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Interplay between Structure and Institution:
Transnational Networks for Environmental Governance in East Asia

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<Synopsis>

The purpose of this paper is to describe, in detail, two of the several patterns of 'networks' to be found in environmental governance in East Asia. In East Asia, it is difficult to find an instance of an international regime in the environmental area, although the ASEAN Haze Agreement is an exception. However, a number of networks have been formed. In each, complex connections between actors from domestic, regional and international levels have been observed. In order to explain the structure of Asian environmental governance, an analysis of networks rather than of formal regimes is required. This study, therefore, aims to focus on different aspects of environmental governance in East Asia, aspects which have not been thoroughly studied in IR literature thus far. This paper thus attempts to discuss the impact of networks on environmental governance in East Asia, via a case study of two networks, the Acid Deposition Monitoring Network in East Asia (EANET) and the Water Environment Partnership in Asia (WEPA).

This paper is divided into three sections. First, EANET and WEPA will be compared within the theoretical framework of 'network analysis'. In each case, the political interaction among relevant actors during the formation and development stages will be examined using 'network analysis'. Second, the role of network in environmental governance in East Asia and the patterns of environmental governance will be demonstrated by identifying the differences and similarities between the two networks. Finally, as a subject for further discussion, suggestions for how network governance is to be situated in the literature of International Relations will be made.

1. Introduction

A complex aspect of the process of environmental governance is the frequent requirement to link the local to the global. The link is not unidirectional; moreover, the connections can be multiple. These multiple connections are directional or organised in the sense that networks are purposeful (i.e. directional); it should also be emphasized that there is of course no single way to attain any goal. The study of international cooperation on the environment has developed from, initially a concern with either local relationships or those between states or regions; rarely did actors devise programmes or actions that linked local and regional/international actions on environmental issues; similarly, there has been a delay before regional international action was linked to global programmes. In the discussion of global governance on the environment, one of the missing areas which needs to be developed is an understanding of this complexity of cooperation in environmental governance.

In Asia, especially, in East Asia, it is difficult to find an example of an international regime in the environmental area; the ASEAN Haze Agreement of 2003 is a rare example. However, a number of network-based cooperation frameworks have been formed. Each contains actors, connecting in complex ways within and across domestic, regional, and international levels. Most of the environmental governance during the last two decades in Asia has been undertaken by networks such as the Acid Deposition Monitoring Network in East Asia (EANET) and the Water Environment Partnership in Asia (WEPA), not by international regimes.

EANET was established at an international meeting of experts on acid rain in 1993. It is a network comprising a wide range of actors, such as government officials, experts, international organisations, local authorities, and NGOs. It has contributed to the promotion of (regional) international cooperation on the acid rain issue at a bilateral level. Its activity was launched with the monitoring of pollutants, such as NOx and SOx, which cause acid rain. Its ongoing activity has acquired a good reputation (for instance, respect from the OECD) for its contribution to improving one of the major environmental issues in East Asia,[1] although no international treaty for the reduction of contamination which leads to acid rain in this region has yet been signed.

WEPA was initially designed as a site for the gathering of information and then the translating of ideas into action through research and planning among Asian nations at international and transnational, rather than only at the local, levels. The secretariat members are not only national-level actors such as ministers, members of parliaments, and government officials, but also scientists and researchers from the region. In addition, NGOs and other experts are involved in the domestic advisory committee. In this regard, WEPA has the potential to serve as a model for a multilayered mode of environmental governance in Asia.

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[1] OECD, *Environmental Performance Reviews: Japan* (OECD report: Nihon no Kankyou Seisaku), Japanese translated by the Strategic Environmental Planning Division, Environmental Policy Bureau, Japanese Ministry of the Environment (Tokyo: Chuuou Houki, 2002), 291.

It is clear that, in order to explain the structure of Asian environmental governance, it is necessary to analyse networks, rather than formal regimes. This paper therefore describes several patterns of transnational networks which could impact on the creation of environmental governance in Asia. Using the case studies of EANET and WEPA,[2] the paper focuses on how ideas emerge, how sites of (and issues for) cooperation are found, and how the degree of openness and the scale of connectivity to other networks/actors contribute to the improvement of environmental governance.

The paper investigates these questions in three sections. Firstly, through the theoretical framework defined as 'network analysis', the cases of EANET and WEPA will be studied in order to trace the political interaction among relevant actors during the formation and development stages of the network. Secondly, some of the diversity of the roles and patterns of networks in Asian environmental governance will be illustrated by identifying the differences and similarities between the two networks. Finally, a justification for the importance of the analysis of networks will be made, and an argument for why networked governance needs to be situated in IR literature will be proposed.

2. Theoretical Framework
2-1. Definition of Network Analysis
2-1-1. Characteristics of a Network and Conditions of its Formation

As Hugh Heclo argues, networks are not always amorphous;[3] thus, it is possible, and important, to study their essential features (i.e. acquire some sense of what networks are). In order to develop the theoretical framework of network analysis in IR, the idea of networks as used in other areas of study, such as Administrative Studies and Sociology, will be introduced. Thinkers in those fields have developed a considerable expertise on networks and network theory. Based on these wider, and more established, literatures, the three broad aspects of a network which are investigated in this study can be identified: these are its formation, its functions, and its 'networkness'. In addition, a total of five characteristics within each of these aspects will be examined in this section.[4]

First of all, a network is formed in response to an issue and by more than two actors.[5] Characteristics of these actors are an interest in a particular issue, knowledge about it, and a desire to

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[2] Stephen Van Evera, *Guide to Methods for Students of Political Science* (Ithaca: Cornell University Press, 1997); Alexander L. George and Andrew Bennett, *Case Studies and Theory Development in the Social Sciences* (Cambridge: MIT Press, 2005).

[3] Hugh Heclo, "Issue Networks and the Executive Establishment," in *The New American Political System*, ed. Anthony King (Washington DC: The American Enterprise Institute for Public Policy Research, 1978), 87-124.

[4] Christopher K. Ansell and Steven Weber, "Organizing International Politics: Sovereignty and Open Systems," *International Political Review* 20/1 (1999): 73-93; R. A. W. Rhodes, *Understanding Governance: Policy Networks, Governance, Reflexivity and Accountability* (Open University Press, 1997), 29-45; John Gerard Ruggie, "Theory and Practice of Learning Networks: Create Social Responsibility and Global Compact," *Journal of Corporate Citizenship* 5 (Spring 2000): 27-36.

[5] Joel M. Podolny and Karen L. Page, "Network Forms of Organization," *Annual Review of Sociology* 24 (1998): 57-76.

act together to attain their goals. Examples of actors are states (policy-makers), experts, NGOs, international organisations, and (transnational) cooperations. Networks can also act with other network, forming what is known as a "network of networks". A compound of function networks (such as monitoring, dissemination of information and cooperative research, illustrates this idea of the multi-network.[6]

The second aspect refers to those factors which facilitate maximum functionality within and outside of networks. These are (i) the autonomous adjustment by horizontal coordination through deliberation among participants, (ii) the use of mutually complementary resources possessed by the participating members, and (iii) the ability to respond quickly and adapt to changes in the environment.[7]

The first of these, a horizontal network, can be formed through a "hub", a leading actor which plays central roles in the network. A hub is described in both Administrative and Sociological Studies as the platform of many information pools, the site or locus of coordination with other actors, and the actor which gets involved in a wide range of focal points.[8] Members are able to understand themselves as a network through this coordination.

