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The April 2007 visit by Chinese Prime Minister Wen Jiabao to Japan highlights new opportunities for cooperation between China and Japan to address challenges of globalization, such as pollution and rising demand for energy, yet progress in their relations has been uneven. Their economic ties have flourished despite deep-rooted political tensions, significant security concerns, maritime boundary disputes, conflicting nationalisms and historical narratives. Since the mid-1990s China and Japan have steadily cooperated to reduce air pollution, but energy has proven to be a source of competition and tension, though there have been some recent cooperative impulses.

Until recently China's approach to globalization largely focused on its economic benefits and assumed that the Chinese state would be able to manage the process. Increasingly Chinese leaders and scholars are calling attention to the numerous non-traditional security challenges facing their country. The problems of economic globalization and non-traditional security are linked, however, as China's dramatic growth creates unintended non-traditional security consequences for its neighbors, as well as its own citizens.

Even if its rise is peaceful, China's development creates unintended environmental consequences such as trans-boundary air pollution and rising demand for energy, which create risk for its neighbors. This article will look at China's environmental risk management and its impact on Sino-Japanese relations. The article will show a pattern of cooperation in addressing air pollution, but greater competition over energy. Why is there cooperation in the environmental area? Why has competition been more prevalent over energy?

Typically realist theories are employed to explain Sino-Japanese competition over energy and liberal theories are used to account for their environmental cooperation. This piecemeal approach misses the broader context of globalization and focuses on the policy choices of political leaders in both countries, when the issues at play may not be intentional. It is argued here that rising demand for energy and air pollution in China are the unintended consequences of

development choices, which create risk with policy implications for China's neighbors. The paper explains how several factors shape the impact of environmental risk in China's relations with Japan, including the urgency of the risk involved, the nature of risk management, state-society relations, and the securitization of risk. Finally, the paper calls attention to the dynamic between risk management in China and Japanese policy responses.

All countries produce risk and this article is not intended to single out China. However, the Chinese case is unique: as a developing country with an extremely dynamic economy but increasingly uneven distribution of wealth, it presents both environmental risks associated with poverty and prosperity. Because of China's growing global and regional role and expanding environmental footprint, how the country addresses environmental risk has great significance globally, regionally, and domestically.

This article is a component of a larger research project addressing non-traditional security issues in China's relations with its neighbors in East Asia. The article also represents a first draft of research in progress and some sections (particularly the role of civil society in risk management and Japanese securitization of environmental risk) are incomplete at this writing.

Globalization and Chinese Foreign Policy

Initially Chinese analyses focused on the economic aspects of globalization and its benefits for China. The considerable enthusiasm about the prospects for Chinese economic integration regionally and globally soon became tempered with the experience of the Asian financial crisis in 1997-98. While Chinese officials and scholars saw considerable opportunity in economic globalization, they also began to see drawbacks, particular growing economic inequality globally and within China, the social and cultural challenges that deeper ties with very different political systems and societies present, as well as the possible erosion of state control over society due to changes in information technology.[1]

In the sphere of foreign policy, Chinese analyses in the 1990s focused on the emergence of multipolarity. After 9/11, official statements began to highlight the security consequences of globalization as well, and call attention to other transnational problems such as drug trafficking, epidemics, and nuclear proliferation.[2] Recent Chinese official statements reflect an increasing

awareness of globalization as a double-edged sword. The December 2006 White Paper on Defense, for example, states that "economic globalization accelerates and science and technology make rapid progress; there are profound changes in the international division of labor, global and regional economic cooperation is being vigorously promoted, leading to increasing interdependence among countries."[3] The White Paper then goes on to acknowledge that the impact of economic globalization is spreading into the political, security and social fields. Global economic development is uneven, and the gap between the North and the South is widening. Security issues related to energy, resources, finance, information and international shipping routes are mounting. International terrorist forces remain active, shocking terrorist acts keep occurring. Natural disasters, serious communicable diseases, environmental degradation, international crime and other transnational problems are becoming more damaging in nature.[4]

Despite the growing realization of the uncertainties transnational problems produce, Chinese leaders continue to put a positive spin on the globalization process and the ability of states to rise to the challenge posed by non-traditional issues. President Hu Jintao and Prime Minister Wen Jiabao have elaborated a conception of a "harmonious world," the foreign policy counterpart to their domestic agenda, aimed at creating a harmonious, moderately well-off socialist society. According to the Chinese leadership, a "harmonious world" involves encouraging multilateralism to ensure common security, aiming for common prosperity through mutually beneficial cooperation, and democratizing international relations by respecting diversity of civilizations and each country's right to choose its own development path.[5]

Some American scholars, such as Samuel Kim, link China's increasing multilateralism with the challenges of globalization, but points out that its pressures come both from the outside, in terms of transnational forces which constrain Chinese sovereignty, and from within Chinese society.[6] According to Ian Clark, a British scholar, "the state occupies a *middle position* between the internal and external and is itself both shaped by, and formative of, the process of globalization." [7] Thus, the Chinese state responds to transnational problems that have the potential to transform it, perhaps in unanticipated directions.

Conversely the steps the Chinese government does or does not take in response to such problems have a key impact on processes of globalization themselves, as we saw during the Asian financial crisis and the SARS epidemic. As the American Political scientist James

Rosenau has pointed out, globalization unleashes both forces of integration and disintegration, what he has termed fragmegration[8]. Consequently, issues of governance are very much related to the impact of globalization on China's rise—does the Chinese government have the capacity to manage globalization to its advantage? And if it does not, what are the implications for China and its neighbors in a globalized world?

Globalization and Risk

As China has grown economically and militarily, international attention has focused on the likely impact of China's rise on its foreign policy intentions. Does China's rise constitute a threat? Scholars and policy analysts in the United States disagree about the extent of Chinese power and the intentions of Chinese leaders, though increasingly observers see signs that China is becoming more of a "stakeholder" in international institutions and regimes.

Chinese policymakers and scholars reject the China threat debate and view it as manufactured by those who are hostile to China or want to constrain Chinese economic progress and regional role. While concerned about the impact of the debate on China's international reputation,[9] the outright rejection by Chinese observers of such concerns in the internationally community limits China's ability to evaluate how its policy are received by its international partners. Moreover, some of the concerns of China's neighbors stem from the unintended consequences of China's rapid development, such as pollution and unsustainable demand for resources.

Sociologists, such as Ulrich Beck, Anthony Giddens, and Niklas Luhmann, examine the consequences of globalization in terms of risk, rather than threats.[10] Unlike the threats characteristic of the Cold War era, emanating from clearly identifiable opponents with a hostile intentions and a military potential, according to Beck risk is the unintended consequence of economic and technological decisions.[11] Risk includes the following key elements: uncertainty regarding its occurrence, latent effects, the probability of damage, difficulty in attributing responsibility, and trans-boundary impact.[12] Moreover, as we will see below, risk has a potentially transformative impact on the state since decisions that cause risk stem from rationality of state. As a consequence risk reveals the state's incapacity and chips away at its

legitimacy, with unpredictable consequences, including the empowerment of domestic and/or international society.

