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China's Climate-Change Policy 1988-2011: From Zero to Hero?

Iselin Stensdal

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iss@fni.no

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Authors
Stensdal, Iselin

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Abstract

This report describes the evolution of China's domestic climate-change policy over the period 1988-2011, using the Advocacy Coalition Framework (ACF) to explore the policy change. Policy development has been gradual, with the most notable change occurring in 2007, when the National Climate Change Programme elevated climate change to a national policy issue. Within the climate-change policy subsystem there emerged an advocacy coalition - the Climate Change Advocacy Coalition - urging that climate change should be taken into consideration in relevant policies. The ACF points to socioeconomic development and the Climate Change Advocacy Coalition's policy-oriented learning as explanations for the development of climate-change policy in China.

Key Words

China, climate change policy, domestic politics, Advocacy Coalition Framework

Contents

List of Acronyms

ACF – Advocacy Coalition Framework

CAS – Chinese Academy of Sciences

CASS – Chinese Academy of Social Sciences

C-CAN – China Climate Action Network

CCICED – China Council for International Cooperation on Environment and Development

CDM – Clean Development Mechanism

CMA – China Meteorological Administration

CNCC – Chinese National Climate Committee

COP – Conference of Parties

CYCAN – China Youth Action Network

ENGO – environmental non-governmental organization

ERI – Energy Research Institute

GDP – gross domestic product

GHG – greenhouse gas

IPCC – Intergovernmental Panel on Climate Change

MEP – Ministry of Environmental Protection

MFA – Ministry of Foreign Affairs

MOE – Ministry of Energy

MOST – Ministry of Science and Technology

NACCC – National Advisory Committee on Climate Change

NCCCG – National Climate Change Coordination Group

NDRC – National Development and Reform Commission

NLWGACC – National Leading Working Group on Addressing Climate Change

NPC – National People's Congress

NRDC – Natural Resources Defence Council

SDC – Swiss Agency for Development and Cooperation

SEPA – State Environmental Protection Agency

SPDC – State Planning and Developing Commission

SSTC – State Science and Technology Commission

STC – State Planning Commission

UNCED – United Nations Conference on Environment and Development

UNDP – United Nations Development Programme

UNEP – United Nations Environment Programme

UNFCCC – United Nations Framework Convention on Climate Change

WMO – World Meteorological Organization

WRI – World Research Institute

Abstract

This report describes the evolution of China's domestic climate-change policy over the period 1988–2011, using the Advocacy Coalition Framework (ACF) (Jenkins-Smith & Sabatier 1994; Sabatier 1998) to explore the policy change. Policy development has been gradual, with the most notable change occurring in 2007, when the National Climate Change Programme elevated climate change to a national policy issue. Within the climate-change policy subsystem there emerged an advocacy coalition – the Climate Change Advocacy Coalition – urging that climate change should be taken into consideration in relevant policies. The ACF points to socioeconomic development and the Climate Change Advocacy Coalition's policy-oriented learning as explanations for the development of climate-change policy in China.

Keywords: China, climate change policy, domestic politics, Advocacy Coalition Framework

Introduction

Over the past 20 years, climate change has become a hot topic world-wide, also in China. Interest in the issue of global warming increased gradually within the Chinese bureaucracy and decision-making bodies from 1988 onwards, but it was not until 2007 that the National Climate Change Programme made climate change a national policy issue. Since 2007, climate change has been given rapidly increasing attention, also on subnational government levels. What brought about this change in climate-change policy? Here I employ Sabatier's (1998; Jenkins-Smith & Sabatier 1994) Advocacy Coalition Framework's (ACF)[1] parameters to explain the policy change. I will argue that the ACF points to the socioeconomic development that has unfolded between 1988 and 2011 as an important catalyser that has contributed to change in the Chinese climate-change policy subsystem. Further, ACF draws attention to the advocacy coalition of this policy subsystem: the Climate Change Advocacy Coalition, consisting mostly of climate-change scientists and environmental non-governmental organizations (ENGO). A further explanation provided by ACF is the Climate Change Advocacy Coalition's *policy-oriented learning*. The ACF is often used to describe policy changes in a democratic context, but the assumptions can be adapted to suit other political contexts as well. In particular, it seems a promising tool for illustrating some mechanisms in the Chinese policy process. This is a work-in-progress, and the argument could be further refined.[2] The data for this text come from a range of written primary sources – policy documents, statistics, published texts and videos from ENGOs and scientists – and from personal communications with ENGO employees, bureaucracy officials and climate-change scientists in 2011 and 2012. Secondary sources like research publications, news articles and reports have also been used as material.