The complementing of 'resources' within a network is the second contributor towards functionality.[9] Necessary 'resources' are shared quickly by actors within the network, as the aim(s) of the group cannot be achieved without information sharing and creation of knowledge.[10] Prompt learning by members is possible through activities of resource-sharing such as capacity building (CB), problem perception via dialogue, and collaborative projects.[11] These cooperative activities can reduce the costs which would be incurred if nations operated alone.[12] Networks are, in a sense, formed by these resource transfers and this sharing.

The third quality necessary for effective functioning of networks is the ability to respond quickly to the changing environment. Scholars such as Anne Holohan and Walter W. Powell identify (and focus their attention on) the quick-response capacity and, indeed, the demand for such speed, as the constituent factors of networks in their analysis of networking and network dynamics.[13] In short, actors recognise the need, for operational purposes, to be active and responsive as a network through

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[6] Hugh Heclo, *op.cit.*, 104; Anne-Marie Slaughter, A *New World Order* (Princeton: Princeton University Press, 2004), 135-144.

[7] Ansell and Weber, *op. cit.*, 73-93; Rhodes, op. cit. 29-45; Ruggie, *op. cit.*, 27-36.

[8] W. Richard Scott, *Organizations: Rational, Natural, and Open Systems* (New Jersey: Prentice-Hall, Inc., 1997), 149-160.

[9] Usually, resources that each actor possesses, such as technical knowledge and skills, funds, authority, information, and specialized knowledge, are different both in quality and quantity.

[10] Anne Holohan, *Networks of Democracy: Lessons from Kosovo, for Afghanistan, Iraq and beyond* (Stanford: Stanford University Press, 2005), 38.

[11] Slaughter, *op. cit.*, 19, 57-8 and 185-6.

[12] Scott, *op. cit.*, 155-8; Podolny and Page, *op. cit.*, 57-76.

[13] Holohan and Powell also identify other factors necessary for successful networking. The former highlights adaptive ability, while the latter identifies know-how and trust as factors necessary for both the formation and development of networks. Holohan, *op.cit.*, 33; Walter W. Powell, "Neither Market nor Hierarchy: Network Forms of Organizations," *Research in Organizational Behavior* 12 (1990): 323-7.

network operations and communication via meetings and other contacts.

The final aspect of networks is what we might call it their 'networkness' (i.e. the levels of openness, flexibility, and size/scale).

Openness, which "puts porousness of boundaries at the centre of the discussion", was introduced in organization theory during the 1960s and 1970s.[14] This focus requires scholars to observe the entrance and exit of actors to and from the network; note: a closed system, without this fluidity of membership, will contain a limited number of actors.

Networks are flexible forms of governance since they can basically transform themselves; they are not reined in by rules and conditions. Thus, a network can be formed or maintained through the unprompted binding among actors if a new aim (or aims) is (/are) identified by a member of a network. It is not that goals are converged so much as that they are changed as the environment changes. Accordingly, networks are formed through the voluntary connection of actors. A network can also be dismissed after achieving its goals, or reconfigured as another network, or become connected to other networks to create "a network of networks". This flexible capacity to change their shape and state means that it can be argued that networks are dynamic form of governance.

With respect to size/scale, it should be noted that networks feature both indirect and direct relations. That is, in addition to direct relations within organisations and networks; there are indirect relations with actors beyond the organisations or framework of the network. The recognition of such relations allows for a more complex analysis of environmental governance than has been made in previous studies, especially in the analysis of international regime building.

Through these activities, the members of a network also recognise (i.e. identify and define) their involvement in that network. This is because the behavioural principle of actors participating in a network is reciprocation and trust rather than self-help.[15] In considering the three aspects discussed in this section (the formation of a network, the factors facilitating its functionality, and its 'networkness'), it can be seen that a network can be regarded as a continuous link among actors and/or networks.

Networked governance can be counted as one of the most efficient types of governance for responding to the changing environment because it allows for the fast exchange and sharing of a wide variety of resources, quick learning, and relationship flexibility. Various actors in networks may have more to offer than simply the provision of existing information; that is to say, actors acquire, create, and disseminate knowledge/ideas as a consequence of gathering to exchange information, through making new relationships, and engaging various activities in networks.[16] These are examples of "emergence", a concept that appears in sociology literature. The members of networks will also increase their motivation if their activities (and impacts) are positively evaluated by actors

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[14] Ansell and Weber, *op. cit.*, 76-7.
[15] Emanuel Adler and Michael Barnett eds., *Security Communities* (Cambridge: Cambridge University Press, 1998).
[16] Powell, *op. cit.*, 300-5, 325.

outside of the network.

2-1-2. Types of Networks

In order to describe the connections between actors, it is necessary to consider the structure of networks. The diagrams discussed in this section describe the connections, or ties, (lines/links) between actors (points/nodes). According to Richard W. Scott, there are, theoretically and diagrammatically, four types of network: the Circle, the Wheel, the Chain, and the All-Channel.[17]

The Wheel and Chain have a vertical structure. The Wheel contains spokes which connect the actors with the hub at the centre. In addition, the hub and spokes express the degree of concentration, denseness, or agglomeration of the network. The hub which appears in the centre of a vertical network is one of the main contributing factors to the formation and ongoing activity of a network, as it acts as the coordinator of the other actors.[18]

The Circle and All-Channel types have a horizontal structure of communication. Generally, when a network develops, it is said that it tends to change its shape from vertical to horizontal.[19] In the case of "a network of networks", it can be said that development of a larger network results in the levelling of participating networks.

In describing types of networks, one is only presenting a sort of snapshot of a network at a particular moment; however, such descriptions are one of the important ways in which we can conceptualise how a network forms and how the actors are connected by different densities of ties. In this paper, such diagrams will be utilised to demonstrate the several stages of the development of EANET and WEPA. The degree of connection and kind of network being formed is identified by observing who the actors and non-actor organisations (examples include research organisations) are, the frequency of contact among them, and the identities of participants at formal and informal meetings.[20] In this study, the typology discussed above will be used in the analysis of each stage of EANET's and WEPA's development. The following section will explore the degree of influence that networks, as they develop, have had on the improvement of environmental governance in East Asia.

