

## THE STRUCTURE AND POLITICAL DYNAMICS OF REGULATING “YELLOW SAND” IN NORTHEAST ASIA\*

*Whasun Jho and Hyunju Lee*

*This article examines the structure and political dynamics of the environmental cooperation network in Northeast Asia for the “yellow sand” problem as well as the interplay of ideas and interests among its participants in Korea, China, and Japan. Despite the existence of a complex and multi-layered network and discussion channel, regional environmental cooperation remains in a rudimentary stage due to the governments’ and NGOs’ different ideas about the issues and the priorities of economic resources. Cooperation in solving the Northeast Asia yellow sand problem is difficult because the most important functions are being carried out by intergovernmental national actors. The highly integrated transnational ecosystem is being managed by sovereign states with different interests and political dynamics. In order to solve a regional problem like that of yellow sand, transnational solidarity between civil societies must be promoted. In addition, a coordination organization and regional leadership that can manage cooperation networks and promote solidarity among Northeast Asian countries are required.*

**Key words:** environmental protection – East Asia, transnational networks, Korea, China, Japan

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## Introduction

This article examines the reasons why binding institutionalization has failed in Northeast Asia, despite efforts made by regional environment networks, by focusing on the structure and political dynamics of the Northeast Asian environmental cooperation network. The international community has been demanding global and local agreements and has collaborated on regulations for protecting against transnational environmental pollution.<sup>1</sup> However, despite initiatives that have been pursued in the name of environmental cooperation in Northeast Asia, they have not been able to produce clear results. Even with formal and informal regional networks for cooperation on environmental issues such as the North East Asia Sub-regional Programme for Environment Cooperation (NEASPEC) and the Tripartite Environment Ministers Meeting (TEMM), no solid and concrete long-term plans or binding implementation schemes have been agreed on. The question remains: What are the reasons for failed institutionalization and implementation of environmental policies despite the formal and informal initiatives on the management of regional environmental issues in Northeast Asia?

Scholars have focused on the rise of new actors in international politics and uncovered some of the reasons behind support for the formation of global governance institutions.<sup>2</sup> Results of research conducted thus far have established that global governance developed as a result of rational cost-benefit analyses between countries.<sup>3</sup> The formation of such a global network did not produce an equal distribution of power between different

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1. By the year 2000, over 130 multilateral environmental treaties and several hundred bilateral treaties had been agreed upon.
  2. James N. Rosenau, "Governance in the Twenty-First Century," *Global Governance*, vol. 1 (1995), pp. 13-43; James N. Rosenau and Ernst Otto Czempiel, *Governance without Government: Order and Change in World Politics* (Cambridge: Cambridge University Press, 1992).
  3. Michael Barnett and Raymond Duvall, *Power in Global Governance* (New York: Cambridge University Press, 2005).

countries, nor did it guarantee fairness in international politics. Environmental problems are especially difficult to solve not only because of their seriousness, but also because of their complexity, as environmental problems are entangled with many other issues such as international trade. Even when common benefits are clearly created by resolving such transnational problems, the process of establishing the needed regulations and institutions on a local and regional scale within the international community will face conflict and opposition among the participants.<sup>4</sup>

The interaction of factors such as hegemony and varied interests along with ideas spawns different transnational networks.<sup>5</sup> The structure of a network is composed of various actors such as individuals, scientists, environment-focused nongovernmental organizations (NGOs), governments, and international organizations with a common goal of resolving an issue. In order for a transnational network to develop and operate, there must be a consensus on certain ideas among the participants. The damage and destruction caused to the environment worldwide have raised the issue of the survival of humanity, which is based on a common consensus of ideas. Formal and informal activities of epistemic communities, such as expert groups and environmental NGOs, have contributed to setting an international or local policy agenda and changes in policy direction. However, we need to closely examine the operating mechanism of the regional environmental cooperation network through ideas and interests developed from international politics.

In order to study the development of networks and political dynamics among the varied and diverse actors within these networks, this research specifically focuses on the "yellow sand" issue in the politics of the Northeast Asian region. "Yellow sand" in Northeast Asia, which comes primarily from the Chinese and Mongolian desert areas, rides on fast air currents, moving west-

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4. Whasun Jho, "The Internalization of Global Governance: Changes of Global Internet Governance," *Korean Journal of International Relations* (in Korean), vol. 47, No. 2 (2007), pp. 7-28.

5. Oran R. Young and G. Osherenko, *Polar Politics: Creating International Environmental Regimes* (New York: Cornell University Press, 1993).

ward, and affects a wide area including Korea, Japan, the United States, and Canada. Since 2000, the number of yellow sand storms, their intensity, and the damage they cause have increased steadily because of the rapid industrialization of China, making such storms a central environmental issue in Northeast Asia. The serious nature of the damage caused by yellow sand and the need for transnational cooperation fostered the formation of a regional initiative for environmental cooperation.<sup>6</sup> In what way is this formal or informal regional cooperation network for the management of environmental issues in Northeast Asia developing? What are its characteristics and its limits? This article focuses on the structure of the Northeast Asian environmental cooperation network for the problem of yellow sand as well as the interplay of ideas and interests among its participants in Korea, China, and Japan.<sup>7</sup>

### **The Formation of Transnational Networks and the Politics of Ideas and Benefits**

Efforts to solve transnational environmental problems have led to the acceleration of the transformation of state and post-modern global governance. The international community has been developing an environmental regime. The UN Framework Convention on Climate Change and its subsequent protocol, the Vienna Treaty of 1985, as well as the Montreal Protocol of 1987 are examples of such efforts. The international community has been developing a mechanism for mediating ideas and diverse interests through such international regimes. International politics is now solving common issues among its constituencies by decentralizing and spreading out authority according to the growing complexity of mutual relationships in the globalization

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6. Cheon Jeong-woong, *Political Economy of Global Environmental Regime* (in Korean) (Seoul: Hanul Academy, 1995), p. 15.

7. Even though the effects of the yellow sand have reached Russia and Mongolia, most of the regional cooperation is centered in Korea, China, and Japan.

process, which ensnares the policy decision-making process into a complicated chain.<sup>8</sup> While international politics encompasses international organizations, regimes, international law, and transnational NGOs, each of them possesses diverse cooperative and policy-making channels locally, linked through networks formed between government-civil society, individuals-civil society, and market-interest groups.

