Regional Governance and Cooperation in Northeast Asia: The Cases of the Environment and IT

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After the early 1990s, the wave of regionalism covered broader areas in the world, and Northeast Asia, which had weak regional cohesion largely due to history-oriented animosity, gradually developed initiatives for regional cooperation since the late 1990s. This paper seeks to address why and how China, Japan, and South Korea have pursued regional cooperation by relying on the concept of 'regional governance'. The article advances two arguments. First, the governments of China, Japan, and South Korea have identified the avoidance of risk from uncertainty as a major objective of promoting trilateral cooperation in specific functional areas. Second, they have gradually intensified the harmonisation of regulatory frameworks in the cooperative process in collaboration with non-state actors. The article examines the arguments by tracing the evolution of trilateral cooperation in environmental protection and information technology (IT) development.

Keywords: regionalism, environmental protection, information technology (IT), China, Japan, South Korea

Introduction

Northeast Asia is characterised by economic dynamism and political immobilism. The major states in the region have shown impressive economic performance in succession. In the 1960s and 1970s, the Japanese economy showed robust growth, leading to the admiration of 'Japan as No.1' in the late 1980s. In the 1970s and 1980s, South Korea and Taiwan emerged as "the four dragons', expanding exports of manufactured products in the electronics and automobile sectors. After the 1990s, China developed into 'the world's manufacturing factory'. The world's largest market attracted foreign direct investment (FDI) from the entire world, and steadily increased production amount and export volume. Such economic dynamism in Northeast Asia has led to growing interdependence in terms of trade and investment. For instance, China became Japan's primary trade partner in 2003, and its position steadily increased afterwards.

In contrast to dynamism in the economic field, political immobilism is evident in Northeast Asia. Historical legacy still constrains the development of mutual trust among the elites and publics. The Cold War, which divided the regional countries into the two blocs, ended in 1989. However, politics over the Korean Peninsula and the Taiwan Strait are still under the past power configuration. The traumatic memories of Japanese dominance and invasion before and during the Pacific War still cause serious political tensions between Japan, on the one hand, and China and South Korea, on the other. The historical issues remain political hurdles in Sino-Korean relations, exemplified by disputes over the history of the ancient kingdom, Goguryeo.

The wave of new regionalism that emerged in the early 1990s reached Northeast Asia in the late 1990s. The Association of Southeast Asian Nations (ASEAN) has served as a linchpin to unit Northeast Asia and Southeast Asia by launching the ASEAN Plus Three and Asia-Europe Meeting. In this trend, China, Japan, and South Korea, – the core states in Northeast Asia –, have gradually developed institutional frameworks for regional cooperation partly as a counterpart to ASEAN. Such cooperative frameworks extended from summitry to functional areas in environment protection, finance, information technology (IT), logistics, and others.

The main objective of this article is to address what objectives China, Japan, and South Korea have pursued through regional cooperation in what process. For this objective, it locates regional cooperation in the framework of 'regional governance'. The article argues that the governments of China, Japan, and South Korea have identified the avoidance of risk from uncertainty as a major objective of promoting cooperation in specific functional areas, and that they have gradually intensified the harmonisation of regulatory frameworks in the cooperative process in collaboration with non-state actors.

Regionalism in Northeast Asia Revisited

In recent years, a growing number of scholars have examined theoretical and empirical aspects of regionalism in Northeast Asia and the institutionalisation of cooperation in particular (Rozman, 1998, 1999, 2004; Kim ed., 2004; Calder and Ye, 2004; Park, Pempel and Roland eds, 2008; Aggarwal and Koo, 2008; Timmermann and Tsuchiyama eds, 2008; Choi and Moon, 2010). Among various theoretical perspectives applied to

regional affairs in Northeast Asia, the primary theoretical position has been filled by neorealism that stresses power struggles among self-motivated states in the anarchical international system. Various scholars have applied the neorealist perspective to regional affairs and regionalism and regional cooperation in Northeast Asia. Mearshemer (2001: 363, 401) argues that while Northeast Asia is multipolar (China, Russia, and the United States), chin has a potential to become a regional hegemon who attempts to dominate Japan, Korea and other regional actors. Rozman (1998, 1999) indicates the importance of power balance in the context of regionalism in Northeast Asia. He argues that flawed regionalism in the region resulted from a failure to address the great power balance due to the complicated geopolitical relationship among Russia, China, Japan, and the US.

In general, the neorealist perspective, which has strong interests in security issues, tends to focus on conflictual rather than cooperative aspects of interstate relations. Even when the neorealists consider interstate cooperation, they posit that such cooperation is generally difficult because cooperation under anarchy is similar to a prisoner's dilemma in which the dominant strategy will be to defect, making states worry about cheating. However, this approach is weak in grasping the evolving nature of interstate cooperation, which has gradually changed largely as a response to intensive trends towards economic globalisation. Furthermore, the neorealist perspective has limitations in taking into account the meaningful influence of specific characteristics embedded in the political economy of a region and the states in the region.

This article seeks to extend the study of regionalism in Northeast Asia by relying on the concept of 'regional governance'. The concept has been primarily used for research at the domestic and global levels. The Commission on Global Governance (1995: 2), for instance, gives a definition of governance from the global governance perspective: 'the sum of the many ways individuals and institutions, public and private, manage their common affairs. It is a continuing process through which conflicting or diverse interests may be accommodated and cooperative action may be taken'. Regional governance, the regional dimension of governance, is defined as 'a set of processes that manage common regional affairs and draw cooperative action through formal institutions and informal mechanisms created at the regional level' (Yoshimatsu, 2009: 68). Some

scholars have used ‘regional governance’ as a conceptual tool to analyse regionalism in the Asia Pacific (Thomas ed., 2009; Jayasuriya, 2009; Komori, 2009).

