

**Mutual Interests and Policy Networks: Sino-Japanese
Cooperation in the Environment and Energy**

Hidetaka Yoshimatsu
Graduate School of Asia Pacific Studies
Ritsumeikan Asia Pacific University

RCAPS Working Paper No. 09-10
March 2010

Ritsumeikan Center for Asia Pacific Studies (RCAPS), Ritsumeikan Asia Pacific University,
URL: <http://www.apu.ac.jp/rcaps/>

Mutual Interests and Policy Networks: Sino-Japanese

Cooperation in the Environment and Energy

This article examined features in Sino-Japanese cooperation in the environmental and energy fields by paying attention to the existence of mutual interests and the role of policy networks. In the environmental cooperation in the 1990s, both governments did not establish mutually beneficial relationship, and the presence and roles of official institutions were nominal not substantial. Sino-Japanese environmental cooperation was revitalised after the mid 2000s. Importantly, Japan had a serious, independent reason to promote environmental cooperation with China: the acquirement of emission credits through the clean development mechanism (CDM). Moreover, intergovernmental networks became substantial and policy networks involving business actors have gradually developed. As for energy cooperation in the same period, China and Japan had different but mutual interests in cooperation: the introduction of advanced technologies and experiences, and the expansion of energy-related businesses in the Chinese market, respectively. In terms of policy networks, the governments established a committee to supervise the model projects, while business actors and subnational governments formed cross-border linkages to substantiate cooperation. This study demonstrates that substantial moves towards cooperation have developed in sub-systemic policy areas and research on complicated interactions and underlying motivations of various actors concerned is necessary for advancing the study of the Sino-Japanese relationship.

Keywords: China, Japan, mutual interests, policy networks, environmental protection, energy conservation

Introduction

China and Japan are two of the most important states in international politics and the world economy. While China has maintained an important political status as a Power-five member, its rapid economic rise has diffused its products in the global market. Japan, the second largest economic power in the world, has maintained an important position in providing goods, capitals, and advanced technologies for developing and developed countries. The two states have a history of mutual exchanges for more than two thousands. However, their relations after the Second World War have remained chilly largely due to lingering 'history and memory', a potential conflict over the Diaoyu/Senkaku Islands, and resultant political distrust.

In the new millennium, China-Japan relations have entered into a new stage of relations. They have established closer ties in economic and social fields. China became Japan's primary trade partner in 2006, making made-in-China products affluent in the Japanese market. Japanese capitals, intermediate goods, and technologies have gradually become important vehicles to sustain the steady development of the Chinese economy and industries. Moreover, institution-building in East Asian forums and under the China-Japan-Korea frameworks have provided the two states with more opportunities to strengthen political relations through expansive direct talks and communications.

In evaluating Sino-Japanese relations, a valuable insight is the so-called 'functional' approach. While cooperation in political areas might take long time for states with mutual distrust, cooperation in functional areas is relatively easy due to non-controversial nature. In fact, China and Japan has engaged in cooperative projects in several functional areas at the bilateral, trilateral (including South Korea), and regional (East Asian) levels.

This article seeks to analyse factors that condition the development of Sino-Japanese relations by tracing the evolution of cooperative initiatives in specific functional areas: the environmental and energy fields. In the late 1980s, environmental protection emerged as one of major areas for bilateral cooperation. The two governments implemented various projects for rectifying China's environmental problems. In the new millennium, deterioration in environmental conditions and the rise of energy demand in China have led to growing interests in advancing substantial cooperation in the

environmental and energy fields. Before delving into the concrete process of cooperation in these fields, the following section examines theoretical perspectives that explain cooperative and conflicting relationships between China and Japan.

Theoretical Perspectives on Sino-Japanese Cooperation

The most plausible international relations theory that accounts for the past evolution of and major characteristics in China-Japan relations is neorealism. According to neorealism, the state, a unitary and rational egoist, seeks to protect its national interest, sovereignty and ultimately survival in self-help conditions. In particular, states in rival relations are concerned about relative gains rather than absolute gains from a cooperative arrangement.¹ Lingering suspicion and animosity disturbed the development of trustworthy relationships between Japan and China. The historical legacy provoked sporadic disputes over Japanese Prime Ministers' visits to Yasukuni Shrine, history textbooks, competing territorial claims, and so on. Rivalry and competition between the two states over influence and leadership in East Asia have intensified as China's economic ascendancy has led to its growing weight in the region. Even if the two governments decided to promote bilateral cooperation, it is regarded as a short-term phenomenon that derives from motivations to maintain and promote each national interest, not necessarily aiming to develop trustworthy relationship.

Certainly, the neorealist perspective provides robust explanations for most of conflicting relationships between Japan and China, and quite a few scholars have explained Sino-Japanese relations from this perspective. Liao, among such scholars, have explained energy relationships before the 1990s by the neorealist perspective that addressed relative gains and strategic concerns.² However, 'the major powers' roles in Asia have been more those of complex interaction and interdependence than competition or classic rivalry', which is applicable to Sino-Japanese relations.³ While China and Japan have complementary economies that expand leeway for mutual interests, they have played significant roles in promoting stability in East Asia.⁴ For instance, the deepening of regional financial cooperation in East Asia has been impossible without policy coordination between Beijing and Tokyo.⁵ The two states have also intensified linkages and projects for promoting cooperation in the fields of information technology, logistics,

and environmental protection. In order to analyse the background, evolution and prospects of cooperative moves in several functional areas, it is necessary to go beyond the static neorealist paradigms.

This article seeks to examine emerging bilateral cooperation between Japan and China by relying on theoretical concepts other than neorealism. The liberal perspective puts emphasis on ‘mutual interests’ that are produced through interstate interdependence. The existence of mutual interests creates its own dynamics to continue inter-state cooperation. Not only does the continuous production of mutual benefits encourage policymakers to deepen their commitments but it also provides policymakers a rationale to persuade relevant domestic actors to maintain cooperative relations. More specifically, interdependence gives leeway for mutual benefits and raises a state’s propensity towards mutual constraints in several ways. First, the high and rising level of economic and social interdependence enhances ‘functional’ needs to maintain stable relationships and resolve problems resulting from them.⁶ The policymakers find interests in harmonising and standardising exchanges and activities beyond national borders in order to get constant benefits from such exchanges and activities, and enhance overall welfare for all the nations.⁷ Given growing needs for policy coordination, the policymakers are given more opportunities for direct communications and discourses. Enhanced communications and exchanges enable the policymakers to deepen mutual understanding of the partners’ motivations and constraints, and hold opportunities for social learning. Second, growing economic and social interdependence has significant impacts on the preferences and behaviour of major societal actors. An important insight from the functionalist theory is that increasing economic exchanges will stimulate political activities of non-state actors.⁸ The increased level of economic intercourses motivates specific societal actors who draw benefits from cross-border transactions to conduct political activities to secure specific interests.⁹ Not only do such societal actors set up collaborative linkages with their counterparts in foreign countries but they also encourage their governments to foster stable relationship with other countries.

