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Transboundary pollution as an issue in Northeast Asian regional politics

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The paper investigates the political aspects of the cooperation between China, South Korea and Japan to address transboundary pollution (atmospheric and maritime) in Northeast Asia. Investigating the motivations, modalities and obstacles of regional approaches to transboundary pollution among the PRC, Japan and the ROK sheds light on the role of regional leadership, the Japan-China rivalry for regional leadership, and the role of South Korea between these two powers. I conclude that the degree of sub-regional cooperation on transboundary pollution among China, Japan and the Republic of Korea is still very low. Many of the reasons which are hindering such cooperation have also led to the overlap and duplication of efforts at sub-regional, regional, beyond-regional and global level. One of the most difficult obstacles is the circumstance that most transboundary pollution is originating from China which confronts China with considerable conflicts of priority setting in the political, economic and environmental spheres. Most of the transboundary pollution affecting Japan and the Korean peninsula affects first and foremost China, but other kinds of domestic environmental damage like water pollution is considered more urgent.

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Introduction

Transboundary pollution (air and water) is part of the wider environmental agenda which also includes resource scarcity (energy, raw materials, food), degradation of natural resources (land and forest), biodiversity loss (animal and plant species) and natural disasters (global warming and sea-level rise). These issues are receiving particular attention in the post Cold War era and as a result of the widening of the state-centric and military perspective of security towards 'human security'.¹

It is only at the beginning of the 1990s that transboundary pollution has made its way onto the agenda of the policymakers in the People's Republic of China (PRC), Japan and the Republic of Korea (ROK). The reasons for this delay are related to the political, economic and social diversity of the involved countries as well as the contested nature of the origins and urgency of transboundary pollution.

Atmospheric pollution is the most widely publicised transboundary pollution issue which manifests itself as acid deposition and yellow sand. Marine pollution received increasing attention after the breakup of the Russian oil tanker *Nakhodka* off the Japanese coast in January 1997 which seriously damaged sensitive fish and aquaculture breeding grounds.

Today these environmental issues are addressed by the three countries at national, bilateral, regional and global level. Japan has been so far the first and most successful country among its neighbours in addressing pollution at home. China receives environment-related ODA from Japan and the ROK. Japan's technical aid and ODA to China in general is increasingly shifting to environmental projects as part of a general as well as China-specific restructuring of its ODA programme. At the global level all three countries are involved in international organisations and agreements which deal with some aspects of transboundary pollution like the UN Environmental Programme (UNEP) and the UN Framework Convention on Climate Change with its follow-up agreements (notably the 1997 Kyoto Protocol on the reduction of green-house gases). Regional UN organisations like ESCAP have been instrumental in initiating regional environmental cooperation on transboundary pollution in order to strengthen the effectiveness of their work, paralleled by Japanese and Korean initiatives.

Investigating the motivations, modalities and obstacles of regional approaches to transboundary pollution among the PRC, Japan and the ROK merits particular attention because light may be shed on the following wider issues:

- Environmentalism: Transboundary pollution as one aspect of many threats to the global environment and the potential for greater efficiency in dealing with transboundary pollution at a regional level;
- Security: Expansion of the state-centric and military perspective of security to human security which includes human-centric issues like refugees, poverty, etc, including environmental security;
- Development of regionalism: The potential of regional cooperation on low-level political issues to serve as learning process and confidence-building measure for dealing with hard security issues;

¹M. Shansoul Haque, Non-traditional security and the environment in Northeast Asia, *UNU Work in Progress*, vol. 16 no. 3 summer 2002.

- Development of civic society: Environmental work has been one of the prime issue areas for the development of civic society in Western countries and may therefore help to address the deficiencies of civic society in N.E. Asia;

Although all these wider issues will be touched upon, the main focus here is the impact of triangular cooperation in the field of transboundary pollution on the development of regionalism. Within this focus, attention will be put on the role of regional leadership, the Japan-China rivalry for regional leadership, and the role of South Korea between these two powers.

The environmental degradation in the PRC-Japan-Korean Peninsula triangle

The Northeast Asian region forms a single ecological community because of the geographic proximity and climate contiguity of China, Japan, and the Korean peninsula, to which one has also to add Mongolia and Russia. Seasonal westerly winds can carry pollutants (acid particular matter, sand) across the whole region, and the semi-enclosed seas of the region, the Yellow Sea and the Sea of Japan, transport polluted matter from the surrounding land as well as from ships. Fast industrialization and urbanization are putting great strains on the ecological health of the region. The PRC, Japan and Korea emit considerable amounts of sulfur dioxide (SO²) and nitrogen oxides (NO_x), the precursors of acid deposition. As a result of the fast development of its heavy industry and the share of 75 % of coal with a high sulfur content in its overall energy consumption, China is by far the largest emitter and is worldwide the second largest producer of SO² after the US.² Nearly 40 % of China's territory is affected by acid rain. Moreover, China is a very inefficient user of energy and its pattern of energy consumption is therefore increasingly disproportionate with its rapid industrialization. As a result of the rapid expansion of cars, pollution from car exhaust is increasing dramatically. The deterioration of water in China is the most urgent problem domestically, but has also a direct impact on the pollution of the sea: 85 % of industrial waste water and 90 % of household waste water go untreated into rivers, lakes, and the surrounding sea. Around 80 % of China's rivers and 45 % of underground water supply is polluted.³

The regionally most pervasive transboundary pollution is acid rain. With the help of sunlight and water vapor or other oxidizing agents, SO² is converted into sulfuric acid. Acid deposition, found in rain and in the form of sulfuric dioxide gas, together with nitrogen oxide (NO_x), which reacts similarly in the atmosphere to form nitric acid, cause acidification of rain.⁴ According to a study at Iowa University, the ROK and the PRC contributed 29 percent and 32 percent, respectively, to the acid rain that falls in Kyushu, Japan. In Japan's Kinki region, the two countries were responsible for 18 percent and 13 percent, respectively. The total amount of sulfur dioxide emission in Northeast Asia is 14.7 million tons,

²Yoon, Esook and Lee, Hong Pyo. Environmental cooperation in Northeast Asia, in: Schreurs, Miranda and Pirages, Dennis, eds. Ecological Security in Northeast Asia (Seoul: Yonsei University Press, 1998), pp. 69-70.