This article highlights two aspects of regional governance: objective and process. The objective of governance is shown in its definition: ‘to manage common regional affairs and draw cooperative action’. The common regional affairs contain a wide range of issues that are likely to be managed with collective, not individual, efforts by state and non-state actors in a specific region. In recent years, several scholars have examined bilateral and regional relations in East Asia in terms of ‘risk management’ (Wishnick, 2009; Nesadurai, 2009). Risks are unintended results of economic and technological decisions, which are previously undertaken with fixed norms of calculability, connecting means and ends or causes and effects (Beck, 1999: 4; 2000). Risks are created by the expansion of transboundary phenomena and activities as well as growing uncertainty about consequences resulting from them. The examples of such risks are the deterioration of the global environments, a likely financial turmoil, a possible terrorist attack, and the global diffusion of infectious diseases. Nobody in developed and developing countries can escape from the trap of such risks, and the societies on the globe are required to respond to the challenges posed by risks by developing various kinds of risk communities.

In Northeast Asia, ‘history and memory’ has exerted a profound influence on the evolution of regional affairs by stimulating nationalist hatreds among the peoples. The historical factor has disturbed the development of common cohesion and regional institutions that manage common affairs for the states and societies. However, the necessity of risk management might change this fundamental constellation of interstate relations at least in specific policy areas. While risk has seemed a purely negative phenomenon, ‘it may be seen at the same time as a positive phenomenon too, when it involves the sharing of risks without borders’ (Beck, 1999: 16). Risks, which hold boundary-crossing character and high-level uncertainty, might become a linchpin to unify states with diverse identity and interests by providing a rationale for initiating and advancing cooperative actions. The perception of common risks and the necessity of cooperative risk management might become a catalyst in encouraging the governments in

Northeast Asia to promote substantial talks on effective measures to reduce the probability of risk occurrence and its unfavourable effects.

As for the process of regional governance, several scholars have stressed 'regulatory' aspects in intensive trends towards globalisation. Globalisation implies that interdependence of the national economies has increased and resultantly the notion of a national economic unit has become problematic. Accordingly, the strength of a more interlinked economy requires the increasing harmonisation of domestic systems such as corporate governance, industrial standards, and regulatory policies. In response to such requirements, state actors develop selective, issue-specific strategies to enhance regional stability and competitiveness in the face of recognised limitations in the institutional structures of global economic and political management (Higgott and Timmermann, 2008: 52). The regulatory governance relies more on the active participation of national agencies in the practices of regulation than on formal international treaties or international organisations for their enforcement, as well as on the national application or ownership of internationally formulated standards (Jayasuriya, 2008: 22).

In promoting regulatory regionalism, the states seek to shape the institutional context of regulatory institutions by incorporating a rule-based mode of governance in a range of economic and social policy areas, departing from discretionary, direct intervention in the market (Jayasuriya, 2004: 6). The states in Northeast Asia have a long tradition of the developmental state, which is characterised by strong and direct intervention in the market. Japan and South Korea were the most typical exemplars of the developmental state. It is controversial whether China is a developmental state or not (Howell, 2006). However, China has actively embraced elements of the developmental state (Beeson, 2009). The tradition of the developmental state encourages the governments to pursue regional policy with a strong orientation of developmentalism. However, in promoting cooperation in specific policy fields, the governments of the three countries gradually incorporate the elements of regulatory governance by pursuing the harmonisation of domestic standards and other regulatory policies.

Importantly, a distinctive feature of regional governance is the sustaining coordination and coherence among a wide variety of actors with different purposes and objectives. Globalisation is best regarded as a multi-faceted structural phenomenon

generating multiple pressures and incentives arising from the complex interplay of its material, institutional and cognitive dimensions (Higgott, 2000: 70 cited in Nesadurai, 2003: 237). Complicated, multidimensional challenges of globalisation imply significant impacts on various segments of the society that state actors alone cannot respond effectively to them. In other words, globalisation has made the state 'unbundled', with result that non-state actors were gaining strength (Hettne, 2005: 554). The state actors need to draw specific information and expertise held by societal actors in order to produce synergetic effects to resolve complicated and multifaceted problems in a wide range of issue-areas from the economy, technology, social development, and the environment. This is a background of why the concept of 'governance' has emerged as a critical notion for analysing the development of regionalism in the new millennium.

In summary, this article seeks to examine how regional cooperation in Northeast Asia is evaluated by the governance perspective: how has a desire for risk management influenced the initiation and development of cooperation among China, Japan, and South Korea?; how have the governments promoted regulatory governance to advance the harmonisation of policies, systems and models; and how has the involvement of non-state actors influenced the development of governance formation in Northeast Asia?

In order to articulate governance elements in the evolution of regional cooperation in Northeast Asia, this article adopts the case study approach. Cooperative initiatives among China, Japan, and South Korea have extended to various functional areas (Table 1). This article focuses on cooperation in the environments and IT, which are the two sectors that have the longest history in terms of the holding of ministerial meetings. The environmental protection is a typical case of cross-boundary nature, and concern with this issue has been increasing due to the global climate change problem. Information technology is an industry-oriented, cross-boundary issue, and its importance has risen sharply as the infrastructure of economic and social development. In order to examine the evolution of trilateral cooperation in the two policy fields, I surveyed official documents and industrial report. I also conducted interviews with public and private organisations concerned so as to articulate details of cooperative activities and problems in them.

