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China in the Asia-Pacific Partnership: Consequences for UN climate change mitigation efforts?

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Abstract This article discusses China's motives for participation in the Asia-Pacific Partnership on Clean Development and Climate (APP), and whether this has or will have consequences for its participation and efforts in the UN track of international climate governance. In order to discuss these issues, it also provides an outline of key national priorities and explains the nature of China's involvement in both the UN track and the APP. It suggests that the APP is a complement to the UN process, not a competitor, in the case of China. APP participation represents a win-win situation in terms of the transfer of technology and know-how for solving challenges related to energy security and greenhouse gas emissions. For the Chinese leadership this seems preferable to taking on UN commitments which it fears would impede economic development. The APP's projects also seem to complement the Kyoto Protocol's Clean Development Mechanism project in China. This article argues that there is little indication that China would make less of an effort under the UN track.

Keywords Asia-Pacific Partnership on Clean Development and Climate, China, Clean Development Mechanism, climate change, United Nations Framework Convention on Climate Change

Abbreviations

APP	Asia-Pacific Partnership on Clean Development and Climate
CDM	Clean Development Mechanism
CER	Certified Emissions Reductions
COP	Conference of the Parties
GHG	Greenhouse gas
GDP	Gross domestic product
MEP	Ministry of Environmental Protection
MFA	Ministry of Foreign Affairs
MOST	Ministry of Science and Technology
NC4	National Climate Change Coordination Committee
NDRC	National Development and Reform Commission
UNFCCC	United Nations Framework Convention on Climate Change

1 Introduction

With its new status as the world's largest emitter of greenhouse gases (GHGs), China is a key player in global climate change mitigation, with a prominent role in the United Nations climate change negotiations. It has been an active participant in the negotiations and is set to play a very important role in the future climate regime. At the same time, while it has ratified the Kyoto Protocol, it refuses to take on GHG emission reduction commitments, together with the more than 130 developing countries known as the G77. In recent years the Chinese government's involvement in dialogues in the negotiations has been the source of some optimism, however. At the United Nations Framework Convention on Climate Change (UNFCCC) 14th Conference of the Parties (COP-14) in Poland in 2008, Al Gore praised China's efforts (Gore 2008), stating that in contrast to two years ago "no one at this conference has said China is standing in the way of progress. China is ready to join in leading the world toward a solution for this crisis".

In 2005, China joined the Asia-Pacific Partnership on Clean Development and Climate (APP) together with Australia, India, Japan, South Korea and the U.S. Canada joined in 2007. The partnership aims to reduce GHG emissions through voluntary public-private partnerships and a focus on cleaner technology. At the first ministerial meeting of the APP, China claimed to remain "committed to the principles and provisions of the [UNFCCC] and the Kyoto Protocol so as to make full use of the complementary role of the Partnership" (Hua 2006). APP representatives hold that the partnership is "not meant to undermine Kyoto" (Brown 2005)

This article discusses China's motivation for joining the APP and poses the question of whether and how this participation may influence its involvement in the 'UN track', that is, the UNFCCC, its Kyoto Protocol and the post-2012 climate regime. While China's preferred method of participation in the UN track is through the Clean Development Mechanism (CDM), the co-operative, technology-focused projects of the APP seem an attractive supplement. The APP is still fairly new, and the number of activities is still fairly small. While there has been some scholarly attention to the APP in general (see Karlsson-Vinkhuyzen and van Asselt 2009), the focus on China's participation in the APP has so far been limited. This article draws some conclusions on whether its involvement in the APP influences China's UN track participation, weakens its efforts and makes future emission reduction commitments under the UN track less likely.

Providing a backdrop for the discussion in this article, sections 2 and 3 introduce China's official priorities, with a special emphasis on energy security and climate change policy-making. In section 4 and 5, the focus shifts to China's involvement in the UN track and the APP, respectively. Section 6 discusses the question whether the APP can be viewed as complementary or competitive to the UN track in the case of China, and in section 7 we make concluding remarks. The analysis is limited to the significance of *China's* APP membership for *China's* UN track participation, even if the larger picture will be touched upon where relevant. Some parts of the article draw on other works, such as McGee and Taplin (2006) and Vihma (2009). Interviews with key actors for this study were carried out on multiple occasions in 2007 and 2008.

2 Domestic priorities and the importance of energy security

Understanding the domestic context in which policy decisions are made is critical to understanding Chinese foreign policy, of which energy and climate change policies are a part. China's official priorities are economic development, poverty alleviation and social stability (NDRC 2006). Crucial to attaining these goals are continued economic expansion and therefore energy security, which in turn is inextricably linked to climate change. Energy security is generally defined as the "provision of reasonably priced, reliable and environmentally friendly energy" (Müller-Kraenner 2008, p. xi). However, with China's current energy mix and low efficiency, energy is provided in ways which are highly damaging to people, environment, and climate.

From 1980 to 2007, China experienced rapid economic growth at an annual average rate of 9.8%, accelerating to 11% in 2006 and 2007 (IEA 2007) and in January 2009 it had become the world's third-largest economy (CNN 2009). It nevertheless remains a developing country,¹ with a low *per capita* gross domestic product (GDP) at about one fourth of the OECD average (IEA 2007). The number of poor people has been reduced dramatically, but the World Bank still estimated that more than 204 million Chinese had consumption levels below one US dollar a day in 2005 (World Bank 2008), and income disparity is increasing rapidly (UNDP 2008). As for energy poverty, 99% of Chinese people now have access to modern energy (IEA 2007), but this figure includes households using only one light bulb as well as those running numerous appliances.

Chinese economic growth remains fossil fuel-powered. Coal constituted 69.4% of total energy consumption in 2006 (China Statistical Yearbook 2007), and even with a government focus on development of renewables, nearly 90% of all new power-generation capacity was coal-fired (IEA 2007). China's enormous demand for coal made it a net importer in 2007 (IEA 2007), and coal is expected to still constitute 53% of total energy consumption in 2030 (IEA 2004; World Bank 2006). It is important to note, however, that from 1980 to 2000 China's energy consumption 'only' doubled, while its GDP quadrupled (Sinton et al. 2005; Sugiyama and Oshita 2006), and from 1990 to 2002, energy intensity dropped by 54% (Herzog et al. 2006). The country plans to quadruple its GDP again by 2020, while again 'only' doubling energy consumption (EIA 2007; Sinton et al. 2005). In 2007 China was said to have taken the lead in decoupling energy from GDP growth, which can be considered impressive for a developing country (Energy Foundation 2007). This would be very positive from an emissions perspective, but doubts have arisen as to whether this ambitious plan could be implemented, as energy consumption again grew faster than GDP (Sinton et al. 2005).