Importantly, interests and cooperation are different matters, and cooperation is not a simple function of interests.¹⁰ It is necessary to hold mechanisms to amplify mutual interests and guarantee the continuity of mutual interests. The most plausible mechanism

in this respect is intergovernmental institutions. There are various problems for the states to find mutual interests in initiating and expanding inter-state cooperation: asymmetric information, moral hazard, and potential dishonesty. The intergovernmental institutions can rectify these problems: by providing legal liability that establishes stable and mutual expectation about others' patterns of behaviour; by offering relatively symmetrical information to the members, thereby reducing level of uncertainty and risks of making agreements; and by reduce transaction costs of legitimate bargains and increasing them for illegitimate ones.¹¹ Thus, intergovernmental institutions create valuable environments where states can maintain and expand mutual interests.

While intergovernmental institution is a common concept used to examine inter-state cooperation, it has some limitations in an analysis of inter-state cooperation in specific policy areas. First, intergovernmental institutions are not adept in articulating the details of policy dynamics in sub-systemic policy fields. The presence and roles of intergovernmental institutions are crucial for analysing important diplomatic policies and relations. However, they are not necessarily suitable for examining interstate relations in sub-systemic policy areas where various actors interact in formal and informal manners by using various resources such as power, information, and expertise. Second, stress on intergovernmental institutions leads to passing over the role of non-state actors. The recent governance-related studies suggest that what previously were indisputably roles of government have been increasingly seen as common generic, social problems that could be resolved by commitments of both state and non-state actors.¹² Governance goes beyond traditional notions of government or formal-public authority by relaxing the boundaries between the state and society or between public and private sectors. The presence and roles of non-state actors are crucial for examining the initiation and development of inter-state cooperation in specific issue or sectoral areas.

This article highlights policy network as a mechanism to amplify mutual interests. The policy network has become one of major research concepts used to analyse public policy formation, and thereby there are quite a few definitions of policy network.¹³ Several scholars have presented the typologies of policy networks in order to explain actual forms and functions of policy networks. While Rhodes shows two types of policy networks, - policy community and issue network -¹⁴, Borzel presents two typologies of

policy networks: one as a typology of interest mediation and the other as a specific form of governance.¹⁵

The concept of policy network has strength in revealing both formal and informal bargaining for sub-systemic policy shaping by examining the ways in which network structures affect the selected aspects of the behaviour of political and societal actors and their interactions. The political actors hold formidable resources, and their decisions are binding on society and are sustained by the potential use of legitimate power. The societal actors hold expertise and information that are indispensable for formulating public policies in specific issue-areas and a power to legitimate particular actions taken by political actors. The policy networks can assemble such resources, expertise and power in formal and informal settings to attain certain policy objectives by reducing strategic uncertainty and transaction costs. In addition, as social and economic interdependence has deepened at both global and regional settings, policy networks have become transnational, going beyond national borders. While sub-units of national governments set up cross-border, transgovernmental relations to attain certain policy objectives, major actors in the society establish cross-border transnational relations. The transnational policy networks are likely to facilitate the identification of mutual interests in a given issue-area and concrete measures that are conducive to interstate cooperation.

In summary, this article examines the evolution of and features in Sino-Japanese cooperation in specific functional areas from two analytical angles. The first is how the two states have fostered and articulated mutual interests in the engagement of specific cooperative projects. The second is how policy networks involving states and non-state actors have functioned as mechanisms to amplify and substantiate such mutual interests.

This article focuses on cooperation in environmental protection and energy conservation to examine the influence of mutual interests and policy networks on the evolution of Sino-Japanese cooperation. The environmental sector has been one of the most important fields for bilateral cooperation between China and Japan.¹⁶ The Japanese political leaders repeated the importance of environmental cooperation.¹⁷ The protection of the environments has gradually become one of the most vital policy agendas for the Chinese government. When the government formulated the eleventh five-year plan (2006-10) in March 2006, 22 numeral targets were shown in four fields: economic

growth; economic stimulation; population, resources and environments; and public services and national life. Six out of eight numeral targets in population, resources and environments were binding. Furthermore, the State Environmental Protection Administration was upgraded in 2008 to the Ministry of the Environment to hold an equal status as the State Council's other ministries. Given the changes in the position of environmental issues, China and Japan should have found growing interests in environmental cooperation.

The energy sector is important for China and Japan in terms of conflict and cooperation. The two states have been confronted with serious conflicts over energy issues. For both countries, the utilisation of natural gas in East Siberia and the Russian Far East was an effective way to meet increasing energy consumption and to lessen dependency on oil imported from the Middle East. Beijing and Tokyo entered into invisible competition between the Sino-Russian pipeline and the Japan-Russian pipeline proposals.¹⁸ Moreover, China and Japan entered into serious tensions on the former's development of an offshore Chunxiao gas field in the East China Sea.¹⁹ At the same time, China's gradual perception that energy saving is indispensable for economic development and environmental protection led to growing interests in cooperation with Japan that holds the most advanced energy-saving technology and the most efficient energy use in the world. Both countries have implemented various projects for alleviating economic and social burdens resulting from soaring energy demand in China.

Environmental Cooperation in the 1990s

The Evolution of Cooperation

Sino-Japanese cooperation in the environmental field started in the late 1980s through Japan's provision of official development assistance (ODA). The first environment-related yen-loan began in 1988 as gas development projects in four cities. In the late 1990s, the number of environment-related projects increased, mainly covering areas of gas development and measures against factory pollution. In addition to yen-loan projects, grant aid projects were undertaken, targeting afforestation and others. Among various environment-related projects, three are particularly important.

The first is the construction of a centre for environmental protection in China. In 1988, Japanese Prime Minister Noboru Takeshita proposed his Chinese counterpart Li Peng the establishment of the Sino-Japanese Friendship Centre for Environmental Protection for commemorating the tenth anniversary of the conclusion of the Japan-China Peace Treaty. The centre opened in 1996 as an organisation affiliated to the State Environmental Protection Administration (SEPA) of China. The centre became a central body to conduct environment-related policy research, educational activities, and environmental evaluation and analysis.

The Sino-Japanese Friendship Centre for Environmental Protection played a significant role in transferring Japanese environmental technologies and experiences. The Japan International Cooperation Agency (JICA) has implemented the Technical Cooperation Projects since 1992, and the centre has functioned as the linchpin for human resource exchange and the provision of equipment and instruments through the projects. Furthermore, the centre became a core institution to launch measures against major environmental problems in China. For instance, the centre implemented research on the influence of dust storm and yellow sand on air particulate in the Beijing area, and issued recommendations in 2002 to prevent the expansion of the negative influence of dust storm and yellow sand.