Table 1 **Summitry and ministerial meetings among China, Japan and South Korea**

Policy field	Start yr	Major features
Summitry	1999	The meeting was not held in 2005 due to political tension. The meeting independent of ASEAN+3 has been held since 2008.
Environment	1999	Framed as Tripartite Environmental Ministers Meeting (TEMM), and issued a joint communiqué.
Finance	2000	Held just before the ASEAN+3 Finance Ministers meeting.
Economy and trade	2002	Organised on the sidelines of the ASEAN+3 meeting. The meeting was not held in 2005.
Information technology (IT)	2002	The formation of director-general meetings in various sub-fields.
Logistics	2006	The publication of a concrete action plan.
Tourism	2006	The issuing of a joint declaration.
Health	2007	The issuing of the Joint action plan on pandemic influenza in 2008.
Science and technology (S & T)	2007	The establishment of 'China-Japan-Korea Trilateral S & T Cooperation' at governmental and institutional levels.
Foreign Affairs	2008	The Three-Party Committee was held before 2007.

Source: The author compiled from official documents and newspapers.

Trilateral Cooperation in the Environmental Sector

The development of cooperation and risk management

An intergovernmental institution to promote environmental cooperation among China, Japan, and South Korea was established in the late 1990s. In January 1999, the first Tripartite Environment Ministers Meeting (TEMM) was held in Seoul, and the ministers have issued a joint communiqué at a meeting held every year in each of the three countries in turn.[1] The TEMM has become a forum to discuss concrete measures to resolve various environment-related problems, as well as a venue to confirm a common front on global environmental issues. In the development of the TEMM framework, the three governments have established various working-level institutions such as director-general meetings, expert meetings, and policy seminars.

The TEMM was the first trilateral ministerial meeting in Northeast Asia. A risk resulting from transboundary air pollutants triggered the start of this framework. The TEMM was realised by South Korea's positive commitments. The country originally had serious concern about dust and sandstorms (DSS) coming from China.[2] When Korean President Kim Dae-jung made an official visit to Tokyo and Beijing in fall 1998, he expressed strong interests in environmental issues, and got an accord to hold a meeting designed to discuss ways of working together to reduce environmental hazards in Northeast Asia. At the first TEMM, South Korea asked China to prevent its pollutants reaching the Korean Peninsula via the Yellow Sea, and encouraged Japan to transfer advanced technology required to prevent environmental pollution.[3] Thus, the DSS was a risk that required systemic joint efforts at the Northeast Asian level, not at the single national level. Korean perception of such a risk encouraged her to initiate trilateral cooperation to search for collective measures to alleviate the risk.

In the development of the TEMM, the target of trilateral cooperation expanded. At the second TEMM in 2000, the ministers agreed to implement cooperative projects in four areas: the consciousness of the environmental community, lake pollution, land-based marine pollution, and cooperation in the field of the environmental industry. At the eleventh TEMM in 2009, the target of cooperation expanded to ten areas.[4] Expansion in the target of trilateral cooperation resulted from the process: a government perceived a specific environmental issue as a serious problem; since the issue had a nature of risk to be tackled jointly, the government presents the issue on the TEMM table; the other two governments, then, share the perception of the risk and agree to take collective measures. This process was seen in the e-waste problem. The transfer of e-waste from Japan, South Korea and other developed countries has caused a serious problem in China. Given this situation, the Chinese government took the lead in organising the first tripartite workshop on e-waste management policy in Beijing in June 2007. Then, the e-waste problem was formally proposed by the Chinese government as a possible agenda for discussion at the ninth TEMM in December 2007, and Japan and South Korea agreed to put it on the table. The photochemical oxidant problem provides another example.[5] In the new millennium, photochemical oxidants exceeded the environmental quality standard (EQS) throughout Japan. In particular, the number of days when photochemical

oxidant warning was issued increased to 220 in 2007 from 177 in 2006 (MOE 2008: 5). The Japanese government sought to make the photochemical oxidant issue a discussion agenda at the TEMM. At the ninth TEMM meeting, the government explained the situation of the recent photochemical oxidant in Japan, and proposed beginning a research on exploring its initiation mechanism. The three governments agreed to promote scientific research to analyse the pollution mechanism jointly.

The above examples indicate that rapid industrialisation and urbanisation in the region and growing interdependence among the three countries have produced new types of environmental risks. Such hazards in ecological destruction have transboundary character with uncertain and unpredictable effects that will be produced in the long run. Moreover, it was difficult to attribute responsibility for risks to a specific country but risks have equalising effects on the countries in Northeast Asia. The three governments gradually deepened their understanding about such character of new risks, and pursued joint efforts to reduce negative impacts from the risks.

