks as the Network Centre for EANET and tasks as the National Centre for Japan to prepare for drafting national monitoring plans and collect and evaluate national monitoring data.

As already mentioned, South Korea had a strong aspiration for the enticement of a network centre, which derived from its belief in the appropriateness of dividing the network centre's functions. In the process of deliberating on the Instrument of EANET, South Korea proposed the establishment of a sub-branch of the Network Centre in its territory, which would require the division of labour with the existing Network Centre in Japan. Since the network's scope of activities did not extend, Seoul's proposal was not realised.[14] However, the instrument contained a phrase that 'other entities could be designated as Network Centres for EANET by the decision of the IG, as the need arises' (Item 13, Section 3). This phrase was included in response to a request from South Korea, which successfully sowed seed to establish an additional network centre within its territory.[15]

The Involvement of Non-State Actors in EANET Operations

A critical feature in the process of the EANET initiation was that scientists were involved in the process. In Japan, an idea to launch a programme for monitoring acid deposition in East Asia was fostered by scientists who were familiar with the scientific approach to regional acid deposition issues in Europe. By 1991, the scientists demonstrated that sulphate was being imported to Japan from mainland China and that SO_2 emissions in China were in risky future trajectories. Such demonstrations were delivered to the Japanese Ministry of the Environment, and an idea of forming a regional monitoring network became a policy proposal to be pursued with the ministry's 1992 budget (Wilkening 2004,

[13] Interview, National Institute of Environmental Research, Incheon, South Korea, September 2013.

[14] Interview, Japanese Ministry of the Envitonment, Tokyo, January 2013.

210-11). The scientific knowledge provided momentum to initiate a new institution to manage transboundary risk problems.

The scientists played a pivotal role in leading discussions at expert meetings that began in 1993. The expert meetings were unique in that at least one scientist and one administrative official from each country attended. The attendance of scientists helped to avoid unfruitful commitments under the limited budget by enabling them to check policies and measures from scientific standpoints. Moreover, the scientists' participation at the preparatory stage provided them with a large responsibility for leading the institutionalisation of regional cooperation (Akimoto 2000, 44).

The major outcome from experts' commitments was the formulation of guidelines and technical manuals, which provided the base for the standardised method in monitoring acid deposition. The EANET Guideline was adopted at the second expert meeting, and the guideline on dry deposition monitoring was adopted at the fourth expert meeting. The three technical manuals for monitoring wet deposition, soil and vegetation, as well as inland aquatic environment were also adopted at this meeting. Importantly, experts had a perspective for the broader activities of EANET. Moreover, the EANET Concept, which was adopted at the third expert meeting, presented valuable insights on the network's future directions. While it suggested to the formulation of a guideline for emission inventory and a need to develop statistical models to assess the impact of acid rain on the ecological system, it stressed efforts to advance surveys and research jointly implemented by actors at different levels such as governments, universities, and private companies (MOE 1997, 70-71). Not only did scientists provide professional knowledge and insights for the design and operation of EANET, but they also exhibited the desirable direction of the EANET development from an objective and scientific standpoint.

The scientists were involved in the subsequent development of EANET. The SAC was formed as one of the four organs and its meeting has been held annually in parallel to the IG meeting. Furthermore, three subsidiary bodies were established under the SAC: the Task Force on Dry Deposition Monitoring, the Task Force on Soil and Vegetation Monitoring, and the Network of Soil and Vegetation Specialists. The SAC has published research outcomes from EANET operations and helped to facilitate monitoring activities. While the periodic report on the state of acid deposition was published in 2006 and 2011,

[15] Interview, Asia Centre for Air Pollution Research, Niigata, Japan, June 2012.

new technical manuals for wet deposition monitoring, dry deposition flux estimation, soil and vegetation monitoring, and inland aquatic environment monitoring were produced in 2010. Thus, scientific expertise provided by professional networks in the SAC led to the production of objective, scientific data and facts that contributed to EANET operations.