The abundance of cheap fossil energy has produced both positive and negative consequences for China, as it is critical to economic development, yet detrimental to the environment. Energy policy has therefore moved to the very top of the political agenda, and policy changes and new laws have been introduced. A new Energy Law will likely come into force in 2009, covering energy efficiency and security, as well as environmentally friendly energy developments. The Renewable Energy Law of 2006 aims at 15% of the energy mix to be renewables by 2020 (NDRC 2007b). Next, the 11th Five-Year Social and Economic Development Programme (2006-2010) aims at reducing the ratio of total energy use to GDP by 20% in 2010 compared to 2005. There is also great focus on energy conservation, the strategies for which were outlined in an important document (the 2004 'China Medium and Long Term Energy Conservation Plan'; NDRC 2005).

Chinese energy provision is highly coal-based and severely polluted air, waters and soils have started to cause public concern and unrest (Lum 2006). The country is already feeling the consequences of extreme weather conditions and a future climate change-induced one meter sea level rise on the East coast could potentially submerge the homes of half the population and the sources of 60% of its economic output (Economy 2007). Energy security - reasonably priced, reliable and *environmentally friendly* energy - is therefore a key priority in China's development strategy (IEA 2007; OECD 2007).

3 Climate change policy-making in China

Heggelund (2007) explains that in the 1990s, the Chinese saw climate change as a matter of science rather than politics, economy and energy. Until 1998 climate change was the responsibility of the China Meteorological Administration (CMA), working with other scientific agencies. Energy

¹ While there exists no unified definition of 'developed' and 'developing' countries, one should note that the terms take into consideration not just economy, but also factors such as degree of democratic government, industrialization, the existence of social programs and human rights.

sources and consumption, already linked to economy and politics, are also inextricably linked to climate change and energy policy and, thereby, to climate policy. As this was realized, climate change issues gradually shifted from being solely a scientific issue to increasingly being a political and economic issue, and it therefore became the responsibility of the National Development and Reform Commission (NDRC). The Ministry of Foreign Affairs (MFA) led the UN negotiations (Heggelund 2007; Qi et al. 2008), making climate change a foreign policy issue to be discussed in the UN negotiations, distant from ordinary people's lives (Qi et al. 2008). This section outlines the Chinese climate change policy-making context, how the actors involved inform policy, and discusses important developments in the past decades. A web of government agencies make up China's climate change policy-making context. There have been many changes in responsibilities in the past decades, but we focus mainly on the situation at the time of writing.

Climate change policy and the related energy issues are the responsibility of the National Coordination Committee on Climate Change (NC4). The NC4 was established in 1990 to promote coordination among the various relevant ministries and governmental bodies.² Its most important members are the NDRC and the MFA, while the Ministries of Environmental Protection (MEP, until 2008 the State Environmental Protection Administration) and Science and Technology (MOST) appear to play secondary roles. The NDRC is a powerful macroeconomic management agency which holds broad administrative and planning control over the economy and energy sectors. Its influence in the climate field is illustrated by the fact that it heads China's UNFCCC delegations, and its Climate Change Department is also responsible for work related to the Asia-Pacific Partnership (see below).³ The MFA also plays a key role in the international political process on climate change, and the lead negotiator in the UN climate process is often from this ministry. Since climate change is still defined primarily as a foreign policy issue, the MFA exercises great influence over China's stance both internationally and nationally. It is a 'hardliner' in stressing the significance of economic considerations and Chinese sovereignty (Heggelund and Andresen 2010).

The delegation of responsibility to the NDRC signified that the political and energy aspects of climate change were increasingly understood and taken into consideration, and thus needed to be taken care of by an agency other than the CMA. This also "signified that the domestic discussion about China's potential contribution to the international efforts to combat climate change [took] a moderate, and not very proactive, direction" (Heggelund 2007, p. 171). Scientists from the CMA represented China in the IPCC, and MEP and MOST believed more proactive stances could entail potential benefits for China, such as access to technology. The NDRC, obviously also informed by its energy policy responsibilities, and the MFA, however, emphasized economic development and sovereignty concerns in the climate negotiations, which has resulted in a cautious Chinese response. Together, the NDRC and the MFA now see to it that the country does not take on commitments that they perceive as potential impediments to economic development. China relentlessly emphasizes the responsibility of the developed countries to take the lead on climate, and to provide assistance and technology for the developing countries (Buckley and Graham-Harrison, 2008).

The Ministry of Environmental Protection was granted full ministerial status in 2008. Even though it takes part in the UNFCCC negotiations, the smaller size of its staff, budget and spheres of influence means that MEP lacks the kind of power and influence the NDRC and the MFA hold. Its ministerial status is therefore expected to have greater impacts on general environmental protection

² Members of the NC4 include the Ministry of Foreign Affairs, the National Development and Reform Commission, the Ministry of Science and Technology, the Chinese Academy of Sciences, the China Meteorological Administration, the Ministry of Communications, the Ministry of Construction, the Ministry of Environmental Protection, the Ministry of Agriculture, the Ministry of Finance, the Ministry of Water Resources, the State Economic and Trade Commission, the State Forestry Administration, the State Oceanographic Administration, the General Administration of Civil Aviation of China, and the Ministry of Commerce. See www.ccchina.gov.cn/index1.htm.

³ A State Energy Commission and a National Energy Administration were established in 2008 to take on some of the NDRC's responsibilities, but this does not appear to have brought about substantial change in energy governance, due to the energy bureaucracy's limited capacities in terms of tools, manpower, authority, and independence from the NDRC (Downs 2008).

and awareness than on climate change work. The current and future impacts of climate change felt by China may increase the importance of MEP in domestic climate change work, however. Next, the Ministry of Science and Technology is responsible for much climate-related research and issues of technology transfer. It established a research programme on climate change in the 1990s and its officials have traditionally sympathized with environmental concerns (Economy 2006). MOST has usually been represented in the UNFCCC delegations. The position of MOST reflects how climate change has been seen mostly as a scientific and technological issue.

The NC4 was established in 1990, with the NDRC and MFA as its most important members. The two have been involved in the UNFCCC negotiations since the beginning. This may seem to contradict the abovementioned notion that China did not have a specific climate policy until very recently. However, the work of these actors in the climate change field has not been aimed at reducing emissions *per se*. Global climate change was low on the political agenda and not considered a primary priority for decision-makers (PRC 2004, p. 11). However, as it became a matter of politics, economy and energy in the late 1990s this started to change (Heggelund 2007).