This report is structured as follows: In the next section I explain the basic principles of the ACF and how it can shed light on the case of China's climate-change policy. Next, I recount the emergence of Chinese climate-change policies, as well as the development of the climate-change policy subsystem and the Climate Change Advocacy Coalition. The next part takes a closer look at the explanatory power of the ACF. In the concluding section I briefly discuss what the future may hold for China's climate-change policy.

[1] Many thanks to Tor Håkon Inderberg for introducing me to the ACF and his comments on this case. I would also like to thank Steinar Andresen, Guri Bang, Gørild Heggelund and Arild Underdal for helpful comments. However, any remaining errors and shortcomings are solely my own.

[2] I intend to employ the ACF on this particular case in a future publication.

The ACF and China's climate-change policy

In explaining policy change, the ACF takes the policy subsystem as the most useful unit of analysis. Such a subsystem consists of actors from the state, as well as private organizations. The governmental actors come from all levels of government, and there also might be actors from international or foreign organizations within the subsystem. These actors deliberately work to influence the policies within the subsystem, and can be grouped into advocacy coalitions. The agents of an advocacy coalition hold shared normative and casual beliefs, and over time come to participate in coordinated activities (Sabatier 1998:99,103–104).

Public policies can be read as belief systems, with value priorities and perceptions of concerning policy aspects. Likewise, an advocacy coalition's views on a policy issue can be seen as beliefs. Mapping out these beliefs provides a chart that can be used to determine the influence of various actors over time: the more similar policies become to actors' beliefs, the more power over policy formation those actors are considered to have. These beliefs can be arranged hierarchically: *Policy core beliefs* are held coalition-wide and are the glue that holds a coalition together. Such beliefs concern causal assumptions and normative perceptions of the issue in question, and value priorities like the relative value of economic development as opposed to environmental protection. *Secondary aspects* are beliefs concerning the details of the issue, e.g. as to the measures to be taken in response. *Secondary aspect* beliefs may vary within a coalition. The ACF assumes that, due to the nature of the beliefs, actors will be most prone to change their secondary aspect beliefs, but that it is harder to change *policy core beliefs* (Sabatier 1998:99–104).

The role of technical information in the making and dispute of policies holds special importance within the ACF (Sabatier 1998:99). Modification of the beliefs of members of an advocacy coalition is referred to as *policy-oriented learning*, and is understood as: '…[the] relatively enduring alterations of thought or behavioural intentions which result from experience and are concerned with the attainment or revision of policy objectives' (Jenkins-Smith & Sabatier 1994:182). Such learning is instrumental to the members as they seek to become more knowledgeable to help advance their policy objectives (ibid). The prospects of policy subsystem actors for influencing the policies are dependent on two types of exogenous variables. The first kind, *relatively stable parameters*, includes factors like basic features of the policy problem in question and essential sociocultural values. The second kind of variable includes more dynamic *events external to the subsystem*, like changes in socioeconomic conditions and impacts from decisions made in other policy subsystems. Changes in the exogenous variables generate alterations in the constraints and resources of the actors within the subsystem (Sabatier 1998:103–104). Members' reactions to the altered situation may lead them to alter their perception of the policy issue at hand. Also their use of the opportunities presented can result in policy change. At any given time, an advocacy coalition will try to modify policies toward its objective goals, employing strategies that involve the

use of guidance instruments such as changes in information, rules or personnel (Jenkins-Smith & Sabatier 1994:182). To fully assess the progression of the policy change, it is essential to follow a policy issue over the timespan of at least a decade (Sabatier 1998:99–104).