The scientists also played a critical role in inducing the government to make positive commitments to the EANET development. This was the case in South Korea. The Korean government officials were unwilling to sign the Instrument of EANET largely because they still made reservations on some details of the Instrument. A Korean SAC member persuaded the officials to pay attention to the importance of the signature. This university professor who has been involved in the EANET development from its preparatory phase gave priority on the success of EANET itself rather than the 'face' of the Korean government.[16] His persuasion successfully made South Korea as one of seven members who signed the Instrument during the twelfth IG meeting.

Despite the solid presence of experts in the EANET development, their activities still had limitations in the real policymaking. The experts' limitation was revealed in the fact that some suggestions from experts on the basis of professional and scientific knowledge and insights were not reflected in actual policies adopted by policymakers. Such cases were relevant to EANET's scope of activities. The Periodic Report on the State of Acid Deposition in East Asia, published in November 2006, recommended that EANET's activities extend to emission inventory and simulation modelling in order to elucidate causal relationship pertinent to spatial distribution of pollutants and to facilitate a better understanding of regional air pollution and its effects on ecosystems (EANET, 2006: 32). At the seventh SAC meeting in October 2007, members agreed to establish an expert group for the promotion of emission inventory and modelling and an expert group to review substances to be monitored in EANET. However, this agreement was not accepted at the ninth IG meeting held one month later due to one country's reservations to establish the expert groups.[17] Although the experts clearly showed the importance of extending the network's activities, policymakers' final decision was to limit the activities to the monitoring of acid deposition.

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[16] Interview, National Institute of Environmental Research, Incheon, South Korea, September 2013.

[17] The Ninth Session of the Intergovernmental Meeting. Available at <http://www.eanet.asia/event/ig/ig09.pdf>.

Importantly, the experts' limited influence on the policymaking process had much to do with the real presence of experts at the SAC and the relationships between experts and government officials. The SAC originally intended to reflect objective, scientific views and knowledge on policymaking to invite professional experts from each country. The member countries such as Cambodia, Laos, and Myanmar have been unable to send experts due to the shortage of human resources, and government officials joined the SAC meetings. The expert representatives from Japan, South Korea, Malaysia, and the Philippines have contained university professors who can maintain the third-party status. However, experts from China and Vietnam came for government-affiliated research institutes. These diverse backgrounds disturbed the SAC members from deepening both relationality and common identity resulting from the belonging to the scientific group. Significantly, Chinese experts were reluctant to present opinions independent of the government's position, sometimes asserting that they have no way of discussing difficult matters without reference to the government or that decisions made at the SAC meetings need to be further deliberated on at the IG meetings.[18] These assertions indicate that too close connections to the government undermine independence and the third-party status in that professional experts were expected to represent.

Experiences in Europe and North America indicate that scientific consensus on ecological, social, and economic impacts of air pollution on source and adjacent countries is crucial to overcome political impediments to the establishment of regional programmes (Nam 2002, 187). This is a substantive value of 'governance' in which non-state actors' involvement changes political configurations in which political actors formulate public policies. In East Asia, there were significant gaps among countries in internal state capacities to hold human and technical resources, which disturbed the development of common understanding and the adoption of harmonised measures. At the same time, the highly state-centred governance system in some countries constrained the role of experts and the representation of objective and scientific insights in the policymaking process.

Regulatory Regionalism in the EANET Development

As already explained, EANET members were unable to enhance the legal status of EANET and expand the scope of substances and activities through the adoption of the

[18] Interview, Japanese Ministry of the Environment, Tokyo, January 2013.

foundation document. There were diverse views on these issues among participant members. As for the legal status, Russia strongly asserted that it would require a legally binding document for negotiations on financial arrangements with the legislative body.[19] Russia's preferences derived from its experiences that it had engaged in management of transboundary air pollution on legally binding treaties in Europe. The members who support the adoption of a legally-binding document originally hoped to use the term 'agreement' with stronger legal nature rather than 'instrument' for the foundation document. Southeast Asian countries were generally positive in strengthening EANET activities through the adoption of a foundation document, but showed weak interests in the EANET development. The causal relationship in transboundary pollution by acidic substances in East Asia is basically determined by circumpolar westerlies, and scientific development demonstrates horizontal causal flows in which China is a source country and South Korea and Japan are the affected countries. Accordingly, they had little incentive to make serious commitments to the EANET development, assuming substantial financial burdens.