³Chen Jianan, Chugoku no kankyo hogo to Nitchu kyoryoku, *Toa* May 2003.

⁴Lebel, Louis. Acid rain in Northeast Asia, in: Proceedings of the Third Intellectual Dialogue on Building Asia's Tomorrow, Bangkok June 2000. Cross sectoral partnerships in enhancing Human Security (Japan Center for International Exchange, Tokyo 2002), p. 83.

which breaks down into 11.9 million tons from the PRC (81 percent); the ROK, 1.7 million tons (12 percent).⁵

The seas of the Northeast Asian region also are suffering from transboundary pollution. The Yellow Sea (bordered by China and Korea), which opens to the South to the East China Sea, is shallow and slow in circulation. Its average depth is 45 meters, with a maximum depth of 100 meters. It has been called by a World Watch Report as one of the seven ‘dying’ seas, second only to the Black Sea in terms of its degradation. With rising industrialization around it and low environmental law enforcement, fisheries and aquaculture has suffered considerably.⁶ The effluents of huge industrial complexes built along the coastal areas of the Yellow Sea and domestic sewage flow into Sea. Other sources of pollution are oil spills from oil and gas exploration, shipping oil spills, and marine dumping by both coastal states. The Sea of Japan (bordered by Korea and Japan) is deeper and wider and has therefore a greater absorption capability. However, it suffers from similar land-based pollution, oil spills and dumping as does the Yellow Sea. In the northern part, the Sea is threatened by the dumping of nuclear waste from Japan and Russia.⁷

Most popular attention has been focussed on yellow sand (also referred to as yellow dust) storms. The frequency of these storms has increased during the last three years in all three countries. In 2002, it was observed for a total of 1,276 “days” (one sighting in one location is counted as one day), the highest number ever, across 123 locations in Japan, according to the Japanese Meteorological Agency.⁸ The Korean peninsula has been experiencing sand storms with even higher sand deposition. Schools in Beijing as well as in Seoul had to be closed in 2002 and transport came to a temporary standstill. The reason for the increase of sand storms is the overgrazing and general overuse of environmentally delicate land as a result of demographic pressure. This has led to a rapid expansion of deserts in China. According to China’s Environmental Protection Agency, the Gobi Desert expanded from 1994 to 1999 by 52,400 square kilometers, and is now 240 km of Beijing.⁹

The long way to regional approaches

National or even bilateral measures against transboundary pollution often are either not enough because more than one country is causing it, and/or are unaffordable for countries like China or Mongolia. For China, air and marine pollution which is relevant to transboundary pollution is only part of a general deterioration of its total natural environment. China’s environmental control at national level started only

⁵*Chosun Ilbo*, 30 November 1998.

⁶Yoon, Esook. Environmental cooperation in Northeast Asia: Political economy of transboundary pollution regime, Ph.D. thesis, University of Maryland 2001, p. 74.

⁷*Ibid.*, p. 83.

⁸*Asahi Shimbun* 16 April 2003.

⁹Lester R. Brown: The world’s biggest dust bowl. China is losing the war on advancing deserts, *International Herald Tribune*, 14 August 2003.

in the 1990s. The recent expansion of national environmental legislation and stricter law enforcement has naturally also a positive effect on transboundary pollution. However, China's enforcement procedures have still tremendous difficulties coping with the fast development of industry, and there is often a bargain to be struck between economic development and environmental concerns, made difficult by non-transparent decisionmaking and the interference of corrupt officials. South Korea has taken practical steps to protect its environment since the late 1980s.¹⁰ Japan has been the Asian forerunner of pollution control since 1972 after having been hit by several cases of severe industrial pollution.¹¹ These national experiences give Japan as well as Korea certain capabilities and capacities to understand as well as react to regional pollution.

Realizing China's political, economic and financial difficulties at remedying pollution, both Japan and South Korea have already for some time devoted some of their bilateral development assistance to environmental projects in China. After the begin of Japanese environmental aid to China at the end of the 1980s, both countries signed in 1994 an agreement on environmental conservation. Japan's environmental aid consists both of technical assistance and low-interest loans in which China takes a prominent place. In 1996 Japan funded the Sino-Japan Friendship Centre for Environmental Protection located in Beijing which serves as an important forum for bilateral as well as other environmental work. The Ministry of International Trade and Industry launched a \$1.6 bn Green Aid Plan, mostly outside of the ODA framework, to promote environmental technology in Asia. It makes the import of Japanese environmental technology less costly. Korea and China signed an agreement on environmental cooperation in October 1993. An important part of the cooperation has focused on the investigation of pollution affecting the Yellow Sea and funding to treat China's coastal discharges before reaching the sea. Korea received in the past ODA from Japan which was also relevant to the environment (e.g. sewage plants). In June 1993 both countries signed an environmental cooperation agreement. The Japan-Korea Environmental Conservation Joint Committee meets annually based on this agreement. In practice, most information exchange and technical cooperation is conducted through private companies on both sides.¹² The development agencies of both countries have developed a joint training programme for the improvement of the water environment with East Asian developing countries.¹³ Japan is Mongolia most important ODA donor and the aid also includes environment-relevant programmes. Korea and China signed in 1993 an Agreement on Environmental Cooperation and the Joint Committee established as a result launched 12 projects.¹⁴

International and regional environmental organisations have had a crucial role in initiating regional approaches to deal with transboundary pollution issues in Northeast Asia and they are now often playing a temporary caretaker role in the development of regional environmental organisations. However, there can

¹⁰Yoon (2001), op. cit., p. 67.

¹¹For a useful overview see Akaha, Tsueno, Restructuring environmental policy in Japan: The 1990s and beyond, *Journal of East Asian Studies*, vol. 1 no. 2 August 2001.

¹²Yoon (2001), op. cit., p. 115.

¹³Takahashi, Wakana/Kato Kazu, Environmental cooperation in Northeast Asia, in: *Regional / Subregional environmental cooperation in Asia*, February 2001 (IGES), p. 13.