The transnational nature of the issue raised is why cooperation and coordination through a transnational network is necessary. Yellow sand pollution, which not only has detrimentally affected China, the country of origin, but also other nearby countries such as Korea and Japan, is an example of a transboundary environmental problem.<sup>9</sup> Interdependence and fragmentation of the participants in international politics have broken down the boundaries that previously existed between the constituencies, such as state-state and state-market, while helping to build a distinct but inseparable system of relationships among individual constituencies.<sup>10</sup>

The problem is that each state that is collectively responsible for managing the ecosystem as common ground for human activities has jurisdiction only over problems that arise within its borders. This complexity has given a leading role to multinational corporations, NGOs, or international organizations in the

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8. Mark A. Pollack, "Theorizing the European Union: International Organization, Domestic Polity, or Experiment in New Governance?" *Annual Review of Political Science*, vol. 8 (2005), pp. 357-98; Martin Carnoy and Manuel Castells, "Globalization, the Knowledge Society, and the Network State: Poulantzas at the Millennium," *Global Networks*, vol. 1, No. 1 (2001), pp. 1-18; Susana Borrás and Kerstin Jacobsson, "The Open Method of Co-ordination and New Governance Patterns in the EU," *Journal of European Public Policy*, vol. 11, No. 2 (2004), pp. 185-208.

9. Due to its limited range of effect, the yellow sand pollution problem is not on the same scale as global environmental problems such as global warming.

10. James N. Rosenau, *Distant Proximities: Dynamics beyond Globalization* (Princeton, N.J.: Princeton University Press, 2003); Christopher K. Ansell and Steven Weber, "Organizing International Politics: Sovereignty and Open Systems," *International Political Science Review*, vol. 20, No. 1 (1999), pp. 78-81.

quest to solve regional or transnational issues rather than to the traditional state-centered problem-solving mechanism.<sup>11</sup> External conditions such as the end of the cold war, globalization, and improved relations between countries have afforded the opportunity to build a transnational regime and eliminate obstacles to transnational cooperation.<sup>12</sup>

However, such transnational efforts do not always lead to cooperation. As can be witnessed from the refusal of the United States to ratify the Kyoto Protocol, when absolute interests, such as the protection of the global environment, come into conflict with national interests, the international community is incapable of mediating such conflicts. Even when there is motivation for transnational cooperation, the reaction of such a network to transnational cooperation will depend on the interaction of the interests and ideas of the participants.

First, the characteristics of an environmental regime usually vary greatly depending on the nature of the issue at hand, the level of knowledge about the subject, and the cost of an alternative policy. The epistemic community, which shares knowledge and similar preferences on social norms, can affect the nature and formation of a transnational environmental regime.<sup>13</sup> Peter H. Sand explains how the activities of an epistemic community lead to cooperation: first, scientific knowledge helps to substantiate the seriousness of the destruction of the environment while providing alternatives that can produce real results in multilateral negotiations; second, such scientific knowledge greatly affects the values of important policy makers; and third, this knowledge also affects public opinion.<sup>14</sup> The development of an epis-

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11. Robert Garner, *Environmental Politics* (New York: Prentice Hall/Harvester Wheatsheaf, 1996), pp. 121-27.

12. Young and Osherenko, *Polar Politics*, pp. 245-46.

13. Peter M. Haas, "Introduction: Epistemic Communities and International Policy Coordination," *International Organization*, vol. 46, No. 1 (1992), pp. 1-35.

14. Peter H. Sand, "International Cooperation: The Environmental Experience," in Martin Shaw, ed., *Theory of the Global State: Globality as Unfinished Revolution* (Oxford: Cambridge University Press, 2000).

temic community that shares normative values and knowledge has greatly improved the global environmental regime during its early stages of formation. However, for the assertions made by the epistemic community to be effective, interaction and exchange of ideas within the community need to produce a workable consensus in order to increase the possibility of cooperation and finding solutions. In other words, understanding the problem and interacting on the basis of that understanding will act as the major variable in the success or failure of international cooperation.

Second, global governance is the result of a rational cost-benefit analysis between different countries.<sup>15</sup> Constituencies in the formation of a global regime try to set the rules and policy agenda of the game to their advantage. Since the late 1980s, as the regionalization of the global economy began to take place, Northeast Asian countries have been trying to foster regional cooperation in order to facilitate mutual interests in the utilization of natural resources and industrialization. As such, a redefinition of national interests in this region was needed. With such changes in international politics, non-military areas such as environment and trade became important political agenda items in the Northeast Asian region.

However, the formation of a transnational environmental regime did not always lead to a resolution of environmental issues.<sup>16</sup> Because environmental issues are closely linked to the frame of the political power structure within the international relations of each country, conflicts and disputes arise among these countries in the process of solving environmental problems. "Realism" insists that it is difficult for countries to trust each other because of structural uncertainties, and cooperation between different countries is hard to achieve due to the relative interests of each country. International cooperation fails when the chances for expected benefits of other countries are higher

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15. Barnett and Duvall, *Power in Global Governance*.

16. Young and Osherenko, *Polar Politics*; M. List and V. Rittberger, "Regime Theory and International Environmental Management," in Andrew Hurrell and Benedict Kingsbury, eds., *The International Politics of the Environment* (Oxford: Clarendon Press, 1992). pp. 85-109.

than those for one's own country during the distribution of a common benefit.<sup>17</sup> Grieco pointed out that when a competing country stands to gain more through cooperation either potentially or actually, cooperation actually becomes much more difficult.<sup>18</sup> The cost of solving an environmental problem will be a burden to each country, while the benefit of protecting the environment is long-term and distributed among other countries. While transnational environmental cooperation is rational and desirable in the long-term, avoiding the cost of such a choice may increase the short-term and relative benefits of an individual country. Cooperation and conflict among differing countries operate in the context of seeking a relative benefit between these countries, which makes cooperation difficult. This leads to transnational conflicts, and, ultimately, to the failure of transnational cooperation.

This research explores the conflict of ideas and interests among Korea, China, and Japan in managing yellow sand in Northeast Asia. Such a study of the political dynamics of the yellow sand cooperation network in Northeast Asia will help us uncover the reasons for the limitations of institutionalization within the region, despite the existence of a structure of environmental governance.

### **Structure of the Yellow Sand Cooperation Network in Northeast Asia**

#### *Formation of the Regional Cooperation Network*

Yellow sand mainly originates from the surface of the earth during April, which is the dry season. The dust particles are blown high into the stratosphere by a fast-moving air current

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17. Kenneth N. Waltz, *Theory of International Politics* (Reading, Mass.: Addison-Wesley, 1979), p. 106.

18. Joseph M. Grieco, "Anarchy and the Limits of Cooperation: A Realist Critique of the Newest Liberal Institutionalism," *International Organization*, vol. 42, No. 3 (1988), pp. 495-503.

that moves in a westerly direction. Recently, transborder air pollution such as yellow sand has detrimentally affected Korea and Japan, and has become a major environmental issue.<sup>19</sup> In order to deal with environmental issues in Northeast Asia, diverse transnational networks involving not only the governments of Korea, China, and Japan but also environment-related NGOs and international and regional organizations are being formed.