The formation of regulatory governance

Since trilateral environmental cooperation covers a wide range of policy issues, concrete methods to promote cooperative initiatives are diverse. The main method of cooperation has been the holding of intergovernmental meetings where government officials confirmed critical environmental issues. Based on agreements at the meetings, the sharing of administrative and technical information and exchange of human resources were implemented as concrete measures. Furthermore, the governments entrusted affiliated research institutes to undertake joint research on environmental issues in Northeast Asia.[6]

In the evolution of environmental cooperation under the TEMM, a noteworthy feature is an attempt to realise harmonious regulations and common standards. This attempt was indicated by the inclusion of sound management of chemicals and transboundary movement of e-waste as discussion agendas at the TEMM. China, Japan and South Korea organised a tripartite policy dialogue on chemical management three times between November 2007 and September 2009. At the dialogues, the three governments exchanged information about chemical management regulations and

chemical management policies, which were open to the public through internet. In particular, the governments aimed at taking joint actions to facilitate the harmonious implementation of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).[7] For this objective, the governments organised the first trilateral GHS expert meeting in September 2008 to compare and deliberate on the hazardous classification system of chemical products. The three governments also organised a tripartite workshop on e-waste management policy in June 2007. They committed to continue their efforts against the illegal transboundary movement of e-waste through continuous dialogues among the three countries as well as concerted efforts in Asia on the Environmentally Sound Management of E-waste under the Basel Convention.

Trilateral cooperation in the management of chemical products and e-waste just began, and has not produced substantial outcomes. Most of activities were the holding of dialogues and seminars designed to exchange information, not leading to the coordination of policies. However, cooperation in these two fields was based on the recognition that the proper management of chemical products and e-waste is impossible without trilateral collaboration on the harmonisation of relevant policies and domestic standards given the growing amount of transactions and transmissions across national borders among the three countries. Moreover, cooperation in these policy areas aimed at making domestic regulations and policies compatible with international norms such as the GHS and Basel Convention. In this sense, regional cooperation linked national-level governance to global understandings of regulation, and regional projects provided a transmission belt for global disciplines to the national level.

In terms of policy coordination, cooperation in the environmental industry has produced some outcomes. The three governments have organised a tripartite roundtable meeting on the environmental industry since 2001. The participants have discussed concrete issues such as green purchasing, environmental management as well as eco-labelling and mutual recognition agreement (MRA)-based certification. Among various agendas discussed at the meetings, the diffusion of MRA-based certification has been given priority. At the fifth roundtable meeting in September 2005, the certificate related agencies of three countries agreed to promote the MRA-based certification. Afterwards, the agencies proceeded with discussions on the procedures of certification. They selected

personal computers as the first product category in May 2007, then, multifunctional devices as the second in November 2008. They established the range of harmonisation, assigning numbers to criteria that were common to the three countries. Despite a primitive form, the three governments began an attempt to form regulatory governance in which policy coordination at the regional level leads to the transformation of domestic regulatory systems.

Takahashi (2001: 23) argues that countries in Northeast Asia have significant differences in their viewpoints of and approaches to environmental cooperation, which imposed vital constraints on the development of regional cooperation. This argument can be applied to the TEMM development. The TEMM has been an authorised institution with solid financial base compared with other institutions dealing with environmental issues in Northeast Asia.[8] Despite such strengths, the outcomes of the TEMM's activities in more than ten years are not substantial. In particular, it has placed emphasis on the exchange of information and confidence-building among parties concerned. In this respect, recent moves towards regulatory governance in several policy fields have significant implications. The three governments sought to set up common standards through talks at the regional level and harmonise domestic policies and systems.

The participation of non-state actors

The TEMM is an intergovernmental body, and non-state actors have not held direct access to it. However, some non-state actors have been involved in discussions and policy developments in specific policy issues. This was typical in talks on chemical management. When the first Tripartite Policy Dialogue on Chemicals Management was held in November 2007, it was organised as the combination of a governmental meeting and an international workshop where representatives from government, industry and academia attended. The participation of academics was indispensable for gaining expertise in laboratory methods of chemical products and information about good laboratory practice (GLP). Chemical management also needed to reflect the interests of private companies that engage in production and trading of chemical products.

As for discussions over the waste problem, major environmental NGOs in the three countries have raised their interests in this problem and conducted activities to resolve it.

In Japan, several environmental NGOs such as the East Asia Environmental Information Express Messenger (EAEIEM), Study Group for a Sustainable Society (SGSS), and Friends of the Earth Japan organised a citizen platform, the Asia Waste Watch, in order to prevent environmental pollution caused by waste in Asia through networking and cooperation among domestic and international citizen groups. These NGOs have made policy proposals on waste surveys and the revision of the Japanese Home Appliances Recycle Act. In China, the Greenpeace China conducted a survey on health damage from e-wastes, and organised a campaign on appealing the e-waste problem and suspension of e-waste trade (Hicks, Dietmar, Eugster 2005: 461-62). In South Korea, the Korea Federation for Environmental Movement (KFEM) and Korea Zero Waste Movement Networks (KZWMN) are representative NGOs regarding the waste problem. The KFEM is a NGO in South Korea that has focused on various environmental issues such as climate change, river protection, toxic chemicals, and waste problem. The KZWMN is a waste-centred organisation, which has undertaken various activities through some 180 grass-root networks such as campaign for reducing the use of disposable products, the reduction of packing papers and food garbage.