Many important developments have taken place in Chinese climate change policy-making in the past few years. In 2006, a range of government departments and academic institutions in collaboration released the first 'National Assessment Report on Climate Change', acknowledging the threats of anthropogenic climate change, and emphasizing the need for China to play an active role in mitigation and adaptation (NC4 2006). In 2007, the establishment of a National Energy Leading Group (NDRC, 2007a) meant energy concerns were elevated to the highest political level, also lifting climate change to a higher priority (Qi et al. 2008). The same year, the 'National Climate Change Programme' signified a turn in China's domestic climate change history (NDRC 2007a; Lewis 2007b). It included guidelines, principles and objectives to address climate change, policies and measures, as well as China's stance on countries' differentiated responsibility for climate change and the need for international cooperation. A National Leading Group to Assess Climate Change was also established, headed by Premier Wen Jiabao (NDRC 2007a), with counterparts on the provincial and prefectural levels (Qi et al. 2008). Presentations were made by climate experts to top policy-makers and committee members (Buckley 2007), and a climate change ambassador was appointed in the MFA (Lewis 2007a). Key documents recently published include the 2008 White Paper 'China's Policies and Actions for Addressing Climate Change' (Gov.cn 2008). Events that have been organized include the 'Beijing High-level Conference on Climate Change: Technology Development and Technology Transfer'. These developments indicate increased policy attention to the challenges of climate change, even if this does not equal policy implementation progress. Qi et al. (2008, p. 379) hold that climate change has now also become a high priority for provincial and prefectural government, due to mandates from the central government, conditions in the international market as well as local impacts, capacity and awareness.

4 China in the UN climate change regime

China has been, and continues to be an active participant in the UN climate change negotiations, usually acting in concert with the G77, seeing itself as a speaker for the developing countries (Kasa et al. 2008). Chinese negotiators repeatedly emphasize that developing countries taking on more responsibility is contingent on the developed countries fulfilling their obligations on emissions reductions, funding and on technology transfer, as repeated, for instance, at COP-14 (ENB 2008). Their main argument remains that China is still a *developing country* (NDRC 2007a; Gov.cn 2008), even if one takes its recent economic progress into consideration. Chinese negotiators, emphasizing the principle of 'common but differentiated responsibilities' therefore argue that they must be allowed to increase emissions, in order for China to develop its economy and industry, and for the sake of continued poverty alleviation (NC4 2006). China's reliance on fossil fuels in combination with enormous industrial sector growth has resulted in dramatically increased emissions. In 2007, the Netherlands Environmental Assessment Agency published figures which put China on top of

the list of GHG emitters (Adam and Vidal 2007; IEA 2007, p. 73). Still, *per capita* emissions were only 35% of the average OECD country emissions in 2005, at 3.9 tonnes (IEA 2007). The argument of low *per capita* emissions – one fifth of US emissions (Lewis 2007a) – has also been convincingly used in the climate change negotiations. The argument of *historical responsibility* for global warming is used to reinforce these claims. Beijing's position is that since China industrialized long after the developed countries, thus historically emitting less, the latter are responsible for taking the lead in, and paying for the bulk of mitigation and adaptation costs. The Chinese also hold that even though their domestic policies of energy efficiency, conservation, and pricing together with population control were not implemented with this goal, they have nevertheless substantially helped curb GHG emissions growth (Gov.cn 2008). The US-based Energy Foundation (2007, p. 6) calls China “a clear leader in formulating sustainable energy policies”. It is important to note, however, that such ‘emissions reductions’ from decoupled energy consumption and GDP are measured against a business-as-usual scenario, and China's total GHG emissions are projected to increase. China is likely to hold on to these arguments at the crucial 2009 UNFCCC meeting in Copenhagen in December 2009 (COP-15). The close alliance with the G77 will in all likelihood continue, with China not wanting to be singled out due to its increasing emissions (Lewis 2007a). The country's opposition to taking on commitments has also been made easier by US climate policy. The MFA reacted strongly to the US refusal to ratify the Kyoto Protocol, calling it ‘irresponsible behavior’ (Heggelund 2007). For China, the weak position of the US, a *developed* country whose emissions were until very recently the world's highest, has nevertheless eased the pressure on China (Heggelund and Andresen 2010). This might change in 2009, as President Obama has indicated a more proactive US climate change policy, aiming to reduce emissions to 1990 levels by 2020 and an additional 80% by 2050 (Revkin 2008; see Skodvin and Andresen 2009). Should the US come to take on emissions reduction commitments, the pressure on China would likely increase (McLaughlin 2009).

While China also participates in other bi- and multilateral climate change initiatives (Buan and Heggelund 2008; Sugiyama and Oshita 2006), this article focuses on its involvement in the UN track and the APP. Our analysis of China's UN-track participation is in turn focused on the Clean Development Mechanism, since this is the most important way in which China takes part in UN-led mitigation. We focus on the CDM, because we see similarities between this mechanism and the APP's projects (see below). The CDM aims to encourage sustainable development in non-Annex 1 developing countries, and to enable Annex 1 developed countries to invest in emissions reduction projects in developing countries, thus reducing the cost of compliance with their commitments. Typical examples of CDM projects in China are the building of hydro or wind power facilities; destruction or replacement of GHGs in industries; fuel substitution; and waste heat recovery and utilization in the iron and steel industries (UNEP Risø 2009). The investing developed countries are issued Certified Emissions Reductions (CERs), credits assisting them in complying with their Kyoto targets, one CER representing one tonne of reduced CO₂ equivalent.⁴ Of utmost importance to the CDM is the ‘additionality’ requirement, meaning that for a project to be approved and credits issued, the developers must establish that its planned emission reductions would not have occurred without the additional incentive provided by the CERs. Since the CDM does not *reduce* emissions – any decrease in the host countries being offset by an increase in countries buying CERs – ‘false credits’ from non-additional projects would *increase* overall emissions (Wara 2008).

There is controversy over the large number of approved hydro and wind power projects in China (Haya 2007; Michaelowa 2008; Victor and Wara 2008), for one because China's national renewable energy policy targets mean the same growth in renewables would likely happen also in the absence of carbon funding (NDRC 2007b), which means the industry is not in need of carbon funding. China is also criticized for reaping large economic benefits from project taxation (Wara 2008). Other problematic questions about the CDM concern its contribution to sustainable development (Wara 2008); how to improve regional project distribution (UNEP Risø 2008); and

⁴ CO₂ equivalent is a measure used to compare the emissions from various GHGs based upon their global warming potential.

how to promote certain kinds of projects that have largely been bypassed. Reforming the CDM will be a central issue at COP-15 in Copenhagen.