The regional cooperation network in Northeast Asia that set out to solve the yellow sand problem is complex and multi-layered. First, regional cooperation groups such as TEMM that seek to solve environmental issues, and international organizations such as the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), the Asia Development Bank (ADB), and the Global Environment Facility (GEF), are actively discussing these issues, including the yellow sand issue. Second, bilateral relations such as those between Korea and China, Korea and Japan, and China and Japan, are being used to deal with the yellow sand problem within the region. Third, environmental NGOs are attempting to deal with regional environmental pollution problems through a transnational network. NGOs that are working separately have formed a network jointly with international organizations and regional cooperation bodies to deal with transnational environment issues.

International organizations are utilizing the knowhow and funds from other areas such as Europe—which was the first area to take an interest in these environmental problems—to solve environmental issues in Northeast Asia. The United Nations Convention to Combat Desertification (UNCCD)<sup>20</sup> was enacted in 1994 to stop the desertification of soil due to excessive development by supporting developing countries financially and provid-

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19. Other regional issues that have become well-known include pollution of the ocean, destruction of forests, discharge of toxic waste, and diminishing bio-diversity.

20. UNCCD was created after building a consensus on the need to solve the desertification collectively at the UNCED meeting held in 1992. The governments of South Korea, China, and Japan signed this treaty in the 1990s.

ing technical assistance. The international environmental regimes that oversee environmental issues in Northeast Asia are based on the 1979 Geneva Convention on Long-range Transboundary Air Pollution, the Helsinki Protocol of 1985, and the Sophia Protocol of 1988. Specifically, the GEF in terms of financial support and UNESCAP in terms of working level and technical assistance have been cooperating and working in a multilateral regional network.

The yellow sand issue is also addressed in a multilateral government network in the Northeast Asia region. NESPEC, TEMM, and the Environmental Congress for Asia and the Pacific (ECO-ASIA) are multilateral government networks that deal with environmental problems in Northeast Asia (See *Table 1*). The most active of these regional government cooperation networks is TEMM. TEMM is the highest level of official government activity; it started in 1999 on the proposal of South Korea's ministry of environment. The first TEMM provided the opportunity to share an understanding of the need for cooperation and produced a consensus on the need for cooperation among governments for exchanging pertinent information. During this meeting, China marked a radical change in environmental policy by expressing its intention to participate in the joint investigation of environmental pollution in Northeast Asia.<sup>21</sup> In 2001 China further urged both Korea and Japan to participate in the western China ecosystem restoration project aimed at preventing yellow sand by contributing funds and training experts during the third TEMM.

At that meeting, a basis for environmental cooperation was established when the three countries agreed in principle to environmental cooperation in Northeast Asia. In particular, a declaration that included a joint understanding of the seriousness of environmental issues in Northeast Asia and assured a joint effort among the three countries was conveyed to the UNEP.<sup>22</sup> With a joint declaration, ADB-GEF programs for building an

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21. Won Dong-ug, "Asian Dust Issue and Environmental Cooperation in Northeast Asia: A Study on the Interaction of Power, Interest and Knowledge" (in Korean), *Sino-Soviet Affairs*, vol. 27, No. 3 (2003), p. 90.

22. *Ibid.*, p. 90.

Table 1. Multilateral Environmental Cooperation in Northeast Asia

Name	Participants	Major Projects	Secretariat/ Funding	Past Meetings
TEMM	Korea, China, Japan	<ul style="list-style-type: none"> <li>– Joint investigation of long range atmosphere pollution and acid rain monitoring network project</li> <li>– Joint participation in China ecosystem restoration project</li> <li>– Joint management of homepage and development of environmental information-sharing program</li> </ul>	Working group established during the 7th meeting/ ADB,GEF	1st: Jan. 1999, Korea 9th: Dec. 2007, Japan
NEASPEC	Korea, DPRK, China, Japan, Russia, Mongolia	<ul style="list-style-type: none"> <li>– NEASPEC Framework adopted</li> <li>– Monitoring and collecting pollution data</li> <li>– Project for reducing pollution emitted by thermal power plants</li> </ul>	Temporary UNESCAP/ Core Fund, support from ADB	1st: Feb. 1993, Korea 13th: Mar. 2008, Mongolia
ECO-ASIA	24 Asia-Pacific countries	<ul style="list-style-type: none"> <li>– Long-Term Perspective Project (LTPP)</li> <li>– Environmental Information Network in Asia and the Pacific (ECO-ASIA NET)</li> </ul>	Ministry of Environment of Japan	1st: July 1991, Japan 16th: Sept. 2008, Japan

Sources: [www.neacedt.org/kor/user/situation.html](http://www.neacedt.org/kor/user/situation.html); [www.me.go.kr](http://www.me.go.kr); [www.neaspec.org](http://www.neaspec.org); [www.mofat.go.kr](http://www.mofat.go.kr); <http://www.env.go.jp/en/earth/ecoasia>.

early warning system for yellow sand and a pilot project in China and Mongolia were created from 2003 to 2005. This ADB-GEF project is meaningful in that it provided the basic framework for building the first regional cooperation scheme with the aim of countering yellow sand in Northeast Asia.

Since 1992, NEASPEC has held a regional governmental meeting with participation from Korea, the Democratic People’s Republic of Korea (DPRK), Japan, China, Russia, and Mongolia. The goal of NEASPEC is to build the basis for a legally binding

regional cooperation entity by consolidating various partial and informal regional environment preservation efforts in the Northeast Asian area. The ministry of foreign affairs of Korea has been playing a leading role in NEASPEC and is making steady progress in developing cooperation with international organizations such as UNEP and UNDP as well as with regional organizations such as UNESCAP and ADB. NEASPEC is run with financial support from the ADB, Japan, and Korea, with UNESCAP serving as interim secretariat. Although countries agreed to establish a core fund for operation during the sixth meeting in 2000, no activities that require steady funding could be pursued. During the eighth meeting, Korea insisted that all the members should make contributions; but this idea was opposed by China, which emphasized that the fund was voluntary.<sup>23</sup> During the twelfth meeting held in 2007, discussions for institutional and fiscal mechanisms to make real progress in environmental cooperation were held, but with little result.<sup>24</sup>

ECO-ASIA is a multilateral government network for environmental cooperation in Northeast Asia.<sup>25</sup> It was established by Japan's ministry of environment in 1991 with the goal of sharing information and opinions among ministries overseeing the environment. During the fourteenth meeting held in June 2006, the need for sharing environmental information among Asia-Pacific countries with a view toward achieving sustainable growth was confirmed.<sup>26</sup> Since 1991, meetings have been held sixteen times for the Long-Term Perspective Project with the goal of predicting the level of environmental pollution in the Asia-Pacific region. In addition, an alternative policy is being pursued, and a system for

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23. MERK (Ministry of Environment Republic of Korea). *Report of Eighth NEASPEC Meeting* (in Korean) (2002), pp. 2-3, online at [www.me.go.kr](http://www.me.go.kr).