Beck, Giddens and Luhmann all distinguish between risk which is the result of decisions and dangers caused by natural disasters.[13] Risk is created by the globalization of hazards in post-industrial society. Thus, unlike pre-industrial society, afflicted by natural disasters and epidemics, the hazards of risk society are the side-effects of technological and economic decisions. While the accidents that characterized industrial society were limited in scope and scale, the hazards of the risk society cannot be contained within a state's borders. They also are unlimited in space and time due to latent effects. For example, in the case of the Chernobyl nuclear accident in 1986, it was unclear to what extent fall-out would contaminate food supplies and harm public health in countries as far as Germany, and the damage would not be known for some years.[14] Transnational hazards like nuclear fall-out are of such magnitude that compensation or insurance—which could reasonably be expected for industrial accidents, for example—is beyond the capacity of states, even if their specific responsibility could be determined.[15] For Luhmann, risk is a counter-concept to security, since it implies that absolute safety cannot be achieved.[16] Giddens and Beck further emphasize that the scale and scope of risk distinguish it from externalities, as risk calls into question the future of global society itself, what Giddens terms "ontological security."[17]

Beck outlines three types of global problems causing risk. The first category is wealth-driven, caused by over-consumption (of automobiles, air conditioners, energy, and natural resources), leading to emissions of global greenhouse gases, chlorofluorocarbons (CFCs), and other ecological destruction. A second category is related to poverty. On the one hand underdevelopment results from inadequate access to clean resources or sufficient resources and, on the other hand, the poor tend to be relegated to areas suffering from the greatest environmental degradation. Although the first two categories stem from "normal" processes of development, a third category refers to weapons of mass destruction, also created by economic and technological decisions, but deployed in exceptional circumstances.[18]

Although risk emerges in different ways from prosperous and poor communities, another feature of risk is its equalizing impact. No one can escape the consequences of ecological crisis, as decision-makers, the wealthy and the poor all share the same global environment. Thus those

policymakers and industrialists who made the economic and technological decisions contributing to risk will suffer from their consequences through the "boomerang effect," i.e. the latent side effects of the hazards they created and profited from.[19] As Beck noted, "poverty is hierarchic, smog is democratic."[20] For this reason, risk applies both to the Western and non-Western societies, such as China, which share the same non-traditional security problems characteristic of globalization. People around the world are all a part of what Beck terms a "world risk society," although they may experience risk in ways specific to their own cultural context.[21]

Risk Management

As societies become more aware of risk, they place new demands on their governments to manage it. Thus, risk society calls for a new paradigm, shifting the focus of the state from economic and technological development to the management of risk.[22] Scholars of risk have looked at this problem from the perspective of the state, in terms of management of risk, and from the perspective of society, in terms of its empowerment in response to risk. The key issue here is whether or not the Weberian state, grounded in rationality and dedicated to control, is relevant in the age of risk.

For Beck, the lack of attention to the risks of the modern age constitutes what he calls "reflexive modernization," in the sense that development occurs in a reflex-like fashion, without taking account potential global hazards that may be unleashed in the process. The result is, on the one hand, a crisis of accountability of governments which lose their legitimacy as they are shown to lack the capacity to prevent or control risks.[23] On the other hand, as society becomes more aware of these risks a process of self-confrontation occurs, potentially unleashing politically explosive "risk conflicts," which expose the flaws in institutional certainties. This process may also be constructive in the sense that it opens the political space to discussion and provides an opportunity to reorder public priorities. [24]

Other scholars, however, focus on the "governmentality" of risk. According to Michel Foucault, who first coined the term, government involves more than assertions of sovereignty—its ultimate purpose is to ensure the welfare of the population thanks to an ensemble of institutions, procedures, and tactics; the development of bases of knowledge; and a security

apparatus, all of which he summed up by the term "governmentality."[25] In a risk society, however, governments only shape the policy process; they cannot control the unpredictable outcomes.[26] Governments may choose how they will manage the process and seek partnerships with other state and non-state actors to do so. As Nikolas Rose notes, part of the rationality of government is to evaluate what issues it should be responsible for and what should fall into the purview of firms, institutions, and localities. Accordingly, this means that non-state actors increasingly are being asked to take responsibility for risk management.[27]

What are the implications of risk management for foreign policy? Beck sees the possibility of inter-state conflict arising over risk, but argues that "these conflicts still serve an *integrative* function, because they make it increasingly clear that global solutions must be found…"[28] In this respect, the "bads" which constitute risk create new opportunities for global cooperation.[29] Since risk awareness may be as unintended as the risks themselves, through conflict transnational risk communities may emerge even as efforts are made by risk producing states to repress knowledge of the side effects of economic change.[30] Beck notes that this creates a paradoxical situation for states, which must surrender some of their sovereignty to cope with the problems of a globalized world.[31]

In Asia, the discussion of security communities has tended to focus on the existence of common norms of behavior. In the long-term, cooperative risk management strategies could also form the basis for security communities in Northeast Asia, perhaps on particular issues, such as environmental or public health security. The emergence of such security communities, as with democratization, would assume a commitment to transparency and a priority on developing regulatory capacity on the part of members. At present such a commitment remains uneven in East Asia, because of its potential political consequences for authoritarian states.

Other scholars are less optimistic than risk management will inevitably lead to cooperation. Some like Christopher Daase elaborate a range of possible responses, including cooperation, but also competition, compensation, preemptive intervention, and proactive preparation.[32] Such measures themselves may create new risks, a process that Daase calls the "risk paradox."[33]

Moreover, Mikkel Rasmussen points out that states will perceive risk differently and come to different conclusion about the degree of urgency and the type of response required,

making consensus more difficult to achieve, especially when security issues are concerned.[34] As Niklas Luhmann explains, risk affects groups unequally depending on their "disaster threshold" and their degree of involvement in risk—as a decision-maker, a beneficiary of risky decisions, or an affected party.[35] Although Beck notes that there can be various possible interpretations of risk, he does not see this as lessening the reality of risk. Thus his work bridges the gap between what Alexander Wendt terms "scientific realists" who focus on measurable threats and constructivists who are concerned exclusively with the inter-subjectivity of threat perceptions.[36]

Environmental Risk and China's Relations with Japan

How do states manage risk and how does this affect their relations? This paper examines the case of environmental risk management in China's relations with Japan. A first section looks at environmental risk in China and its domestic management. A second section examines the foreign policy consequences of Chinese environmental risk and the role of international and global society in managing it.

Environmental Risk in China

Is China's economic growth sustainable? Estimates of China's environmental degradation and resource needs are controversial. Some analysts like Lester Brown take an alarmist view, contending that resource supplies will not be able to keep pace with the needs of its own growing population.[37] Other analysts balance their assessments of China's severe environmental problems with an appreciation of changes in Chinese politics, allowing for improved oversight, and a role, however circumscribed, for China's nascent environmental movement.[38] There is some reason for optimism in the discussion of sustainable development by the new Chinese leadership, but it remains unclear whether concrete measures will be undertaken to match the new rhetoric. Resistance to implementation of environmental legislation on the provincial level remains an important barrier to change. Two factors of the environmental risk in China poses are considered here: air pollution and rising energy demand.

1. Air Pollution

Air pollution is a major health and environmental concern in China, particularly in urban areas. According to the 2006 State Environmental Protection Agency report on China's environment, more than half of Chinese urban residents (52.4%) live in cities with Grade II air quality or above.[39] Although air quality has improved in many cities in recent years, the majority of Chinese cities face air quality far below World Health Organization air quality standards. Grade I, the best grade, allows for a slightly higher level of pollutants than World Health Organization recommended air quality standards, and just 4.3% of 559 cities monitored in China achieved that standard in 2006.

China is the third largest source of sulfur dioxide (SO2) emissions in the world and the largest in Asia due to its reliance on high sulfur coal and its limited treatment equipment.[40] By some estimates, Chinese emissions account for more than 13% of sulfur deposits in South Korea and up to 50% in Japan.[41] In 2003, sulfur dioxide emissions reached 21.6 million tons, after several years of declining levels. This was the first year since 1998 that sulfur dioxide emissions were above 20 million tons. The increase has undermined a government effort to reduce these emissions to 18 million tons by 2005, mainly by improving emission controls in medium and large enterprises.[42] The rise in sulfur dioxide emissions stems from the Chinese government's effort to boost its domestic energy supply by building coal-powered thermal plants.[43] Coal consumption in China could double by 2010, increasing emissions problem for neighbors and within China.