The second is the launching of the model city plan. When Japanese Prime Minister Ryutaro Hashimoto made a formal visit to Beijing in September 1997, Hashimoto and Premier Li reached an agreement on Japan-China Environmental Cooperation toward the 21st Century. According to this agreement, two projects were implemented. The first was the Project for Improvement in Environmental Information Network. This project aimed at connecting a hundred cities in China in order to gather and disseminate environmental-related information. The second was the Japan-China Environmental Development Model City Plan. This project was designed to select model cities for the priority implementation of environmental control and improvement measures, and to make their successful commitments as priming water for the dissemination to the entire China. Chongqing, Guiyang, and Dalian were selected as the model cities. In addition to yen-loans for the development of infrastructure, JICA provided 'soft' assistance in human resources and institution-building.

The model city plan was important in that it was linked to cooperation at the sub-national government level. This was typically the case in cooperation between Kitakyushu city and Dalian.²⁰ Kitakyushu sought to draft an Environmental Master Plan for Dalian, and successfully encouraged the Japanese government to make the plan a part of ODA projects. The ODA project, jointly implemented by JICA and Kitakyushu city from December 1996 to March 2000, evaluated Dalian's environmental conditions from various points such as technologies, administrative operations, and city planning. Another example of sub-national cooperation can be seen between Hiroshima and Chongqing. The two cities signed a friendship agreement in 1986 and began environmental cooperation in 1990. Hiroshima city implemented various activities including the dispatch of technical advisors, hosting of trainees and the implementation of joint research projects.²¹

The third is the establishment of the Sino-Japanese Greening Communication Fund (known as the Obuchi Fund). When Prime Minister Keizo Obuchi made a formal visit to Beijing in July 1999, the establishment of the fund was proposed to his Chinese counterpart in order to assist Japanese non-governmental organisation (NGO) activities for afforestation in China with a total amount of 10 billion yen. An exchange of notes for the establishment of the Japan-China Non-governmental Sector Afforestation Activities Cooperation Committee was signed in November 1999. 43 projects amounting to a total of 450 million yen were adopted as recipients of aid from the fund in October 2003. The Obuchi Fund was valuable in that it aimed to sustain the involvement of NGOs in environmental protection in China.

Ambiguous Mutual Benefits and Weak Policy Networks

Environmental cooperation between China and Japan in the 1990s is characterised by 'formally symmetrical and substantially asymmetrical'. The Japanese and Chinese governments formed equal-footing, symmetrical partnership, reflecting the latter's preferences for the maintenance of equality. This was typically shown in the Agreement on Environmental Protection and Cooperation concluded by the two governments in 1994. The agreement aimed to promote equal-footing cooperation such as the implementation of joint research and the exchange of information and materials, in a wide

range of environmental issues from air pollution, improvement in the urban environments, and global warming. Under this agreement, various cooperative projects were organised.²² However, most of the projects were joint research projects undertaken by environment-related research institutes. These projects were conducive to the findings of academic oriented, long-term research, but did not necessarily produce practical and immediate outcomes that would rectify urgent environmental problems in China.

Substantial outcomes from bilateral cooperation were produced through projects with Japan's financial assistance. China could establish major city infrastructure for gas, waster, and sewerage, and gain Japan's technologies and accumulated experiences for preventing factory pollution. In these relations, Japan could get indirect benefits in the weakened cross-border pollution through improved air conditions in China. However, such benefits became ambiguous as the Chinese government encouraged its Japanese counterpart to put emphasis on water pollution and sewage rather than air pollution in yen-loan projects.²³ In other words, the two countries did not develop mutual benefits in environmental cooperation in the 1990s.

In order to implement cooperative projects smoothly, the two governments needed to develop liaison networks. According to the Article V of the Agreement on Environmental Protection and Cooperation, the Japan-China Joint Committee on Environmental Protection and Cooperation was organised. The committee aimed to deliberate on the agreement's implementation and formulate appropriate proposals for the governments. The committee's first meeting was held in Beijing in December 1994, and nine projects for cooperation were determined. However, the presence of the committee is nominal rather than substantial. The meeting was supposed to be held annually as a general rule, but it did not take place for five years after the sixth meeting in 2002.²⁴ Although the Japanese government spent huge amount of money for environmental cooperation, its concern with developing formal governmental institutions was weak.

The Chinese and Japanese governments also organised the Japan-China Comprehensive Forum on Environmental Cooperation, and its first meeting took place in May 1996. This was a forum for comprehensive dialogues to exchange opinions and information among various parties involving Japan-China environmental cooperation.

The forum had a valuable feature in that it encouraged the participation of non-state actors such as sub-national governments, NGOs, and academics. However, this forum did not function as a systematic, institutionalised network, and its meeting was held only four times (May 1996, November 1997, November 1999, and October 2002). The last meeting in October 2002 was held as an 'event' of the Sino-Japanese Environmental Cooperation Week, which celebrated the thirtieth anniversary of diplomatic normalisation between Japan and China. Thus, both governments missed a valuable chance to develop policy networks in which both state and non-state actors collaborated in promoting cooperative projects by taking advantage of their individual strengths.

The Sino-Japanese Friendship Centre for Environmental Protection played a significant role in transferring Japanese environmental technologies and experiences. However, the centre's role in developing policy networks was limited. Indeed, the centre had the visitation of high-ranking officials from Japan and China, but such opportunities did not lead to the formation of tight networks. Limited success in network formation resulted partly from Japan's cooperative approach. In general, Japan's approach put stress on the training of practitioners in the field, not giving importance to capacity-building of policymakers. This orientation led to the weak formation of a knowledge platform with relatively high-level administrators for policy talks.²⁵

A major feature in Sino-Japanese environmental cooperation in the 1990s was the substantial involvement of subnational governments. However, the formation of policy networks was not successful in this area. In Hiroshima-Chongqing cooperation, the former scaled down its cooperation in acid rain in 1998 despite the latter's strong hope to continue this cooperation. This was largely because Hiroshima could not assume huge financial burden.²⁶ In other words, Hiroshima's activities were not integrated into cooperative programmes at the national level. Kitakyushu's commitments were successful in drawing funds from the national government and undertaking cooperative projects jointly with a national agency (JICA). However, the commitments did not involve the participation of environmental NGOs and civil activities nor had effects on NGO-led regional environmental cooperation at the civil-society level.²⁷

Environmental Cooperation in the 2000s

The Evolution of Cooperation

The renewed interests in Sino-Japanese environmental cooperation emerged around the mid 2000s. The interests were articulated and strengthened by formal documents and statements issued by state leaders. When Chinese Premier Wen Jiabao made a visit to Tokyo in April 2007, Wen and his counterpart Shinzo Abe issued the Joint Statement on the Further Enhancement of Cooperation for Environmental Protection. Then, when Japanese Prime Minister Yasuo Fukuda visited Beijing in December 2007, both governments issued the Joint Communiqué Regarding the Promotion of Cooperation in the Environmental and Energy Field.