24. Ministry of Foreign Affairs and Trade of Korea, "The Result of the Eleventh Meeting of NEASPEC," online at [www.mofat.go.kr/economic/environmental/ortheastasia/index.jsp](http://www.mofat.go.kr/economic/environmental/ortheastasia/index.jsp) (accessed November 3, 2008).

25. Since 1991, twenty-nine countries from Northeast and Southeast Asia have become members. Kim Chanwoo, *Global Environmental Diplomacy and Korea* (in Korean) (Seoul: Sangsang Communication, 2006), p. 209.

26. Junsoo Park, "Holding a Meeting of ECO-ASIA" (in Korean), *The Environment Daily*, July 13, 2006.

sharing environmental information is being implemented.

Government networks have confirmed that the yellow sand problem is one of the major environmental issues in Northeast Asia that needs to be resolved. However, these networks have produced little results. Annual meetings of governments are held with no substantive long-term transnational plans or objectives. For example, the ADB-GEF project under TEMM has been discontinued. While Korea, China, and Japan agreed to carry out a joint study on the problems of yellow sand to reduce damage, the study is still in the preliminary stages.<sup>27</sup>

### *Bilateral, National, and NGO Programs*

Bilateral intergovernmental cooperation is another pillar in the complex and multi-layered network for yellow sand cooperation in Northeast Asia. The governments of Korea, China, and Japan utilize their bilateral cooperation channels to implement various projects such as yellow sand monitoring and the restoration of forestry to stop desertification as well as to exchange information and hold seminars. China's change of attitude toward cooperation should be noted with regard to bilateral cooperation. The passive response of China gradually changed as discussions progressed.<sup>28</sup> Based on their common interests, a treaty for cooperation between China and Japan on environmental problems was created in 1994. With the support of the Japan Bank for International Cooperation (JBIC), China is working on a project to plant trees to control erosion with the goal of regulating the ecosystem of yellow sand areas in Tianshui. In 2004, JBIC lent \$1.2 billion to the cause, and Tianshui invested \$39 million in the project.<sup>29</sup> Environmental cooperation between Korea

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27. MERK, *Countermeasures for the Prevention of Damage by Yellow Sand (05)* (in Korean) (2008), online at [www.me.go.kr](http://www.me.go.kr).

28. Hong Geum-u, "A Study on the Northeast Asian Environment Cooperation" (in Korean), *Journal of Northeast Asian Studies*, vol. 23 (2002), pp. 33.

29. KISTI, "Gansusheng in China Operates Preserving Yellow Sand Project" (in Korean), *Global Trends Briefing*, June 17, 2003, online at [http://radar.ndsl.kr/tre\\_View.do?cn=GTB2003060744&ct=TREND&lp=SI](http://radar.ndsl.kr/tre_View.do?cn=GTB2003060744&ct=TREND&lp=SI).

and China started at the nongovernmental level but has developed into cooperation in research and regulations by both countries regarding major issues such as transboundary air pollution, Yellow Sea pollution, and acid rain problems. The Korean Forest Service completed a \$5 million project in 2005 to plant trees in five areas in western China.<sup>30</sup>

The Korean government has implemented various policies and plans since 2002 such as the "Yellow Sand Observation and Observatory Operation," "Forecasting Yellow Sand," and "Comprehensive Countermeasures for the Prevention of Damage by Yellow Sand."<sup>31</sup> Since 2004, special reports on yellow sand have been issued by the Korean Meteorological Administration. In 2007, yellow sand became a part of the basic plan for national safety management.<sup>32</sup> The Japanese government is also drawing up plans to solve the yellow sand issue. Japan has established many policies such as the "Study on the Formation and Long Distance Movement of Yellow Sand," a "warning system for yellow sand," and "yen loan for the prevention of desertification." China has created policies to limit yellow sand from spreading on its own and has taken steps to reform legal institutions. In 2001, a measure to prevent desertification was enacted. In December 2002, regulations on the conversion of farmland to forest were enacted, which allowed individuals or businesses to be reimbursed and remunerated for their forestation efforts by central and local government.<sup>33</sup> However, China's efforts are limited because it is dependent on its partners, Korea and Japan, for the funding of its bilateral relations.<sup>34</sup>

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30. Yun Ho-joong, "Our Effort to Preserve Desertification" (in Korean), *Sanrim* (May, 2004), pp. 75-80.

31. In China, the ministry of environmental protection and the meteorological administration built monitoring networks and are making observations to forecast the yellow sand on a regular basis.

32. Kang Chan-soo, "Government's Countermeasures on Damage by Yellow Sand" (in Korean), *JoongAng Daily*, April 29, 2007.

33. Chu Jangmin, *A Study on the Analysis of Damages from the Northeast Asian Dust and Sand Storms and the Regional Cooperation Strategies* (1) (in Korean) (Seoul: Korea Environment Institute, 2003), p. 47.

34. Won, "Asian Dust Issue," p. 48.

NGOs from Korea, China, and Japan have also developed diverse network groups to manage yellow sand (See *Table 2*). Supported by governments, the Northeast Asia NGO network is implementing diverse projects such as monitoring of yellow sand storms, sharing information, raising public awareness, and initiating reforestation and grassland restoration. NGOs work with NGOs from other countries or local governments to implement these projects and are supported by businesses and governments from their own countries. For example, NGOs from each country are receiving financial support from Korea’s environment ministry, the State Environmental Protection Administration of China, and Japan’s ministry of environment. Relatively active NGOs working to solve the yellow sand problem include the Atmospheric Action Network in East Asia (AANE), Northeast Asian Forest Forum (NEAFF), and ENVIROASIA.