China's State Environmental Protection Administration has pledged to implement measures to improve air quality, by requiring that all new thermal plants install desulphurization equipment, monitor existing plants, and providing financial incentives for installing scrubbing equipment.[44] In an effort to reduce SO2 emissions by 10% from 2006 to 2010, China targeted a 2% reduction in 2006. However, despite the installation of some sulfur-scrubbing equipment and the closure of some highly polluting small plants, in 2006 SO2 levels actually increased by 1.8% to 463,000 tons, largely due to the increased coal-burning by power plants needed to fuel the booming economy.[45]

Air pollution from motor vehicles (especially nitrogen oxide emissions) is likely to become a much more severe problem in urban areas over the next decade, due to the rapid expansion of private automobile use. Motor vehicles account for 45-60% of nitrogen oxide emissions and 85% of carbon dioxide emissions in Chinese cities.[46]
At present particulate matter is the most serious air pollution problem in Chinese cities, with 26.5% of cities at Grade III and 60.8% at Grade II nationwide.[47]

As cropland and rangeland in China's northwest provinces are depleted, desertification occurs, releasing dust storms every spring, affecting northern Chinese cities, Japan, South Korea, and even the United States.[48] Storms bring yellow dust to the Korean peninsula and Japan within one to two days, covering everything with dust and blocking the sunlight. Because the dust combines with industrial pollutants, exposure to the dust often results in respiratory and eye problems.[49] Severe storms require schools to be closed and flights to be canceled in South Korea. The United Nations Environmental Programme (UNEP) estimates that the dust storms result in annual economic losses of $6.5 billion in Northeast Asia.[50] In 2006 dust storms were particularly severe in northern and western China.[51]

More than one-third of Chinese land is prone to desertification, which is occurring on 262 million hectares of pastoral and oasis land in the Xinjiang, Inner Mongolia, Tibet, Gansu and Qinghai provinces, the largest scale occurrence in world, according to the World Bank. The desert is now just 110 kilometers from Beijing, and any visitor to the capital in April is likely to experience a dust storm. Until 1949 dust storms were infrequent in China, occurring once every thirty years, but since 1990 they have occurred annually and in increasing severity.[52]

A 1994 land use decision, requiring land used for construction to be offset by cropland elsewhere, exacerbated the desertification problem, as China's booming coastal areas now pay the western provinces to farm land to make up for the cropland the coastal areas lose to urban expansion. The northwestern provinces saw the policy as an economic opportunity, but the already marginal land in these areas began to suffer from erosion due to overplowing and overgrazing. Falling water tables in the region further compound desertification problems in the region. According to Chinese official estimates, 900 square kilometers of land turn to desert every year.[53]

In 2000 the Chinese government announced it would allocate $725 million to plant trees and add new grassland, but provincial leaders claim that Beijing has not followed through on this

pledge. For example, Inner Mongolia, now 60% desert, has not received the funding and provincial leaders have been seeking support from the local business community instead. Experts estimate that desertification is expanding in China at the rate of 1,300 square miles (3,367 square kilometers) annually and will create additional pressures for rural migration due to shrinking arable land.[54]

China is now the second largest producer of global greenhouse gases (GHG) after the United States, though per capita Chinese emissions are just one-eighth of U.S levels. Nevertheless, China's rising energy needs and automobile use will rapidly increase its GHG emissions in coming decades. The International Energy Agency now projects that China will be world's largest CO2 emitter by 2009, a decade earlier than originally predicted, though the U.S. will continue to be the largest per capita producer of such gases.[55] According to the International Energy Agency, increases in Chinese GHG emissions from 2000-2030 will match the increase by all the industrialized countries put together.[56] China signed the Kyoto Treaty in 1998 and ratified it in August 2002, but, as a developing country, it is not subject to the emissions curbs imposed on developed signatories. Nevertheless, global warming would have considerable adverse consequences for China, including lower crop yields and coastal flooding in the south.

China is also the largest consumer and producer of goods that harm the ozone layer. China has signed Montreal Protocol, establishing schedules for phasing out ozone-depleting substances. Despite some initial difficulties, by 1999 China was in compliance with the protocol's freeze on chlorofluorocarbons (CFCs) and in 2002 also froze its production and consumption of halons and is on schedule to meet its target of 50% reduction of other ozone depleting substances.[57]

2. Rising Energy Demand

Although China currently accounts for 10% of oil demand worldwide, China's energy consumption has been rising rapidly, resulting in an increasing dependence on oil and gas imports. In 2003 China overtook Japan to become the second largest consumer of oil, after the United States and is the third largest importer after the U.S. and Japan. China's oil imports are expected to surge to as much as 11 million barrels per day by 2020—the same as the U.S. now imports— from the current two million barrels per day, according to the International Energy

Agency (IEA). China's dependency on imports is increasing—in 2006 the Chinese Ministry of Commerce estimated it at 47% of demand, up 4% from 2005.[58] In 2006, China imported 145 million tons of crude oil, up 14.5% over 2005.[59] The IEA's World Energy Outlook projects that China's oil demand is set to expand by 3% annually from 2000 to 2030, largely due to increased automobile use. Natural gas consumption is projected to increase 5.5% annually in the next three decades, and imports will be needed to meet 30% of demand by 2030. Part of China's soaring demand for energy stems from waste—Chinese industries waste 70% more energy than U.S. equivalents. Preferential energy prices for some industrial enterprises only exacerbate the problem. While the Chinese government is taking a measured approach to price reform, in 2003 the new leadership recognized that energy conservation is a strategic priority. By some estimates, enhanced energy efficiency and conservation could help lower China's oil imports by 12% by 2030.

As of January 1, 2003, China had oil reserves of 18.3 billion barrels, or 1.5% of the world's total reserves, according to the *Oil and Gas Journal*. Chinese reserves are located in Xinjiang, the Bohai Sea near Tianjin, and the mouth of the Pearl River Delta. These oil reserves are costly to exploit due to geological factors. Oil from most of the more accessible areas has already been produced.

According to China's State Information Center, its crude oil output will peak at 200 million tons annually in 2015, but even that will be far from enough to cover the country's energy needs. Although in the 1980s China used to be one of the world's largest net exporters of oil outside of OPEC, and relied on the foreign exchange generated to finance trade growth, since 1996 China has become a net oil importer. Imports have risen dramatically, from 1% of consumption in 1985, to 45% in 2002. Imported oil will be needed to fulfill 82% of demand in 2030, compared to 34% in 2001.

Natural gas occupies a relatively modest place in China's energy mix, accounting for just 3% of energy consumption or 47 billion cubic meters. China's gas output amounted to 50 billion cubic meters in 2006.[60] The *Oil and Gas Journal* estimates that Chinese gas reserves, located in Xinjiang, Hainan, and Sichuan, are approximately 53.3 trillion cubic feet or 1% of the world's reserves. Like China's oil reserves, its gas resources in the northwest have geological features that make them costly to develop. From 2006-2010, China's annual consumption of gas is expected to reach 100 billion cubic meters, doubling to 200 billion cubic meters by 2020. Half

of needed supplies are likely to come from overseas projects.[61] China is trying to expand natural gas use to reduce sulfur dioxide emissions from coal burning. The Chinese government aims to boost gas-fired generating capacity to 10% of overall capacity by 2020, from the current 2.8%.

At present China continues to depend on coal for 70% of its energy needs, a modest decline from the mid-1990s (when coal accounted for 75% of the energy mix), but a slight increase from the 66-69% usage from 1999 to 2001. China has the third largest reserves of coal in the world—114 billion tons—though much of it is of relatively poor quality. China is also the world's largest consumer of coal and the largest emitter of sulfur dioxide.[62] Given its continued dependence on coal, China has been seeking foreign expertise to improve production techniques and enhance transportation, a major obstacle to the expansion of the industry.

Recognizing that domestic sources of oil and gas are increasingly unable to meet China's energy needs, Chinese energy companies have been aggressively seeking supplies both in the Asia-Pacific region, in neighboring Russia and Central Asia, as well as in Africa and Latin America. These efforts, accompanied by China's growing demand for energy resources, have transformed China into a major player in global energy markets. China also is expanding its use of hydroelectric power and nuclear power and other renewable sources of energy.