2-1-3. Development of Networks and Their Impact

The creation of "a network of networks" can be regarded as one of the stages of network development. In providing complementary skills and resources, networks, as they adapt, contribute to making members more productive. In addition, profits and obligations are shared within a network.[21] At the same time, the intellectual and affective commitment is often more important for

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[17] Scott, *op. cit.*, 159.
[18] Scott, *ibid.*, 149-60.
[19] Scott, *ibid.*, 159; Holohan, *op. cit.*, 32-38.
[20] John Scott, *op. cit.*, 2-5.
[21] Powell, *ibid.*, 303-4.

the members than direct economic interests.[22] In the earlier literature on networks, it was argued that the indicators identified by Banuri and Spanger-Siegfried (reputation, leadership, inclusivity, size, accomplishments, agility, communications sophistication, and coordination and exploitation of synergies) were relevant during the period of network formation; however, it was unclear whether they could be found at other stages, such as maintenance, transition, and development of the network. To help answer this question, this study, therefore, attempts to explore the dynamics of networks in environmental governance, using EANET and WEPA as case studies. The factors identified by Holohan[23] (flexibility, adaptive ability, and quick-response capacity) and Powell[24] (know-how, the demand for speed, and trust) as promoting engagement will also be taken into consideration; Powell also insists that interest in, and liability, for the issues will be shared by the participants, and that new relationships and effects are created as the network develops.[25]

3. Case Studies and Comparison of EANET and WEPA
3-1. EANET
3-1-1. EANET as Networks

The contribution of EANET to the creation of environmental governance in East Asia can be summarised in three aspects. Firstly, EANET was the site for the sharing of an issue (i.e. concern over the effects of acid rain), for confidence-building, and for the promotion of international cooperation. In the period leading up to the formation of the network (before 1997), against a background of rising international momentum on the need to address the issue and Japanese initiative, actors concerned about acid rain and other air pollutants gathered with the express intention of forming a network. They met and discussed the issue, for instance, at experts meetings or Interim Scientific Advisory Group/Scientific Advisory Committee (ISAG/SAC), Inter-Governmental (IG) meetings. Later (between 1998 and 2000), during the maintenance period of the network, a Working Group met. The meetings were still held even though there was some disagreement among states about the seriousness, extent, and causes of the problem.[26] Another issue discussed was the amount of 'resources' for measures each state possessed to deal with the problem. During the experts meetings on transboundary air pollutions held in East Asia from 1993 to 1997, participants exchanged information, coordinated their interests, reached an agreement on the

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[22] Heclo, *op. cit.*, 88-113.
[23] Holohan, *op.cit.*, 33.
[24] Walter W. Powell, *op. cit.*, 323-7.
[25] Powell, *ibid.*, 300-5, 325.
[26] Experts meetings were organised by ISAG in the interim activity from 1998 to 2001 (EANET's interim activity period). This group became the SAC after 2000 (when EANET officially commenced operation). Other groups discussed in this paper also underwent similar name changes. The Network Centre (NC) was originally known as the 'Interim' Network Centre (INC). In fact, many of the interim groups, the IG meeting group, the Working Group, the Interim Secretariat, the Interim Network Centre (INC), and the Domestic Centre were established at the IG meeting of 1998.

implementation of monitoring using a common method, and successfully agreed to the establishment of a new idea, that of the establishment of EANET. The actual holding of these meetings confirmed the importance of, and contributed to the development of the debate on, the acid rain issue; thus, EANET provided a site at which further cooperation could take place.

Secondly, four effects were created as a consequence of the constant building of a capacity to monitor pollutants using a common method: the gathering of data on acid deposition, the effective implementation of international cooperation, the strengthening of the ties between experts across the states, and the identification of measures for dealing with the problem. The ability to monitor acid rain is important because it is the basis of monitoring for other pollutants. The collection of highly accurate data in the Domestic Centre came from the (Interim) Network Centre ((I)NC), whose mission it was to improve the network's monitoring ability during the maintenance and development phases. Moreover, participants at the field level were able to precisely locate problems and move to commence countermeasures through the exchange of expertise and sustainable friendship. These activities have contributed to the realisation of international cooperation that ties different levels of actors and organisations effectively.

Thirdly, the constant activity of EANET has led to the establishment of cooperation frameworks in the development period (from 2001 to the present), with each state trusting both each other and the network process. Related actors sat at the negotiation table, discussing acid rain as an international issue, at a sequence of meetings in the functional networks in EANET. Shared recognition of issues and trust-building were embodied in projects organised by the Japan International Cooperation Agency (JICA) and in the assistance offered by the NC of EANET as well as discussion at IG and other meetings held to exchange resources. The mission of the NC encouraged further cooperation by positive participants and a change of recognition of the issue by negative participants. Furthermore, information about EANET's activities and development has been made public at various levels not only within the network (through IG and WG meetings and the ISAG, for example) but also with outsiders (e.g. at ministerial meetings, such as the Environmental Congress for Asia and the Pacific (ECO-Asia) and the Tripartite Environment Ministers Meeting (TEMM), and at workshops for the general public and with NGOs). On short, environmental governance in East Asia has been improved as a whole through EANET and its networks.

The Japanese government (especially the Ministry of the Environment (JME)) had taken the leading roles in hosting the experts meetings, leading the discussions, and providing assistance from the primary phase of the network's existence through to its maintenance and its transition to the development phase. However, beginning at the end of the transition period, and continuing during the development stage, responsibility for the initiatives for network development has, gradually, come to be shared by every participant nation. This has contributed to the levelling of authority and power within the function networks. Including both Northeast and Southeast Asia as the domain of

activity in EANET has made a positive impact on the network maintenance. During the early period of the development stage, the vertical network structure (wheel) remained as it had been when Japan had been the leading actor in EANET. However, since then the communication among actors has become more sophisticated as a result of resource sharing and increased and constant discussion at meetings. With the increased involvement by all participating nations in initiatives, the function networks have shifted to a horizontal model (circle or all-channel).

EANET has contributed to improvements in the technologies and techniques of collecting and analysing data using a common method. In addition to the monitoring of pollutants of a wide area, it has also promoted other benefits, such as the South-South cooperation in Southeast Asia. Furthermore, it has encouraged governments to agree to share the costs of dealing with the issue by making financial contributions to the network, added impetus to the movement for the building of an international treaty, and provided a forum for discussions on concrete measures for the reduction of pollutants. In each function network, participants discuss the subject of acid rain as an international environmental issue, and have succeeded in obtaining agreements for further international cooperation.

3-1-2. Impact on the Creation of Environmental Governance through Networks

Based on the above analysis of EANET, we can infer, provisionally, that environmental governance, and the whole dynamic of network advancement, in East Asia entails three processes: international/regional networking, the promotion of good governance, and the implementation of concrete measures for dealing with an environmental issue. First of all, networking contributes to the formation of international governance at a regional level. At the experts meeting in the primary phase of the network's existence, it seemed that the states' concerns about the issue did not coincide. However, the matching of their interests and concerns, and the building of trust among participants (at a sequence of meetings) consequently led to the sharing of understandings on the issue. Thus, EANET was established, after an initial interim period, with the aim of networking various international actors; these included governments, experts, local authorities, international organisations, and NGOs, all linked by the issue of acid rain and other air pollutants. The actors recognised the need, for operational purposes, to be active themselves as a network through network operations and communication via their contacts and meetings (e.g. the IG meetings, the SAC, the Working Group, the Secretariat, the NC, and the Domestic Centre).

The second process was assistance in improving the governance at domestic and community levels, through improving monitoring ability. (Because, as noted earlier, monitoring on other pollutants can be taken only after that on acid rain, it is said that monitoring on acid deposition is the basis of wider environmental administration.) Networks can promote or create various methods of assistance; these include cooperation using a bilateral scheme and/or through an international

organisation. In the case of EANET, two kinds of international cooperation have been used for the improvement of monitoring: bilateral projects (technical assistance) by the JICA and the adoption of Quality Assurance/Quality Control (QA/QC) programmes by the Network Centre. They have played significant roles in comprehending the extent of acid rain in participating nations. The connections between experts from different nations have developed along with this constant assistance. Moreover, participating countries shared understandings on the significance of international cooperation (in networks) on the environment. Thus, best practices and lessons on monitoring data and other capacity buildings have been shared among participants in the network. All of these benefits are incentives for East Asian countries to join EANET.