China has become the biggest CDM host with 2023 of the 4869 global projects (as per April 2009) (UNEP Risø, 2009). Of these, 110 have been issued CERs, totalling 94,996,245 tonnes of reduced emissions in CO₂-eq.⁵ CERs are considered national property, and revenues from selling them partly go to the state through levies and fees, to “be used in supporting activities on climate change” (NC4 2005, section V.), the details of which remain elusive. The priority areas for the CDM in China are energy efficiency, new and renewable energy, and methane recovery and utilisation (NC4 2005), reflecting its political priorities. 70.69% of the 2023 projects are in renewables, but these account for only 45.43% of the expected emissions reductions.⁶ China is also the world leader in CER issuance, with 43.87% of the global total, which nevertheless is no more than 110 of its 2023 projects. 83.10% of these in term stem from *only eleven* HFC-23 chemical reduction projects, however.⁷ While the number of CERs issued to Chinese project developers is readily available,⁸ the amount of *money acquired and where it ends up* is difficult to assess, according to CDM expert Axel Michaelowa.⁹ No complete study exists on this topic and it is difficult to get accurate information about the volatile and often confidential sales prices. In January 2009, approximately 83 million CERs had been issued to Chinese projects. In the majority of the projects, the CER price would range from €6 to €8, thus amounting to €0.6 billion, according to Michaelowa’s estimations. It is unclear how much of this goes to Chinese companies.

5 China in the Asia-Pacific Partnership

The Asia-Pacific Partnership on Clean Development and Climate is one among a number of climate change mitigation initiatives taking place outside of and parallel to the efforts of the UN (Karlsson-Vinkhuyzen and Van Asselt 2009; Vihma 2009). The APP is a seven-country pact, involving both developed and developing countries, and signatories and non-signatories to the Kyoto Protocol. Its aim is to reduce emissions through technology and voluntary public-private partnerships. A 2006 communiqué explained how the members planned to work together to achieve poverty eradication, energy security and climate change mitigation (APP 2006). It stressed that the “Partnership will be consistent with and contribute to our efforts under the [UNFCCC] and will complement, but not replace, the Kyoto Protocol” (APP 2006, p. 1). Since the beginning, the APP has been the object of some scholarly praise, but rather more criticism. Some see it as a promising and more effective approach than the “failed Kyoto process” (Kellow 2006, p. 293). Others criticize its use of *GHG intensity reduction* targets rather than *absolute emissions reduction* targets like the UNFCCC (McGee and Taplin 2006; Eckersley 2007). GHG intensity refers to the level of emissions per unit of economic activity, and in the APP targets for such reduction were to be set nationally to suit “national circumstances” (APP 2007, p. 1). No targets for China appear to have been set specifically under the framework of the APP, but the country, as outlined earlier, does have its own national targets for energy. Proponents, on the one hand, say such a GHG target would not penalize economic growth (Leggett et al. 2008). On the other hand, it is causing others to call the Partnership “fatally flawed” (WWF Australia, in Lawrence 2007, p. 3), claiming “the negatives overshadow the positives” (Lawrence, 2007, p. 28). In the following we provide an outline of China’s APP involvement, and discuss its rationale for joining.

⁵ See <http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File2143.doc>, retrieved June 1, 2009.

⁶ Calculations based on figures from the pipeline, EB registrations and CER issuances which are updated regularly on NC4’s website <http://cdm.ccchina.gov.cn/english/main.asp?ColumnId=26>, retrieved June 1, 2009.

⁷ For updates and specific information on CER issuance, see <http://cdm.ccchina.gov.cn/english/>.

⁸ See www.cdmpipeline.org and cdm.ccchina.gov.cn/english/, retrieved June 1, 2009.

⁹ The information regarding the revenues from the CDM is in its entirety based upon information (through personal communication) from Axel Michaelowa, Perspectives GmbH, www.perspectives.cc.

The APP has established eight task forces focusing on industries and technologies that coincide with Chinese developmental priorities: renewable energy and distributed generation; power generation and transmission; steel; aluminum; cement; coal mining; and buildings and appliances (APP 2009b). Five projects are also listed as ‘cross-cutting or other’. Typically, the costs of new technologies declines over time, and the task forces seek to accelerate the development and deployment of new technologies, thus reducing costs and facilitating availability. In May 2009 they had 169 projects, eight of which were listed as “completed” and 17 as “cancelled” (APP 2009b). China is involved in all task forces, but not all projects, and is co-chair of the Cleaner Fossil Energy Task Force (APP 2009c) and the Power Generation and Transmission Task Force (APP 2009d), which we will use as examples of the country’s involvement here.

First, the *Cleaner Fossil Energy Task Force* is working on what it has identified as key advanced coal and gas technologies that can “significantly reduce GHG emissions, air-borne pollutants and other environmental impacts” (APP 2009c, p. 3). Among its stated goals are sharing best practices, elimination of market barriers to the deployment of relevant technologies, and increasing the utilization and efficiency of cleaner fossil energy. In 2009, it listed 16 project activities, nine of which China was involved in. The roster is varied and to a large degree focused on technology training, development, and transfer in the fields of carbon capture and storage, clean coal, liquefied natural gas, low emissions technologies and coal gasification (APP 2009c). Some of the projects are one-time workshops, and only one of the projects has published findings (APP 2008).

The objectives of the *Power Generation and Transmission Task Force* are the development and deployment of technologies to aid development and climate concerns; energy efficiency improvement of power production and transmission; collaboration on research and development of technologies and processes; and enhancing investment in efficient power supply by improving market and investment conditions (APP 2009d). This task force currently has 12 projects, but from the roster it is not clear which China is involved in. Projects in which Chinese participation is explicitly stated include “best practices for Power Generation Activity Plan”, “Trade Exhibitions/Conferences and Trade Missions”, and “Application of Plasma Ignition Technology in Power Generation.” This task force appears to involve less potential for technology transfer than the Cleaner Fossil Energy Task Force.

No expected emission reductions figures are included in the published material of the eight task forces. Going through the roster, we find that as per May 2009, only 12 reports have been published from the original 169 projects, seven of which are from one project (APP 2009b), thus it is so far hard to make out any kind of project success rate. 135 projects have recently (spring 2009) published updated project statuses, however.

In looking at the correlation between, on the one hand, the APP goals, the task forces and their projects, and on the other China’s goals and priorities, multiple reasons for China’s decision to be a partner present themselves. As in the case of the UN track, the goals and interests of the APP coincide with those of the government and the governmental actors involved in climate change in China. APP activities in China take place under the purview of the NDRC, and involve companies and academic institutions in the projects. China’s APP involvement is therefore also highly informed by the interests of the NDRC. As the NDRC is not primarily focused on climate change, or even environmental issues, the Commission’s involvement in climate change work has various implications.