Energy consumption has been rising throughout the Asia-Pacific region, at the same time that regional production has declined. China's booming economy and corresponding rise in demand for energy resources places it in competition with other leading consumers of energy in the region, especially Japan and India. While Japan is currently the largest consumer of energy in Asia, economic stagnation has slowed consumption growth, but India and China together are expected to account for at least 50% of projected energy demand in the next decade.

Moreover, record oil prices have generated fears in Asia about the potentially negative impact on economic growth and enhanced concern about the possibility of interrupted supplies due to instability in the Middle East. The Chinese government is attempting to downplay such concerns through more active energy diplomacy. At the November 20-21, 2004 APEC meeting in Chile, for example, Chinese President Hu Jintao proposed an energy initiative to try to stabilize energy markets in the wake of his country's growing demand and the war in Iraq. Hu's plan was designed to improve cooperation in energy resources and promote sustainable development.

China's ability to meet its growing domestic demand for energy, and to balance its energy needs with sustainable development, are considerable challenges. Nevertheless, energy security is crucial for China's future role as a regional power in Asia. As Robert Manning notes, China could have fifteen aircraft carriers—viewed by many analysts as an essential characteristic of a global power—but this would mean little if it lacks sufficient oil to fuel its economy.[63]

China's Environmental Risk Management: A New Approach to Sustainable Development?

Options available to China's neighbors in managing environmental risk depend, to a large degree, on the extent to which Chinese domestic policies respond to environmental problems. Since the 16th CCP Congress in October 2002, the new Chinese leadership has embraced the rhetoric of sustainable development, as a part of its overall goal of creating a harmonious society.[64] For example, on June 28, 2005, Hu Jintao told a Politburo meeting on China's energy strategy that China should promote sustainable production and consumption, and establish a resource conservation system. Nevertheless, in the same speech he also advocated continuing to raise people's living standards to achieve a moderately well off (*xiaokang*) society, goals that may be contradictory given the large size of the Chinese population.[65] Prime Minister Wen Jiabao has made similar statements on sustainable development. At a March 2005 forum on the environment, population, and health, he called on cadres at every level to approach these issues with greater urgency.[66] The increased attention to sustainability involves implicit criticism of view that rapid GDP growth should be main indicator of development, as was the case since Deng Xiaoping's day, and a view particularly associated with former Prime Minister Zhu Rongji.

The 11th Five-Year plan (2006-2010) set ambitious new targets for pollution reduction, energy efficiency, and reduction of energy consumption. Chinese officials aimed to reduce energy consumption per unit of GDP by 4.4% annually and to cut discharges of major pollutants 10% by 2010.[67] All of this is premised on an annual economic growth rate of 7.5%. Chinese experts admit that waste and pollution need to be factored into China's GDP growth rate, though they disagree on the amount, with low estimates of GDP losses from pollution and waste at 2%[68] and high estimates at 10%.[69]

In 2006, however, China's growth rate reached 10.7%. As Prime Minister Wen Jiabao acknowledged in the March 2007 government work report, China fell short of its goals to cut energy consumption by 4% and to reduce emissions of pollutants by 2%, which he attributed to the slow pace of industrial restructuring, the continued overheating of certain economic sectors, and inadequate implementation of environmental laws on the local level.[70] Nevertheless, the Chinese government objected to including global warming on the United Nations Security Council agenda, as proposed by Great Britain in April 2007.[71]

Even a leadership that is truly committed to sustainable development will face an uphill battle due to provincial opposition to enforcement of environmental regulations and the weakness of State Environmental Protection Administration (which depends on provincial governments for funding in the provinces). While concerned with the prospect of domestic instability over resource degradation, at the same time the Chinese leadership continues to restrict the development of civil society, especially the role of NGOs, which have proven crucial elsewhere in the world in promoting environmental awareness.

Civil Society and risk

Scholars such as Ulrich Beck assume that civil society plays a positive role in calling attention to risk and demanding policy changes. As the China case shows, however, society plays a dual role, contributing to risk through consumerism, while at the same time suffering the consequences of government or industrial policies that disregard environmental consequences. Moreover, unlike Western Europe, where most risk theorists have focused their research, the environmental movement in China remains limited in scope and therefore may not yet be able to play a leading role in calling attention to risk, as the theory would predict.

China has become one of the fastest growing markets for automobiles, causing increasing demand for fuel and exacerbating air pollution. In the 1990s the Chinese government's decided to invest in a domestic automobile industry, at the same time as economic prosperity in urban areas created a middle class with greater disposable income and demand for personal autonomy. Ten years ago bicycles were the dominant form of private transportation, but today members of

China's expanding middle class are buying cars instead. There is now one car for every 70 Chinese, compared to one car for every two Americans. Currently there are 20 million vehicles on Chinese roads, but this figure could increase tenfold in the next 15 years due to the rapid expansion of private automobile ownership. In 2003, Chinese citizens purchased 1.9 million cars, up from 1.2 million in 2002 and 800,000 in 2001.

As of July 2005 new rules mandate that heavier vehicles will have to improve gas mileage by 10% in 2010 and by 20% by 2020. This means that sedans will have to have rates of 28-31 miles per gallon. Chinese SUVs will have to do much better than their American counterparts (which get 20 miles per gallon) and achieve a mileage rate of 27-29 miles per gallon. Commercial vehicles and trucks are not included in these rules. Moreover, the new Chinese rules are well below Japanese and EU fuel efficiency standards.

Some car manufacturers, like Volkswagen Asia, are switching to diesel engines, which are more fuel-efficient, though more polluting than equivalent gasoline engines. Since automobile manufacturers will have to provide this technology, car prices are likely to increase and slow demand for vehicles. The Chinese government is also trying to reduce demand for car ownership by instructing banks to restrict credit for car loans and imposing taxes of up to 27% on the purchase price of vehicles with big engines, such as SUVs.[72] However, the Chinese government is unlikely to take steps to harm the country's booming automobile industries, now an important source of export revenues and of employment for workers in China's rust belt in the Northeast, as well as a status symbol for China's middle class.

Consequently, rising automobile use is likely to exacerbate China's air pollution risk. Beijing, for example, accounts for 1/8 of all vehicles registered in China (2.7 million as of spring 2006) and 1,000 new ones are added to the city's streets every day. As a result Beijing now accounts for a major share of the country's nitrous oxide, carbon dioxide, and ozone emissions. The amount of particulates (fine particles emitted by motor vehicles which can cause lung and heart damage) in Beijing is 50% higher than the national average, which is twice the U.S. standard (50 micrograms/per cubic meter of air).[73]

What of efforts within Chinese society to address environmental risk? Western observers are divided about the progress made by Chinese environmental groups in recent years,[74] with some experts calling attention to the growth in the numbers of such NGOs and their impact on

policy, while others note the continued restrictions on the non-governmental sector and repression of individual activists.[75]

Assessments of recent legislative changes are equally ambiguous, as apparent progress such as the recent identification of the public's "right to know" can easily be superseded by state security concerns. For example, while a new law, expected to come into effect on May 1, 2008, requires state and local authorities to publicize environmental information, other recent laws have sought to limit media coverage of emergencies and restrict access to the internet. These ambiguities reflect the difficulties for Chinese policymakers in attempting to diffuse public tensions over environmental issues, which have contributed to a growing number of public protests, especially in poor rural areas, while preventing the politicisization of environmental activism, as happened in Eastern Europe and the former Soviet Union in the 1980s. According to Peter Ho, a European scholar, the pressures confronting both the Chinese state and the environmental NGOs have created a distinctive form of environmentalism in China, relying on greater intervention by government through the "greening" of the Chinese state, and a more restricted field of action for environmental groups, which are obliged to remain local in focus and narrow the scope of their activities[76].