Finally, the third process, the creation of environmental governance via networks, increases the possibilities of providing impetus for the implementation of concrete measures for the reduction of pollutants or, indeed, any action which contributes to the amelioration of environmental problems. Once networking which connects each relevant actor is advanced, actors in networks tend to coordinate themselves, interacting in order to take positive steps towards the resolution of shared problems or the achievement of shared goals. They are also likely to share not only interests, but obligations. This has been demonstrated in the proposal on establishing concrete measures for reducing pollutants from Russia and Philippines in 2003's IG meetings, the establishment of the Working Group on Future Development of EANET (WGFD) in 2004, and recent mediating roles taken by Thailand. In the case study in this paper, the development of the network has prompted the participants to shift their activity from monitoring to improving that monitoring to establishing new policies during the second stage of the network, a period of maintenance ending in a transition to the third stage, the development phase.

EANET is one of the leading institutions in Asia following these processes. Together, the processes are able to lead to the solutions, or lessening, of environmental problems. Networks develop and change (during transition periods) to match changes of actors' goals or of the environment. In this sense, there is judiciousness in the environmental governance of networks, as they constantly respond to changes in the environment and are affected by both the actors (individually) and the relationships (or links) between the actors (i.e. the structure) of the network.

The above argument is summarised in Table 1. The column on the far left of the table shows each stage of the network. The top row depicts the characteristics of each of these stages: indicators found, shape of networks, related actors, and the impact on environmental governance. What this table suggests is that a network's impact on environmental governance will multiply and expand as the network develops. In order to be able to exert influence, it is necessary for an actor to interact with others at each stage of the network's existence: from international networking to establishment of concrete measures. At present, indicators are not observed in all three phases. This would mean that further inquires to study more closely the factors necessary for the formation and development

of networks need to be made. However, it is possible to argue that the change of network shape (or structure) form vertical to horizontal exemplifies the advancement of a network in this case.

Table 1. Stages from Network Formation to Development and Several Aspects of Environmental Governance

Features / Stages	Observed Indicators	Type of Networks	Actors	Environmental Governance
Primary Stage	Leadership; Symbols; Scale; Inclusively	Vertical network(N)	Policy-makers (pm); experts	International networking
Maintenance and Transition	Scale; Agility; Polish relations; Achievement	Vertical Ns with two hubs	pm; experts; local authorities;NGOs; International organisations	Resource sharing; Assist in improving governance ability
Development Stage	Coordination and exploitation of synergies; Ownership	Vertical N with horizontal function Ns	Same as above (Number is increasing)	Sharing burdens; Building of impetus and frameworks

3-2. WEPA

3-2-1. WEPA as a Network

WEPA was established in order to address the problem of water pollution; it commenced its official activity in 2003.[27] WEPA has a wide range of participants, including international organisations, national and local governments, NGOs, and experts in eleven countries; the representatives at the so-called 'focal point' are policymakers or scientists/specialists.[28] The networking in WEPA started

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[27] It was when the Ministerial Declaration of the International Ministerial Conference at the third World Water Forum (WWF3) was formally announced in by the JME as their Portfolio of Water Actions (PWA). PWA is not based on an agreement, but on the voluntary commitment of the relevant ministries in each of the member nations. Japanese PWA is divided into five main areas: Water Resources Management and Benefit Sharing; Safe Drinking Water and Sanitation; Water for Food and Rural Development; Water Pollution Prevention and Ecosystem Conservation; Disaster Mitigation and Risk Management. The total number of actions was ninety-one in 2003. Japan's Contribution to the "Portfolio of Water Actions (PWA)":
ttp://www.mlit.go.jp/tochimizushigen/mizsei/wwf3/mc/pwajapan/JAPAN_PWA.html (Accessed on 23/08/2007). WEPA is in the area of Water Pollution Prevention and Ecosystem Conservation in PWA. Information of WWF3 Portfolio of Water Actions (PWA): http://www.mlit.go.jp/tochimizushigen/mizsei/wwf3/mc/pwa_info.html (Accessed on 23/08/2007).

[28] Policy makers from China (Project officer of the Lake and Reservoir Water Environment Protection Section, Pollution Control Department State Environment Protection Administration of China), Philippines(Chief of environmental management specialist and project manager from the Environmental Management Bureau of Philippines), Indonesia (Head of the Data Division, Environmental Data and Information, Ministry of Environment), Japan (Head and assistant directors of the Water Environment Division, Environment Management Bureau, Japanese Ministry of the Environment), Lao PDR(Assistant Director of the Prime Minister's Office Water

with the leadership of Japan, which directed the process from the time of the third World Water Forum (WWF3) to the first inception meeting of WEPA, both in 2003.[29] WEPA meets the following three conditions of a network. First, the idea behind WEPA is a single issue: identifying a way to collect and use the information (i.e. the vast amount of research on Asian river basins, lakes, and water issues). A Japanese policy-maker identified the need for a site of international cooperation, and began advocating the establishment of such a space in April 2003. In the primary stage of the network,[30] global and regional conferences, including WWF, had agreed on the significance of addressing and managing the water issue. The Millennium Development Goals (MDGs) also encourage the Asian nations to take action on water issues. There was thus a background of a growing international momentum on the significance of the water issue and a strong sense that it was important to solve/improve water-related issues.

Previous action on Asian water issues had concentrated on watersheds, international river basins, and lakes and had been undertaken by a number of different organisations.[31] Because of the long-running concern about fresh water issues in Asia, there have been many water cooperation programmes centred on the rivers, water basins, and lakes, and which have addressed the management of water issues in particular local places.[32] However, these activities have been spatially disaggregated (i.e. local, international *or* global). Information on, for example, particular water basins and lakes of each nation were available only on a case-by-case basis.[33] Thus it was difficult to use the experiences and expertise of each initiative, and to apply it to other places; there was no site which gathered all the information, and then translated and analysed it for effective wider

Resources Coordination Committee), Myanmar(Assistant Engineer of the Hydrology Branch, Irrigation Department, Ministry of Agriculture and Irrigation), Thailand (Environmental scientist from the Inland Water Division, Water Quality Management Bureau Pollution Control Department, Ministry of Natural Resources and Environment), and scientific researchers in other organisations from Malaysia (Director of the National Hydraulic Research Institute of Malaysia (NAHRIM) Ministry of Natural Resources and Environment), Republic of Korea(Senior researcher of the National Institute of Environmental Research), and Vietnam (Director of the Institute of Environmental Technology, Vietnamese Academy of Sciences and Technology (VAST)). This data is taken from the list of participants at the second international workshop: Water Environment Partnership in Asia (WEPA) held in March, 2007. No representative from Cambodia attended, but the deputy chief in the Department of Pollution Control; Ministry of the Environment participated in the first international workshop of WEPA held in January 2005. (Source: IGES, Report of Examination on the building the Water Environment Partnership in Asia in 2005 (*Heisei 17 Nendo Asia Mizu Kankyou Partnership Kouchiku Jigyou Kentou Gyoumu Houkokusho*), 2006; List of Participant [unpublished] (provided by the Secretariat of WEPA, 2007).