The publication of documents, independent of the overall bilateral statements, indicated the state leaders' conviction that environmental protection held a significant and special position in overall Sino-Japanese cooperation. This point was confirmed when Chinese President Hu Jintao made a formal visit to Tokyo in May 2008. Hu and Fukuda issued the Joint Statement on the Comprehensive Promotion of a Mutually Beneficial Relationship Based on Common Strategic Interests. The statement contained a phrase that 'to conduct cooperation with particular priority on the areas of energy and the environment'.²⁸ During Hu's visit, both governments also issued the Joint Press Statement on the Strengthening Exchange and Cooperation between Japan and China.²⁹ Among 70-items in the statement, 16 items were relevant to energy and environmental issues, and this number was the largest among various policy areas.

In growing interests in environmental cooperation, salient was strong willingness to link bilateral cooperation to global warming issues. In March 2004, both governments began a policy dialogue on climate change where government officials exchanged views on the role of policies in each country, technology transfer, and clean development mechanism (CDM). Moreover, during Hu's visit to Tokyo in May 2008, both governments issued an independent joint statement on climate change, in which both governments reaffirmed their political determinations to engage in the resolution of climate change issues such as the UN Framework Convention on Climate Change and its Kyoto Protocol.

The Japanese and Chinese governments exchanged further documents in order to advance practical cooperation through concrete projects. For instance, the ministers of the environment signed a letter of intent in December 2007 on implementing cooperation in research on co-benefits and in model project. Under this agreement, Japan would provide China with technical assistance to undertake projects that would ease pollution problems and reduce the emission of carbon dioxide, methane, and other greenhouse gases. Both ministers also signed a memorandum in May 2008 on cooperation in the implementation of a model project for diversified drainage treatment in rural and other areas. This project comprised of the construction of decentralised wastewater treatment facilities, research on the reduction of wastewater, and the holding of seminars. The construction of decentralised wastewater treatment facilities began in two regions – Jiangsu and Chongqing – in 2008.

The Chinese and Japanese governments sought to develop formal networks to sustain cooperative projects. Both governments began to hold a bilateral meeting in the sidelines of the eighth Tripartite Environment Ministers Meeting (TEMM) from 2006.³⁰ The tops of environmental administration could confirm basic policy directions through this direct communication channel. The seventh meeting of the Japan-China Joint Committee on Environmental Protection and Cooperation was organised in October 2007 after the absence for more than five years. The restart of the committee sprang from the leaders' reference to the role played by the committee in the 2007 joint communiqué. At the committee's meeting, a wide range of cooperative affairs regarding wastewater treatment, climate change, and waste materials were discussed. Furthermore, both governments organised official networks at the working level. In March 2007, the first meeting of directors in charge of waste materials and recycling was organised, followed by the second meeting in March 2008. A director-general meeting in the field of environmental contamination also began in September 2007. At the meeting, director-generals discussed practical matters in major fields such as water environment partnership, co-benefit cooperation, and photochemistry oxidant.

Emerging Mutual Benefits and Formal Institutions

A critical feature in Sino-Japanese environmental cooperation in the 2000s is the emergence of mutual interests. The Chinese government found growing interests in cooperation with Japan in terms of domestic and international dimensions. The domestic dimension was relevant to swiftly deteriorating environmental conditions. The emissions of sulfur dioxide, one of the major pollutants, have increased for four consecutive years starting in 2003, and increased by 1.8 % in 2006 compared to the previous year. The ratio of cities suffering from acid rain was 2 % in 2000, but expanded to 10 % in 2004.³¹ As for water pollution, the results of an inspection of water quality in the seven main rivers showed serious pollution. Pollution was observed in all of the seven rivers, and 26.5 % and 23.6 % had Grade IV-V and worse than Grade V water quality, a state of heavy pollution to the extent that they cannot be touched by people.³² According to the ' China Green National Accounting Study Report 2004' , which was first announced in China in September 2006, the loss brought about by destruction of the environment due to economic activities corresponded to at least 3% of gross domestic product (GDP) in 2004 (511.8 billion yuan).³³ The introduction of Japan's advanced technologies and experiences in environmental protection was one of the most effective ways to tackle domestic environmental problems.

In the international dimension, the Chinese government has shown keen interests in the climate change issue. The government has participated in a number of international meetings under the frameworks of G-8, +5 (China, India, Brazil, South Africa, and Mexico), APEC, and the Asia-Pacific Partnership on Clean Development and Climate.³⁴ Importantly, the Chinese government sought to guarantee the international environmental regime based on the United Nations Framework Convention on Climate Change and its Kyoto Protocol. This regime was convenient for China that asserts 'the

principle of common but differentiated responsibilities'. The Chinese government sought to utilise partnership with Japan for guaranteeing the regime. In the Joint Statement on Climate Change between Japan and China issued in May 2008, Framework Convention on Climate Change and its Kyoto Protocol and 'the principle of common but differentiated responsibilities' were given special emphasis. In other words, the Chinese government sought to legitimatise this assertion by promoting environmental cooperation with Japan on the basis of the Convention and Kyoto Protocol.

Unlike environmental cooperation in the 1990s, the Japanese government had an independent, serious reason for environmental cooperation with China. Since Japan was determined to stick to its pledge under the Kyoto Protocol to reduce average greenhouse emission by 6 % from 1990 in 2008-2012, the Japanese government became eager to acquire emission credits. In 2006, greenhouse emission in Japan jumped by 6 % from the 1990 level, making the bar higher to meet the reduction target. The environmental cooperation with China would provide Japan with a valuable merit to get credit for CDM. In fact, among 415 CDM projects that the Japanese government approved by January 20, 2009, China became a host country for 216 projects (52.1 %), followed by India (34 projects, 8.2 %).³⁵ This figure shows how China is important for Japan's acquiring emission credits for attaining the target of the Kyoto Protocol.

In the new millennium, China-Japan environmental cooperation expanded to cover various policy areas including drainage treatment, management policy for chemical substances, and the prevention of marine litter. In this general trend, the growing importance of global warming issues surely enabled the Japanese government to find valuable interests in environmental cooperation in China, which was not present in the 1990s.

There were significant evolutions in mechanism to maintain and amplify mutual interests. As already explained, the Japan-China Joint Committee on Environmental Protection and Cooperation was revitalised, coordinating various cooperative projects between the two countries. Furthermore, the ministries of the environment began to organise policy talks at the director and director-general levels. The formation of networks at the working level facilitated communications among governmental officials specialising in particular policy areas, and enabled them to implement practical measures

in a swift manner. The policy networks were formed among government-affiliated organisations. In July 2006, the Institute for Global Environmental Strategies (IGES) established a Beijing Office, and concluded a cooperative agreement with the Sino-Japanese Friendship Centre for Environmental Protection.³⁶ This network enabled the Japanese and Chinese governments to introduce professional and practical expertise in bilateral cooperation.