How engaged is the public on environmental issues? Is the Chinese public likely to play the catalytic role envisaged by risk theorists? Thus far the results here are also inconclusive. A poll by the State Environmental Protection Administration found mounting concern among the public about the state of the environment—86% of residents in 28 cities in China think pollution has a negative impact on their health, but the agency also encountered pervasive apathy in the public's approach to environmental problems. Although SEPA reported a 30% increase in public reporting of pollution incidents in 2006 (some 600, 000 reports were filed), of those surveyed, only 23% knew of the state environmental pollution hotline and a majority expected the government to address environmental problems, though most respondents were dissatisfied with the state of the environment.[77]

At this juncture, the growth of environmental risk in China outpaces the level of risk awareness both in society and in government. Although the new Chinese leadership appears to be recognizing the problem at the rhetorical level, the urgency of their response is at issue.

Moreover, provincial opposition to the implementation of legislation, the weak NGO sector, and inadequate transparency continue to pose barriers to environmental risk management.

Environmental Risk Management in Sino-Japanese Relations

Do environmental problems promote Sino-Japanese cooperation or exacerbate deep-seated conflicts between them? Realist analyses portray the Sino-Japanese relationship as a zero-sum competition for resources and trade partners, while constructivists point to conflicting nationalisms and historical narratives underlying tensions between the two states. Liberals focus on efforts by China and Japan to develop regimes to address collective goods problems such as air pollution. Yet Sino-Japanese energy relations have become more cooperative of late and security concerns periodically have intruded in their environmental relations.

By contrast, the risk approach presented here examines the interaction between risk management in China and Sino-Japanese relations on energy and air pollution. Following Daase who posits that states pursue multi-pronged risk management strategies, the paper outlines the changing patterns of Sino-Japanese interactions to address air pollution and energy security issues. Further research will examine the process by which Japan views certain types of environmental risk as a threat, what the Copenhagen School of constructivism refers to as "securitization."[78]

1. Air Pollution

While Sino-Japanese political and security relations have experienced many highs and lows over the years and have been particularly tense in recent years, their economic ties have grown steadily nonetheless and led to considerable economic interdependence. In 2006 China overtook the United States as Japan's largest trade partner, and Japan is China's third largest trade partner after the European Union and the United States. By and large, from 1979 to 1999, Japanese overseas development assistance (ODA, of which environmental projects have become an increasingly important component) to China proceeded independently of other issues in the bilateral relationship.

Political factors have occasionally intruded, however, as Japan stopped this aid for a year along with the U.S. and European states in protest against the Tiananmen crackdown in 1989 and again in 1995 to protest against Chinese nuclear tests. Japan's dumping of chemical weapons in China after World War II also has complicated environmental cooperation, particularly when bilateral tensions over history issues have been exacerbated. In general, however, the Japanese preference for technocratic solutions focusing on technological fixes for environmental problems has fit well with Chinese government priorities.[79]

Nonetheless, the Chinese government's approach to risk management—especially its lack of transparency on acid rain—initially posed considerable barriers to cooperation. China did not recognize that it generated a trans-boundary acid rain problem until 1992 and did not even fund the study of acid rain until the 1996-2000 Five-Year plan. At the same time that China began acknowledging its contribution to regional environmental problems, Japanese officials opted to make the environment a priority sector in ODA for China.[80] In the mid-1990s this led to a major shift: while environmental loans constituted just 1.8% of Japanese loans to China in 1995, they made up more than 60% of such loans in 1999, a development that Chinese leaders did not find entirely welcome, due to their preference at the time for support for infrastructure development.[81]

A Japan-China Friendship Environmental Protection Center was established in Beijing in 1992. In 1994 Japan and China signed a bilateral agreement on environmental cooperation to promote joint research and information exchange.[82] This led to a series of high-level meetings on environmental cooperation, culminating in a 1997 agreement on Sino-Japanese environmental cooperation in the 21st century.[83] Sino-Japanese environmental cooperation is notable for its multifaceted nature, involving bilateral aid through Overseas Development Assistance (ODA), private sector, regional, and sub-regional initiatives, as well as multilateral cooperation with South Korea, and global efforts through the Kyoto Protocol.

Although Japan has been reducing its ODA to China in recent years, with an intention to end it by the 2008 Beijing Olympics, all of the 62 billion yen in loans for FY2006 went to environmental projects and technical aid for environmental and public health projects will continue beyond 2008 due to their direct impact on Japan.[84] Japan has provided 3.2 trillion yen (approximately US$26.6 billion) in ODA to China since 1979.[85] The extent of this aid is not widely publicized within China, however, and has tended to be dismissed as serving Japanese

commercial interests. In fact, at the outset Japanese loans to China were not tied to its procurement of Japanese technology; this condition was added later in response to Japanese corporate woes as the economic situation floundered.[86] Since 2000, however, political concerns over the consequences of China's economic rise, including the potential for its military to make use of Japanese development aid, and a reappraisal of China's appropriate place in Japan's shrinking overseas aid portfolio, contributed to the decision to end most aid by 2008.[87]

Sino-Japanese bilateral cooperation occurs within a broader regional context. China has signed intergovernmental agreements on environmental cooperation with both South Korea (1993) and Japan (1994). Thanks to a 1993 Korean Foreign Ministry initiative, with the support of the UNDP and the ADB, senior officials in Northeast Asia began meeting to discuss energy and air pollution, ecosystem management, and capacity building. This forum led to the development of sub-regional cooperation on environmental issues, such as the Northeast Asia Sub-Regional Programme for Environmental Cooperation (NEASPEC) and, promoted enhanced communication among regional environmental ministries via the Northeast Asian Conference on Environmental Cooperation (NEACEC) as well as enhanced research.[88]

Another Korean initiative, the Expert Meeting on Long Range Transboundary Pollutants, sponsored by the Korean National Environmental Research Institute, established a program of joint research for South Korea, Japan, and China to measure acid rain.[89] Similarly the Japanese Environment Agency also set up a regional acid rain network and the Ministry of Education supported cooperative research relating to acid rain in China.[90]South Korea, Japan, and China also have initiated projects to monitor yellow dust in the region. They have cooperated to set up monitoring stations in China to provide advance notice of dust storms and to develop tree planting programs to help reverse the desertification process.[91]

Japan also has been instrumental in providing technical assistance to China to address acid rain and GHG emissions problems. Once the Chinese government admitted that acid rain from China was reaching Japan, the Japanese government began including desulphurization technology in its Official Development Assistance (ODA) for China and the Ministry of Economy, Trade, and Industry (METI) came up with a Green Aid Plan focusing on clean coal technology and energy efficiency.[92]

By signing agreements on global warming, China is eligible to receive assistance in reducing its GHG emissions, through the Multilateral Fund (Montreal Protocol) and the Clean

Development Mechanism (Kyoto Protocol). Japan has played an active role in providing clean technology under these mechanisms. In the past five years Japan's Energy and Industrial Technology Development Organization has conducted feasibility studies for 50 projects to reduce carbon dioxide emissions in China.[93]

During Prime Minister Wen Jiabao's meeting with Prime Minister Shinzo Abe in Tokyo in April 2007, the two leaders discussed assistance with a number of environmental projects and cooperation in the development of clean technologies and improving energy efficiency. The Chinese leader also expressed his willingness to become involved in negotiations to develop a successor to the Kyoto Protocol, but remained wary of committing China to any numerical targets.[94] While a promising sign of a possible shift in China's position enabling more substantial Sino-Japanese cooperation to reduce global greenhouse gases, the viability of a successor to the Kyoto regime will depend on broader developments within international society. In particular, the policy of the next American president will have a major impact on the evolution of global norms for reducing greenhouse gases.

2. Energy

Energy issues have highlighted competitive, at times conflictual, aspects in their relations. The countries have become competitors in global energy markets as China's dependence on energy imports is increasing. Japan imports 99% of the 5.3 million barrels per day of oil that it consumes and is the second largest importer of oil after the U.S. China's oil imports have now reached 6.9 million barrels per day.[95] A Japanese defense report leaked in November 2004 said war between the two powerful neighbors could be sparked by an energy crisis, which Beijing sharply criticized as evidence of Tokyo's "Cold War mentality." For its part, China also accuses Japan of attempting to disrupt Chinese energy projects around the world, including in Russia, Iran, Sudan and Australia.