[29] Tariq Banuri and Erika Spanger-Siegfried, *op.cit.*, 41-2; Holohan, *op. cit.*, 33.

[30] This period starts from 1997 when the first World Water Forum (WWF) was held to 2002, the year before WWF3.

[31] For instance, the United Nations Environmental Programme/International Environmental Technology Centre (UNEP/IETC) ran the environmentally sound technologies information system (maESTroΠ), a management tool which assists the transfer of Environmentally Sound Technologies (ESTIS) in multi-languages: http://www.estis.net/ (Accessed on 28/07/2007)

[32] Many projects and programmes were also supported by the Asian Development Bank (ADB), which released the report *Water for All* in 2001. ADB, *Water for All: the Water Policy of the Asian Development Bank*, 2001(Typeset version published in 2003): http://www.adb.org/Documents/Policies/Water/water-policy.pdf (Accessed on 28/07/2007)

[33] Unless international cooperation takes place, it is difficult to find general water-related information about any nation in Asia: for instance, the degree of technical advancement which can contribute to projects and policy will remain unknown if it is scattered/ disaggregated in different places/organisations.

use.[34] In other words, efforts were scattered. It was for this reason that WEPA was designed in such a manner that the members could share information and thus cooperate on research into the crucial water issues affecting Asian nations.[35] The importance of this wider knowledge becomes apparent when policy-makers responsible for international aid on a state basis have to make their decisions.[36] The JME was therefore keen to take a lead role in setting up a network if the other nations responded to this idea.[37]

WEPA also meets the second condition of a network, that of spontaneous participation by two actors. It was formed by more than two actors, and had a dynamic and enthusiastic hub. The JME and the Institute for Global Environmental Strategies (IGES), as Secretariat, played the leading roles as the hub, contacting actors to form the network. In 2001, as part of the preparation for WEPA, the JME entrusted the preparatory and annual research to IGES, which also acted as the central site at which all information was stored and shared.[38] At the Commission on Sustainable Development (CSD) Implementation Meeting for Asia and the Pacific (at CSD-12, October 2003) the theme of which was water-related issues, the JME made a presentation which proposed the formation of WEPA and the creation of a database on environmental policy in Asia.[39] The JME received a quick and positive response from many nations to these ideas at the meeting. After the meeting, the JME undertook the process of networking, using their connections, in cooperation with the IGES. For the holding of the inception meeting, fixed for November 2003, both the JME and IGES expended considerable effort to gather together those in charge of environmental management of the Asian governments.[40]

The third condition of a network, spontaneous participation and flexible change in

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[34] Wolfgang H. Reinicke and others, eds., *Critical Choices: the United Nations, Networks, and the Future of Global Governance* (Canada: International Development Research Centre, 2000), 27-64.

[35] It also took into account the knowledge and skills that Japan was able to offer to Asia, and the demand for international cooperation according to the Japanese policy-maker who was in charge of at that time. Interview with Ms. Keiko Segawa, Assistant Director, Japanese Ministry of the Environment (Conducted on 15/06/2007; IGES, Report of Examination on International Fresh Water Issue in 2001 (*Heisei 13 Nendo Kokusaitekina Tansui Mondai Kentou Chousa Houkokusho*), 2002.

[36] Moreover, this idea was strengthened after hearing from an expert who claimed the necessity of the creation of an international organisation to deal with the fresh water issue and which could coordinate the activities of related organisations and review national water policies. This survey was conducted by IGES in 2001. IGES, Report of Examination on International Fresh Water Issue in 2001 (*Heisei 13 Nendo Kokusaitekina Tansui Mondai Kentou Chousa Houkokusho*), 2002.

[37] Interview with Ms. Keiko Segawa, Assistant Director, Japanese Ministry of the Environment (Conducted on 15/06/2007).

[38] IGES, Report of Examination on International Fresh Water Issue in 2001 op. cit.; IGES, Report of Examination on the building the Water Environment Partnership in Asia in 2003 (*Heisei 15 Nendo Asia Mizu Kankyou Partnership Kouchiku Jigyou Kentou Gyoumu Houkokusho*), 2004.

[39] International Institute for Sustainable Development (IICSD), 'Presentation on the 3rd World Water Forum Portfolio of Water Actions (PWA)', *Earth Negotiations Bulletin*, 5/ 195, (2003): 3 (http://www.iisd.ca/download/pdf/enb05195e.pdf (Accessed on 24/08/2007)); UN Economic and Social Commission for Asia and the Pacific (ESCAP) 's Regional Meeting for CSD-12 in 2003: http://www.iisd.ca/csd/rim/escap/ (Accessed on 24/08/2007); Commission on Sustainable Development (CSD)-12: http://www.un.org/esa/sustdev/csd/csd12/rim.htm (Accessed on 24/08/2007)

[40] Contact was both by phone and in person (in meetings of prospective counterparts in different countries). Interview with Ms. Keiko Segawa, op. cit.

networking, can be observed from the interactions between the hub and other Asian states. The response from the latter to Japan during the first stage of the network's formation was as positive as had been their response at CSD-12. The water issue is crucial for most members of WEPA, most of which are developing nations. Since there had not been previous contact with Japan on the fresh water issue, it made sense for them to participate in the network in order to obtain, and examine the ways to use, resources such as capacity building (CB) and to learn good practice. Hence, there was the positive response from ASEAN nations and their willingness (demonstrated by the frequency of contacts and interviews) to cooperate with WEPA.[41] The expansion of international cooperation apparent in the increased activity of WEPA reveals that the members valued their own reputations (i.e. wanted to be seen as good regional citizens) and trusted each other.[42]

However, the situation changed during the second stage of the network, which began with the preparation for the 2004 inception meeting. For instance, Korea and Indonesia were initially inclined to join WEPA if Japan wanted to lead it. During preparation for the inception meeting, Korea stated that they would send a scientist as their representative.[43] This made the status of their participation more problematic: could he be considered be a formal representative or not? One complication was that the special domain of the Korean scientist was not directly related to the fresh water issue. In addition, they stated that they had not committed to participate in WEPA, despite attendance at the inception meeting. This ambivalent response continued to the first International Workshop of the WEPA in 2005, to which Korea did not initially accept an invitation to attend. The case of Indonesia was similar. It seems that these nations were cautious, wishing to consider carefully the idea of WEPA before committing to the network, even though the JME initially insisted resolutely that, for international cooperation, participating nations be represented by their national governments; the JME wanted official, national-government-level commitment to current and future agreements.[44]

These responses were dependent on each nation's will because the framework of WEPA was (and is) voluntary – there was no particular international agreement on addressing the water issue in Asia when the Japanese government proposed the idea of cooperation. A consequence of this voluntarism has been that not all nations' representatives of WEPA are national officials. The JME and the Secretariat have accepted this out of respect for the actors' rights to act on their own

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[41] Interview with Ms. Kyoko Matsumoto, Secretariat of WEPA, IGES (Conducted on 15/06/2007).