The NGOs in the three countries have organised transboundary activities on the e-waste problem in Asia, especially in China. In November 2005, the EAEIEM, SGSS, KZWMN and KFEM, in support of the Greenpeace China, conducted a survey on e-waste recycling practices at Taizhou city in Zhejiang Province, China (Hirose 2008). Moreover, these NGOs organised the Asian Citizens' 3R Forum on October 29, 2006, and issued the 'NGO Appeal to the Asia 3R Conference in Tokyo'. This appeal aimed to reflect demands from NGOs on discussions at the Asia 3R Conference, a Japanese government-initiated international conference that would begin the following day.[9]

The transboundary activities by NGOs created background factors encouraging the governments to focus on the e-waste issue seriously. The e-waste issue was formally raised by the Chinese government at the ninth TEMM in December 2007, and government officials adopted concrete actions to tackle this issue. Indeed, there is no direct evidence that the Chinese government's action was directly influenced by NGOs activities, but NGOs played critical roles in publishing the e-waste problem in China. Importantly, NGOs' contentious activities coincided with changes in the TEMM's

approach to regional environmental issues. At the joint communiqué issued at the eleventh TEMM, 'environmental governance in Northeast Asia' was identified as one of ten primary areas for cooperation. The term 'environmental governance' was used in the joint communiqué for the first time. Moreover, the communiqué contained a sentence that 'we also noted that the enhanced cooperation is feasible based on the development of partnership between public and private sectors'. The transnational activities of NGOs might be background factors making government officials recognise the value of concepts of 'governance' and 'partnership between public and private sectors'.

In Northeast Asia, a state holds strong grip in formulating public policy, retaining relative autonomy against pressure from major societal groups (Wong 2004: 352). Even when they form policy networks involving non-state actors, the state decides on the membership and scope in activities of the networks. From this standpoint, environmental cooperation is unique in that NGOs have undertaken transboundary activities that have the potential of influencing policy direction and approach adopted by the governments. The NGOs have sought to eliminate the gaps in the definition and regulations of environmental pollution, pursuing universal values such as environmental justice. The state actors are encouraged to incorporate the NGOs' perspectives and experiences into the decision-making process.

Growing Cooperation in the Information Technology Sector

The development of OSS cooperation

The IT industry has emerged as one of the most crucial industrial sectors for a nation's economic growth and social development. In the new millennium, the governments of China, Japan, and South Korea launched a new initiative in searching for possible cooperation in the IT sector. In September 2002, the first tripartite IT ministers' meeting was held in Marrakech, Morocco. The ministers agreed to coordinate telecom policy and promote jointly broadband platforms and research and development (R & D) activities. At the second IT ministers' meeting in Cheju, South Korea in September 2003, the ministers identified seven areas for cooperation.[10] At the third ministerial meeting in Sapporo in July 2004, international cooperation on the radio frequency identification

(RFID) sensor network was added as a new theme for cooperation. The ministers agreed to advance cooperation in each specific policy area by organising a directors-general meeting.

Among various areas in trilateral IT cooperation, the most substantial outcomes were produced in the field of open source software (OSS). In April 2004, the first Northeast Asia OSS Promotion Forum was held in Beijing. In parallel to the forum, a trilateral IT directors-general meeting was held.[11] Three months later, the second forum was held in Sapporo, Japan. Government officials and representatives of OSS promotion groups reported on the situation around OSS and OSS promotion activities in each country. At the forum, the three countries agreed to set up three joint working groups: Technology Development and Assessment Working Group (WG1); Working Group on Human Resource Development (WG2): and Standardization and Certification Study Working Group (WG3). Afterwards, the participants have confirmed the progress and outcomes of the groups' activities at the annual meetings held in the three countries in rotation.

A critical question is with what objectives the governments and industries in China, Japan, and South Korea have promoted trilateral OSS cooperation. There are two major objectives. The first, formal objective is to contribute to the development of the global OSS community. Indeed, Japan and South Korea have retained strong competitiveness in IT hardware, especially in home appliance products. However, their capabilities in IT software have been weak, being just users or consumers of OSS developed by advanced nations in the western world. In order to convert the situation, participants in trilateral cooperation sought to strengthen the position of OSS developers by committing jointly to strength in various aspects regarding OSS development.

The second, informal objective is to avoid a risk resulting from the dominance of the key system software by one company. The dominance of the Windows operating system standard is likely to disturb the development of the IT industry, which is heavily dependent on the exchange of various ideas and technologies. The development of an original OSS was indispensable for securing the sound development of the industry. The objective to promote trilateral cooperation for risk avoidance was spelled out in statements by the executives of industrial associations that took an initiative in pushing

forwards OSS cooperation. For instance, Lee Yong-teh, honorary chairman of the Federation of Korean Information Industries (FKII), stated that we admit formidable contributions by Microsoft. But, OSS represented by Linux, which has values equivalent to Windows, has not been used in compatible with its values . . . Asia as a whole will work on the expansion of applications and the elevation of reliability such as support systems'.[12] Thus, the three industrial associations formed a unified front in stimulating the growth of innovative technologies and new markets jointly, and thereby sought to avoid risks resulting from the dominance of the operating system by Microsoft.

Government officials shared risks resulting from the dominance of system software by western companies. Such risks were strongly perceived by the Chinese government that had strong aspirations for the self-reliance of technological development (Feigenbaum 2003). It had a firm desire to develop indigenous OSS from the national security standpoint: to avoid the situation that the core technology is controlled by a US company. The Chinese government has vigorously supported the OSS development since the Ministry of Information Industry (MII) sponsored a promoting meeting, *China and Linux,* in June 1999. The Chinese government extended intensive support for software firms such as Red Flag and other non-governmental enterprises working on Linux operating software. Moreover, Linux internet server software and Linux mobile phone software became among the 19 projects that MII identified in 2004 for the IT Fund, which the State Council founded in 1986 to encourage R&D in the IT field (Kshetri 2005: 89).