China's growing need for energy resources already has led to increased competition between the countries over priority access to Siberian oil, instigated initially by rivalry between Russian oil companies, Yukos, which favored the original pipeline from Taishet to Daqing, and Transneft, the Russian oil pipeline monopoly, which proposed to Japan a Pacific pipeline alternative, spanning across Russian territory to Kozmino Bay on the Pacific coast, near

Nakhodka. Even as Yukos was sidelined as a corporate player, the Putin government saw advantage in playing off Chinese and Japanese government interests in Siberian oil, while reassuring each side that their preferred pipeline project was the one Moscow would pursue.[96]

Transneft, began constructing the East Siberia Pacific pipeline on April 28, 2006. The Taishet-Skovorodino portion is supposed to be completed by 2008 and to provide 80 million tons of oil per year, including 30 million tons for China. The Chinese National Petroleum Company is providing $400 million to connect the pipeline to the Chinese border via a 43-mile spur. The pipeline from Skovorodino on the Russian-Chinese border to Kozmino Bay is scheduled to be completed by 2013, although recently Putin has cast doubt on its ability to provide sufficient oil for both China and Japan, as promised in recent years.

At present the Russian government has been seeking to reduce foreign investment in the energy sector, which could limit opportunities for both China and Japan in the Siberian project. Regarding Japan, there are many uncertainties regarding the interest of companies in participating in the absence of government guarantees (especially considering Gazprom's strong-arm tactics to reduce the stakes held by U.S. and Japanese firms in the Sakhalin 2 project) as well as questions about its future demand for oil, given Japan's effort to seek alternative energy sources.[97] While China has been determined to build a pipeline from Daqing to Skovorodino, more than a decade of frustrating energy relations with Russia have served to emphasize the importance of diversifying sources of supply beyond Russia and in exploring multiple options within Russia.[98] After neglecting Sakhalin energy, originally focused on the Japanese market, in favor of Siberian projects, China now has a joint venture with Rosneft to explore the Venininsky bloc in Sakhalin 3.

The real competition between China and Japan over energy resources focuses on their dispute over offshore gas fields in the East China Sea. Japan has protested China's plan to develop the Chunxiao gas field in the Xihu trough, a 22,000 square kilometer area some 500 kilometers southeast of Shanghai, which is projected to produce 250 million cubic feet of gas per day in 2005. The field is located near the Senkaku/Diaoyutai islands, contested by China, Japan, and Taiwan. The Japanese government contends that the project extends beyond the "median line" between the two countries, while China asserts that the maritime border actually should extend even further east.

Japan sent a seismic survey vessel to the field in July 2004 to see if the reserves claimed by China extended into Japanese territorial waters. In protest against what Beijing termed Japan's "dangerous provocation," Chinese destroyers sailed directly into the survey vessel's path, only changing course at the last minute to avoid collision. Originally Royal Dutch/Shell and the Unocal Corporation acquired a 20% stake each and planned to invest $85 million in the Chunxiao gas project, but after years of discussions with Sinopec and CNOOC, in September 2004 the two foreign companies decided against further participation, claiming that the venture failed to meet commercial requirements. According to Hisahiko Okazaki, an adviser to Prime Minister Abe, the East China Sea dispute is most likely to put China and Japan 'on a collision course.'[99]

Nonetheless, despite the tensions that have periodically emerged in Sino-Japanese relations, the two states have managed to engage in dialogue on the offshore gas fields and broader regional issues of energy security. China and Japan held several rounds of talks on the disputed project since 2004, but have yet to resolve their differences. Wen Jiabao and Shinzo Abe agreed to hold regular official talks on energy issues and to jointly develop offshore gas resources 'in large expanse of ocean,' but the Chinese Prime Minister's visit failed to lead to any breakthrough on the maritime border disputes and the Chinese government plans to continue with its own gas projects in areas of the East China Sea not disputed by Japan.[100] The two leaders pledged to 'strive for a specific proposal for joint development' of gas reserves by the coming autumn, though neither side provided any detail.[101]

Although energy typically is viewed as an arena for competition and conflict among states afflicted by resource scarcities and uncertainties of supply, in recent years the Asia-Pacific region has seen a number of regional actions to encourage dialogue on energy security. Such efforts have involved individual efforts by the Chinese and Japanese governments, as well as initiatives by ASEAN+3, the East Asian Summit, and the U.S.-led Asia-Pacific Partnership on Clean Development and Climate, launched in 2005, and including both China and Japan, as well as South Korea, India and Australia.[102]

Conclusion

A risk approach reveals the foreign policy implications of unsustainable development, resulting in energy insecurity and air pollution which affect China's relations with its neighbors, including Japan. If realists argue that a rising China poses a threat and should be contained, and liberals argue that, to the contrary, China does not pose a threat and should be engaged, then risk theorists provide a more complex picture. They would argue that a weak China, afflicted by environmental degradation and resource scarcities, poses risk, which can only be remedied by heightened awareness within Chinese society, prompting pressures for policy change. International and global society can contribute by strengthening norms for environmental protection and energy efficiency and providing support for China's emerging environmental movement.

The research for this paper thus far has shown that while both the Chinese government and society have made progress in risk management, many obstacles remain in terms of implementation of national policies on the local level, adequate transparency, and opportunities for societal action. Consequently, environmental risk will continue to shape Sino-Japanese relations in the years to come.

If Sino-Japanese energy relations tend to be viewed in realist terms this is because of the securitization of risk on both sides. Given their dependence on energy imports and vulnerability to disruptions in supply, both China and Japan tend to securitize their access to energy. Nonetheless, at times cooperation prevails over competition in Sino-Japanese energy relations, and factors other than economic and security interests appear to be at play, particularly the influence of history and nationalism in the two countries at any particular time. Air pollution has not seen the same degree of securitization on either side, a reflection of the lack of urgency of the issue. Unlike energy, where shortages are readily apparent in terms of prices and shortages, the public health impact of air pollution has a longer time frame. Moreover, cooperation on air pollution has been more constrained by problems of transparency and implementation on the Chinese side.

The paper also has found that there are a range of responses to risk. If Sino-Japanese relations on energy and environmental relations have not been consistent, this reflects the variety of risk management options, involving bilateral and multilateral cooperation as well as

competition and financial incentives. The future of their relations in this area will depend as much on China's commitment to sustainable development as on the issues of history and nationalism that tend to grab the headlines.

Notes

[1] Banning Garrett, "China Faces, Debates, the Contradictions of Globalization," *Asian Survey*, Vol. 43, No. 3, pp. 409, 411.
[2] Samuel S. Kim, "China's Path to Great Power Status in the Globalization Era," *Asian Perspective*, Vol. 27, No. 1, 2003, pp. 55-58; Yong Deng and Thomas G. Moore, "China Views Globalization Toward a New Great-Power Politics?" *The Washington Quarterly*, Vol. 27, No. 3, Summer 2004, pp. 120-121.
[3] State Council of the PRC, *China's National Defense in 2006*, http://www.china.org.cn/english/features/book/194421.htm
[4] State Council of the PRC, *China's National Defense in 2006*, http://www.china.org.cn/english/features/book/194421.htm
[5] Hu Jintao, "Build Towards a Harmonious World of Lasting Peace and Common Prosperity," Speech by Hu Jintao to the United Nations Summit, September 15, 2005, www.fmprc.gov.cn; Wen, Jiabao "Turning Your Eyes to China," Speech by Premier Wen Jiabao at Harvard University, December 10, 2003, http://losangeles.china-consulate.org/eng/news/topnews/t56336.htm; Shi Yonming, "Rational Order,"No. 51, December 21, 2006, www.beijingreview.com.
[6]Samuel S. Kim, "Chinese Foreign Policy Faces Globalization Challenge," in Alastair Iain Johnston and Robert S. Ross eds., *New Directions in the Study of China's Foreign Policy*, (Stanford: Stanford University Press), p. 288; Samuel S. Kim, "China's Path to Great Power Status in the Globalization Era." *Asian Perspective*, Vol. 27 No.1, p. 71-2.
[7] Ian Clark, *Globalization and International Relations Theory*, (Oxford: Oxford University Press, 1999), p. 10.
[8] James Rosenau, *Distant Proximities: Along the Domestic-Foreign Frontier*, (Princeton: Princeton University Press, 2003), PAGE?
[9] Yong Deng, "Reputation and the Security Dilemma: China Reacts to the China Threat Theory," in Johnston and Ross, eds., p. 203.
[10]Beck's terminology as translated into English can be confusing, as sometimes he equates risk with global threats. Christopher Daase's work makes the clearest distinction between the intentional threats in traditional security and risk in non-traditional security since the end of the Cold War in "Internationale Risikopolitik: Ein Forschungsporgram fur den sicherheitspolitischen Paradigmenwechsel," [International Risk Politics: A Research Program for a Change in Security Paradigm] in eds. Daase, Christopher, Feske Susanne, and Peters, Ingo. *Internationale*