*Table 2.* Northeast Asian Environmental Cooperation NGOs

	Goal	Period of Activity	Participating countries	Source of funding
AANE	Academic study on atmosphere pollution	1995-2002	Korea, Japan, Russia, Hong Kong, China, Taiwan, Mongolia	Japan
NEAFF	Research and prevention of desertification	1998-present	Korea, China, Mongolia	Korean company
ENVIROASIA	Exchange of information	2001-present	Korea, China, Japan	Japan

The AANE is the first network made up of environmental experts in Northeast Asia, and it is actively involved in the yellow sand issue.<sup>35</sup> As of 1997, seven countries (China, Hong Kong,

35. The “Environment Development Center,” which was part of the “Citizens’ Coalition for Economic Justice” in Korea, moved out and changed

Japan, Korea, Mongolia, Russia, and Taiwan) and seventeen groups are part of AANEAs and share information and research jointly to influence policies on the atmosphere. Operating funds for this group come from Japan, and secretariat functions are supported by Korea. Unfortunately, this group has not worked beyond the level of information exchange and human network formation. A lack of concrete content led to its diminishing role. Its activities are currently suspended.<sup>36</sup>

Established in 1998, the NEAFF is the largest environment NGO working to prevent desertification. The main programs of the NEAFF include research on the actual conditions for forest preservation in the Northeast Asian region, prevention of desertification, and restoration of the forest ecosystem. The Beijing Forestry University in China and the Mongolian Forest Forum of Mongolia act as local branches of the NEAFF.<sup>37</sup> One to three seminars and symposiums are held annually, attended by professors, civil servants, researchers, and activists from Korean, Chinese, and Japanese NGOs. The NEAFF's activities are mainly sponsored by businesses, and networks in the form of partnerships or local branches are utilized to build a consensus among the citizens.

ENVIROASIA<sup>38</sup> is a project created by Korea, China, and Japan to share information about the environment on the Internet. It comprises relevant organizations from each country: the Korean Federation for Environmental Movement and the Citizen Information Center on Environment in Korea, China-Japan-Korea Environmental Information Exchange Volunteer Team in China, and the Northeast Asia Environment Information House in Japan. This site, supported by the Earth Environment Fund of Japan,

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its name to "Citizens' Movement for Environmental Justice" in 1998. Refer to the homepage of the CMEJ ([www.eco.or.kr](http://www.eco.or.kr)) for more details.

36. Cho Hyungjun, "Atmospheric Action Network in East Asia (AANEAs)" (in Korean), *Monthly Environmental Hamkesanengil* (May, 1996).

37. Lim Yunjung, "Environmental NGO's Trans-National Cooperation for the Solution of the Environmental Issues: Cases in North-Eastern Asian Countries" (in Korean) (master's thesis, Kyunghee University, 2005).

38. See [www.enviroasia.info](http://www.enviroasia.info).

was created for the purpose of sharing environmental information, which was being lost because of language barriers among the three countries.

The NGO networks of Northeast Asia demonstrate a superior performance to that of government networks. However, the relationship among NGOs of each country is weak. Since most projects are a one-time deal, the NGO networks are dissolved when the projects are finished. It has also been pointed out that because of a lack of shared ideas based on scientific knowledge of yellow sand or countermeasures among NGOs, the projects lack effectiveness and sustainability.

### *Summary*

The yellow sand issue in Northeast Asia is being addressed by a multi-layered network consisting of transnational actors such as international organizations, transnational government networks, and NGOs. The structure of the Northeast Asia network for the yellow sand issue has the following characteristics. First, it is a complex and multi-layered cooperation network composed of various entities and groups such as multilateral and bilateral networks, governments, and NGOs on many levels. This has led to overlapping projects with little coordination among governments, government-funded institutes, and NGOs. Second, there is a gap between transnational government networks and transnational NGO networks. This implies that Northeast Asia yellow sand cooperation is being pursued without an organic link between the government network and the NGO network. Therefore, there has been difficulty in linking the various cooperation projects of diverse groups.<sup>39</sup> Efforts are being made in each node to resolve the yellow sand issue, but the networks for consultation and communication among various transnational entities and NGO actors are not working properly. This lack of a systematic connection between actors and smaller networks results in a lack of efficiency.

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39. MERK, *Countermeasures*.

Third, there is no central entity acting as a hub for the networks that manage the yellow sand issue. This implies a lack of a coordinating mechanism to eliminate project overlap. A lack of organization or institution for meta-governance such as the EU increases the transaction costs among actors relative to the time and effort invested.

This prompts a question: Why is the yellow sand cooperation network in the Northeast Asia characterized by overlapping and segmented characteristics and the lack of a hub? To answer this question, we need to examine the political dynamics of the ideas and interests that underlie this network.

### **Ideas Behind the Northeast Asia Yellow Sand Cooperation Network**

The formation of the environment cooperation network in Northeast Asia was possible because the three countries were well aware of the seriousness and the importance of the environmental issue at hand. Since 2000, the frequency and extent of the damage caused by the yellow sand has become more severe, causing a reevaluation of the yellow sand problem not only for China, where it originated, but also for Korea and Japan. In the year 2000, Japan saw a great increase in the frequency of yellow sand storms. According to an announcement made by the Japan meteorological agency in 2006, there were forty-two days when yellow sand storms were observed.<sup>40</sup> According to an announcement made by the Korean meteorological administration, yellow sand was observed forty-three days a year in Seoul.<sup>41</sup>

Transnational environmental problems like the yellow sand issue have allowed nongovernmental actors to become involved. The different role played by various actors in the environmental cooperation network makes the building of an environment regime easier. According to Haas, expert groups that have shared

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40. *Ibid.*, p. 12.

41. *Ibid.*, p. 11.

similar ideas on the cause of pollution and its solutions were most influential in the conclusion of a treaty in the Mediterranean from the start to its actual implementation.<sup>42</sup> The efforts of expert groups were also the most significant factor in recognizing the yellow sand issue as a regional and transnational problem in Northeast Asia.

The yellow sand issue was first raised at the Korea-Japan Science & Technology Expert Forum, which started in 1988 and led to formation of an informal expert network. In 1992, the informal cooperation network took the name, NEAC, and with the active participation of Northeast Asian NGOs, research institutes, and scholars, the yellow sand issue became a major Northeast Asian agenda item.<sup>43</sup> Diverse participation from government organizations, relevant experts, local governments, and the private sector spurred information-sharing about yellow sand. As a result, the activities of an epistemic group revealed hitherto unknown facts and provided the basis for cooperation. It also contributed to raising the awareness of individual countries on the yellow sand issue.

Recognition of yellow sand as a transnational problem does not mean that each country recognizes the seriousness of the problem to the same degree. First, the approaches of each government on the yellow sand issue are different. China suffers the most among the three countries, as it experiences the most physical damage by strong desert winds and massive dust storms. Because of the severe damage from yellow sand, China recognizes this issue as an urgent national environmental issue. Korea and Japan, however, recognize this problem as an atmospheric pollution issue caused by dust particles. Korea suffers the effects of yellow sand more than Japan because it is closer to China and Mongolia, and thus this issue is not viewed as seriously in Japan.

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42. Peter M. Haas, "Do Regimes Matter? Epistemic Communities and Mediterranean Pollution Control," *International Organization*, vol. 43, No. 3 (1989), pp. 377-403.