First, the potential for the APP to contribute to solving China’s energy security challenges is the main motivation, as stressed by Chinese officials (Hua 2006).¹⁰ All task forces are either related to *energy production*, *energy intensive industries* or *energy efficiency*. They thus have the potential to contribute to energy security, reduced emissions of CO₂ and other GHGs, and more general environmental protection (such as reduced air pollution). For example, China’s goal of reducing carbon intensity by 40% of the 2000 level by 2020, and 80% by 2050 is in line with the APP’s

¹⁰ Personal communication with NDRC and MFA officials, 2007 and 2008.

objectives (NC4 2006). The prospect of accomplishing this *while also reducing costs* is of course attractive to its members and the companies involved. The actual contribution of the APP and its projects to the improvements will depend on the number of projects, or the ability of a small number of projects to get their results distributed to a large number of industry actors in the different sectors. As most of the task forces' timelines run until 2010, we expect more results to be published then.

Second, the APP's focus on technology coincides clearly with Chinese goals and wishes. At the Inaugural Ministerial Meeting in 2006, Chinese State Councilor Hua Jianmin emphasized the role of technology in the fight against climate change, citing technology cooperation, transfer and training as parts of what China "believe[d] that the Partnership should stick to" (Hua 2006, p. 1). China has a very strong focus on technology transfer in climate change mitigation, but feels that the UN has failed to deliver on this issue in the Kyoto Protocol. While technology transfer is one of the focal points of the UN climate negotiations, there is a stronger emphasis on technology development and transfer in the APP. While technology transfer is important in terms of capacity building under the UN track, it is not a stated goal for the CDM, and the mechanism appears to make use mostly of existing and available technologies. There are also indirect profits, however, as CER sales could contribute to 0.5% of Chinese annual GDP in 2030, mainly through technology transfer" (IEA 2007).

Third, the APP countries share "a common vision of tackling climate change without any slowing down of economic growth" (Lawrence 2007, p. 18). As a developing country, in China climate change mitigation is trumped by economic and social development. Not wanting to impede its own development has always been China's main reason for not taking on binding commitments under the UN track and for calling for the developed countries to pay the bulk of the cost of mitigation and adaptation (NDRC 2009). The APP's 'nationally-appropriate' GHG intensity reduction 'targets' are thus very attractive for China. Hua Jianmin stressed addressing climate change within the framework of sustainable development and emphasized economic development as a "material foundation for the protection and improvement of [the] global environment" (Hua 2006, p. 2). China thus views the APP as a means to ensure economic growth and social development while fighting climate change.

Lastly, the APP is also a way for China to position itself in the world community among some of the most important economic and political actors. The APP could also help forge alliances. Cooperation between China, India, and the US could be a step away from the usual 'blame game' over emissions (Economy 2006). This is one example of how China's participation is influenced by other issue areas than energy and climate change, which is not surprising given the prominence of the NDRC.

6 The APP and the UN track: complementary or competitive in the case of China?

Can the existence of another track negatively influence China's UN track participation and be an obstruction to future efforts and commitments? As mentioned earlier, around the time of the APP initiation there was discussion about whether it would replace or undermine the efforts of the UN track. In 2006, McGee and Taplin (2006, p. 191) concluded that regime interaction between the APP and the Kyoto Protocol was "most likely to be obstructive and competitive" and that the Partnership's claims of complementarity with the Kyoto Protocol were not justifiable. However, since we here discuss *China's* partaking in the two initiatives and not their nature *per se*, our case is a different matter. Above, we have sought to explain China's motives for APP participation. We have illustrated that domestic energy issues as well as the priorities of key actors in the energy and climate change fields in China coincide with the APP goals. Below we address the second objective of this article, and discuss whether APP participation negatively influences China's UN track participation as well as deliberate on China's possible stance at COP-15 in Copenhagen.

First, according to Van Asselt (2007) and Vihma (2009), the characteristics of non-UN climate change initiatives include a lack of legally binding commitments, timetables and targets, an emphasis on technology development, and no explicit differentiation between developed and developing countries. The APP is a typical ‘soft law’ initiative, in comparison to the ‘hard law’ UN track. In this analysis it is crucial to differentiate between analyzing, on the one hand, the relationship between the APP and the UN track in general and, on the other, analyzing the Chinese APP membership compared to its partaking in the UN track, the latter being the primary purpose of this article. As a ‘soft law’ initiative, the APP represents a win-win opportunity for China. If participation does not contribute to emission reductions, if the effects are hard to measure or verify, and if technology transfer fails, little is lost. At the same time, it is also in the interest of China that the UN track *be* a hard law initiative, differentiating between the responsibilities of developed and developing countries, and setting binding targets for the countries China deems most responsible for climate change. In addition, China successfully advocates issues of morale and equity in the UN negotiations, but not in the APP. The APP is a voluntary and exclusive partnership, and if a member is dissatisfied it can, after all, leave at its own leisure without the devastating political implications leaving or refusing to cooperate with a UN organization would entail. As a developing country, China can be a central part of the UN track without actually contributing much to the fight against climate change. In the APP it is a partner, equal to the others. Unlike the situations of the APP members which are also Kyoto signatories *with* commitments (Australia, Canada and Japan), the soft law characteristics are thus unlikely incentives for China to leave or put less effort into the UN track, since it does not have commitments there either. While these differences between the UN track and the APP may, hypothetically, provide incentives for the Australia, Canada and Japan to put less effort into the follow-through of the Kyoto Protocol, we rather believe participating in both represents a win-win situation *for China*.

Second, the projects under the APP and CDM, as outlined in chapters 4 and 5, further underscore our view of complementarity between the two. They hold both similarities and differences. Both approaches are project-based and bilateral; they focus on development, transfer and deployment of technology; and involve government as well as private actors. These similarities mean the activities of one initiative could hypothetically be perceived as a competitor (McGee and Taplin 2006), a distraction (Lawrence 2007) or even a threat to the other. Possible implications include important resources like knowledge and know-how, technology, capital, government support, private sector support being channelled from the UN track to the APP. The nature of the climate change threat necessitates global, cooperative action, and, in our opinion, the best framework for solving the problem is the UNFCCC, with bi- and multilateral initiatives as complementary. Such a redirecting of resources should thus be avoided. On the other hand, the APP project roster clearly shows the APP’s difference from the CDM. CDM projects are plant-level projects meant to directly reduce GHG emissions in absolute numbers. The majority of Chinese CDM projects are in renewables and energy efficiency, and the most significant in terms of credit issuance are in the replacement and destruction of certain potent GHGs. The issue areas and industries covered by the CDM and the APP projects in China therefore do not coincide to any large degree. Many of the APP projects, like industrial capacity building, standards harmonization, best practice evaluations, and trade exhibitions, are not conducive to *measurable* emissions reductions. Data on expected reductions is not included in the descriptions for any APP projects, even where it might have been possible to measure (i.e. energy efficiency). The APP projects cover *other* industries and approaches.