One methodology challenge for collecting data for this article has been that the policy debates in China tend to be less transparent than in other countries, which makes it harder to find relevant information. Although government entities are increasingly disclosing information,[3] decisions are still often communicated with little information as to which parties were consulted or the discussion that led to them. The political situation is a further reason why it can be difficult to find public statements that show disagreement or discrepancy with official government policies and conduct. Accordingly, cooperation and setting a good example by pioneering projects are strategies often employed by the Climate Change Advocacy Coalition. In piecing together the puzzle that makes up the Climate Change Advocacy Coalition and the policy subsystem, I have examined actions where statements were not available, keeping in mind that a sober evaluation of such material is always advisable. In this report, the influence of advocacy coalition members on policies is measured by two aspects, on a two-tier level similar to the policy beliefs hierarchy of *policy core beliefs* and *secondary aspects.* First, there is *agenda-setting*: the degree of convergence between the basic topics of the policy and the stance advocated by coalition members. This form of influence is measured to indicate to which degree the coalition members manage to create attention around an issue and convince policy-makers of the importance of dealing with the issue through policy regulation. Second, there is the aspect of *policy-measure decisions*: the accordance between the government's specific policy measures adopted and the coalition member's advised measures or earlier implemented actions. Just as *secondary aspects* do not need to be held coalition-wide, the measure in question does not necessarily have to be promoted by all members of the coalition. Implicit in these assessment parameters is the assumption of a causal relationship between the advocacy coalition members' activism and ensuing policy change. Having presented the basic premises of the ACF, I now turn to the subsystem studied here.

China's climate-change policy subsystem

The Chinese climate-change policy subsystem has evolved and expanded since global warming became an international concern, much along the lines of what has happened under the United Nations Framework Convention on Climate Change (UNFCCC). As Karen Litfin (2000:236–37) points out, climate change is an internationalized issue with local and regional effects and causes: one can hardly study domestic policies

[3] Such as publishing the State Council's communications online: see http://www.gov.cn/xxgk/pub/govpublic/ Last accessed 20.12.2011. For a survey of city-level environmental information disclosure, see Finamore (2010:5-6)

without taking the international process into account. This applies for Chinese climate-change policies as well. Chinese climate-change policy texts often feature references to the importance of international cooperation, the UNFCCC in particular. Additionally, China chose to announce its first-ever carbon-measure target, the carbon-intensity target, in the run-up to the 15th UNFCCC Conference of Parties (COP) in 2009. This indicates a link between the progress of Chinese domestic climate-change policies and the development of the international bargaining and cooperation on climate change.

In the late 1980s, global warming was an issue studied by only a few scientists: today it has now come to encompass a wide range of agents. Within the climate-change policy subsystem I will focus on one grouping, the Climate Change Advocacy Coalition, which works for greater attention to be given to climate change within the economic growth objectives established for the nation. Economic growth and poverty alleviation have been the paramount aims since Deng Xiaoping announced China's 'open door' policy in 1979. In tandem with the transition to a market-based economy, the number of businesses has increased, and economic development has been the general guideline for all policies. As there must be active participation on the policy issue of all hierarchical levels of the government for a subsystem to be deemed fully-fledged (Sabatier 1998:111), the Chinese climate-change policy sub-system can be said to be fairly recent. It is as recently as 2007 that sub-national levels of government became significantly involved in climate change (Qi et al. 2008:380). On the other hand, there have been individuals and organizations involved with climate change for more than 20 years. To my knowledge, the earliest Chinese journal mention of anthropogenic climate change dates from 1979 (Fu & Hu 1979:28–29). Further, from purely scientific research on climatic conditions to more conventional energy improvements to carbon trade, a speedy increase of complexity of climate-change policies occurred after 2007. The inclusion of other issues into the larger climate-change policy subsystem has made the policy issue more multifaceted and unruly, with numerous latent subsystems nested within the larger climate-change policy subsystem, as we shall see below.