¹⁴Ibid., p. 12.

also be a clash between the international/regional and the bilateral level as the Japanese example shows. Japan wants to use environmental ODA to promote its bilateral relations while also desiring to be a leader in regional environmental diplomacy to buttress its ambition as a leader in Asia and create a peaceful regional strategic environment. In addition it desires to be a global leader of environmental diplomacy in order to respond to demands for more international burdensharing in a non-military way and to enhance its international prestige (e.g. in order to enhance its chances for a permanent seat on the UN Security Council). These ambitions put considerable pressure on financial, diplomatic and human resources, particularly against the background of Japan's growing economic and budgetary problems. On the other hand, environmental policies jointly undertaken with other countries/organisations can ease some of these problems. As we will see later, the involvement of international organisations has been absolutely vital to initiate and support regional approaches in order not only to tap environmental expertise, but also to overcome political problems arising from the perception in Korea and China of Japanese leadership ambitions and to reconcile Korea with its relative limitations in terms of political, financial and organisational resources.

The Republic of Korea has probably been the country most eager for regional approaches to deal with the environmental degradation in Northeast Asia. First, it is the country most immediately affected by transboundary pollution originating on the Asian continent. Secondly, its political and financial means are insufficient to either cause China to reduce its pollution or to deploy huge amounts of bilateral ODA as Japan has been able to do. Thirdly since it cannot affect much it wants at least to be a mediator in regional approaches in order to avoid being totally sidelined by its two Asian neighbours.

China, as we will see later, does not want binding agreements and wants to work within the existing bilateral (ODA) or multilateral framework rather than establish new subregional institutions. Moreover, it wants minimal contribution and maximal benefits in terms of technical and financial help.¹⁵

Japan has also been reluctant to form new subregional institutions and prefers to work through the bilateral ODA framework which it can use to achieve maximum diplomatic effect. In concrete terms it has meant using environmental ODA to support its engagement policy towards China which aims at making China a responsible stakeholder in the region through a smooth transition to a liberal capitalist economic and political system.

The Russian Far East is only very thinly populated and does not rank very high in the list of priorities of the government in Moscow, except in terms of energy and fisheries. Regional environmental cooperation is therefore expected to require minimal contribution and result in maximum aid. Moreover, the Russian Far East's contribution to environmental degradation is limited to oil spills (e.g. Sakhalin off-shore oil and gas), nuclear waste (dumping and the precarious storage of disused nuclear submarines) and dangers to biodiversity (e.g. logging). Mongolia is an important element in any strategy against desertification to prevent Yellow Sand storms, but financial and personnel capacity to regional approaches is absolutely minimal.

¹⁵For this aspect of China's multilateralism see Economy, Elizabeth, *The Impact of International Regimes on Chinese foreign Policy-making: Broadening Perspectives and Policies...but only to a Point*, in: Lampton, David M. (ed.), *The Making of Chinese foreign and Security Policy in the Era of Reform*, Stanford: Stanford University Press, 2001, p. 230.

Beginning in 1985, the UN Economic and Social Commission for Asia and the Pacific (ESCAP) initiated a regional ministerial conference on environment and development at 5 year intervals, including ministers from 47 countries.¹⁶ This had the effect of forming a regional perspective of environmental concerns. According to Yoon Esook, intergovernmental multilateral cooperation in Northeast Asia in the environmental area developed from the Japan-Korea Environmental Symposium on Science and Technology co-hosted by the respective environmental agencies of Japan and Korea. In the 1988 symposium UNEP cooperated, China was a participant, and the Soviet Union and Mongolia attended as participants. In the third meeting in Seoul in May 1990, health experts from Mongolia, the Soviet Union and China participated through the mediation of the WHO. In the same year the 2nd Ministerial Conference of ESCAP adopted a document called the 'Regional strategy for environmentally sound and sustainable development (ESSD)'. In 1991 Japan started the annual meetings of the 'Environment Congress for Asia and Pacific (ECO-Asia)' which included countries beyond Northeast Asia. It is at ministerial level and takes always place in Japan. At that time Japan was not yet interested in any sub-regional institutional building but wanted instead to rely on existing regional organisations like ESCAP and APEC.¹⁷ APEC is discussing energy, including environmental concerns. In July 1997 APEC began a dialogue on the maritime transport of hazardous substances, the discharge of marine pollutants, and the problem of marine debris. In March 1994 the first conference of APEC Environment Ministers was held. A subsequent meeting in June 1997 approved an environmental action programme in the three areas of sustainable cities, a clean Pacific, and clean production technologies.¹⁸

The 1992 Rio Earth Summit reinforced the idea of regional approaches by suggesting in Chapter 38 of 'Agenda 21' regional institutional arrangements. In the same year, the Japan-Korea Environmental Symposium was renamed 'Northeast Asian Conference on Environmental Cooperation' (NEAC). In 1993 Korea made a second attempt when it achieved to establish the first intergovernmental channel at regional level. The Meeting of Senior Officials on Environmental Cooperation in Northeast Asia (SOMECA) was started at the initiation of the Korean Ministry of Foreign Affairs and ESCAP, in collaboration with the UNEP and the Asian Development Bank. Korea wanted to use ESCAP in order to dilute the negative attitudes of both China and Japan to new regional mechanisms. At the meeting three priority areas were agreed: energy and air pollution, capacity-building and ecosystem management, focusing on deforestation and desertification. At the 3rd meeting in Ulaanbaatar in 1996, the participants adopted the 'Framework for the Northeast Asia Subregional Programme of Environmental Cooperation (NEASPEC)'. However, an agreement on the establishment of a secretariat independent of ESCAP's secretariat could not be achieved, and Korea's proposal to raise the level to the ministerial level was also not followed up.¹⁹ The funding system of this forum is based on voluntary national contributions and some project funding from international development organisations. Japan and Korea contributed each US\$100,000 to the newly

¹⁶Kato/Takahashi, op. cit., p. 1.

¹⁷Yoon (2001), op. cit., p. 117.