[42] Banuri and Spanger-Siegfried, *op. cit*., 41-2; Holohan, *idem.*; Powell, *op. cit.*, 323-7.

[43] Interview with Secretariat of WEPA (Conducted on 21/08/2007).

[44] On the other hand, in the case of Malaysia, for instance, it was difficult to decide on a focal point who was a national actor, as there was little response from either policy-makers or others in charge of water issues at the state level. Subsequently, it was decided that the representative from this country was to be someone from a research organisation. Interview with Ms. Keiko Segawa, op. cit. Other countries, such as Vietnam, Thailand and Myanmar, have attended the International Workshops, but they have sent alternate delegates, not their focal points. However, Vietnam and Thailand did send the same alternate delegates in both 2005 and 2007. Myanmar was not represented at the second International Workshop in 2007 although a member of WEPA. Interview with Secretariat of WEPA, ibid.

initiatives.[45] Throughout, the Secretariat respected Korea's opinion, while it (Korea) enquired about the process of choosing a focal point.[46] The flexibility on the part of Japan in this and other matters has helped to maintain the network.[47] Eventually, the network was formed by eleven actors spontaneously. They came together very quickly to discuss future policy on the water issue in Asia.

3-2-2. Governance Structure and Function within WEPA

Contributions to effective environmental governance are made by various interactions within WEPA; these include capacity building (CB) and related research, mutual trust building, and further information collection activity, represented in "dialogues".

Firstly, regarding CB, there was the mediating role of IGES (Secretariat) assistance from the Japanese domestic advisory committee (JDAC) in networking.[48] CB by IGES was mostly provided through overseas research conducted in most ASEAN states.[49]

WEPA was originally designed as an information sharing network.[50] However, various problems for cooperative research on information gathering were found when IGES approached the ASEAN nations to collect current information on progress in dealing with water issues. The original aim of WEPA would have remained an ideal unless these problems of acquisition of information were sorted out. In order to help ASEAN focal points faced with information collection problems, the IGES endeavours to assist all members in distributing resources, such as finance, knowledge and expertise in information gathering.[51] This CB has contributed to the development of environmental awareness, practical skills, and expertise among member nations.[52] The communication in overseas

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[45] Interview with Mr. Motomu Uchimura, Assistant Director, Japanese Ministry of the Environment (Conducted on 15/06/2007).

[46] Korea questioned whether they could contribute to WEPA because their prospective member worked for the oceans bureau, which did not have a particular water-related policy. Interview with Ms. Keiko Segawa, op. cit. The focal point from Korea was not fixed officially until early in 2006 (although the announcement to the Secretariat was made in November 2005). It was in March 2007 that the Korean focal point came with a government official. Only the government official (from the Ministry of the Environment) had attended WEPA's inception workshop in 2004 as an observer. Interview with Ms. Kyoko Matsumoto, op. cit.

[47] Holohan, *op.cit.*, 33.

[48] Slaughter, *op. cit.*, 135-44; Ansell and Weber, *op. cit.*, 73-93; Rhodes, *Understanding Governance: Policy Networks, Governance, Reflexivity and Accountability*, op. cit., 29-45; Ruggie, *op. cit.*, 27-36.

[49] Overseas surveys were conducted in 2004 and 2005, once in Myanmar and Thailand, twice in Lao PDR and Cambodia, three times in Vietnam (including bilateral dialogue). The Secretariat also tried to investigate China. However it was necessary to receive permission to do so through a formal administrative process, which was difficult for the Secretariat at that time. Interview with Ms. Kyoko Matsumoto, op. cit.; IGES, Report of Examination on the building the Water Environment Partnership in Asia in 2004, op. cit.; IGES, Report of Examination on the building the Water Environment Partnership in Asia in 2005, op. cit.

[50] Ideally, in a network, participants provide complementary "resources". Ansell and Weber, *idem.*; Rhodes, *idem.*; Ruggie, *idem.*

[51] Some states, such as China and Korea, have another diplomatic channel, the TEMM, through which to discuss general environmental issues. Thus, there is little incentive for them to discuss only the water issue since it is already possible for them to share information on the subject. TEMM: http://www.temm.org/ (Accessed on 26/08/07); Interview with Ms. Kyoko Matsumoto, op. cit.; IGES, Report of Examination on the building the Water Environment Partnership in Asia in 2004, op. cit.; IGES, Report of Examination on the building the Water Environment Partnership in Asia in 2005, op. cit.

[52] Interview with Mr. Hideo Naito, op. cit.

research to most members is part of the ongoing contact between the IGES and the members, and is a significant part of CB.[53]

Another example of CB which contributes to international understanding on water-related issues through information acquisition was led by JDAC as well as IGES. Training at Technical Workshops held in Japan and Thailand in 2005 has contributed to the ability of nations to not only collect and record information, but also to raise awareness of that information.[54] Through this CB, knowledge/ideas are created and disseminated throughout the network.[55] These various types of CB have been effective as it was initially difficult for all members to gather information and knowledge on their nations by themselves in the secondary period (i.e. when the Secretariat distributed the forms to the focal points to fill in), as they were constrained by a variety of conditions of their own working environment, such as methodological problems, the right to use some information, and financial problems.[56] At international workshops and forums, there is not the time for the discussing and sharing of each nation's problems, as such events are simply opportunities for networking. WEPA thus became a space of cooperation where the network members could share resources and build up a store of data, knowledge and other policy information on water-related issues. The information which has been uploaded onto the WEPA website has gradually increased since 2005; the site has been fully open to the public since 2006.[57]

The second impact on environmental governance is that, in addition to the recognition that they are affected by a common issue, mutual trust develops between members of the network.. In fact, WEPA was a network of trust from its earliest days, as some countries became involved because

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[53] Other examples of sharing of resources include the Secretariat and JDAC interviewing experts from China and Thailand, the establishment (in 2003) of the Southeast Asia Water Forum (SEAWF), communication with the ADB at international level and with the public officer in charge of international aid at JME, and relations with the Japan International Cooperation Agency (JICA) and Overseas Environmental Cooperation Centre in Japan (OECC) for assistance with design of the network. Third Southeast Asia Water Forum (SEAWF): http://3rdseawf.water.gov.my/background.cfm (Accessed on 26/08/07); IGES, Report of Examination on International Fresh Water Issue in 2001, op. cit.; IGES, Report of Examination on the building the Water Environment Partnership in Asia in 2003, op. cit.; IGES, Report of Examination on the building the Water Environment Partnership in Asia in 2004, op. cit.; IGES, Report of Examination on the building the Water Environment Partnership in Asia in 2005, op. cit.

[54] IGES, Report of Examination on the building the Water Environment Partnership in Asia in 2005, op. cit., 119-29.

[55] Powell, *op. cit.*, 325.