Climate-change policies: from scientific topic to priority policy issue

In the late 1980s, Chinese climate-change policies were limited to scientific investigations. Gradually, the policies expanded. A first sign of change came when China ratified the Kyoto Protocol in 2002. By ratifying, China signalled acceptance that mitigation actions were to be dealt with inside China, as well as in the developed countries. The watershed for domestic climate-change policy came five years later in 2007, with the National Climate Change Programme. The next phase of domestic climate-change policies occurred in 2009 with the announce-

ment of a carbon-intensity target, followed in the 2011 by the 12th 5-year plan's widening of policies, in measure and in scope.

1988–1997: Global warming is a developed-country issue, economic development a Chinese issue

In 1988 China had started its large-scale reforms from planned economy to a market-based one, struggling to eradicate poverty (Liu 2011:73). The pace of the economic growth became rapid indeed in this period, with most years showing two-digit GDP growth rates (World Bank database). However, this economic expansion came at a price: it led to a rapid increase of greenhouse gas (GHG) emissions and took a great toll on the environment.

Climate change as a policy issue was brought to China from the international arena, when the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) founded the Intergovernmental Panel on Climate Change (IPCC) in 1988. Then in 1989 it was decided to start international negotiations for a framework convention on climate change. Initially, the Chinese government viewed climate-change policy as a highly scientific issue mainly from the realm of foreign affairs. The first institutionalization of climate change in China came in 1987 when the then State Science and Technology Commission (SSTC) founded the Chinese National Climate Committee (CNCC) with the objective of coordinating research on climate change (Beuermann 1997:225). In 1990, the State Council's Environmental Protection Commission issued a statement on China's position on the global environmental problems, emphasizing the responsibility of the developed countries for the deterioration of the global environment, and the sovereignty of developing countries over their natural resources and their rights to economic development (Jeon & Yoon 2006:850–1). Climate change was viewed in this context. In 1992, then Premier Li Peng stated at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro that where the goal of environmental protection came into conflict with the goal of economic growth, priority was to go to the economy (Beuermann 1997:226). According to the ensuing agreement from the UNCED, 'sustainable development' was henceforth incorporated into national policy programmes – but, as Li Peng stated, economic growth took priority, and as far as climate change was concerned, the policy was to explore the ramifications for China.

At this time the Chinese government still upheld views on the scientific uncertainties of climate change. However, it also instigated two national research projects between 1991 and 1995 in order to reduce the uncertainties and explore the possible consequences of climate change for the country (Ren 1997). In the 1990s the policy subsystem was beginning to develop: the first state climate-change organs were established, and advocacy agents emerged. Within the government's National Climate Change Coordination Group (NCCCG) – set up in 1990 with members from relevant governmental organs – the Ministry of Energy (MOE) and

the State Planning Commission (STC) argued for prioritizing economic development over energy restructuring (Liu 2011:70–1). Likewise, the Ministry of Foreign Affairs (MFA) and the Ministry of Science and Technology (MOST) focused more on economic development than possible abatement efforts (Heggelund et al. 2000:14). At the same time, however, there were a few ENGOs working with local governments on local energy projects, providing examples of how energy consumption patterns could be altered (China Environmental Series 1998:90; Chen 2001:14). Two environmental newspapers, *China Environmental News* and *China Green Times*, supported the ENGOs' work by reporting on their activities and spreading information (Jin 2001:7). Some scientists reported on changes already evident in agriculture and the threat of rising sea levels to economic output in coastal regions (Chen 1992:68–70). Several scientists collaborated with international or foreign institutions on research projects and also received funding from abroad (Ren 1997). The mechanism whereby the government made policy decisions based on advice from experts and scientists started early, and has since become an important channel of communication for scientists. An epistemic community of scientists developed in China, with close contact to their foreign counterparts (Economy 1997:21). On the international climate arena, the Kyoto Protocol was negotiated in 1997. China was sceptical to the flexible mechanisms that would enable the developed countries to receive credits for actions implemented on Chinese territory. One of these flexible mechanisms was later to become known as the Clean Development Mechanism (CDM) (Lewis 2008:163–4).