¹⁸Dupont, Alan, The environment and security in Pacific Asia, *Adelphi Paper 319* (International Institute for Strategic Studies), 1998, p. 78.

¹⁹Yoon (2001), op. cit., pp. 120-1.

established Core Fund in FY2001.²⁰ It is obvious that Japan saw the SOMECEA in competition to its own ECO-Asia meetings. Moreover, there has been little coordination between NEASPEC and other initiatives.

The annual meeting of the environmental ministers (TEMM) of China, Japan and Korea has since 1999 become the highest intergovernmental institution. In 1999 the 1st meeting was held in Seoul following a Korean proposal at a UN meeting in 1998 and each capital is in turn hosting the event. While TEMM is very weak in terms of subregional institution-building, its level allows the meetings to become a focal point for raising awareness of an environmental community in Northeast Asia, promoting information exchanges, and strengthening cooperation in environmental research and in the field of environmental industry/technology. Moreover, the meetings foster cooperation in addressing global environmental issues such as biodiversity and climate change. The meetings either initiate new projects relevant to the environment in the three countries, the atmosphere above or the marine environment around them, or they encourage existing projects. The list of environmental cooperation among the three countries includes not only multilateral but also bilateral cooperation.²¹

Currently, TEMM has six projects:

1. TEMM Website (implemented by Korea's National Institute of Environmental Research)
2. Joint Environment Training Project (annual workshops)
3. Tripartite Environmental Education Network (annual workshops)
4. Freshwater (Lakes) Pollution Prevention Project (based on a Japanese ODA project on Lake Taihu in China)
5. Environmental Industry Cooperation (roundtable, exhibition)
6. Ecological Conservation in Northwest China (reversal of desertification)

Other multilateral cooperation occurs at the level of government experts and NGOs. The former will be taken up later in the context of regional approaches to atmospheric pollution because it is there where the main focus of the epistemic community's contribution lies. The involvement of NGOs at regional level is still rather limited, but NGOs are increasingly invited to various regional symposia and intergovernmental meetings. Chinese NGOs still encounter considerable political, institutional and financial obstacles.²² Japanese NGOs are also not comparable in terms of organisation and finances to those in Europe and North America.²³ Korean NGOs are domestically very active and the biggest ones are expanding their bilateral and regional cooperation.

²⁰For details on the work programme see the Tripartite Environment Ministers Meeting among China, Japan and Korea 1999-2002 (TEMM 1999-2002), published by the environmental agencies of all three countries, 2002 and Kato/Takahashi, op. cit., p. 14-20.

²¹TEMM 1999-2002, op. cit.

²²For an up-to-date overview of Chinese NGOs see <http://www.brookings.edu/dybdocroot/fp/cnaps/papers/chung2003.pdf>

²³For a recent study on Japanese NGOs see Hirata, Keiko. Civil society in Japan. The growing role of NGOs in Tokyo's aid development policy (New York: Palgrave Macmillan 2002).

In 1992 regional NGOs and environmental experts formed the Northeast Asia and North Pacific Environmental Forum (NANPEF), later renamed North Asia-Pacific Environment Partnership (NAPEP). It is promoting exchanges of information and expertise between environmental NGOs through workshops and mobilization of resources.²⁴ In 1995 the Atmosphere Action Network East Asia (AANE) was formed to deal exclusively with atmospheric pollution. In 2001 it brought together 17 NGOs from 7 East Asian countries. The NGO member organisations are from China, Hong Kong, Japan, Mongolia, the Russian Far East, Korea and Taiwan. NGOs try to impress on the governments the need for greater public education, outreach and involvement in the environmental policymaking processes. While their voice in transboundary pollution issues is still small, they have been much more active on environmental issues at national level and in environment-relevant development aid projects with China (e.g. tree planting in order to stop desertification), while Japanese and Korean NGOs have cooperated bilaterally on certain projects in Korea.

Atmospheric pollution

The regional efforts to combat atmospheric degradation is in many ways a classic example of the vagaries of such approaches in East Asia. Atmospheric degradation has probably become the most high profile endeavour because one of its phenomenon, Yellow Sand, has reached the attention of the public in all three countries (China, Japan, Korea). As one result, the issue was put on the agenda of TEMM in 2001 by South Korea. Naturally, China does not like to be implicitly or explicitly exposed to the accusation of being the main causer of Yellow Sand, but the government had to weigh against this its need for ODA to fight desertification which is at the bottom of this phenomenon. Atmospheric degradation has received the strongest input from the epistemic community in the region as well as from outside the region, with the European experience having been particularly instructive. The intergovernmental cooperation against atmospheric pollution has unfortunately shown the highest degree of duplication of efforts and institution-building while Japan has shown through its generous funding how one country could establish a leadership role. Efforts to contain desertification have attracted the direct input of NGOs in all three countries and strengthened subregional NGO cooperation.

The European experience with its Long-Ranged Transboundary Air Pollution Convention of 1979 and succeeding agreements has been a valuable source of technical and institutional information for efforts to address similar problems in East Asia.²⁵ European experts have even been invited to various meetings to take direct part in these efforts.²⁶ Since the epistemic community in the environmental sciences is less interested in politics than e.g. the epistemic community of arms control specialists where only a minority are pure natural scientists, efforts could be more directly focused on issues immediately relevant to coping with atmospheric pollution, rather than waste time and energy on the question of the differences between

²⁴Kato/Takahashi, op. cit., p. 9.

²⁵On the European experience see Wong, Anny. The roots of Japan's international environmental policies (Garland Publishing Inc.: New York 2001), pp. 208-14.

²⁶Kato/Takahashi, op. cit., pp. 25-6.

Asia and Europe which was the case when the issue of learning from Europe on arms control was first raised during the 1980s.