Policy networks involving non-state actors have shown nuanced evolutions. Several Japanese corporations have formed a cooperative agreement with Chinese government agencies to promote environmental cooperation. For instance, Mitsubishi UFJ Financial Group signed a cooperative agreement with China's National Development and Reform Commission. This agreement aimed to develop the CDM control centre system and develop CDM control capabilities among sub-national government officials. In October 2007, the Japan Bank for International Cooperation (JBIC) and SEPA exchanged a memorandum, which aimed to strengthen yen-loan projects and make joint evaluation of the yen-loan projects in the environmental sector. At the same time, attention to linkages with NGOs has remained weak. At the eighth joint committee meeting, both governments referred to the importance of environmental cooperation on a private sector basis, but it implied linkages with the business sector.³⁷ The considerable number of NGOs has implemented various activities to alleviate environmental problems in China.³⁸ However, they are not regarded as an important partner in policy networks by governmental actors. Weak linkages at the civil-society level miss important opportunities for fostering 'environmental consciousness', which is indispensable for substantial resolution to environmental problems.

Cooperation for Energy Conservation

The Evolution of Cooperation

After the mid 2000s, energy conservation emerged as one of major areas for cooperation between Japan and China. A first initiative in promoting cooperation was the holding of a public-private forum. In May 2006, the first Japan-China Energy Conservation Forum was held in Tokyo. The forum was sponsored by Japanese METI, and the Japan China

Economic Association, as well as China's National Development and Reform Commission (NDRC) and Ministry of Commerce.³⁹ Although this event was named just a 'forum', it was an important opportunity for both governments illustrated by the attendance of high-ranking government officials – the Ministers of Economy, Trade and Industry and of the Environment from Japan, and the Minister of Commerce and vice-chief of NDRC from China. The three-day forum, involving some 500 participants from Japan and 300 from China, provided high-level speeches and theme-specific discussions. Moreover, workshops were organised in six fields: energy conservation laws and regulations, ESCO (energy service company) programs, iron and steel, construction materials, energy, and automobiles. During the forum, the Chinese and Japanese governments reached an agreement to begin formal talks on energy conservation policy and promote cooperation in human resource development in the energy saving field.

The forum had two political implications. First, it was held during severe political tensions. Sino-Japanese political relations entered into a grave crisis in 2005-06. In April 2005, a series of anti-Japanese demonstrations broke out in major Chinese cities including Beijing and Shanghai. The following month, Chinese Vice-premier Wu Yi, who had made a formal visit to Tokyo, suddenly cancelled a meeting with Japanese Prime Minister Koizumi. Koizumi's visit to Yasukuni Shrine in October led to the cancellation of a planned China-Japan-Korea summit in late 2005. Furthermore, China and Japan entered into difficult relations on gas exploration in the East China Sea where territorial claims by both countries caused serious tension. In the context of such severe political relations, the forum was one of the largest bilateral events of that time. It was the first time that a Chinese government official at the minister and above levels visited Japan after Wu Yi's visit in May 2005.⁴⁰ Second, the event hinted at a new direction for bilateral cooperation. In a keynote speech during the forum, Bo Xilai, Chinese Minister of Commerce, drew a comparison to common management of coal and steel in Europe centred on Franco-German cooperation, and stated that 'if China and Japan will push forwards cooperation in the area of energy and environmental cooperation, the people and industries in both countries will enjoy such benefits'.⁴¹ The event indicated that government officials explicitly regarded energy conservation as the most promising area for bilateral cooperation.

Chinese Premier Wen's visit to Tokyo in April 2007 fuelled energy saving cooperation. Premier Wen, in a five-point proposal on developing Sino-Japanese trade and economic relations, stressed first the strengthening of environmental protection and the deepening of energy cooperation. During Wen's visit, METI Minister Amari Toshiaki and Ma Kai, Chief of NDRC, organised the first Japan-China Energy Ministers' policy talk, and signed a Joint Statement on Enhancement of Cooperation between Japan and China in the Energy Field. The statement confirmed cooperation in energy saving, coal, nuclear power generation, and new energy/ recyclable energy. Moreover, Amari and Ma agreed to launch the Japan-China Energy Conservation and Environmental Business Promotion Model Project. In order to manage the model project, METI and NDRC signed a memorandum of understanding, which spelled out important matters for promoting the model projects such as the participation of private companies and the establishment of a project promotion committee. Furthermore, the memorandum contained a phrase that both governments make efforts to improve market conditions by enhancing transparency and predictability in the market and protecting intellectual property rights.

The private sector has sustained bilateral cooperation in energy conservation. The Japan-China Economic Association (JCEA), established in 1972, has played a significant role in promoting energy saving cooperation with China by taking advantage of its long and substantial connections with the Chinese government.⁴² The association set up the Environmental Committee in 1992, and the committee has organised, in collaboration with Chinese government agencies, the Japan-China Conference for Environmental and Industrial Cooperation in every two years since 1999.⁴³ When the JCEA sent a delegate to China in June 2005, Chihaya Akira, Chairman of the association, delivered a plan to hold an energy conservation forum to Chinese Premier Wen.⁴⁴ This was the first offer of the forum to the Chinese government. This fact shows that the forum was a JCEA-initiated gathering, and the private sector played a liaison role in drawing cooperation from the Chinese government during severe political conditions.

The JCEA sought to sustain energy saving cooperation by forming an institution within the business circles. In December 2006, the association set up an independent body – the Japan China Business Alliance for Energy Saving and Environmental

Protection (JC-BASE) – in order to tackle energy-saving cooperation flexibly and speedily.⁴⁵ More than 100 leading corporations including Toyota Motor Corp., Toshiba Corp., and Tokyo Electric Power Co. joined the JC-BASE as the founding members. This cross-industry association aimed to strengthen energy-related cooperation by conducting concrete activities and research and showing possible solutions to disturbance and problems in promoting cooperation.

The Sino-Japanese collaboration in energy conservation has had effects on the formation of energy policy in China. Based on an inter-governmental agreement at the first energy conservation forum, METI accepted a Chinese mission in October-November 2006 regarding the amendment of the Chinese Energy Conservation Law. METI also accepted more than 150 trainees from central and local governments and supervision organisations for energy saving in 2006-7. These commitments contributed to the process and content of amendment of the Chinese Energy Conservation Law in October 2007.⁴⁶

The energy conservation forum has served to launch cooperative projects in a wide range of areas. At the second forum in September 2007, both governments announced ten cooperative projects including five business promotion model projects. The projects contained a wide range of alliances at various levels. For instance, the JBIC signed a memorandum of understanding with the Export-Import Bank of China and Mizuho Corporate Bank to boost business activities in energy conservation and environmental improvement in China and Japan. The projects also contained cooperation between subnational governments (Kitakyushu city and Tsingtao city) and between chemical industry associations in the two countries. When the third forum was held in Tokyo in November 2008, a total of 19 agreements on cooperative projects were signed including 13 business promotion model projects. A particularly important in the agreements was the establishment of a venture capital fund to finance Chinese small- and medium-scale enterprises (SMEs) engaging in environmental business.