43. The NEAC was formed by expanding the Korea-Japan Science & Technology Expert Forum, which was held from 1988 to 1991. NEAC meetings have been held annually since 1992. Won, "Asian Dust Issue," p. 72.

Compared to the damage caused by other natural disasters such as typhoons and earthquakes, the damage caused by yellow sand is minor, at most, in Japan.<sup>44</sup>

This difference in the degree of recognition can be clearly seen in how different countries classify the level of the threat. China classifies yellow sand not as dust but as “sandstorms” because of problems it causes for visibility and air speed levels.<sup>45</sup> Korea classifies yellow sand as “fine dust” while Japan does not officially classify it but calls it “red dust.” This difference in classification can be attributed to the difference in the damage suffered and proves that different countries rate the seriousness of the yellow sand issue differently.

Estimation of the amount of damage caused by yellow sand also has no scientific basis (See *Table 3*). China does not produce an accurate damage report but simply publishes statistics. China estimates the direct damage caused by the yellow sand to be around 576 million to 1.98 billion yuan.<sup>46</sup> The ministry of agriculture and forestry in Korea estimates the damage at over 300 billion Korean won annually, while the Korea Environment Institute estimates that the damage caused by yellow sand amounts to 4 to 7 trillion Korean won.<sup>47</sup> Japan does not produce official damage statistics.

Second, Northeast Asian countries do not agree on the extent to which each country is responsible for the causes of yellow sand or on scientific solutions. Desertification, a direct cause of yellow sand, is caused by a mixture of natural and man-made factors. Whether desertification is mainly caused by nature or mankind is closely related to the political dynamics of solving the yellow sand issue. If the cause of yellow sand is mainly man-made, solving the problem may affect the policy, sovereignty,

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44. MERK, *Countermeasures*, pp. 4-6.

45. China classifies yellow sand as sand and dust storms (SDS), strong sand and dust storms, severe and strong sand and dust storms, blowing sand (BS), floating dust (FD), and dust haze (DZ), and recognizes it as a natural disaster that is a weather phenomenon.

46. Chu, *A Study*, p. 45.

47. MERK, *Countermeasures*, p. 1.

Table 3. Comparison of Damage by Yellow Sand in Northeast Asian Countries

Country	Location	Damage Areas	Description
China	Origin/ Movement path	Human, housing, agriculture, water supply, traffic, communications, electricity, atmosphere, eco-environment, health	– Disaster level damage at origin of yellow sand – Disaster level damage in the movement path
Korea	Movement path/close	Health, industry, traffic, agriculture, other social activities (education service)	– Health damage, industrial and living difficulties, disasters
Japan	Movement path/far	Health, industry, traffic	– Health risk, industrial and living difficulties

Source: Ministry of Environment (Korea), *Countermeasures for Prevention of Damage by Yellow Sand* (2008), p. 6.

way of life, or economic survival of the country causing the problem.<sup>48</sup> Determining what causes yellow sand pollution will affect how this issue needs to be solved, either by equally sharing the cost of resolving this issue through a transnational cooperation or simply letting the responsible country resolve the issue with advice from other countries.<sup>49</sup> While China recognizes the seriousness of yellow sand pollution, it is careful to avoid being blamed for the pollution. For example, in 2006, the meteorological administration of China announced five levels of yellow sand but emphasized that this announcement was for the purpose of research and prevention and not because yellow

48. Yellow sand comes from natural causes such as climate change, decline in precipitation, and strong winds, as well as artificial causes such as shortage of water and degeneration of cultivated land due to excessive land cultivation from population increases in desert areas. *Ibid.*, p. 17.

49. Japan indicates the plain of Mongolia as the source of yellow sand and plans to build an international organization. KISTI, “Japan’s Plan for Yellow Sand Is the Prevention of Desertification of Mongolia” (in Korean), *Global Trend Briefing*, January 13, 2004, online at [http://radar.ndsl.kr/tre\\_View.do?cn=GTB2004010441&ct=TREND&lp=SI](http://radar.ndsl.kr/tre_View.do?cn=GTB2004010441&ct=TREND&lp=SI).

sand pollution has worsened.<sup>50</sup>

Third, a scientific solution for solving the yellow sand issue has not been conclusively established. Some scientists insist that the damage caused by yellow sand can be reduced by planting trees to stop desertification. However, others contend that the forestation project, which would require a large volume of water, may cause a water shortage.<sup>51</sup> The controversy surrounding a scientific solution is negatively affecting projects for the prevention of yellow sand damage from being implemented on a local or transnational scale. For example, for twenty years, China has been spending a large sum of money on the Northern China Forestation project, but most of the white poplar trees planted have died.<sup>52</sup>

Fourth, the NGOs in Northeast Asian countries have limited powers. NGOs from Japan, Korea, and China cannot be free of environmental policy influences, and rather than being independent, these NGOs normally execute the plans prescribed by their respective governments. In addition, the activities of the transnational NGO network armed with scientific knowledge that can affect government policies are only nominal and produce few real results. The past history and nationalism of the three countries in Northeast Asia also impede the transnational alliance between these NGOs. While expert groups and NGOs of Korea, China, and Japan have succeeded in publicizing the seriousness of the yellow sand issue through various academic exchanges such as seminars and information exchanges, transnational ideas and alliances have not continued on to the implementation stage through a consensus of ideas and knowledge.

Clearly, a distinct difference in opinion can be found in each country as to the cause of yellow sand pollution, the level of

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50. KISTI, "China Adopts Yellow Sand Monitoring National Standards" (in Korean), *Global Trends Briefing*, December 7, 2006, online at [http://radar.ndsl.kr/tre\\_View.do?cn=GTB2006120374&ct=TREND&lp=SI](http://radar.ndsl.kr/tre_View.do?cn=GTB2006120374&ct=TREND&lp=SI).

51. KISTI, "China Operates the Preserving Desertification Project" (in Korean), *Global Trends Briefing*, July 10, 2007, online at [http://radar.ndsl.kr/tre\\_View.do?cn=GTB2007070218&ct=TREND&lp=SI](http://radar.ndsl.kr/tre_View.do?cn=GTB2007070218&ct=TREND&lp=SI).

52. Sang-Ho Park, "Global Experiences and Countermeasures of Yellow Sand," ENVIROASIA (2006), online at [www.enviroasia.info/news/news\\_detail.php3/K06061501K](http://www.enviroasia.info/news/news_detail.php3/K06061501K).

damage, and the possibility of solutions. Transnational information exchange on the cause and the extent of damage caused by yellow sand is minimal and public opinion in Korea, China, and Japan is not strong enough for the governments to create conditions for serious cooperation. For example, during the sixth meeting of NEAC in 2000, each country expressed different opinions about the cause and extent of damage as well as the possibilities for a solution. As a result, although a mid-term plan for voluntary contributions to the Northeast Asia Environment Cooperation Core Fund was proposed, it did not succeed, and the original plan for joint research projects could not be implemented. Such differences in ideas have impeded progress in the transnational cooperation network.