Significantly, relative importance in the objective has gradually shifted to contribution to the international OSS community. This point was explicitly presented in the Chairman's Statement of the forum meetings. For instance, the Chairman's Statement of the seventh forum in October 2008 contained a phrase that 'WG1 [working group 1] confirmed that the direction of WG1 activities should turn into the contribution to the worldwide communities additionally, as well as CJK cooperation'.[13] The interviewees in Japan and China also admitted that the main objective of trilateral cooperation shifted from challenge against Microsoft to the contribution to the global OSS community.[14] As explained later, the results of trilateral cooperation were available for the worldwide

communities through the forum web, and they have been presented at the international Linux forums and conferences.

Several factors explained a shift in relative importance of the objective. First, Microsoft has become more open to technology, shifting from a strong adherence to patent issues. Originally, participants of OSS cooperation had strong concern with Microsoft's closed patent policy, which would disturb the development of software innovation.[15] However, the software giant became more cooperative to Linux and OSS, forging alliances with Linux developers. For instance, in November 2006, Microsoft announced a set of business and technical collaboration agreements with Novell, one of the leading Linux/ OSS developers, to cooperate with Windows and Linux interoperability and support. Second, the organisers of trilateral cooperation have intensified linkages with the global IT industry. In particular, the Chinese software industry has gradually intensified an outward-looking policy by intensifying international linkages. The China OSS Promotion Union (COPU) has some 30 multinational firms as its members who have their branches in China such as Intel, IBM, Red Hat, Hewlett-Packard, and Nokia. The union has also strengthened linkages with the world OSS communities by setting up formal ties with their counterparts in the United States, European Union, and Russia. As for the relationship with Microsoft, COPU concluded an agreement not to attack each other.[16] This kind of global networks changed trilateral OSS cooperation more open.

A crucial point is that the governments of three countries and industries still shared a risk that the dominance of system software by western countries have remained due to their weak capabilities in this field. This risk is particularly important because software has assumed an increasingly important position in trends that the source of corporate profits shifted from hardware to software in the IT industry and software is the key technology in conditioning the development of overall industries and society. Accordingly, motivations to elevate the base for developing system software jointly exist constantly.

The outcomes of cooperation and regulatory harmonisation

Concrete outcomes from trilateral OSS cooperation have been produced through activities at the three working groups. The WG1, which deals with technology development and assessment, released OpenDRIM2008 Suite through the OpenDRIM (Distributed Resources Information Management) project in December 2008. This project aimed to develop technologies and environments to manage distributed resources information for Linux systems based on open standards (Suzuki 2007: 8). The group also released the regression test functions for 273 Linux Kernel system calls through the Crackerjack (Linux Kernel Regression Test) project in April 2008. The project contributed to improvement in the quality of the regression test functions for some 300 system calls, and the three countries each assumed responsibility for testing some 100 functions.

The outcomes of the WG1's activities were integrated into international regulatory systems. The common information model (CIM) provider modules developed in the Open DRIM project was submitted to the Ubuntu community, one of the major Linux distributions. As for the Crackerjack project, the ideas and results of the project were presented at the international communities including the OSDL testing summit in San Francisco in August 2006 and the Ottawa Linux Symposium in June 2007 (Suzuki 2007: 26). Moreover, the source code of 66 test functions was provided for the Linux Test Project (LTP), a key international community regarding Linux tests. [17]

The WG2, whose charge is relevant to human resources development, published the Northeast Asia Human Resource Development Analysis Report in October 2008. Moreover, the group has granted the CJK OSS Award and CJK OSS Special Contribution Award to urge the development of OSS human resources in Northeast Asia. The WG3, whose task is to promote the study of standardisation and certification, has engaged mainly in projects regarding web interoperability discrepancy. The group released the Report of Web Interoperability Discrepancy in 2007 and the Solutions of Web Interoperability Discrepancy the following year.

In promoting activities of the WG2 and WG3, major interests have been directed towards creating and advancing harmonious regulatory systems. The WG2 published the

Northeast Asia HRD Model Curriculum in July 2009. This publication aimed at distributing the common model for education and human resource development. Based on this achievement, the WG2 tried to promote more practical cooperation. At the eighth forum in October 2009, the group agreed to form the NEA OSS Wiki project to improve the model curriculum in the education area as well as to provide OSS training sessions in the sidelines of the forum meetings. Cooperation in education aimed to increase OSS experts through the development of joint education and training systems. The WG3 completed the Specification of Input Method Engine Service Provider Interface as a joint project. This specification would be useful for developers of a common input method framework for processing several languages including Chinese, Japanese, and Korean.

The harmonisation of measures and systems is a challenging issue. For instance, the WG2 has deliberated on the establishment of a harmonised certificate system for OSS experts in the three countries. However, because of the existence of specific certificate bodies in each country, the adoption of the common certificate system was not easy. Accordingly, the WG2 has committed to the creation of the base for such an adaption in the step-by-step manner.