Addressing atmospheric pollution in East Asia started at several levels and has unfortunately led to a considerable duplication of efforts by various institutions and fora. In 1992 government officials and experts met in the context of the East Asia Acid Deposition Monitoring Network (EANET), which had been initiated by the Japanese Environment Agency as part of the projects of ECO-Asia. The 1st Expert Meeting took place in October 1993 in Toyama City. The membership included not only Japan and Korea, but also Southeast Asian countries. China, however, joined only in 2000 after the Japanese prime minister took the issue up with his Chinese counterpart. EANET, like ECO-Asia, is by more than 70 % funded by the Japanese Environment Ministry which has also been responsible for most of the proposals and plans. The central data collection centre is in Niigata with the Acid Deposition and Oxidant Research Centre (ADORC) where the regional data is sent and where some of the technical training of experts from developing member countries takes place (www.adorc.gr.jp). The aim of the Network is monitoring acid deposition through national monitoring stations, standardizing the measurement techniques, sharing the data among the participant states and promoting technical cooperation for these activities. After a trial period, the monitoring started on a regular basis in January 2001 with 16 technicians. Today 12 countries participate in the network: Cambodia, China, Indonesia, Japan, Laos, Malaysia, Mongolia, the Philippines, Korea, Russia, Thailand and Vietnam. The Secretariat was initially with the Japanese Environment Ministry, but is since 2002 with the UNEP Regional Resource Centre for Asia Pacific in Bangkok.

Parallel to the Japanese initiative the Korean National Institute of Environmental Research under the Korean Ministry of Environment held in 1995 the first Northeast Asian Workshop on Long-Range Transboundary Pollutants (LTP) in Seoul which had participants from the three Northeast Asian countries. The ensuing efforts were directed at coordinating research and joint accumulation of data. This institution has been overshadowed by EANET because Korea is not able to muster the same financial and human resources as Japan has been doing for EANET. Atmospheric pollution is also addressed by other fora and institutions, including the UNEP, the UNDP and the World Bank.²⁷

EANET's merits are the establishment of a functioning monitoring network, the gradual forming of standardised monitoring techniques which will in future allow to compare national data, and the training of experts from developing Asian countries including the provision of equipment. The institutionalization of the network is far advanced with regular meetings at intergovernmental and expert levels. However, the majority of the funding is still depending on Japan which has been able to attract 12 countries because of its generous financial arrangement. The lack of independent funding has led to the shifting of the secretariat's host from the Japanese Environment Ministry to UNEP regional centre in Bangkok, rather than to the establishment of an independent and jointly funded secretariat. The main work is still done and funded by ADORC in Niigata, notably the data collecting and training. The level of monitoring is still very uneven due to national insufficiencies. China has only allowed monitoring stations in Xian, Chungqing, Zhuhai and Xiamen, and not in Northeast China where the concentration of heavy industry causes transboundary acid deposition in Korea and Japan. But China is more interested in inland pollution

²⁷For more details see Brettell, Anna and Kawashima, Yasuko. Sino-Japanese Relations on Acid Rain, in: Schreurs, Miranda and Pirages, Dennis, eds. *Ecological Security in Northeast Asia* (Seoul: Yonsei University Press, 1998), p. 106.

which clashed with Japan's interest of having monitoring stations along the Chinese coast. According to Takahashi Wakana, the current stage of EANET is roughly where the OECD-initiated Scandinavian programme was in the 1970s: the need to develop a scientific consensus on emissions monitoring and estimation of the transmission of air pollutants.²⁸

Much public attention has been paid to Yellow Sand or Yellow Dust storms (in Chinese: shachenbao, in Japanese: kosa) which have increased in frequency and scope in the Northeast Asian region since 1998. According to recent Chinese studies sponsored by the State Environmental Protection Administration (SEPA), the storms originate mainly in the Gobi and other desert areas in the southeast of Mongolia, the east of Kazakhstan, the east of China's Inner Mongolia Autonomous Region, and deserts in the Xinjiang Uygur Autonomous Region. In spring and winter they enter China by three different routes, from the north, the northwest and the west. Large areas in north China and east China, including Inner Mongolia, Shaanxi, Gansu, Ningxia, Shanxi, Hebei, Beijing, Shandong and Jiangsu, are affected by them. Particularly important is the statement that 18 of the 32 dust storms that reached China in 2001 originated from southern Mongolia and the other 14 from Inner Mongolia.²⁹ China has become recently more willing to admit that at least part of the sand storms originate from its own territory: Apart from the irrefutable evidence, there is also the circumstance of the 2008 Olympic Games in Beijing as well as the expectation of foreign environmental aid to conduct forestation programmes which are to stop desertification. The Tianmo Desert is roughly 60 km from the capital and encroaching fast. The Gobi Desert is 240 km from Beijing.

Japan and Korea are strongly feeling the increase of transboundary sand storms, with Korea particularly concerned about the impact on the production of semiconductors and other electronics which need clean air.³⁰ Korea decided to support a tree planting programme in China from 2001-05 through its ODA agency KOICA. The Japanese Environment Ministry started in 2003 for the first time with measuring Yellow Sand at monitoring stations all over Japan. It has helped China for several years with monitoring and desertification countermeasures. A monitoring station has e.g. been established in the roof of the 1996 Sino-Japan Friendship Center for Environmental Protection in Beijing which was finished in 1996. The Centre houses also a sand storm research room. Since 1998 joint monitoring has been conducted in Ningxia and since August 2000 sampling in Dunhuang and the Taklimaka desert has gone on. In October 2000 an agreement was concluded on research into the formation, transport and effects of sand storms.³¹ Several Japanese NGOs are involved in tree planting to arrest further desertification in China. The issue was first put on the trilateral agenda at the 3. Tripartite Environmental Ministerial Meeting (TEMM) in April 2001. The Ministers agreed on monitoring through remote sensing equipment, training and research, but no monitoring was concretely undertaken. At the next TEMM in April 2002 it was agreed to have a seminar to discuss detailed cooperative measures. Other major assistance on sand storms has come from

²⁸Kato/Takahashi, op. cit., p. 25.

²⁹CND, quoting *Xinhua*, 28 January 2002.

³⁰Yellow menace, *Korea Now*, 6 April 2002.

³¹*Renmin Ribao*, 25 April 2002.

Australia, Germany and the UN.³² As can be seen from the above, trilateral cooperation on Yellow Sand is only in its very early stages and the two most affected countries, Japan and Korea, have so far relied on bilateral efforts.