[56] The first of these, methodological problems, refers to the ways in which information is collected and the issue of providing the information to WEPA (often because agreement to it within the providing country has not been approved). The second, the right to use the information, relates to the fact that the information on water environment in many nations is disaggregated across many ministries. Basically, nations (and ministries within nations) sometimes have the right to protect the information by not allowing it to be used by others without permission, such as by a memorandum of understanding, or by charging a payment to others who wish to use the information they possess. The third problem, financial, refers to the fact that some countries are unable, for instance, to pay for the cost of translations, to engage staff and/or consultants (to conduct research, collect information, host meetings, etc) to introduce new technology or to build new infrastructure. IGES, Report of Examination on the building the Water Environment Partnership in Asia in 2004, op. cit., 17-26; IGES, Report of Examination on the building the Water Environment Partnership in Asia in 2005, op. cit., 35-40; Interview with Ms. Kyoko Matsumoto, Secretariat of WEPA, IGES (Conducted on 15/06/2007); Interview with Mr. Hideo Naito, op. cit.

[57] Interview with Ms. Kyoko Matsumoto, op. cit.; Interview with Mr. Hideo Naito, ex-member of JDAC, public servant, City of Kitakyushu, Japan (Conducted on 15/06/2007).

of their trust in the leadership of the Japanese government.[58] The interactions among actors through the roles of the two hubs together with the mutual trust between Asian nations and the high expectations of the benefits of involvement contributed to the esteem of the network within the region. WEPA's support of the swift transmission and publicizing of data and knowledge collection for international cooperation and policy development has been recognized gradually by the members.

The third contribution to environmental governance lies in the existence of communication between members at formal and informal meetings. The formal meetings have been an inception workshop annual meeting, an international symposium, an international forum, bilateral dialogue and an international workshop, two working meetings each on policy and techniques, and eleven domestic advisory meetings.[59] Informal activities have included a "dialogue", academic conferences, overseas surveys by IGES, and the Technical Workshops described earlier. The first "dialogue" (or, the commencement of a single ongoing dialogue) took place in Vietnam in 2007; the subject of discussion was respect for the wills of focal points.[60] Academic research forums are held once a year; the first was in 2006. These conferences are open to the public, and are another site for the exchange of technical knowledge.[61] A new, and very useful, resource which can be shared is financial assistance for member nations. For example, the focal point in Lao PDR was, with financial assistance from WEPA, able to form a local committee for the purpose of information gathering, while other nations have been able to pay consultants to collect and analyse information about international cooperation projects and other policy-related matters.[62]

3-3. Comparison between EANET and WEPA

There are both similarities and differences between EANET and WEPA. Each network was formed with the aim of addressing and overcoming an issue and each established a site of cooperation and implemented environmental cooperation at their own pace. Against this background, the relationship between networks and environmental governance is summarised in the following table (Table 2).

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[58] Interview with Ms. Keiko Segawa, op. cit.

[59] This information is correct, as of 28 August 2007. WEPA Activities: http://www.wepa-db.net/activities.htm (Accessed on 25/08/2007); IGES, Report of Examination on International Fresh Water Issue in 2001, op. cit. ; IGES, Report of Examination on the building the Water Environment Partnership in Asia in 2003, op. cit. ; IGES, Report of Examination on the building the Water Environment Partnership in Asia in 2004 (*Heisei 16 Nendo Asia Mizu Kankyou Partnership Kouchiku Jigyou Kentou Gyoumu Houkokusho*), 2005; IGES, Report of Examination on the building the Water Environment Partnership in Asia in 2005, op. cit.

[60] See: http://www.wepa-db.net/activities_200702vietnam.htm (Accessed on 26/08/07). That it will continue was confirmed in an interview conducted by the author. Interview with Ms. Kyoko Matsumoto, op. cit.

[61] The second academic conference of WEPA was held in December 2007. At around the same time (3-4 December 2007), the first Asia-Pacific Water Summit (APWS) was held in Oita Prefecture, Japan. Three priority themes (originally identified in the regional document for the 4th World Water Forum) – water financing, water-related disaster management, and water for development and ecosystems – were confirmed as the first important steps towards progress at this first conference:. Asia-Pacific Water Forum Website: http://www.apwf.org/index.html (Accessed on 23/08/2007); 1st Steering Committee Meeting of the 1st Asia-Pacific Water Summit: http://www.adb.org/Documents/Events/2007/APWF/steering-com-meet-1st/default.asp (Accessed on 23/08/2007)

[62] *Ibid.*

Factors such as degree of openness, change of shape, and connectivity are important when thinking about network effectiveness. In addition, other components under the heading of the scale of the network and its contribution to environmental governance are added in order to consider the general question of this paper: how various network factors are linked to the creation or development of environmental governance.

Table 2. Characteristics of the relationships between networks and environmental governance: extracted from case studies of EANET and WEPA

Feature / Case	Degree of Openness	Change of Shape	Scale of N			Contribution to Environmental. Governance
			Connectivity	No. of States	No. of Sub N	
EANET	Open to N -------------- Open to members	Vertical → Horizontal	Large, weak and strong; Connected in each sub N	East Asia 1ststage: 11 2nd: 10 3rd: 13	IG, NC, SAC, Secretariat, WG,WS,STM Focal point, Nat'l Centre, Nat'l QA/AC	Int'l networking, Monitoring, CB, Burden sharing, Action for reduction
WEPA	Closed to N ------------- Semi-closed → Open to members	Vertical → Vertical and Horizontal	Narrow, Weak; Each sub N is partially connected	East Asia 1stand2nd: 11 States (Focal points)	Int'l WS, WG, DAC, Secretariat	Int'l networking, CB, Data collection

First of all, as the information in the first column from the left reveals, it is implied that the openness of a network is one of the keys for the creation and development of environmental governance. In the case of EANET, the network is open not only to members, but also, permanently, to other states. Singapore's entry and exit during the primary stage of the network can be counted as this example. To activate networks, the networks should be open so that participants can come and go. It is indeed necessary to manage networks in this manner even though it is also hard to always remain flexible, as the WEPA case shows. In addition, openness allows other states and networks to evaluate the network. Capacity Building (CB) which meets the needs of each member state and promotes environmental cooperation is also counted as a contributing factor for attracting the attention of external actors.

These are also differences. EANET was able, at an early stage, to acquire a good reputation

among most of its participants, while WEPA, during the primary period, could not. But this is not always a negative finding, as it can also be seen as an early step in an adjustment process. The important thing here is that the members (and potential members) of a network have to realise which issues require a cooperative response if they are to be solved. At present, there are two major stumbling blocks preventing or, at least, hindering cooperation between nations. One is a difference in perception of particular environmental problems; the other is a difference in resources with which to deal with the problem. An example of the former is China's response to the acid rain issue. It insists that the problem is a domestic matter, while nations such as Japan and Korea argue that it is a transboundary environmental problem. The second obstacle, that of a difference in the amount and quality of resources a nation can contribute to a network, can be attributed to the wealth gap between developed and developing states. It is necessary for networks to manage the effects of this gap with great tact, assuring, for instance, wealthier states of the benefits that will accrue from cooperation and poorer states of the value of their contributions.

The second thing which is important to note is the connectivity of networks. EANET has a large scale of network and weak ties, but strong coordination within the network in the sense that there are connections within each sub-network and with other networks. The IG meeting, NC, SAC, Secretariat, WG, Senior Technical Manager (STM), and Focal Point (composed of National Centre and National QA/AC) are organised within EANET. The network also has links (i.e. shares information) with other networks, such as workshops (WS) for citizens and experts, and other forums or cooperative frameworks such as Eco-Asia, TEMM, and ASEAN+3 Environment Ministers Meeting for policy-makers. In addition, UN/ECE and UNEP/ROAP have been observers at EANET's IG meetings. It should be noted, however, that too strong coordination could act as a disincentive for some participants, as the cases involving Korea and China demonstrate.