In short, from the late 1980s until the Kyoto Protocol came into existence, China's policies on climate change reflected the government's view of climate change as a scientific issue, introduced from abroad, and far removed from the concerns of everyday life.

1998–2006: From global issue to more national concern

From the late 1990s to 2006, economic development contained at a rapid pace, bringing more wealth but also increasing the demand for natural resources and energy sources, which in turn meant more GHG emissions. Between 2000 and 2007, coal consumption doubled in China (Turner 2010:2). When Hu Jintao and Wen Jiabao became President and Prime Minister in late 2002 they had to respond to the poor condition of the environment and the rising scarcity of natural resources, while still maintaining economic growth (Hallding et al. 2009:123). As climate change became more a domestic issue the Climate Change Advocacy Coalition took shape within the policy subsystem.

In 1998 the Chinese government initiated its most comprehensive bureaucracy restructuring to date. This also had consequences for the policy issue of climate change. The NCCCG secretariat was moved from the China Meteorological Administration (CMA) to the State Planning

and Developing Commission (SPDC).[4] The membership constellation of the NCCCG was also reshuffled in an attempt to broaden the coordination of climate-change polices. This change reflects the shift in the government's perception of climate change from a scientific issue, to one of development (Liu 2011:78). Moreover, to strike a balance between the sometimes contradictory goals of economic growth and environmental conservation, the Chinese leadership in 2003 introduced the guiding principle of 'scientific outlook on development'. The concept was formally endorsed by the National People's Congress (NPC) the following year (Hallding et al. 2009:124). According to this principle, the future development of China is to be guided by science and scientific advice.

During the eight years of this period, climate change emerged gradually in national polices, no longer merely as part of an international negotiation process. Although the term 'sustainable development' often appeared in policy documents as a desirable direction, Chinese reality was unmatched economic growth with accompanying environmental degradation. In 2001 China embarked on the period of the 10th 5-year plan (2001–2005), the first 5-year plan where climate change was mentioned. The term occurred once in the plan, in connection with affirmation of China's active participation in global environmental and developing issues that would contribute to mitigating climate change. However, 'climate change' was also mentioned in two of the specialized 5-year plans for the period.[5] While the Environmental 5-year plan confirmed the country's international dedication, the Meteorological 5-year plan specified that the country's meteorological staff should continue to support climate-change decision-makers, and also strengthen their own knowledge base on the implications of climate change in China (NDRC 2001a; NDRC 2001b). In a similar vein, the National Medium- and Long-Term Plan for Science & Technology Development (2006–2020) declared international cooperation and domestic research on various aspects of climate change in China as a priority (State Council 2006). Hallding et al. (2009:125) argue that climate change became a security issue on the leadership agenda around 2005, and that top government began to pay attention to the Chinese research on the grave impacts of climate change for the nation. Liu (2011:90) underscores how the macroeconomic views of NDRC have come to dominate policy-making on climate change since 2003.

The first Chinese ENGOs[6] were set up in the 1990s, often by educated individuals, many of whom had seen the work of ENGOs abroad

[4] The SPDC was renamed the National Development and Reform Commission (NDRC) in 2003.

[5] At least since the 9th 5-year plan, in conjunction with the main 5-year plan there has been an increasing tendency to issue other long- or short-term strategies or specialized 5-year plans as well. Many can be found (in Chinese) at http://www.ndrc.gov.cn/fzgh/ghwb/default.htm Last accessed 18.10.2011

[6] In investigating social organizations in China, the degree of 'non-governmental' can be discussed. Here I use the term ENGO for many types of organizations – some are more network-based, some resemble think-tanks. For discussions on non-governmental organizations in China, see Zhang (2001), Yang (2005) and Ru & Orlanto (2009).