### **Conflict of Interests among Yellow Sand Cooperation Networks**

Countries suffering losses due to yellow sand stand to share in the benefits from a solution to the problem in the long term. It has become evident that taking a passive attitude regarding the environment not only leads to economic and social losses but also fails to meet the demands of citizens for a clean environment. Having realized that cooperation is necessary to solve this problem, each country is treating yellow sand as a meteorological event and working to find a solution while minimizing conflicts between countries.<sup>53</sup>

However, conflicts of interests and competition for the leadership position between Korea, China, and Japan have led each country to operate differently with regard to the environment. In other words, Korea, China, and Japan each has different methods, tools, and priorities based on its interests. For instance, China, which is pursuing economic development through globalization, seeks to avoid responsibilities by advocating the idea of shared responsibility and pleading that it has a desperate

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53. MERK, *Countermeasures*, p. 23.

need for economic development. In terms of capital, technology, awareness of the environment, and expansion of civil society, China lacks certain critical conditions needed for implementing effective environmental policies.

Despite this deficit, China is focusing its attention on multi-lateral environmental regulations and the demands of developed countries for environmental standardization, and is also trying to make their environmental policies more consistent with international standards. This change of attitude does not have its roots in any interest in global environmental problems, but rather began early in the 1990s. At that time China was forced to consider improving its domestic environment in the face of "green barriers" imposed by Europe because of China's textile products and was thereby pressured to open up its economy.<sup>54</sup> The yellow sand issue was not any different. To prevent the desertification of the whole of China requires around 240 billion Chinese yuan, and a minimum of 8 billion Chinese yuan per year is needed for basic prevention of desertification. However, China is spending only 30 million Chinese yuan a year for the prevention of desertification and does not possess the necessary skills to prevent yellow sand pollution.

In spite of this problem, China is very active in trying to receive funds and technology transfers through international cooperation to help solve its domestic yellow sand problem.<sup>55</sup> For example, with regard to joint research and an international regime for air pollution, which interest Korea and Japan, China is pressuring developed countries' private companies to transfer technologies, citing Agenda 21. Arguing that all countries in the Northeast Asia region are responsible for the protection of the environment, China is stalwart in its position that advanced nations of the region such as Japan must increase technological and financial support to improve the region's environment. In other words, China's argument is that advanced economies of

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54. Lee Tae-hwan, *Northeast Asian Environment Cooperation* (in Korean) (Seoul: Sejong Institute, 2001), pp. 81-84.

55. Won, "Asian Dust Issue," p. 87.

the region must share the bulk of the responsibilities for protecting the environment and not base it on a principle whereby only polluters pay for damage.

Korea, while willing to actively cooperate in projects in the region, has maintained its position as a developing country in responding to specific issues for environmental cooperation, such as fund contribution levels. Since the 1990s Korea has put a higher priority on its environmental protection policies, as it stands to lose the most from air pollutants originating from China. At the same time, Korea is also a potential offender, especially from Japan's perspective. To solve the yellow sand problem without resorting to the "polluter pays principle," Korea is trying to take the lead in government-to-government cooperation through initiatives such as NEASPEC and TEMM. However, due to a lack of funds available to prevent yellow sand even within its own government, Korea does not seem to have the will to assert a leadership position in terms of fund contribution levels.

As the only developed nation in the region, Japan is not only the largest financial donor in government-to-government projects; it is being pressured to transfer its technologies. Not wanting to become the only fund contributor, Japan is steering away from creating organizations, which would require significant financial support. It argues instead for the utilization of existing institutions while emphasizing sharing the cost. In terms of cooperation channels, a dual approach consisting of direct bilateral cooperation with China and environmental cooperation in the Asia-Pacific region, including ASEAN (Association of Southeast Asian Nations), is being pursued.<sup>56</sup> First, Japan seeks direct bilateral cooperation with China, the greatest yellow

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56. Through a report published on July 8, 2005 by the Earth Environment Office of the Central Environmental Council, Japan indicated the need for a dialogue about bilateral environmental area policies. Korea National Environment Technology Information Center, "Japan, Central Environmental Council Sets Directions for Japan's International Environmental Cooperation" (in Korean), *Overseas News*, July 13, 2005, online at [www.konetic.or.kr/?p\\_name=env\\_news&sub\\_page=WR&gotopage=1&key-field=MTITLE&skye.&query=view&unique\\_num=70783](http://www.konetic.or.kr/?p_name=env_news&sub_page=WR&gotopage=1&key-field=MTITLE&skye.&query=view&unique_num=70783).

sand polluter.<sup>57</sup> For example, in 1994, to address environmental pollution from China as a grave matter directly affecting Japan, the China-Japan Friendly Environmental Protection Center was established; and in 1999, 10 billion yen was donated as grant aid. Japan has set a basic direction for environmental cooperation with China in the form of peripheral support, such as funds and technological cooperation through the center, as well as cooperation in training experts and support of technology transfer appropriate for China's situation. But generally, Japan prefers more large-scale environmental cooperation involving countries in the Asia-Pacific region.

In order to alleviate the fears of developing countries that are wary of a Japanese economic "invasion," Japan has been active in utilizing unofficial channels of cooperation through the Green Aid Plan.<sup>58</sup> Focused on Eco-Asia at the Asia-Pacific level, Japan is conducting basic cooperation activities based in Japan, such as joint assessments, information exchange, and the construction of monitoring systems. Because Japan sees the multilateral cooperation framework in the Northeast Asia region as another form of development aid, it is cautious and passive when it comes to government-level multilateral cooperation.

NGOs also form international networks. Networks between NGOs, NGO-government, and NGO-regional or international cooperation networks are important resources for NGOs that seek to influence major decisions or implementation of those decisions with respect to environmental cooperation in the Northeast Asia region. However, because of differences in government-NGO relationships, the level of internal organization, and the amount of resources for activities, NGOs are only loosely connected, and cooperation is sporadic at best. China's relatively immature stage of civil society results in a very low level of NGO participation in the Northeast Asia region environmental network.<sup>59</sup> In China, all

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57. Lee, *Northeast Asian Environment Cooperation*, pp. 52-54.

58. Hanns W. Maull, "Japan's International Environmental Policies," in Andrew Hurrell and Benedict Kingsbury, eds., *The International Politics of the Environment* (New York: Oxford University Press, 1992), pp. 362-65.