Substantial mutual benefits and tight policy networks

As seen in environmental cooperation, the Japanese government aimed to link cooperation in energy saving to resolve global environmental issues. For instance, METI

Minister Amari stated, at a press conference just before the second energy conservation forum, that Japan's cooperation with energy saving in China plays an important role in establishing international frameworks designed to cope with global environmental problems.⁴⁷ In fact, the business model projects contained agreements that were directly related to environmental issues.

At the same time, different but mutual benefits existed in energy saving cooperation. The Japanese side hoped to take advantage of its advanced technologies and expertise in order to increase business contracts in the Chinese market. According to a survey of the Japanese Ministry of the Environment, the market value for the environmental business among five Asian countries (China, Indonesia, India, Thailand, and Vietnam) was projected to increase from US\$21-25 billion in 2000 to US\$134-164 billion in 2020. While China accounted for roughly half of the total value in 2000, its share would rise to two thirds in 2020.⁴⁸ China was expected to be a lucrative market for environment- and energy-related businesses for Japanese firms.

Japanese firms regarded the transfer of energy-efficient technologies as one of the most profitable businesses in the Chinese market, and gradually expanded practical business there. Nippon Steel provides one example. In 2003, Nippon Steel set up a joint venture, Beijing JC Energy & Environment Engineering. This joint venture aimed to undertake design, manufacture and procurement of coke dry quenching equipment and other energy-saving, environmentally-friendly equipment in China.⁴⁹ As of March 2006, Nippon Steel sold 47 coke dry quenching equipments, 19 of which was purchased in the Chinese market.

The Chinese side hoped to introduce advanced Japanese technologies and experiences in energy saving that Japanese industries have accumulated since its high economic growth period. Growing energy consumption and inefficient energy use was expected to become serious constraints on China's economic growth. Energy consumption in China has expanded rapidly, reaching the second highest level in the world in 2005, with primary energy consumption accounting for 14.7% of the world share. Given that China's per capita energy consumption was still low – 1.2 toe (ton of oil equivalent) in 2004, compared with 7.9 toe for the United States and 4.2 toe for

Japan –, China's energy consumption was projected to grow continuously in the future.⁵⁰ Moreover, the low level of energy efficiency has led to the growth of energy consumption. Compared with major developed countries, specific energy consumption was high at 25 % to 60 % in manufacturing industries and 40 % in energy-intensive industries such as electricity, iron, nonferrous metals, chemicals, and textiles in China.⁵¹ The adoption of new technologies for building a resource-efficient, environmentally-friendly society was a vital and urgent issue for the Chinese government.

Japan and China have successfully set up policy networks involving both public and private sectors. As already explained, energy ministers' meetings were institutionalised in April 2007. METI and NDRC established a committee to guide and supervise the business promotion model projects. In April 2007, the Institute of Energy Economics, Japan and the Energy Research Institute of the NDRC agreed to undertake joint research on policy for energy conservation. The joint research aimed to provide policy recommendations for energy ministers. At the private sector level, JCEA set up direct linkages with local governments, targeting the Shandong Province, Tianjin, and Chongqing.⁵² For instance, the association supported the acceptance of economic missions from the Shandong Province in July 2007 and March 2008. These missions aimed to set up business projects with Japanese counterparts in the energy-saving field. The JCEA also conducted a survey on the promotion of energy saving in China targeting the Shandong Province in 2007. Since local governments were the actors who really implemented energy-saving projects, direct links to them were important for producing pragmatic outcomes from cooperation.

Furthermore, cooperative networks have been formed at the subnational government level. Examples are inter-municipal cooperation for recycling between Kitakyushu city and Tsingtao city and between Hyogo prefecture and Guangzhou province, which were announced at the second energy conservation forum. As already explained, commitments by subnational governments were seen in environmental cooperation in the 1990s. A critical feature in energy conservation was that commitments

by subnational governments were tightly embedded into national-level projects, not just the extension of friendship-city cooperation. The inter-municipal cooperation for recycling was based on experiences and expertise that Japanese subnational governments had accumulated under the national 'eco-town' project. Moreover, the cooperation has been supported by close collaboration with the business sector. For instance, Kitakyushu city has sent a mission to Tsingtao (and Tianjin) once per a few months since 2007 in order to sell know-how and technologies that local companies hold in the recycling field.⁵³

The formation of intensive policy networks have contributed to deepening and broadening bilateral cooperation in energy saving in various manners. First, policy networks have enabled parties concerned to take advantage of their respective resources based on the division of labour. While business actors held technologies and experiences, subnational governments had strength in the accumulation of cooperative linkages and flexibility in activities. The central governments could authorise these actors' willingness and measures to advance concrete projects. The public authorisation was particularly important in China where the government still retained strong grips in the every segment of social life.

Second, policy networks contributed to the expansion of the base for cooperation. The assembly of various ideas, information and resources within policy networks has led to producing new ideas about possible ways to advance cooperative activities more effectively. Typically shown in the business model projects agreed at the energy conservation forums, the target of cooperation extended from the industrial segment to the commercial segment represented by building management, and practical networks have been formed in the latter segment. Moreover, cooperative networks have been formed in various areas such as financial schemes, energy services, and venture funds.

Conclusions

Research on Sino-Japanese relations has tended to direct its interests to conflicting patterns and rivalry relations. In specific policy areas, however, the two states have engaged in cooperative projects. This article has highlighted such cooperative aspects in the environmental and energy fields, and examined features in cooperative initiatives and

projects, paying attention to the existence of mutual interests for both governments and mechanisms to maintain and amplify such interests.

The Sino-Japanese environmental cooperation began in the late 1980s, leading to the construction of the Sino-Japanese Friendship Centre for Environmental Protection in 1996. The Japanese government also assisted China to tackle environmental problems by launching various cooperative projects such as the model city plan, the Greening communication Fund, and ODA projects for gas development. A fundamental framework in this period was Japan's provision of financial and technical support, and both governments did not establish mutually beneficial relationship. Several official institutions were set up to manage cooperative projects. However, the presence and roles of these institutions were nominal not substantial, playing a meagre role in deepening bilateral cooperation. The expansion of policy networks involving non-state actors did not appear except for those involving sub-national governments.