Maritime pollution

The main subregional institution for intergovernmental cooperation on marine pollution is the Northwest Pacific Action Plan (NOWPAP) which was formed in 1994 under the leadership of UNEP as a result of meetings which had started in 1991. For UNEP this programme is part of the 14 Regional Ocean Preservation Programmes. The members are China, Japan, the two Koreas and Russia. The focus of NOWPAP is the preservation of the Yellow Sea/East China Sea and the Sea of Japan. In terms of institutionalization but also in terms of politics intruding on regional approaches NOWPAP is particularly interesting to study.

The main issue at the beginning was the naming of the Sea of Japan which was opposed by the two Koreas which refer to it as the East Sea. It is a drawn-out dispute between these countries but Japan has still the advantage that 'Sea of Japan' is the more common name. In the end it was decided to limit the application of activities to an area from about 121 degrees E to 143 degrees E longitude, and from approximately 52 degrees N to 33 degrees N latitude, without prejudice to the sovereign right of any state.³³ China moreover insisted on excluding the Bohai Sea and the Shanghai coastal area because of military secrecy.³⁴ Despite the Korean side hampering the initial development of NOWPAP, it is the Korean peninsula which is most affected by marine pollution. While South Korea has now become the most active participant, North Korea cited financial problems for not becoming a formal member but has attended some expert meetings.³⁵ None of the annual intergovernmental meetings has therefor ever taken place in North Korea.

Another problem was the demand by UNEP that the Action Plan proposed for the preservation of the two seas should be legally binding which was opposed by China and Japan, but supported by Russia and Korea. In Japan the Coast Guard (under the Ministry of Transport) considered existing legal instruments as sufficient, against which the Environment Agency could not muster sufficient support. When the Action Plan was finally adopted in 1994, the term 'legally binding' was dropped. A further obstacle towards the institutionalization of NOWPAP was the question of the establishment of a secretariat and independent funding. NOWPAP has found the so far most exemplary way of funding which is independent of one country and international organisations. The share breakdown is 20 % from South

³²Ibid.

³³For a map of the area see <http://nowpap1.org/>.

³⁴Yoon (2001), op. cit., p. 125-6.

³⁵*Newsreview Korea* 27 November 1999.

Korea, 8 % from China 8 %, 25 % from Japan, and 10 % from Russia, with the rest coming from international organisations and other voluntary contributions.³⁶

The oilspill resulting from the breakup of the Russian oil tanker *Nakhodka* off the Japanese coast in January 1997 had a positive effect on Japan's attitude towards the issue of the legally binding character of the Action Plan and it brought about the participation of local governments. Moreover, it raised Toyama City, the prefectural capital of Toyama Prefecture, to particular prominence within NOWPA. In July 1997 an Environmental Summit of Local Governments in the Northwest Pacific Region was held in Toyama on the coast of Japan facing the Sea of Japan with the participation of 28 local government leaders from China, Japan, Korea and Russia. Since then local governments participate as observers.³⁷ The Japanese Sasakawa Peace Foundation funded the Japan Association of Maritime Safety to convene a meeting in Toyama City in 1998 for specialists on marine pollution prevention and in 1999 for the establishment of a secretariat.³⁸ The Secretariat (called Regional Coordination Unit) is to be cohosted by a national institute in Pusan and by the prefectural office of Toyama Prefecture, taking over from UNEP in Nairobi. In a compromise between Japan and Korea, the first Coordinator of the Secretariat will for the first 4 years stay in Toyama and his deputy in Pusan. The costs of the Secretariat are financed by the host country.

The work of NOWPAP is not so much project-directed as directed by the four regional Activity Centres of which each member state hosts one. The Korean Activity Centre is in Taejon, responsible for work on the prevention and cleaning-up of oil pollution. The Japanese one is in Toyama and responsible for special monitoring (using satellites) and coastal environmental assessment tasks (notably harmful alga blooms and eutrophication). The Chinese Regional Activity Centre, located in Beijing, is for data and information network monitoring. The Russian one is located in Vladivostok and responsible for pollution monitoring, sharing tasks with the Toyama Centre. As a result of the work in Taejon, a Memorandum of Understanding on cooperation in case of oil spills has been reached.³⁹

The main problem areas of regional cooperation

Scientific issues

Scientific knowledge and understanding of environmental degradation, i.e. its origins and abatement measures, are fundamental to decisionmakers who are to deal with these phenomena. The non-initiated

³⁶Choi, Yean Hong. Cooperative environmental efforts in Northeast Asia: Assessment and recommendations, *International Review for Environmental Strategies*, vol. 3 no. 1 2002, p. 142.

³⁷Yoon (2001), op. cit., p. 127.

³⁸The Sasakawa Peace Foundation, 1998 and 1999 Annual Reports.

³⁹Interview with Kim Chan-Woo, Korean Ministry of Foreign Affairs and Trade, Environment Cooperation Division, 24 October 2002

observer may not imagine science with its objective aura as an obstacle but in fact, scientific knowledge and understanding of complex environmental degradation, notably transboundary pollution, is far from being unequivocal. In addition, science does not operate in a political vacuum: politics influences resource allocations and directions. Lebel e.g. concludes that the epistemic community was moderately successful on acid deposition, but less on politically more sensitive issue of concerning long transport of this kind of air pollution.⁴⁰ Finally the sheer scientific complexity of environmental degradation does not lend itself easily to conclusions which can prompt political action.