Third, the NDRC and the MFA have made the CDM a Chinese policy priority. CDM projects, if successful and additional, are meant to assist China in reducing its emissions, as well as contribute to sustainable development and substantial finance flows.¹¹ The APP on the other hand, could come to assist China in reducing its GHG intensity, with a list of projects which is much shorter, but also very different and covering many issue areas. Chinese experts and officials are

¹¹ Personal communication, NDRC official, November 2008.

generally positive about the APP.¹² Despite some disappointment due to initial slow progress, there is increasing optimism as the original projects from 2006 have gotten up and running, and newer projects have been initiated in the past year.¹³ China is not ready to take on emission reductions commitments. It prefers options that are technology-oriented and perceived as quicker solutions to its energy security challenge, climate change and general environmental problems. The Chinese stress that technology transfer is needed *now*, not in the future, and believes the APP's approach will be quicker.

One key issue that draws criticism from experts (e.g. McGee and Taplin 2006) is the APP's focus on reducing *greenhouse gas intensity* rather than *absolute GHG emissions* (APP 2009a). GHG intensity reduction is a highly contested concept which often "look[s] good on paper" (Herzog 2007, p. 1). It is a relative target and a country may improve its GHG intensity while at the same time increasing its absolute emissions due to increased GDP (McGee and Taplin 2006). This provides the APP countries with licenses to continue their emissions growth, since absolute emissions reductions will only happen in cases of very low or negative economic growth. Only if China enters into absolute recession will a GHG intensity reduction mean actual emissions reductions. However, the current UNFCCC regime is based on the principle that developing countries should be able to let their economies and therefore their emissions grow, for the sake of development and poverty reduction. The GHG intensity reduction focus could only be an alternative to China's efforts if China had commitments, and hence could become a problem in the future. A GHG intensity reduction target is in itself neither good nor bad, but it could give people the impression that the APP is 'doing more or less the same as the UN', that is, reducing emissions, only without the potential negative economic consequences. It is thus an alternative which looks good on paper because a reduction of GHG intensity does not necessarily lead to an absolute reduction of GHGs in the atmosphere, and that is what is needed to stop climate change.

In summary, we do not believe the APP is likely to influence *China's UN track participation* negatively to any significant degree. However, the existence of an alternative track may still undermine the progress of the *UNFCCC process* in the post-2012 period. China's actions in the future will depend greatly on the developed countries, as its inaction under the Kyoto Protocol so far is partly grounded in, and justifiable due to *their* lack of successful emission reductions as well as the US not ratifying. This lack of commitment by large developed country emitters provides strong leverage for China against pressure in the negotiations. Lewis (2007a, p. 162) quotes former SEPA director, now NDRC vice-Chairman, Xie Zhenhua stating that he hoped "that some countries would (...) implement in a substantive way their obligations and take up their commitments" and that, "(...) the Chinese government would make its own decision after making some assessments of the implementation by other countries". Should the US take on commitments, the Annex 1 countries reduce their emissions, and the climate negotiations result in a fund or mechanism for technology transfer, then it is likely that China will be more willing to commit itself. While we do not think the APP will weaken China's UN efforts directly, as shown here, we see the possibility of the APP causing and legitimizing weak performances by Australia, Canada, Japan and the US, in turn influencing China.

7 Conclusions

This article has addressed two issues. First, we outlined Chinese domestic priorities and involvement in both the UN track and the APP, in order to discuss its motives for membership in the Asia-Pacific Partnership. The motivational factors are plentiful. The APP offers approaches which coincide with a range of Chinese national targets, which they deem preferable to taking on commitments that could impede economic development. It also coincides with the interests of key

¹² Personal communication, MFA officials, April 2007, October 2008, and NDRC official, November 2008.

¹³ Personal communication, NDRC official, November 2008.

political actors, not only on climate change, but also in terms of energy security, technology, diplomacy and geopolitics. In addition, the issue and industries covered by the APP task forces are of high interest to China. The APP projects in our opinion show potential for cooperation on technology development and transfer. Last, not taking on binding commitments under the UN track and focusing on improved carbon intensity under the APP creates a win-win situation for China. Given the advantageous differences between them as soft and hard law initiatives, the complementarity of the two tracks is so that China's motivation for joining the APP may also be exactly what is motivating its efforts under the UN track. China does not want the APP to have commitments for its members, but it appreciates their existence under the UN track since they, so far, only apply to developed countries.

Second, we addressed the implications China's APP membership may have for its participation in the UNFCCC, the Kyoto Protocol and the CDM. In 2006, McGee and Taplin believed the existence of the APP could lead to countries breaking away from the Kyoto Protocol and difficulties for the negotiations. Things have changed, however. China is now emitter number one and the US appears ready to step up its efforts. At the time of writing, in 2009, the APP causing such a breakaway, for China or any of the other countries seems much less likely. We believe, for a number of reasons, that both initiatives will be attractive to China also after 2012. At the time of its inauguration the APP was seen by its proponents as a real alternative to a 'failed' UN process and a significant way of reducing emissions (together with its other goals). Three years down the road, however, the APP has 152 ongoing and eight completed projects and is seldom referred to in the climate policy literature, or when Chinese and US climate efforts - or the lack thereof - are referred to in the media. The projects are not likely to take resources away from CDM projects, since they cover different industries and use different approaches. Our conclusion is therefore that while the APP is an attractive complement, it is difficult to see how it could hinder or slow down China's participation in UN emissions reduction efforts. Given the enormity of the challenge, the relatively low number of projects set up since its inception also makes us question the likelihood of the APP significantly contributing to climate change mitigation, even if it could make a contribution to technology transfer.

It is in China's own interest to develop along a low carbon pathway. Despite its more proactive behaviour in the recent climate change negotiations, however, Chinese willingness to take on emission reduction commitments seems remote and will depend greatly on the progress made by the developed countries. While its participation in the APP does not provide much incentive for China to leave or put less emphasis on the goals of the Kyoto Protocol, the existence of an alternative may indirectly affect its decision to take on commitments. Nevertheless, with the recent changes in the US administration, positive developments for both the APP and the UN may be expected.