Sino-Japanese environmental cooperation was revitalised after the mid 2000s. Both governments articulated cooperative programs at top leaders' formal visits, and implemented concrete projects designed to reduce wastewater and the emission of greenhouse gases. A noteworthy fact is that Japan had a serious, independent reason to promote environmental cooperation with China: the acquirement of emission credits through the CDM. As for mechanisms advancing mutual interests, intergovernmental networks became substantial and policy networks involving business actors have gradually developed. However, the involvement of NGOs, crucial actors in fostering environmental consciousness at the citizen level, remained weak. This fact made significant constraints on the deepening and expansion of fruits from Sino-Japanese environmental cooperation.

An interesting case in Sino-Japanese cooperation was relevant to energy conservation, which emerged after the mid 2000s. The public and private sectors have developed collaboration in energy saving through the holding of an energy conservation forum and the launching of the business promotion model projects. In energy conservation, China and Japan had different but mutual interests in cooperation: the introduction of advanced technologies and experiences, and the expansion of energy-related businesses in the Chinese market, respectively. Furthermore, China and Japan set

up tight policy networks to advance cooperation. While the governments established a committee to supervise the model projects, business actors and subnational governments formed cross-border linkages to substantiate cooperation. Such policy networks have contributed to establishing the division of labour among parties with different resources and expanding the base for cooperation.

Lastly, the findings of this article have several theoretical implications. First, it found complicated interactions among various actors towards cooperation between China and Japan. The neorealist perspective has tended to highlight conflicting relations between the two states. As this study reveals, substantial moves have developed in sub-systemic policy areas such as the environment and energy, and research on complicated interactions and underlying motivations of various actors concerned is necessary for advancing the study of the Sino-Japanese relationship. Second, this study showed the utility of the functionalist approach for some aspects in relations of great powers. Functional needs in environmental protection and energy conservation have surely expanded the base for political commitments. The top leaders of the two states drew clues for political dialogues from activities in the environmental and energy fields. In this sense, environmental cooperation, in which both governments were able to find mutual interests in promoting cooperation, creates spillover effects from a functional to political cooperation. Third, concrete processes and manners in environmental and energy cooperation have reflected historically-established institutional features in China and Japan. The prominent presence of business actors and weak roles of NGOs had much to do with both states' developmental orientation and weak presence of the society. Given the importance of civil society's involvement in cooperation, a new momentum to overcome path dependence is necessary for the further development of China-Japan cooperation.

Notes

¹ The states give serious attention to the gains that the partners can draw because they apprehend that 'achievements of joint gains that advantage a friend in the present might produce a more dangerous

potential foe in the future' (Grieco, Joseph M. 1988. 'Anarchy and the limits of cooperation: A realist critique of the newest liberal institutionalism', *International Organization* 42 (2): 487).

² Xuanli Liao, "The Petroleum Factor in Sino-Japanese Relations: Beyond Energy Cooperation," *International Relations of the Asia-Pacific* 7, no.1 (2007):23-46.

³ David Shambaugh, "International Relations in Asia: The Two-Level Game", In David Shambaugh and Michael Yahuda, eds., *International Relations of Asia* (Lanham, Md.: Rowman & Littlefield Publishers, 2008), p. 12.

⁴ Yongming Fan, "Searching for Common Interests between China and Japan: A Chinese View," *Journal of Contemporary China* 17, no.55 (2008): 375-382.

⁵ Yoshimatsu Hidetaka, *Japan and East Asia in Transition: Trade Policy, Crisis and Evolution, and Regionalism* (Basingstoke: Palgrave Macmillan, 2003), p. 150.

⁶ Ernst B. Haas, *The Uniting of Europe: Political, Social and Economic Forces, 1950-1957* (Stanford: Stanford University Press, 1958); Ernst B. Haas, *Beyond the Nation State: Functionalism and International Organization* (Stanford: Stanford University Press, 1964); and Leon N. Lindberg, *The Political Dynamics of European Economic Integration* (London: Oxford University Press, 1963).

⁷ The functionalists believe that an ever-increasing amount of economic and social cooperation will eventually establish habits of mutual interactions and a broader base of common awareness that will 'spill over' into the political sphere.

⁸ Ben Rosamond, *Theories of European Integration* (Basingstoke: Palgrave, 2000), pp. 58-59.

⁹ Milner Helen V., *Resisting Protectionism: Global Industries and the Politics of International Trade* (Princeton, N.J.: Princeton University Press, 1988).

¹⁰ Robert O. Keohane, *After Hegemony: Cooperation and Discord in the World Political Economy* (Princeton, N. J.: Princeton University Press, 1984), p. 12.

¹¹ Keohane, *Ibid.*; Robert Keohane and Lisa Martin, "The Promise of Institutional Theory," *International Security* 20, no.1 (1995): 39-51.

¹² Pierre, Jon and Peters, B. Guy. *Governance, Politics, and the State*. (New York: St. Martin's Press, 2000), pp. 4-5.

¹³ Daugbjerg defines a policy network as 'an organizational arrangement created to facilitate the intermediation between state actors and organized interests'(Daugbjerg, Carsten. 1999. 'Reforming the CAP: policy networks and broader institutional structures', *Journal of Common Market Studies*, 27 (3): 412)). This definition highlights the function of the networks in interest intermediation . O'Toole refers a policy network as a structure 'of interdependence involving multiple organizations or parts thereof, where one unit is not merely the formal subordinate of the others in some larger hierarchical arrangement'. This definition emphasises the nature of a policy network as a social structure (O'Toole L. 1997. 'Treating networks seriously: Practical and research-based agendas in public administration', *Public Administration Review* 57 (1): 45).

¹⁴ R. A. W. Rhodes, *Understanding Governance: Policy Networks, Governance, Reflexivity and Accountability* (Buckingham: Open University Press, 1997), p. 44. In the policy community, decisions are made in the stable and insulated process with the participation of the limited number of actors, while issue network encompasses a large number of actors taking on a more open and pluralistic form.

¹⁵ Janja A. Borzel, 'Organizing Babylon – on the different conceptions of policy networks', *Public Administration* 76 (1998): 253-73. Whereas the former interprets policy networks as a generic term for different forms of relationships between interest groups and the state, the latter conceives them as a mechanism of mobilising political resources in situations where these resources are widely dispersed between public and private actors.

¹⁶ Ryokichi Hirano, "Japan's Environmental Cooperation with China during the last Two Decades," *Asia-Pacific Review* 14, no.2 (2007): 1-16; Sangbum Shin, "East Asian Environmental Co-operation: Central pessimism, Local Optimism," *Pacific Affairs* 80, no.1 (2007): 9-26.

¹⁷ For instance, Japanese Prime Minister Koizumi stated at the Diet that 'Environmental protection in China is an important issue for both Japan and China. We would like to develop Japan-China relations

by promoting a wide range of cooperation in this field, getting the private sector involved and taking advantage of Japan's accumulated experiences (*Nihon Keizai Shimbun*, January 25, 2006).