Despite the indisputable fact of acid deposition over China, the Korean peninsula and Japan, there is no clear scientific consensus on the impact and scope of notably acid rain. One reason is the lack of monitoring stations and environmental research which would create a consistent observation pattern, but more important is the relatively low degree of damage. The effect of acid rain on Japan has not been as bad as e.g. in Scandinavia because of the chemical composition of forest soils in Japan. In addition the highest level of acid comes in winter when trees are metabolically least active. As a result, environmental damage resulting from acid rain is not yet a public issue in Japan.⁴¹ Even in Korea, where research has concluded that e.g. 23 % of the SO₂ emissions and 20 % of NO_x emissions is from China, no serious damage has yet been linked to this.⁴² The discrepancy of scientific data can be astonishing: According to a Japanese computer modelling of acid deposition, between 13 and 32-50 % of the pollutants responsible for acid rain falling on Japan are blown over from China but the calculations originating from the Chinese Academy of Social Sciences suggests that it is only 3 %.⁴³ Research on pollution in the Yellow Sea shows some serious contamination of some coastal areas, but scientists were surprised about the absorption capability that sea. The Bohai Sea is heavily polluted because of coastal discharges and oil spills from tanker traffic and oil exploration, but it is not yet clear how polluted waters travel to contingent seas.

Related to the impact is the scientific disagreement of the origin of acid rain and yellow sand. While most South Korean and Japanese scientists content that a considerable part of pollutants causing acid rain is blown over from China, it was only in 1992 that the Chinese admitted the possibility of transboundary acid rain. This admission was encouraged by new Chinese data as much as by Japan's promise to provide environmental aid to its neighbour.⁴⁴ Adding to the scientific complexities is the fact that a considerable part of Japan's sulfur emission are generated by the Sakurajima volcano in Southern Kyushu.

In the case of yellow sand, Chinese scientists have for a long time disputed that the sand originates from China. Only recently have they started to admit it, although they still point out that the sand originates not

⁴⁰Lebel, op. cit., pp. 92-3.

⁴¹Yoon (2001), op. cit., p. 85.

⁴²Ibid., p. 86.

⁴³Choi, op. cit., p. 146 and Brettell/Kawashima, op. cit., pp. 108-110.

⁴⁴Brettell/Kawashima, op. cit., p. 97.

only from China, but also from Mongolia and Kazakhstan.⁴⁵ Most of yellow sand originates in Mongolia's Gobi desert and the Taklamakan desert in western China. But the impact of yellow sand is not only negative: dust particles absorb and disperse solar radiation and this can both warm and cool the atmosphere (known as radiative forcing effect). Dust particles falling into the ocean become useful nutrients for plankton which is good for absorbing carbon dioxide, i.e. suppression of the greenhouse effect.⁴⁶

Political and economic issues

The political, economic and social diversity of East Asia is a major obstacle for regional approaches to cope with environmental degradation. Bilateral relations are burdened with issues of the past (Japan-China), territorial disputes (Japan-China, Korea-China, Japan-Korea) and, as we have seen, even naming of geographic area. Japan and China are increasingly becoming political and economic rivals in East Asia.⁴⁷ The rivalry for regional leadership works against Japan being supported by China in taking environmental leadership in East Asia, a natural role for a country which is the biggest economic power and ODA donor in the region. Instead China is inclined to perceive Japan's environmental leadership as yet another indication for Japan trying (again) to dominate the region, putting it next to Tokyo's reinforced military relationship with the US, its increasingly realist security policy and its quest for a permanent UN Security Council seat. Japan, on the other hand, sees its environmental leadership role as a means to create a politically and economically stable regional environment, to respond in a nonmilitary way to calls for international contribution, to complete its engagement policy towards China, and to promote the interests of its export industry.

At whatever level, economic issues are also heavily interfering in environmental politics. Weighing the priority between environmental protection and economic development is a highly charged political issue because the maintenance of power by China's leaders ultimately depends on it. Although China is much more directly affected by pollution which is experienced by Korea and Japan as transboundary pollution, the country suffers from many different kinds of pollution whereas atmospheric and marine pollution, the principal issues of transboundary pollution, do not rank as high in China as does e.g. water pollution.⁴⁸ This only aggravates the dilemma for Beijing's policymakers of how to use scarce resources for what kind of pollution. Advanced countries like Japan and to a much lesser degree Korea hope to lessen the dilemma by offering financial and technical help. In addition, the creation of transboundary atmospheric pollution is very much influenced by China's energy policy which still relies overwhelmingly on environmentally harmful coal which is domestically in abundant supply. The government wants to increase the use of ecologically less harmful energy sources such as oil and gas which, however, increases its dependence on the import of oil and gas as well as requiring greater reliance on foreign capital to exploit domestic energy sources (e.g. oil and gas in the East China Sea). It is in the interest of Japan and Korea to support China's

⁴⁵Interview with Dr Dong Xuhui, 18 April 2002.

⁴⁶See Mikami, Masao. Sand report, *Look Japan*, 27 February 2003.

⁴⁷See Drifte, Reinhard. Japan's security relationship with China since 1989 (Routledge: London 2002), pp. 151-7.

⁴⁸*Japan Times*, 25 October 2002.

shift of energy sources not only for environmental reasons, but also to ease the pressure on the energy world market.

China's participation in regional efforts to address transboundary pollution depends basically on how much environmental aid it can extract from its regional partners. There is the feeling that developed countries like Japan and Korea 'owe' it such aid because they are ahead of China (let alone Japan owing China help because of its past aggression). At the same time China is extremely sensitive of being viewed as the major source of transboundary pollution and of any infringement into the setting of its political and economic priorities. Finally, Japan (and to some extent also South Korea) have provided China with a developmental model which seems to downplay the long term damage of industrial pollution, i.e. the model of 'get rich, get dirty, clean up'. Given the economic policy dilemma mentioned above, it is difficult for China's leaders to see the difference between the scale of economic development in a more continental country and that of Japan on a narrow archipelago with a democratic system.

Institutional and bureaucratic issue

The great variety in national wealth, industrialization, political and social systems and dividing political issues makes institutionalization of regional efforts very difficult. The experience of institution-building in Southeast Asia (ASEAN, ARF, ASEAN+3, ASEM) with its principles of consensus decisionmaking, incrementalism and non-interference into domestic issues has certainly not helped. Unfortunately, transboundary pollution is created 'at home'!