The formation of networks involving non-state actors

Trilateral cooperation for OSS development has been sustained by substantial collaboration between the public and private sectors. The original initiative in trilateral cooperative was taken by the private sector. When the twentieth general assembly of the Asian-Oceanian Computing Industry Organisation (ASOCIO) was held in Thailand in November 2002, the Japan Information Technology Services Industry Association (JISA), the Chinese Software Industry Association (CSIA) and the Federation of Korean Information Industries (FKII) confirmed trilateral partnership in promoting OSS development.[18] The three industrial associations decided to encourage their governments to exhibit positive commitments to the development of OSS, and JISA's Sato and FKII's Lee explained this partnership to the Information Service Industry Section of the Japanese Ministry of Economy, Industry and Trade.[19] In November 2003, the three associations organised the China-Japan-Korea OSS Business Conference in Osaka where some 500 participants from industrial associations, government agencies, and private

companies gathered. This conference provided the basic guideline for further trilateral cooperation.

After the beginning of the Northeast Asia OSS Promotion Forum, the public and private sectors have pushed forwards cooperation through harmonised and systematic division of labour. At the Osaka conference, the JISA, CSIA and FKII agreed to take the lead in establishing an OSS promotion body in each country and create the China-Japan-Korea OSS Promoting Partnership where the activities of the three bodies would be united and coordinated. Afterwards, a domestic OSS promotion body was established in each country: the China OSS Promotion Union in July 2004, the Japan OSS Promotion Forum in February 2004, and the Korea OSS Promotion Forum in December 2003. These three private bodies have served as the formal sponsors of the Northeast Asia OSS Promotion Forum (Table 2). Concrete projects have been implemented through working groups organised by representatives from the private sector.

Table 2 **Major Actors Involving the Northeast Asia OSS Promotion Forum**

	China	Japan	South Korea
Initiator of the forum	China Software Industry Association (CSIA)	Japan Information Technology Services Industry Association (JISA)	Federation of Korean Information Industries (FKII)
Sponsor of the forum	China OSS Promotion Union	Japan OSS Promotion Forum	Korea OSS Promotion Forum
Secretariat of the forum	China Software Industry Association (CSIA)	Information-Technology Promotion Agency (IPA)	National IT Industry Promotion Agency (NIPA)
Govern-ment Agency	Ministry of Information Industry (MII)	Ministry of Economy, Trade and Industry (METI) Ministry of Internal Affairs and Communications (MIC)	Ministry of Knowledge Economy (MKE)

Source: The author compiled from documents issued by the Information-Technology Promotion Agency and newspapers.

The public sector has sustained private sector's operations. The government-affiliated organisations – CSIA for China, Information-Technology Promotion Agency (IPA) for Japan, and National IT Industry Promotion Agency (NIPA) for South Korea –

assumed the secretariat of the forum.[20] This was largely because the private actors could not assume financial and personnel burdens for holding the forum meetings. [21] Moreover, the governments have maintained close tie-ups with the forum's activities. The IT related ministries of the three governments have held an IT Directors-General meeting one day before each gathering of the OSS Promotion Forum. Indeed, the directors have confirmed basic directions of on-going cooperative activities, not committing to show specific new policies.[22] However, constant presence of governmental commitments was crucial for drawing continuous willingness in cooperation from companies that stood in rival competition. In particular, Japanese IT companies such as Hitachi, Fujitsu, NEC, Nippon IBM, and NTT Data could show collaborative postures towards OSS cooperation under the authorised commitments from the government.

Relative importance between the public and private sectors differed among the three countries. While the government has shown a strong grip in cooperation in China, private initiatives have been prominent in Japan: South Korea is in the middle. Despite such differences, close linkages between the governments and business are a major background factor in advancing trilateral OSS cooperation successfully. The public sectors provided authority and administrative/ financial resources that were necessary for encouraging business actors to engage in continuous cooperative actions. The business actors provided an initial impetus for cooperation and have conducted concrete activities for cooperation.

Conclusions

After the early 1990s, the wave of regionalism covered broader areas in the world. Northeast Asia, which had weak regional cohesion largely due to history-oriented animosity, gradually developed initiatives for regional cooperation since the late 1990s. This article sought to articulate major characteristics in such initiatives in terms of the governance concept. For this objective, it highlighted the objective and process of cooperation among China, Japan, and South Korea in two policy fields: environmental protection and IT development.

Notable development in trilateral cooperation was found in the two policy fields examined here. In the environmental field, the TEMM was organised in 1999 as the first

ministerial meeting among China, Japan, and South Korea. The policy areas covered by trilateral cooperation have gradually expanded to transboundary movements of e-waste and chemical products. In the IT field, tripartite cooperation has evolved since 2002, developing high-level governmental institutions for regular talks. In particular, the three countries have advanced cooperation in OSS development, launching the Northeast Asia OSS Promotion Forum in April 2004.

China, Japan, and South Korea promoted trilateral cooperation in pursuit of risk management. Trilateral environmental cooperation originally started with transboundary risk of air pollutants from China to its neighbouring countries. Moreover, growing economic interdependence raised risk from uncertainty about the management of chemical products and e-waste transfer. In the IT cooperation, risk existed in the dominance of key system software by western companies. The policymakers and business executives were apprehensive that such dominance would cause serious negative effects on the national security and technological development. When this kind of risk declined, the three countries gradually shifted the objective of cooperation to contribution to the international OSS community.

Given the short history of regional cooperation in Northeast Asia, the process of cooperation is heavily dependent on the holding of meetings, and the exchange of information there. However, new attempts began to emerge. In the environmental cooperation, the three governments sought to adopt harmonious regulatory policies and systems to develop the environmental industry and manage the movement of chemical products and e-waste. The growing amount of cross-boundary transmissions and transactions required trilateral collaboration on the harmonisation of relevant policies and domestic standards to realise the effective management of some environmental issues. In the IT field, OSS cooperation produced outcomes that led to the harmonisation of standardisation and education models. Some outcomes of cooperation in technology assessment were integrated into international regulatory systems.