On the other hand, WEPA is a narrower scale of network than EANET, and sub-networks such as international WS, WG, DAC, and Secretariat are only partially connected. There have been, indeed, some attempts to publicize WEPA activity to an outside audience (e.g. at the WWF4 in 2006); however, it is still necessary for the network to continue to increase the amount and frequency of information it shares with other actors at various forums such as WWF, Asia-Pacific Water Summit, Southeast Asia Water Forum and the TEMM. Of course, most of this external activity should come after international cooperation within WEPA has been achieved.

In addition, actors in the network are very weakly tied, and there is only partial coordination. The most effective way to use information is an example. It is necessary to not only collect information/knowledge, but to translate, analyse and present it in ways that make it 'fresh' and 'fascinating' to users; only by doing this is it possible to engage with and motivate members of a network. It can be argued that this is what needs to done to encourage China and Korea, both of which have only demonstrated remote interest in CB and "dialogue", to maintain their participation

involvement in the network. If links are too weak, members cannot maintain contact with other members; in short, they cannot cooperate. It is always important for networks to strike a balance between strong and loose coordination; the examples of China and Korea in the case of WEPA illustrate the importance of achieving such a balance.

On the basis of the case studies reviewed in this paper, it can be provisionally and tentatively concluded that, given the impact of networked governance on the structure of environmental governance in East Asia, international networking (i.e. the collection of relevant actors in a cluster) is a necessary precondition for the emergence of networked governance. The participating states of both EANET and WEPA come from East Asia; however, the histories of the development of their memberships are slightly different. In the case of EANET, there were eleven states in the first stage, a decline to ten in the second stage, but an increase to 13 in the third stage. WEPA's membership was more stable, with eleven focal points in each of its two stages.

The second component of network governance is CB, which is an example of resource sharing. The contents and aims of CB in the two networks are different. However, the actors in networks try to share their resource. For instance, the aim of CB in EANET was to build and develop the ability to monitor acid rain, while that of CB in WEPA was to learn the methods of collecting, storing, and sharing information/data on water issues. Resource-sharing is important if a network is to survive. Cooperation on the issue of environmental degradation is complex and difficult, as states need to recognize that it is not only an environmental matter, but that there are also other problems surrounding the issue. It is important and urgent to introduce countermeasures in those places where the problems are most serious.[63] In this regard, it can be argued that WEPA and EANET have both created conditions in which members have opportunities to raise environmental awareness as well as increase, in the case of WEPA, their ability to share information and, in the case of EANET, their ability to monitor as the network has developed. By so doing, both EANET and WEPA were able to develop reputations which encouraged members to continue their participation, to enjoy the positive benefits of membership, and to see the future benefits of further developing their respective networks.

The final component of network governance to emerge from the two case studies is the fact that sharing interests and/or burdens is a precondition for taking action to solve environmental issues. The concrete interests of the members determine the characteristics of each network and its advancement. In EANET's case, the network's members were able to agree to burden-sharing and various actions for reduction of acid rain in the development stage of the network. In WEPA's case, there have been achievements in the area of information sharing; information has been uploaded to the network's website, even though it is still necessary for that information to be improved and

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[63] Reinicke et al. eds., *Critical Choices: the United Nations, Networks, and the Future of Global Governance, op. cit.*, 27-64.

expanded. These gains are defined and made possible by the goals of the network, the change of shape of the network, and the relations the network has with external actors.

4. Concluding Remarks

In this paper, international cooperation on the related issues of acid rain and water pollution prevention/water management in East Asia has illuminated the element of 'networkness' in network theory. On the one hand, EANET has contributed to problem-solving through utilisation of its function networks. In cases in which international norms and rules which stipulate the action of nations are absent, actors form networks to share information, to recognise the focal points, and to create essential measures for dealing with the issue with which they are concerned. In order to respond to the specific political and environmental conditions in East Asia, the participants in EANET developed their relations by forming a network. The characteristics of a network were utilised for addressing the issues that the relevant actors were affected by.[64] Networks therefore can be an effective mode of environmental governance in East Asia in this sense.

On the other hand, WEPA is a network with very loose connections. Although it has made some achievements, these are very limited and it still needs to improve in some areas. It can be said that WEPA is a case which poses the question of how far loose connectivity influences network development, the attainment of goals, and substantial changes to the network. The change of the aim of a network can lead to its dissolution; however, it can also lead to its diversification or reformation.

These case studies introduce the idea of 'network analysis', which has the potential to bring out more precisely the various relationships among actors/organisations at different levels in networks. This paper started from that the premise that the concept of network can be employed more analytically than it has been thus far in IR. There are often many and various initiatives disaggregated in a certain issue or in a region; it is crucial to find a way to capture these relations and to discuss the process(es) leading to the solving or improving of an actual environmental issue. 'Network analysis' can be used for such an analysis, identifying the direct and indirect relations among actors in order to understand a network's complex structure and explaining its impact on their behaviours.

Considering the complex forms of environmental governance, it might be argued that networking is the key function of governance. However, network-based governance is, of course, only one of the modes of environmental governance. It is therefore still necessary to make further investigations of network governance, asking, for instance, whether it can also contribute to the

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[64] Wolfgang H. Reinicke and Jan Martin Witte, 'Interdependence, Globalization, and Sovereignty: The Role of Non-Binding International Legal Accords', *Commitment and Compliance: The Role of Non-Binding Norms in the International Legal System*, ed. Dinah Shelton (Oxford University Press, 2000), 75-99; Bob Jessop, *The Future of the Capitalist State* (Polity Press, 2002), 240-243.

resolving or amelioration of other environmental issues in East Asia.

There are currently two ways in which researchers examine this question. One is to analyse two networks, one that has been effective and one that has not, in order to assess the performance and usability of network governance. The other approach is to continue to develop network governance, enquiring whether or not this mode enhances environmental governance. Actually, it is not a good idea to privilege one of treaties, regimes, or networks over the others. Rather, it is necessary to argue for better or thoughtful mixtures/arrangements of these elements of governance. Hence, theoretical and practical research into network governance by International Relations scholars is required. Such research will also be valuable because the idea of networks has the potential to reconstruct our understandings of relations among actors. Not only are there multiple interactions among actors, but there are also links between the actors and networks as systems. Network analysis expands the study of relations between systems and actors to incorporate complex relationships involving actors, institutions, and systems (both networks of which the actors are members and external groupings); international regime theory, by contrast, takes into account only relations within regimes. EANET and WEPA are presented in this paper as examples of these diverse interactions and ones which can help us to explain and understand these new relations.

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Ms. Leong Chow Peng (ADORC)

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Ms. Keiko Segawa. Assistant Director. Japanese Ministry of the Environment. Conducted on 15/June/2007.

Ms. Kyoko Matsumoto. Secretariat of WEPA, Institute for Global Environmental Strategies. Conducted on 15/June/2007.

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Mr. Motomu Uchimura. Assistant Director. Japanese Ministry of the Environment. Conducted on 15/June/2007.

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