¹⁸ Hyun-jae Doh, "Energy Cooperation in Northeast Asia: Prospects and Challenges," *East Asian Review* 15, no.3 (2003): 96-99; Pak K. Lee, "China's Quest for Oil Security: Oil (Wars) in the Pipeline?," *Pacific Review* 18, no.2 (2005): 276-78.

¹⁹ Liao, "The Petroleum Factor in Sino-Japanese Relations," 40-42; Suisheng Zhao, "China's Global Search for Energy Security: Cooperation and Competition in Asia-Pacific," *Journal of Contemporary China* 17, no.55 (2008): 222-225.

²⁰ When Chinese state councillor Song Jian visited Kitakyushu in December 1993, Kitakyushu mayor Koichi Sueyoshi proposed the Dalian Environmental Demonstration Zone Project as a pilot project to disseminate successful outcomes throughout China. The following year, this project was selected as a priority project by the SEPA of China.

²¹ In an expansion of these ties, Hiroshima prefecture and Sichuan province (where Chongqing is located) also began the Sichuan Province Joint Environmental Protection project. Hiroshima, Hiroshima prefecture, Sichuan province and Chongqing jointly established the Research and Communication Center for Acid Rain Research in 1993. The centre implemented research and monitoring of acid rain and searched for its prevention mechanism.

²² The projects were relevant to the development of the drainage treatment process fitting to the Chinese conditions, the influence of environmental pollution on human health and its prevention, and the research, monitoring, and prevention of red tide.

²³ Akitoshi Mori, "Nihon no taichu kankyo kyoryoku" [Japan's environmental cooperation with China] In Hideki Kitagawa ed., *Chugoku no Kankyo mondai to Ho Seisaku* [China's environmental problems and Law/ Policy] (Kyoto: Horitsu Bunkasha), pp. 433-435.

²⁴ Until December 2008, the committee meeting was held eight times: in December 1994, December 1995, December 1996, February 1998, November 1999, October 2002, September 2007, and October 2008.

²⁵ Meguri Aoyama, *Chugoku Kankyo Bijinesu* [Environmental business in China] (Tokyo: Sososha, 2008), p. 246.

²⁶ "Chugoku no kankyo mondai to chiho jichitai no kokusai kyoryoku" [Environmental problems in China and international cooperation by local governments], *Clare Report* 213 (June 11, 2003): 44-45.

²⁷ Shin, "East Asian Environmental Co-operation," 25.

²⁸ 'The Joint Statement on the Comprehensive Promotion of a Mutually Beneficial Relationship Based on Common Strategic Interests'. Available at <<http://www.mofa.go.jp/region/asia-paci/china/joint0805.html>>.

²⁹ 'The Joint Press Statement on the Strengthening Exchange and Cooperation between Japan and China'. Available at <<http://www.mofa.go.jp/region/asia-paci/china/pv0805/press.html>>.

³⁰ The TEMM is an intergovernmental institution comprising China, Japan, and South Korea whose first meeting was held in 1999. The TEMM has functioned as a forum to confirm common front on global environmental issues and the necessity of joint efforts to protect regional environments, and a joint communiqué has been issued at every annual meeting.

³¹ Japanese Ministry of Economy, Trade and Industry (METI), *White Paper on International Trade and Economy 2007* (Tokyo: Gyosei, 2007), p. 128.

³² Chinese Ministry of Environmental Protection (MEP), *Report on the State of the Environment in China 2007*, p. 4.

³³ METI, *White Paper on International Trade and Economy 2007*, p. 125.

³⁴ MEP, *Report on the State of the Environment in China 2007*, p. 27.

³⁵ The data are adopted from the Kyoto Mechanism Information Platform. See <http://www.kyomecha.org/graph/graph_of_CDMJI.php>.

- ³⁶ In addition to the IGES, five Japanese organisations – the National Institute for Environmental Studies (NIES), Overseas Environmental Cooperation Center, Japan (OECC), Japan Environmental Technology Association, Kitakyushu city, and Kitakyushu International Techno-cooperative Association – concluded an agreement with the Sino-Japan Friendship Centre for Environmental Protection. See <<http://www.eic.or.jp/library/pickup/pu060703.html#b6>>.
- ³⁷ ‘Results of the 8th Japan-China Joint Committee on Environmental Protection’. Available at <http://www.env.go.jp/en/headline/file_view.php?serial=263&hou_id=906>.
- ³⁸ Representative NGOs are the Renewable Energy Promotion People’s Forum and the 20% Club for Sustainable Cities.
- ³⁹ The NDRC is one of Chinese administrative agencies, which formulates economic policies and holds an authority to make final approval of the nation’s five-year economic plans and large-scale development projects. The agency also deals with China’s energy affairs.
- ⁴⁰ *Nihon Keizai Shimbun*, May 5, 2006.
- ⁴¹ ‘Keynote speech by Bo Xilai, Chinese Minister of Commerce’, May 29, 2006. Available at <<http://www.jc-web.or.jp/nicchuu-shouene2006/boxilai.pdf>>.
- ⁴² For instance, the association has sent a mission annually since 1975. The delegates have had opportunities to meet Premier and other top leaders at every time when the mission visits Beijing.
- ⁴³ Interview, Japan-China Economic Association, Beijing Office, March 2009, Beijing.
- ⁴⁴ *JC Economic Journal* (August 2006), p. 4.
- ⁴⁵ Interview, Japan-China Economic Association, Beijing Office, March 2009, Beijing.
- ⁴⁶ Interview, METI, February 2009, Tokyo.
- ⁴⁷ Press Conference by METI Minister Amari, September 26, 2007. See <http://www.meti.go.jp/speeches/data_ed/ed070926j.html>.
- ⁴⁸ Japanese Ministry of the Environment, *Ajia shuyo koku no kankyo bijinesu no senzai shijo kibo suikei ni kansuru chosa* [Survey on estimated potential market size for environmental business in major Asian countries], p. 10. Available at <http://www.env.go.jp/policy/env_business/asia_15.pdf>.
- ⁴⁹ The coke dry quenching equipment will cool the extreme heat – which reaches 2,000 C – caused by the production of coke in coke ovens down to less than 100C with the use of inactive nitrogen gas (*Nihon Keizai Shimbun*, September 18, 2003). The equipment is the large waste heat recovery system in which heated inert gas after quenching hot coke generates high pressure steam for generating electricity.
- ⁵⁰ METI, *White Paper on International Trade and Economy 2007*, pp. 118-119.
- ⁵¹ *Ibid.*, p. 121.
- ⁵² Interview, Japan-China Economic Association, Beijing Office, March 2009, Beijing.
- ⁵³ *Asahi Shimbun*, January 10, 2009.