Importantly, the presence of non-state actors was apparent in the two fields. The cross-boundary NGO networks gradually developed over the waste problem, and government officials began to pay more attention to environmental governance based on partnership between the public and private sectors. In the IT field, OSS cooperation

began with initiatives by the private associations that encouraged their governments to exhibit positive commitments to OSS development. After the beginning of concrete projects, public and private sectors set up division of labour for advancing concrete projects.

Lastly, it is useful to refer to two implications of this study to broader research on regionalism in Northeast Asia. The first is that specific characteristics embedded in the political economy in Northeast Asia surely influenced the mode of regional governance. This was typically shown in the involvement of non-state actors. Indeed, non-state actors' involvement was apparent in both environmental protection and IT cooperation. But, the involvement was deep and substantial in the latter. This reflects the long tradition of 'developmentalism' and government-business partnership in Northeast Asian countries. The second is broader implications of the study for regional integration in Northeast Asia. As already explained, policy areas covered by trilateral cooperation have extended to health, tourism, logistics, and others. There is the possibility that the findings of this study are applicable to trilateral cooperation in other policy areas. At the same time, it is necessary to explore how cooperative processes and practices in specific functional areas influence the development of political cooperation towards regional community building.

Notes

[1] For the evolution of the TEMM, see its homepage. Available at <http://www.temm.org/>.

[2] The DSS gathers above the Gobi and Taklamakan Deserts in inland China in the dry spring months. It is flown up by winds and often reaches the Japanese Islands, and has caused various social and health problems.

[3] *Korea Times*, January 15, 1999.

[4] The ten areas are as follows: the consciousness of the environmental community, fresh water (lake) pollution, land-based marine pollution prevention, and cooperation in the field of the environmental industry. At the eleventh TEMM in 2009, the target of cooperation expanded to ten areas: environmental education; climate change; biodiversity conservation; dust and sandstorms; pollution prevention and control such as photochemical oxidant, water and marine environment; environment-friendly society/3R/sound resource recycle society; transboundary movement of waste electrical and electronic equipment (e-waste); sound management of chemicals; environmental governance in Northeast Asia; and environmental industries and technology.

[5] Photochemical oxidant implies 'a collective term that includes ozone and some other secondary substances generated in the presence of sunlight (photochemical reaction) from nitrogen oxides (NOx),

volatile organic compounds (VOCs), or other primary pollutants emitted from factories, businesses, or automobiles'. they cause eye and throat irritation and respiratory distress.

[6] For instance, the three search institutes, – the Policy Research Center for Environment and Economy (PRCEE), China, Institute for Global Environmental Strategies (IGES), Japan and Korea Environment Institute (KEI) – issued a report on trilateral joint research on environmental management in Northeast Asia in January 2009.

[7] The GHS is a system for promoting standard criteria to classify chemicals according to their health, physical and environmental hazards. It proposes harmonized hazard communication elements, including product labels and safety data sheets.

[8] There are other institutions such as Northeast Asian Conference on Environmental Cooperation (NEAC), North-East Asian Subregional Program on Environmental Cooperation (NEASPEC). These institutions have suffered from problems pertinnent to weak organisational and financial bases.

[9] At this conference, senior officials from 19 Asian countries and international organisations discussed concrete issued regarding 3R (reduction, reuse and recycling) with raw garbage, e-waste, and medical waste.

[10] These seven areas were third- and next-generations mobile communications; next-generation internet (IPv6); digital broadcasting; network and information security; open source software; telecom service policy; and the 2008 Beijing Olympic Games.

[11] The three governments signed the memorandum of understanding concerning ten areas for joint OSS promotion. The agreement aimed to promote joint research for user identification systems and to support the development of the Northeast Asian OSS Promotion Forum by the private sector.

[12] *Nikkei Computer*, December 1, 2003: 14.

[13] 'Chairman's Statement of the 7th Northeast Asia OSS Promotion Forum', October 31st, 2008, <http://www.ipa.go.jp/about/press/pdf/081104-2-statement.pdf>.

[14] Interview, Information-Technology Promotion Agency, February 2009, Tokyo; China OSS Promotion Union, March 2009, Beijing.

[15] Interview, Information-Technology Promotion Agency, February 2009, Tokyo.

[16] Interview, China OSS Promotion Union, March 2009, Beijing.

[17] 'Chairman's Statement at the 8th Northeast Asia OSS Promotion Forum', October 20th, 2009, <http://www.ipa.go.jp/about/press/pdf/091021-CS8_master.pdf>.

[18] The ASOCIO was established in 1984 in Tokyo with an eye to promoting close collaboration among the industrial associations in the computing industry in the Asian and Oceanian region.

[19] *Nikkei Computer*, January 27, 2003: 20-21.

[20] CSIA has unique character compared with its counterparts in Japan and South Korea. The association, founded in 1984, is an industrial association, but it retains the character of a quasi-governmental body (Kennedy 2005: 134-35). The association has relied on the Ministry of Information Industry (MII) for its staff and financing, and its office was long located within the ministry. Chen Chong, President of CSIA, held a joint title as a deputy-director of the Electronic and Information Products Management Department in the MII.

[21] Interview, Information-Technology Promotion Agency, February 2009, Tokyo.

[22] Interview, Information-Technology Promotion Agency, February 2009, Tokyo.

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