In our view, China will remain involved in both the APP and the UN track, with the latter continuing to be the most important, by far. The next few years will determine the degree of China's involvement in the two. This will likely be influenced mostly by what kind of new agreement is reached in Copenhagen or thereafter, as well as developments in US climate policy.

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References

- Adam, D., & Vidal, J. (2007, June 19). China overtakes US as world's biggest CO2 emitter. *The Guardian Online*. Retrieved June 19, 2007, from <http://www.guardian.co.uk/environment/2007/jun/19/china.usnews>.
- APP. (2006). *Communiqué from the Asia-Pacific Partnership on Clean Development and Climate Inaugural Ministerial Meeting*. Retrieved June 1, 2009, from <http://www.asiapacificpartnership.org/Communique.pdf>.
- APP. (2007). *Asia-Pacific Partnership on Clean Development and Climate Charter*. Retrieved June 1, 2009, from <http://asiapacificpartnership.org/charter.pdf>.
- APP. (2008). *Harmonisation of the APP gas markets. Analysis of gas markets and their growth in APP Partner economies. Executive summary and Findings and conclusions. Draft*. Price Waterhouse Coopers. Retrieved June 1, 2009, from http://www.asiapacificpartnership.org/pdf/Projects/CFETF/CFE-06-08_APPEA_Exec_Sum_Findings.pdf.
- APP. (2009a). *About the Asia-Pacific Partnership on Clean Development and Climate*. Retrieved May 20, 2009, from <http://www.asiapacificpartnership.org/About.htm>.
- APP. (2009b). *APP Project Roster*. Retrieved May 20, 2009, from http://www.asiapacificpartnership.org/english/project_roster.aspx.
- APP. (2009c). *Cleaner Fossil Energy Task Force Action Plan*. Retrieved May 20, 2009, from <http://asiapacificpartnership.org/pdf/Projects/Cleaner%20Fossil%20Energy%20Action%20Plan%20030507.pdf>.
- APP. (2009d). *Power Generation and Transmission Task Force Action Plan*. Retrieved May 20, 2009, from <http://asiapacificpartnership.org/pdf/Projects/Power%20Generation%20and%20Transmission%20Task%20Force%20Action%20Plan%20030507.pdf>.
- Asselt, H. van (2007). From UN-ity to diversity? The UNFCCC, the Asia-Pacific Partnership, and the future of international law on climate change. *Carbon and Climate Law Review*, 1(1), 17-28.
- Brown, P. (2005, July 29). Six-country pact on clean energy 'not meant to undermine Kyoto.' *The Guardian Online*. Retrieved May 20, 2009, from <http://www.guardian.co.uk/climatechange/story/0,12374,1538644,00.html?gusrc=rss>.
- Buan, I. F., & Heggelund, G. M. (2008). China's involvement in climate change mitigation. *Asia Portal*. Retrieved June 1, 2009, from <http://www.asiaportal.info/infocusblog/?p=45>.
- Buckley, C. (2007, February 6). China preparing plan for climate change. *Reuters*. Retrieved June 1, 2009, from <http://www.planetark.com/dailynewsstory.cfm/newsid/40197/story.htm>.
- Buckley, C. & E. Graham-Harrison. (2008, October 6). Reuters Summit-China grim on prospects for climate pact. *Reuters*. <http://www.reuters.com/article/latestCrisis/idUSPEK15753>
- CNN. (2009, January 15). China passes Germany in economic ranking. CNN Online. Retrieved June 1, 2009, from <http://edition.cnn.com/2009/WORLD/asiapcf/01/15/china.economy/>.
- Downs, E. (2008). *China's energy policies and their environmental impacts*. Testimony before the U.S.-China Economic & Security Review Commission Panel. Retrieved June 1, 2009, from http://www.uscc.gov/hearings/2008hearings/written_testimonies/08_08_13_wrts/08_08_13_downs_statement.pdf.
- Eckersley, R. (2007). Ambushed: the Kyoto Protocol, the Bush administration's climate policy and the erosion of legitimacy. *International Politics*, 44, 306-324
- Economy, E. (2006, December 3). A blame game China needs to stop. *Washington Post Online*. Retrieved June 1, 2009, from <http://www.washingtonpost.com/wp-dyn/content/article/2006/12/01/AR2006120101519.html>.
- Economy, E. (2007, April 19). China vs. Earth. *The Nation Online*. Retrieved June 1, 2009, from <http://www.thenation.com/doc/20070507/economy>.
- ENB (2008, December 1). *Earth Negotiations Bulletin. Vol. 12 No. 385*. Winnipeg: International Institute for Sustainable Development (IISD). Retrieved June 1, 2009, from <http://www.iisd.ca/download/pdf/enb12385e.pdf>.
- Energy Foundation. (2007). *Energy Foundation Annual Report 2007. ENERGY IN CHINA: the myths, reality, and challenges*. Retrieved June 1, 2009, from http://www.ef.org/documents/2007_EF_Annual_Report.pdf.
- Gov.cn. (2008). *China's policies and actions for addressing climate change (full text)*. Gov.cn: Chinese Government's Official Web Portal. Retrieved June 1, 2009, from http://www.gov.cn/english/2008-10/29/content_1134544.htm,
- Gore, A. (2008, December 13). *Speech in Poznan*. Retrieved June 1, 2009, from <http://blog.algore.com/2008/12/>.