Japan, China and South Korea were the main actors who decided the content of the instrument of EANET. Japan, as the initiator of EANET, hoped to foster EANET as an authentic Asian institution to provide regional public goods. As for the legal status of the instrument of EANET, Japan adopted a neutral stance, asserting that 'a discussion on legal status be made at a later stage, after completion of detailed discussion on content of the instrument'.[20] However, it had a strong desire to extend the scope of substances and activities. The Japanese government hoped to formulate a foundation document for EANET, which would be a kind of framework agreement that would provide the foundation for further protocols dealing with specific air pollution problems in East Asia.[21] Such an approach follows a model after the LRTAP, which has been extended by eight protocols regarding specific air pollutants such as sulphur, nitrogen oxides, and volatile organic compounds.

China maintained cautious postures towards the extension of EANET's scope of substances and activities. When a working group meeting was held in April 2008, the

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[19] Interview, Japanese Ministry of the Environment, Tokyo, January 2013.

[20] The Ninth Session of the Intergovernmental Meeting. Available at <http://www.eanet.asia/event/ig/ig09.pdf>. p.2.

[21] Interview, Japanese Ministry of the Environment, Tokyo, January 2013.

Chinese delegate presented an original draft of a legally non-binding instrument that stipulated financial affairs with the existing scope of substances and activities. The government, by presenting this alternative option, demonstrated its position that it would not join discussions on other types of instrument (Kanie and Sodeno 2013, 44). China's passive attitudes derived from its desire to avoid international responsibility. China is located in the upwind position of circumpolar westerlies and its rapid industrialisation has contributed to growing emissions of air pollutants. If the scope of substances had been extended, China would have been required to provide information as a pollutant source and to assume greater responsibility for reducing air pollution (Kanie and Sodeno 2013, 47-48). More generally, China was anxious about the negative impact of the EANET development on its economic growth. Given that Chinese leaders are obligated to exhibit high economic performance continuously, steady industrial growth and stable supply of electricity are indispensable policy goals. Beijing was apprehensive that the EANET development would lead to a regulatory regime that might require participants to implement mandatory emission reductions. Such a development was likely to threaten China's overarching economic development goals. The multilateral environment agreements create international obligations that a member has to assume in reducing emissions of air pollutants by taking into account the effects on neighbouring countries. The Chinese authorities hope to avoid such obligations that will constrain the sovereign right for environmental affairs. They are eager to retain policy autonomy to coordinate the pace of industrial growth and the protection of the environments by locating air pollution problems as purely domestic affairs.

South Korea was another actor who opposed the expansion of the network's scope of substances and activities in the Instrument of EANET. From the Japanese perspective, Seoul's opposition had much to do with the maintenance of its own transboundary air pollution programme in Northeast Asia – the Joint Research Project on Long-range Transboundary Air Pollutants in Northeast Asia (LTP) – (Kanie and Sodeno 2013, 48). The Korean National Institute of Environmental Research has, since 1995, hosted expert meetings on the LTP comprising experts and policymakers from South Korea, China, and Japan, with the purpose of promoting joint research and modelling to figure out source-receptor relationship regarding SO_2, NOx, ozone, and particulate matter (PM). EANET and LTP had complementary character in that the former highlights measuring pollution of the broad region for long-term purposes, while the latter put emphasis on modelling in the

narrow area for short-term objectives (Kim 2007, 456). However, the Korean government was concerned that the LTP would be merged with a part of EANET as the latter's geographical scope was larger. The funding of the LTP was heavily dependent on South Korea that provided around US$0.6 million annually between 2000 and the mid-2000s and around US$1 million in 2007 (Kim, 2013, 227-28). The Korean government was apprehensive that the extension of EANET's scope of substances and activities will broaden overlapping and duplication in objectives and activities between the LTP and EANET, and thereby undermine the LTP's existence.