59. According to the white paper of the China Environment Protection

official private organizations must register with the government and related ministries by law, and therefore the majority of NGOs are under government control. Environmental NGOs also receive offices and governing officials from the government, which includes salaries and social welfare. These organizations are heavily influenced by government administration and thus lack independence in terms of finances and oversight.<sup>60</sup>

In the case of Japan, environmental NGOs were actively created during the 1960s when Japan experienced high levels of economic growth, but they still lag behind NGOs in developed Western countries. According to a survey conducted in 1996 by the Environmental Association of Japan, there are 4,200 environmental organizations in Japan, and of these, 51 percent were created after the 1980s.<sup>61</sup> Nationwide environmental movements within Japan are weaker than those in the United States and Europe with regard to scale and impact, and are weaker than even those in Korea, which is a latecomer with respect to environmental NGOs.<sup>62</sup>

Korea's environmental NGOs are also not independent of governmental control. Korea's ministry of public affairs and security (MOPAS) coordinates NGOs through the "Act on Non-profit Private Organization Support." The ministry of environment also supports NGO activities financially. Korea has 221 NGOs as of 2007, a very small number compared with Japan. With less than 100 million won for an average budget, Korean

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United Association, of the 2,768 environmental protection groups, 1,382 (50 percent) have been instituted with the help of the government. Lee Namju, *Formation and Characteristics of Chinese Civil Society* (in Korean) (Seoul: Politeia, 2007), pp. 61-62.

60. Lately, NGOs with new characteristics have been established from certain social classes of China. While the organizations are generally created by the private sector and are financially and administratively independent of the government, their legal status is uncertain. Jun Bonggeun, *White Paper on North East Asian NGOs* (in Korean) (Seoul: Korea Institute for National Unification, 2005), p. 105.

61. Han Yeong-hye, *Japanese Community and Grassroots Social Movement* (in Korean) (Seoul: Hanul Academy, 2004), p. 98.

62. Jun, *White Paper on North East Asian NGO*, pp. 124-26.

NGOs find it difficult to participate in international initiatives because they lack organizational resources and financial support.<sup>63</sup> These differences in the development of NGOs in each country are why transnational joint initiatives are not actively being promoted.

Meanwhile, conflicts in economic interests prevent effective problem-solving measures among Korea, China, and Japan. For example, at the 7th Meeting of NEAC held in 2001, an agreement was reached to operate a Core Fund by referencing UN regulations. However, the initiative emphasized only voluntary contributions by member countries, other international organizations, and private industry. In some cases, participating countries could not agree on the resource procurement needed for implementing a project, causing a cooperative project, which had already been agreed to be implemented, to be abandoned. In January 2008, the Korea, China, and Japan Yellow Sand Joint Research Group held its first steering committee meeting in Japan; but because of differences of opinion between the countries and difficulties in procuring resources, the group is burdened with a very weak organizational and operational structure that has resulted in little progress in terms of detailed cooperation.<sup>64</sup>

### **Theoretical and Policy Implications for Environmental Cooperation in Northeast Asia**

In order to solve transnational environmental problems, Northeast Asia is forming a complex network and is trying to find solutions at the regional level. Cooperation in solving the yellow sand problem in Northeast Asia is being carried out through a complex and multi-layered network with diverse mechanisms and governing organizations. A regional cooperation framework for the Northeast Asia yellow sand problem is

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63. NGOtimes, *Directory of Korean NGOs* (in Korean) (Seoul: NGOtimes, 2006).

64. MERK, *Countermeasures*, pp. 61-62.

being pursued at trans-government, bilateral, and trans-NGO levels. As discussed previously, the network responsible for Northeast Asia yellow sand cooperation shows characteristics of complexity, disconnection, and lack of an organizational hub. First, the governments of Korea, China, and Japan have established a mechanism for exchanging information and solving environment problems through intergovernmental networks such as TEMM and NESPEC. However, the level of solidarity that has been shown is not enough to establish a regional organization, and a systematic environmental cooperation policy that could consolidate related activities is not being pursued.

In regard to the Northeast Asia environmental cooperation, it should be noted that bilateral cooperation is more often used than multilateral cooperation among Korea, China, and Japan. Although intergovernmental bilateral cooperation can be a discussion channel for building a multilateral cooperation regime, at present, government level cooperation is not being linked to multilateral partnerships or cooperation with NGOs. NGOs seeking transnational solutions to Northeast Asia's environmental problems are at a very early stage with low levels of activity, and a transnational network between NGOs is still undeveloped. The NGO activities of Korea, China, and Japan are mostly limited to those based in each home country, with occasional cooperation with domestic and foreign government agencies and local governments as well support from domestic companies.

Despite the existence of a basic network and discussion channels, Northeast Asia environmental cooperation remains in a rudimentary stage. Transnational networks are utilized for regional discussions, joint research, and the exchange of information, with no progress being made in agreeing on cooperation principles, methods, and leadership. This is because each government and the various NGOs have different ideas about the issues and the priorities of economic resources to be allocated to the Northeast Asia yellow sand problem. Differences in countries' awareness of environment problems are related to the economic development of each country. Compared to Korea and Japan, China has a much stronger conflict between needs, envi-

ronmental goals, and benefits of development. For this reason, China seeks to use environmental cooperation as a tool for receiving practical benefits from more advanced nations, including technical and financial support.<sup>65</sup> Differences in economic interests entail difficulties in creating unified goals and directions for Northeast Asia environmental cooperation. Because of the wide gaps in economic development among participants, it is difficult to maintain appropriate levels of interests for each country on shared environmental problems.

In their early stage of cooperation, Northeast Asia NGOs and the epistemic community disseminated shared scientific information and played the role of formulating an agenda. However, they were not able to expand to a network of expert groups that could create mass awareness of the importance of environmental problems and thereby pressure policy makers. NGOs are unable to influence, monitor, and criticize countries, international organizations, or regional cooperation organizations, and are able only to follow in the footsteps of government pilot projects. Because of the dependence on financial support from the government and lack of practical experience with and knowledge of Northeast Asia's environmental NGOs, the unique strength of NGOs for environmental protection is left unexploited. Cooperation in solving the Northeast Asia yellow sand problem is difficult because the most important functions are being carried out by intergovernmental national actors. In other words, the highly integrated transnational ecosystem is being managed by sovereign states with different interests and political dynamics. In order to solve a regional problem like that of yellow sand in Northeast Asia, transnational solidarity between civil societies must be promoted. In addition, a coordination organization and regional leadership that can manage cooperation networks and promote solidarity among Northeast Asian countries are required.

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65. Kim Sungyun, Kim Yongwoo, Ahn Hyungki, Lee Kihan, and Chung Heesung, "International Environment Cooperation Mechanism" (in Korean), *Korean Policy Science Review*, vol. 3, No. 3 (1999), pp. 1-39.

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