- Haya, B. (2007). *Letter to CDM Executive Board On non-additional Chinese hydros*. International Rivers. Retrieved June 1, 2009, from <http://internationalrivers.org/node/1892>.
- Heggelund, G. (2007). China's climate change policy: domestic and international developments. *Asian Perspective*, 31(2), 155-191.
- Heggelund, G., & Andresen, S. (2010). China's climate change policy: national priorities and domestic politics decide. In Harrison, K. (ed), *Global commons and national interests: Domestic climate change policies in an international context*. Cambridge, MA: The MIT Press (in press)
- Herzog, T., Baumert, K. A., & Pershing, J. (2006). *Target: intensity. An analysis of greenhouse gas intensity targets*. Washington, D.C.: World Resources Institute.
- Herzog, T. (2007). *China's carbon intensity target*. Washington, D.C.: World Resources Institute. Retrieved June 1, 2009, from <http://www.wri.org/stories/2007/04/chinas-carbon-intensity-target#>.
- Hua, J. (2006, January 12). *Strengthen cooperation for clean development and protect the common homeland of human beings - Statement at the Inaugural Ministerial Meeting of the Asia-Pacific Partnership On Clean Development and Climate*. Sydney, Australia. Retrieved June 1, 2009, from <http://cdm.ccchina.gov.cn/UpFile/File647.DOC>.
- IEA (2004). *World Energy Outlook 2004*. Paris: International Energy Agency.
- IEA (2007). *World Energy Outlook 2007*. Paris: International Energy Agency.
- Kasa, S., Gullhaug, A. T. & Heggelund, G. (2008). The Group of 77 in international climate negotiations: recent developments and future directions? *International Environmental Agreements: Politics, Law and Economics*, 8(2), 113-127.
- Kellow, A. (2006). A new process for negotiating multilateral environmental agreements? The Asia-Pacific climate partnership beyond Kyoto. *Australian Journal of International Affairs*, 60(2), 287-303
- Lawrence, P. (2007). The Asia Partnership on Clean Development and Climate (AP6): a distraction to the Kyoto Process or a viable alternative? University of New South Wales Faculty of Law Research Series. Retrieved June 1, 2009, from <http://eprints.utas.edu.au/3756/>.
- Leggett, J. A., Logan, J. & Mackey, A. (2008). *China's greenhouse gas emissions and mitigation policies*. Congressional Research Service Report for Congress. Retrieved June 1, 2009, from <http://www.fas.org/sfp/crs/row/RL34659.pdf>.
- Lewis, J. I. (2007a). China's strategic priorities in international climate change negotiations. *The Washington Quarterly*, 31(1), 155-174.
- Lewis, J. I. (2007b). *China's climate change strategy*. China Brief, Volume 7, Issue 13. Washington, D.C.: The Jamestown Foundation.
- Lum, T. (2006). *Social unrest in China. CRS Report for Congress*. Washington DC: Council of Foreign Relations. Retrieved June 1, 2009, from <http://www.fas.org/sfp/crs/row/RL33416.pdf>.
- Karlsson-Vinkhuyzen, S. & Asselt, H. van (2009). Introduction: exploring and explaining the Asia-Pacific Partnership on Clean Development and Climate. *International Environmental Agreements: Politics, Law and Economics*, 9(3).
- McGee, J., & Taplin, R. (2006). The Asia-Pacific Partnership on Clean Development and Climate: a complement or competitor to the Kyoto Protocol? *Global Change, Peace & Security*, 18(3), 173-192
- McLaughlin, K. E. (2009, January 7). Carbon emissions strategies top agenda in anticipation of international pressure. *International Environment Reporter*, 32(1), 46.
- Michaelowa, A. (2008). *Empirical analysis of performance of CDM projects: Final Report*. London: Climate Strategies. Retrieved June 1, 2009, from <http://www.climatestrategies.org/component/reports/category/16/71.html>.
- Müller-Kraenner, S. (2008). *Energy security*. London: Earthscan.
- NC4 (2005). *Measures for operation and management of Clean Development Mechanism projects in China*. Retrieved June 1, 2009, from <http://cdm.ccchina.gov.cn/english/NewsInfo.asp?NewsId=905>.
- NC4 (2006). *Qihou bianhua guojia pinggu baogao (China's National Assessment Report on Climate Change)*. Beijing: Science Press.
- NDRC (2005). *China medium and long term energy conservation plan (Jieneng zhong changqi zhuanxiang guihua)*. Beijing: China Environmental Science Press.
- NDRC (2006). *The outline of the 11th five year plan for national economic and social development of the People's Republic of China*. Retrieved June 1, 2009, from http://en.ndrc.gov.cn/hot/t20060529_71334.htm.

- NDRC (2007a). *China's National Climate Change Programme*. Retrieved June 1, 2009, from <http://www.ccchina.gov.cn/WebSite/CCChina/UpFile/File188.pdf>.
- NDRC (2007b). *Medium and long term development plan for renewable energy*. Retrieved June 1, 2009, from http://en.chinagate.com.cn/reports/2007-09/13/content_8872839.htm.
- NDRC (2009). *Implementation of the bali roadmap. China's position on the Copenhagen climate change conference*. Retrieved May 20, 2009, from http://en.ndrc.gov.cn/newsrelease/t20090521_280382.htm.
- OECD (2007). *Environmental performance reviews: China*. Paris: Organisation for Economic Co-operation and Development.
- Qi, Y., Li, M., Zhang, H., & Li, H. (2008). Translating a global issue into local priority. China's local government response to climate change. *Journal of Environment & Development*, 17(4), 378-400.
- PRC (2004). *Initial National Communication on Climate Change (Zhonghua renmin gongheguo Qihoubianhua chushi guojia xinxi tongbao)*. Beijing: China Planning Publishing House.
- Revkin, A.C. (2008, November 18). Obama: Climate Plan Firm Amid Economic Woes. *New York Times Online*. <http://dotearth.blogs.nytimes.com/2008/11/18/obama-climate-message-amid-economic-woes/>
- Sinton, J. E., Stern, R. E., Aden, N. T., & Levine, M. D. (Eds.). (2005). *Evaluation of China's energy strategy options*. Berkeley, CA: Lawrence Berkeley National Laboratories.
- Sugiyama, T., & Oshita, S. (Eds.). (2006). *Cooperative climate. Energy efficiency across East Asia*. Winnipeg: International Institute for Sustainable Development (IISD).
- UNEP Risø (2008). *A reformed CDM – including new mechanisms for sustainable development. Perspectives Series*. Roskilde: UNEP Risø Centre.
- UNEP Risø (2009). *CDM Pipeline*. Retrieved June 1, 2009, from <http://www.cdmpipeline.org/publications/CDMpipeline.xls>.
- UNDP (2008). *China Human Development Report 2007/2008*. Beijing: China Publishing Group Corporation & China Translation and Publishing Corporation. Retrieved June 1, 2009, from http://www.undp.org.cn/downloads/nhdr2008/NHDR2008_en.pdf.
- Victor, D. G., & Wara, M. (2008). *A realistic policy on international carbon offsets*. Working Paper #74, Stanford University, Program on Energy and Sustainable Development.
- Vihma, A. (2009). Friendly neighbor or Trojan horse? Assessing the interaction of soft law initiatives and the UN climate regime. *International Environmental Agreements: Politics, Law and Economics*, 9(3).
- Wara, M. (2008). Measuring the Clean Development Mechanism's performance and potential. *UCLA Law Review*, 55, 1759-1803.
- World Bank. (2006). *Clean energy and development: Towards an investment framework*. Washington, D.C.: World Bank.
- World Bank. (2008). *Country Brief*. <http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/EASTASIAPACIFICEXT/CHINAEXTN/0,,menuPK:318960~pagePK:141132~piPK:141107~theSitePK:318950,00.html>