From the Korean perspective, the main reason why its government opposed the expansion of EANET's scope of activities lied in a different dimension. Indeed, the Korean government surely cared about the relationship between the LTP and EANET. Yet, the government gradually changed its policy stance from confrontation to cooperation by accepting Japan's leadership in regional air pollution issues. In fact, the Korean government proposed the integration of the LTP with EANET in 2009 even accepting the LTP's position as a sub-scheme of EANET.[22] What the Korean government worried about were that the expansion of EANET's scope of activities would require the members to provide further financial contribution and that some members did not have enough capacities to implement the expanded activities.[23] Thus, South Korea regarded that developing members of the network had not been ready to incorporate regionally accepted rules or regionally agreed duties into domestic regulatory structures.

As shown in engagements in other regions of the world, regional cooperation in managing transboundary air pollution needs to develop from monitoring to the examination of effects through modelling and the adoption of preventive measures. There were examples of best practice for regulation and policy harmonisation. However, the EANET members were unable to follow a path from monitoring to policy coordination on preventive measures. They failed to develop regulatory regionalism to advance common national regulations and policy harmonisation in order to manage risk associated with transboundary air pollution, which would lead to the imposition of regional disciplines on the national policy.

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[22] Interview, National Institute of Environmental Research, Incheon, South Korea, September 2013.

[23] The decision on this issue was postponed because the Japanese government feared that the inclusion of the issue in negotiations on the Instrument would prolong ongoing negotiations further (Interview, National Institute of Environmental Research, Incheon, South Korea, September 2013).

Conclusion

This article examined regional cooperation on environmental protection in East Asia. It focused on EANET, a representative institution to cope with transboundary air pollution problems in East Asia, and traced its origin and development. In particular, it examined the EANET development in terms of the governance perspective, seeking to address how key tenets and regulatory mechanisms have influenced on the development process and how non-state actors were involved in the policymaking process.

This article found that the formation of regional governance remained weak in EANET development and such a weakness had much to do with three elements regarding regional governance shown in the analytical framework. In enhancing governance in regional cooperation, key tenets such as legitimacy and transparency need to be maintained. In the EANET development, Japan has taken the initiative by organising a series of expert meetings before the launch of the network and providing financial and technical support after its start. South Korea and China concerned that EANET was initiated and developed under Japan's sole leadership. They required Japan to raise EANET's organisational legitimacy by diversifying management functions to other countries, and to enhance transparency in the management of the NC. Indeed, Japan responded to these requirements by transferring the Secretariat to Southeast Asia, but a fundamental concern about legitimacy and transparency remained a crucial issue in the entire process of EANET.

EANET established the SAC as one of four main organs, and scientists were institutionally guaranteed to participate in the policymaking process. The scientists have contributed to producing objective, scientific data and facts by facilitating the network's monitoring activities and publishing periodic reports on the state of acid deposition. However, their recommendations on the basis of objective interpretation of facts and scientific views were sometimes declined by state actors who gave priority to political concerns rather than professional expertise of scientific research. The EANET case exhibits the non-state actors' limitations to promoting social learning when technical issues are linked to political consideration and making state actors pay respect to scientific, tactical details by reinterpreting national interests and overcoming political constraints.

As shown in cooperation on transboundary air pollution through other regional institutions, regional cooperation needs to develop into the adoption of preventive measures

through policy coordination. The EANET members were unable to follow such a developmental path. China strongly opposed the idea of extending EANET's scope of substances and activities, fearing that EANET's new mandates might lead to the foundation of a regulatory regime that might constrain its sovereign right for environmental affairs. South Korea was also passive about the expansion of the network's activities on the grounds that such a policy direction would impose further financial burdens on the members and some members were not ready to implement the expanded activities.

This study elucidates the difficulty in advancing regional cooperation in East Asia even in a functional area where regional states can find common interests relatively easily. In pursuit of further cooperation in EANET, the expansion of actors involved is crucial. While environmental protection is one of the representative fields where NGOs can maintain prominent presence, this was not the case in the EANET development. The involvement of NGOs and civil society and collaboration with other non-state actors might pave the way for enhancing the presence and function of EANET. More fundamentally, the governments in East Asia are required to perceive long-term, collective interests rather than myopic, individual interests as transboundary risks and challenges that the regional states need to tackle in a collective manner are emerging in various policy areas.

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