Risikopolitik [International Risk Politics] Baden-Baden: Nomos Verlagsgesellschaft, 2003), p. 10-18.

[11]Giddens calls risk manufactured uncertainty, stemming from "human involvement trying to change the course of history or alter the contours of nature." By contrast, Giddens terms dangers from nature "external." Anthony Giddens, "Affluence, Poverty and the Idea of a Post-Scarcity Society," in Ed. Ken Booth, *Statecraft and Security: The Cold War and Beyond*, (Cambridge: Cambridge University Press, 1998), pp. 309-310.

[12] Ulrich Beck, "The Terrorist Threat: World Risk Society Revisited," *Theory, Culture, and Society*, Vol. 19, No. 4, p.41.

[13] Ulrich Beck and Johannes Williams, *Conversations with Ulrich Beck*, (Cambridge: Polity, 2004), p. 109; Niklas Luhmann, *Risk: A Sociological Theory*, (Hawthorne, N.Y.: Aldine de Gruyter, 1993), p. 22.

[14] *Conversations with Ulrich Beck*, pp. 114-5.

[15] Barbara Adam and Joost van Loon, "Introduction: Repositioning Risk: The challenge for Social Theory," in Barbara Adam, Ulrich Bech, and Joost Van Loon, eds., *The Risk Society and Beyond: Critical Issues for Social Theory*, (London: Sage Publications, 2000), p.7; Ulrich Beck, *Ecological Politics in an Age of Risk*, Translated by Amos Weisz, (Cambridge: Polity Press, 1995), pp. 77-78.

[16]Luhmann, p. 19.

[17] Beck, Conversations…, p. 39. Also see Giddens, *Modernity and Self-Identity: Self and Society in the Late Modern Age*. Cambridge: Polity Press, 1991.

[18] Ulrich Beck, *World Risk Society*, (Cambridge: Cambridge University Press, 1999), pp. 34-5.

[19] Ulrich Beck, *Risk Society*, Translated by Mark Ritter, (London: Sage Publications, 1992), p. 37.

[20] Beck, *Risk Society*, p. 36.

[21] Beck, *World Risk Society*, pp. 2-3; Ulrich Beck, "The Challenge of World Risk Society," *Korea Journal*, Vol. 38, No. 4, Winter 1998, p. 200.

[22] Beck, *Risk Society*, p. 19.

[23] Beck, *World Risk Society*, pp. 73-4.

[24] *Conversations with Beck*, p. 139.

[25]Michel Foucault, "La Gouvernmentalité," in *Dits et Ecrits*, Vol 3, (Paris: Gallimard, 1994), p 656; translated in Graham Burchell, Colin Gordon, and Peter Miller, eds. *The Foucault Effect: Studies in Governmentality*, (Chicago: University of Chicago, 199), p. 103.

[26]Mikkel Vedby Rasmussen, *The Risk Society at War: Terror, Technology, and Strategy in the Twenty-First Century*, Cambridge: Cambridge University Press, 2006, p. 37; also see Rasmussen, "Reflexive Security: NATO and International Risk Society," *Millennium*, Vol. 30, No. 2, p. 292.

[27] Niklas Rose, *Powers of Freedom: Reframing Political Thought*, (Cambridge: Cambridge University Press, 1999), p. 174.

[28] Beck, "The Terrorist Threat…," p. 42.

[29] Beck, "Risk Society Revisited: Theory, Politics, and Research Programmes," in eds. Adam et al., *The Risk Society and Beyond*, p. 226.

[30] Beck, *What Is Globalization?*, p. 39. Shlomo Griner, "Living in a World Risk Society: A Reply to Mikkel V. Rasmussen," *Millennium*, Vol. 31, No. 1, p. 159. On security communities, see Emanuel Adler and Michael Barnett, "Security Communities in a Theoretical Perspective," in idem, *Security Communities*, (Cambridge: Cambridge University Press, 1998), pp. 3-28; Amitav Acharya, "Collective Identity and Conflict Management in Southeast Asia," in ibid., pp. 198-227.

[31] Beck, "The Terrorist Threat," p. 48.
[32]Daase, pp. 18-21.
[33] Daase, pp. 21-2; Rasmussen, "Reflexive Security," p. 293. For example, the Bush Administration claimed it had to invade Iraq to eliminate the risk of Saddam Hussein's possession of weapons of mass destruction, but the U.S. invasion itself created new risks regional instability and terrorism.
[34] Rasmussen, *The Risk Society at War*, p. 194.
[35] Luhmann, p. 2-3.
[36] Griner, p. 151. See Alexander Wendt, *Social Theory of International Relations*, (Cambridge: Cambridge University Press, 1999), pp. 47-91.
[37] Lester Brown *Can China Feed Itself*? Wake-Up Call for a Small Planet (New York: Norton, 1995). Also see Vaclav Smil, *The Bad Earth: Environmental Degradation in China* (Armonk: M.E. Sharpe, 1984).
[38] Elizabeth C. Economy, *The River Runs Black*, (Ithaca: Cornell University Press, 2004). Vaclav Smil's later book, *China's Environmental Crisis: An Inquiry into the Limits of National Development*, (Armonk: ME Sharpe, 1993), argues that the rate of environmental decline in China will determine its consequences.
[39] The English translation of the 2006 SEPA report's section on air quality can be found at http://www.cleanairnet.org/caiasia/1412/article-71427.html.
[40] Ming Wan, p. 368.
[41] Geun Lee, "Environmental Security in East Asia,," *Asian Perspective*, Vol. 26, No. 2, 2002, p.86.
[42] *China: Air, Land, and Water: Environmental Priorities for a New Millennium*, The World Bank, 2001, p. 78.
[43] Andrew Batson, "China's Choke-Hold over Asia," *The Far Eastern Economic Review*, July 8, 2004, p. 29.
[44] Batson, p. 32.
[45] "Pollution Control Targets Not Met," *China Daily*, February 13, 2007, http://english.people.com.cn.
[46] *China: Air, Land, Water*, p. 89.
[47] 2006 SEPA Report, *opcit*.
[48] Lester R. Brown, "Dust Storms Threatening China's Future," *Earth Policy Alert 2001-2*, May 23, 2001, www.worldhungeryear.org.
[49] Geun Lee, p. 87.
[50] Andrew Ward, "Warning by UN as Dust Storms Worsen," *Financial Times*, April 4, 2004, p.2.
[51] 2006 SEPA Report, *opcit*.
[52] A particularly large storm in 1993 killed 100 people in China. Jianguo Liu and Jared Diamond, "China's Environment in a Globalizing World," *Nature*, Vol. 435, June 2005, p.1183.
[53] Brown, "Dust Bowl," ibid.
[54] Elizabeth C. Economy, *China's Environmental Challenge*, Testimony before the U.S.-China Economic and Security Review Commission, February 2, 2006, p. 3., www.uscc.gov.
[55] Keith Bradsher, "China to Pass U.S. in 2009 in Emission," *The New York Times*, p. C1, C4.
[56] Keith Bradsher, "China's Boom Adds to Global Warming Problem," *The New York Times*, October 22, 2003, www.nytimes.com