One result is the whole array of parallel institutions for environmental cooperation which have been established through different channels and sponsors, including environment ministries, foreign ministries, environmental institutes, NGOs and the epistemic community. This has led to duplication and redundancy and sometimes these endeavours seem to serve more the vanity or ambition of some national institution or individuals than a more effective subregional coordination. The problem of duplication is also worsened by the geographic scope of these parallel institutions which varies between global, broader-than-regional (i.e. Asia Pacific) and subregional. Reflecting its smaller resources and diplomatic ambitions but also the greater direct impact of transboundary pollution from China, Korea is more interested in Northeast Asia, whereas Japan tends to focus more on a wider geographic area as well as on bilateral environmental cooperation with China and Mongolia.

The weak funding base of the existing institutions also reflects these problems. So far, funding depends on outright reliance on national funding, voluntary contributions, project funding from international organisations, 'double-branding' of existing national or bilateral projects and ad hoc project funding. Moreover, international/regional organisations still have to serve as crutches to bridge the many differences separating the member countries although these organisations bring in valuable expertise in environmental work and institution-building. The difficulty in agreeing on establishing secretariats independent of national governments or international organisations is also indicative. Only NOWPAP has so far been able to establish an independent secretariat although the name 'secretariat' had to be replaced by Regional Coordination Unit and even that had to be split between two member states, Japan and Korea.

Japan as the most able financial contributor believes that multilateral initiatives should not overlap with its bilateral and existing multilateral assistance projects but instead focus merely on monitoring of the state of environment and transboundary pollution. Japan also appears wary of multilateral initiatives out of

concern that they could become another channel for development assistance and wants therefore subregional countries to share the burden to some extent.⁴⁹ Fortunately this has not impeded the establishment of EANET.

Bureaucratic circumstances have had a considerable impact on the ability of all three countries in addressing effectively transboundary pollution. In all three countries, but particularly in China, the government institution dealing with environmental degradation is relatively weak compared with other institutions. The main contenders are the ministries which have at the heart of their concerns the development of industry and the ministries in charge of external affairs. The latter is increasingly involved in environmental issues because of their international connotations with governments providing increasing amount of funding to environmentally-related ODA or international environmental endeavours. In the case of Japan Anny Wong wrote the task for Japan's Environmental Agency in dealing with transboundary pollution was to check challenges from MITI as its biggest potential rival and to make the Ministry of Foreign Affairs (MOFA) an ally.⁵⁰ It has worked in favour of actions against transboundary pollution that Japan changed the emphasis of its ODA to environmental issues amid increasing budgetary cuts, but this did also increase inter-ministerial competition. By defining transboundary acid deposition as a pollution problem and not as an energy issue in the hands of MITI, it could separate the issue from global warming which was in MITI's hand.⁵¹

Conclusions

The degree of sub-regional cooperation on transboundary pollution among China, Japan and the Republic of Korea is still very low. Many of the reasons which are hindering such cooperation have also led to the overlap and duplication of efforts at sub-regional, regional, beyond-regional and global level. One of the most difficult obstacles is the circumstance that most transboundary pollution is originating from China which confronts China with considerable conflicts of priority setting in the political, economic and environmental spheres. Most of the transboundary pollution affecting Japan and the Korean peninsula affects first and foremost China, but other kinds of domestic environmental damage is considered more urgent (water!).

Although the result of subregional efforts seems almost insignificant in view of the scope and speed of transboundary degradation, we should not lose sight of the positive points. Without regional efforts, there would have been much less awareness of environmental degradation and environmental complexities. There is now clearly an understanding of Northeast Asia as an environmental entity and of the need to address transboundary issues together. Secondly, the subregional efforts are contributing to setting norms for environmental standards and measurements in order to allow a meaningful discussion on how to address the environment on the basis of agreed data. Thirdly, these efforts are strengthening the multilateral approaches not only at subregional, but also other levels. International organisations such as

⁴⁹Kato/Takahashi, op. cit., p. 23.

⁵⁰Wong, op. cit., p. 231.

⁵¹Ibid., p. 232.

the UNEP and the UNDP have shown their continued relevance at a time when the benefit of multilateralism - often misunderstood as responsible for the solution of the most intractable issues of war and peace - is heavily under attack. In addition, the case of transboundary pollution demonstrates the successful transfer of technical expertise and institution-building not only from international organisations, but also from the European experience with atmospheric pollution

What should be done to improve subregional efforts to remedy transboundary pollution? Professor Choi Yean Hong from the University of Seoul proposes that East Asia has to end the alphabet soup of so many organisations, programmes and meetings and put specific environmental programmes such as air quality, water quality, waste management and ocean ecology under one regional umbrella.⁵² He proposes instead one single institution to deal with these issues. Alan Dupont, looking at the security aspects of Asia's environmental problems, suggests to make better use of existing organisations such as the ARF rather than create new ones. Such an organisation should 'assume the task of formulating, prioritizing and implementing an overarching strategy for analysing and managing environmental challenges to regional security'.⁵³ What does this short overview tell us about the relationship between environmental cooperation and regionalism in Northeast Asia? Is such regional cooperation a dependent variable of progress towards regionalism or is the environment an essentially independent variable of sustainable regionalism (i.e. that environmental regionalism is the politically easiest, least politically sensitive vehicle to facilitate and sustain regional exchanges and cooperation? Rozman describes how environmentalism did not turn out to be a centerpiece for regionalism because of various competing topics, the need to balance environmentalism against localism, nationalism and globalization.⁵⁴ This author would agree with Rozman that environmental cooperation at regional level is certainly not an independent variable but is very much dependent on the general climate of regionalism in Northeast Asia. On the other hand, the inescapable need to address transboundary pollution at subregional level (for physical circumstances as well as resource limitations) can promote regionalism and provide a learning environment. The most imminent and urgent concerns are still security issues (the Korean and Chinese divisions, the rise of China vs the US security pacts with Japan and South Korea). Under the current circumstances the best outcome is the containment of the crisis on the Korean peninsula and the continuation of China's focus on its economic as well as environmental wellbeing.

⁵²Choi, op. cit., p. 139.

⁵³Dupont, op. cit., p. 9.

⁵⁴Rozman, Gilbert, The Northeast Asian regional context for environmentalism: Assessing environmental goals against other priorities in the 1990s, *Journal of East Asian Studies*, vol. 1 no. 2 August 2001.