[57] The World Bank, *The Montreal Protocol Successful Partnerships for Ozone Protection: The Case of China*, http://lnweb18.worldbank.org/essd/envext.nsf/49ByDocName/MontrealProtocolSuccessfulPartnershipsforOzoneProtection--TheCaseofChina/$FILE/China_Part1.pdf
[58] XFN-Asia, "China's 2006 Oil Import Dependency Up 47%," February 13, 2007 (Lexis-Nexis Academic).
[59] Agence France Presse, "China Imports Record Amounts of Oil in 2006," January 15, 2007 (Lexis Nexis Academic).s
[60] BP Statistical Survey of World Energy, June 2006, p. 28, 40; cited in Erica Downs, "Sino-Russian Energy Relations: An Uncertain Courtship," in David Finkelstein, ed. *Sino-Russian Strategic Partnership* (forthcoming).
[61] "China Annual Gas Consumption to Reach 100 bl. Cubic Meters in Next Five Years," *Xinhua*, July 29, 2005.
[62]Economy, p. 2.
[63] Robert Manning, "The Asian Energy Predicament," *Survival*, Autumn 2000, pp. 73-88.
[64] "Hu Jintao Stresses Harmony among People, Resources, Environment," *New China News Agency*, March 10, 2003.
[65] "Chinese President Outlines Energy Conservation and Development Policies," *Xinhua*, June 28, 2005.
[66] "Chinese President, Premier Speak on Population, Resources, Environment," *Xinhua*, March 14, 2005.
[67] "China to Cut Energy Consumption by 4% in 2006," *People's Daily Online*, March 5, 2006, www.english.people.com.cn.
[68] "China Sets New Targets in Five-Year Plan," *People's Daily Online*, March 7, 2006; http://english.people.com.cn.
[69] "Economic Losses from Pollution Amount for 10% of China's GDP," Xinhua, June 5, 2006 (LexisNexis Academic).
[70] Prime Minister Wen Jiabao, Report on the Work of the Government (2007), Delivered at the 5th Session of the 10th National People's Congress, http://english.gov.cn/official/2007-03/16/content_552995.htm
[71] "U.N. Council Hits Impasse Over Debate on Warming," *The New York Times*, April 18, 2007, p. A6.
[72] Keith Bradsher, "China Preparing to Tax Vehicles with Large Engines," *The New York Times*, August 26, 2005, p. C5.
[73] Hongyan He Oliver, "Reducing China's Thirst for Foreign Oil: Moving Towards a Less Oil-Dependent Road Transport System," *China Environment Series*, Issue 8, 2006, p.44.
[74] Guobin Yang, "Environmental NGOs and Institutional Dynamics in China," *The China Quarterly*, No. 181, March 2005, pp. 46-66.
[75]See for example Human Rights in China, "China's Environmental Challenge," *China Rights Forum No. 1* 2006, http://hrichina.org/public/contents/article?revision%5fid=29487&item%5fid=27593
[76] Peter Ho "Greening without Conflict? Environmentalism, NGOs and Civil Society in China," *Development and Change* Vol. 32, 2001, p. 897.
[77] "Chinese Apathetic about Environmental Protection," January 18, 2007, www.english.gov.cn.

[78] The Copenhagen School, a group of European scholars centered in the Copenhagen Peace Research Institute, including Ole Waever, Barry Buzan, and other colleagues, has made an important contribution by viewing security as a social process. In their conception, security is not an objective condition, but the outcome of a "securitizing" speech act. Thus, actors use the language of security, i.e. "securitize" an issue when it is perceived as an urgent threat to a given referent object (which may be a state, but also a region, a community, a class, the biosphere, or the economic system). An issue is successfully securitized when an audience agrees that there is an existential threat to a shared value. Barry Buzan, Ole Waever, and Jaap de Wilde, *Security: A New Framework for Analysis*, (Boulder: Lynne Rienner, 1998), p. 26, 31.
[79] Katherine Morton, *International Aid and China's Environment*, (London: Routledge, 2006), p. 51.
[80] Morton, p. 58.
[81] Ming Wan, *Sino-Japanese Relations*, (Washington, D.C.: Woodrow Wilson Center for Scholars Press, 2006, p. 266.
[82] Keiichi Tsunekawa, "Why So Many Maps There? Japan and Regional Cooperation," in T.J. Pempel. Ed. *Remapping East Asia: The Construction of a Region*, (Ithaca: Cornell University Press, 2005), p. 138.
[83] Katherine Morton, *International Aid and China's Environment: Taming the Yellow Dragon*, New York: Routledge, 2005, pp. 58-64; "Japan's Environmental Policy," in Hidefumi Imura and Miranda Schreuers, eds. *Environmental Policy in Japan*, Cheltenham, UK: Edward Elgar Publishing Ltd., 2005, p. 149.
[84] Ministry of Foreign Affairs, *Japan's Official White Paper Development Assistance 2006*, http://www.mofa.go.jp/policy/oda/white/2006/index.htm.
[85] Ming Wan, p. 265.
[86] Morton, pp. 60-61.
[87] For a detailed discussion of the reasons behind Japan's decision to scale back its ODA to China, see Ming Wan, pp. 268-286.
[88] Ken Conca, "Environmental Confidence Building and Regional Security in Northeast Asia," in Miranda Schreurs and Dennis Pirages, eds. *Ecological Security in Northeast Asia*, Yonsei University Press, 1998, pp. 76-77.
[89] Conca, p.78.
[90] Ann Bretell and Yasuko Kawashima, "Sino-Japanese Relations on Acid Rain," in Schreurs and Pirages, eds., p. 98.
[91] Kyodo, October 6, 2002.
[92] Idem, p. 97.
[93] "Powering an Economy," *Asahi Shinbun*, July 25, 2003.
[94] "Wen's 'Ice-Melting' Trip Bears Fruit on Environment," *The Nikkei Weekly* (Japan), April 16, 2007 (LexisNexis Academic); Kwan Weng Kim, "China, Japan Move Closer to Eergy Cooperation," *The Straits Times* (Singapore), April 13, 2007 (LexisNexis Academic).
[95] U.S.Energy Information Administration, *Country Analysis: Japan*, http://www.eia.doe.gov/emeu/cabs/Japan/Oil.html.
[96] For a detailed analysis of Chinese, Japanese, and Russian interests in this project, see Shoichi Itoh, "The Pacific Pipeline at a Crossroads: Dream Project or Pipe Dream?" *ERINA Report*, Vol. 73 No.3, January 2007, pp. 31-62.

[97] Itoh, p. 60. On Russia's energy diplomacy in Asia, see Elizabeth Wishnick, "Russia and the CIS," *Asian Survey*, January-February 2007, pp. 58-67.
[98] Elizabeth Wishnick, "Why a Strategic Partnership? The View from China," in ed. David Finkelstein, *Sino-Russian Strategic Partnership* (forthcoming).
[99] David Pilling and Mure Dickie, "Wen Seeks End to Sino-Japan Disputes," April 13, 2007, www.ft.com. (*The Financial Times* website).
[100] Kwan Weng Kin, "China, Japan Move Closer to Energy Cooperation," The Straits Times (Singapore), April 13, 2007 (LexisNexis Academic).
[101] Mure Dickie, "Warm Language but No Details as Wen Visits Abe," *The Financial Times*, April 12, 2007, p. 1.
[102] Shoichi Itoh, "China's Surging Energy Demand: Trigger for Conflict with Japan or the Emergence of an Energy-Environment Regime in the Asia-Pacific?" Paper prepared for the 2007 International Studies Association Conference, Chicago, February 28-March 4, 2007, pp.9-12.