(Economy 2005). The Chinese ENGOs worked mainly with nature and species conservation, often in collaboration with local governments, communities and research institutions (Turner & Wu 2001:33–9). The ENGOs aimed at cooperating with the government because the environmental activists genuinely wanted to help the government (Turner & Wu 2001:2). Collaboration with the media, such as *Southern Weekend* and *21st Century Business Herald*, was an important way for the ENGOs to spread information and insights (Economy 2005). From the late 1990s a significant number of international ENGOs also started conducting environmental or energy-saving projects in China (Economy 2005; Zusman &Turner 2005:132). It was not unusual that the funding for the Chinese ENGOs came from international sources (Economy 2004:158,163). These international ENGOs joined the Climate Change Advocacy Coalition. In 2001 the IPCC released its 3rd assessment report, which concluded that there was now less uncertainty as to whether climate change is a man-made phenomenon (IPCCC 2001:60). Also, the environmental costs of the economic development, such as soot and dust emissions, were given more attention and addressed by the Chinese central government (OECD 2007:18).

Yet another development came with the integration of the Clean Development Mechanism (CDM) under the Kyoto Protocol into Chinese jurisdiction, which allowed GHG-mitigating actions to be implemented within China. China ratified the Kyoto Protocol in 2002, and by extension agreed to the principle of implementing emissions-reduction activities in China, a developing country. Previously, China had maintained that emissions reduction should be conducted in the developed countries. The authority overseeing CDM projects in China were instituted in 2004 and the State Council adopted rules for CDM administration the following year (Lewis 2008:163–64). In 2005 the Renewable Energy Law was adopted, promoting the expansion of renewable energy such as solar, hydro and wind power. The advantages of using renewables instead of coal are not limited to reducing GHG emissions, but include reduced local environmental pollution and availability of the energy source as well. The latter two factors were important for the Chinese central government in incorporating renewable energy sources in the national electricity generation structure (Zhao et al. 2010:24).

To sum up, during this period the central leadership had to tackle the environmental problems brought about by China's rapid economic development. At the same time, the central government's view of climate change as a purely scientific issue was altered to an understanding of its being more of a development issue, in line with the concepts 'sustainable development' and 'scientific outlook on development'.

2007–2011: Elevation of climate change to a national priority

In 2007, the same year as China became the largest GHG-emitting country and the IPCC released its 4th assessment report, climate change became a domestic policy issue in its own right – no longer merely as part of the larger 'environmental protection' umbrella. From this year on,

the central government moved up the priority of climate change, making it a more important part of domestic policies. Despite the turbulence in the world economy beginning with the 2008–2009 financial crisis, China was able to maintain respectable economic growth rates – which also contributed to its increasing GHG emissions. Environmental degradation and now also consequences of climate change were concerns the central government prioritized.

In 2007 the NCCCG was altered again; it was renamed the 'National leading working group on addressing climate change ' (NLWGACC), structured directly under the State Council, with Premier Wen Jiabao as the head of the leading group and the NDRC's Climate Change Department as its secretariat (Liu 2011:85). The restructuring of the NCCLWG, directly under the State Council, China's highest political organ, was a premonition of the growing importance climate change would come to have. Also in 2007, the National Climate Change Programme, a 60-page document, was issued. In recounting China's efforts to abate its GHG emissions in the years prior to 2007, earlier afforestation measures and the efforts made to reduce China's energy consumption were now depicted as climate-change activities. Equally, the measures spelled out in the programme for future GHG mitigation were not in fact new, but a continuation of earlier efforts of energy restructuring and strengthening of laws and institutions, particularly in the energy sector (NRDC 2007a:7–10,30–33). Saving energy is beneficial both to the environment and for using energy sources most economically, and has been a stated goal in national polices for decades.[7] Even so, from 2007 on energy policies became explicitly connected to the reduction of GHG emissions and climate change. The term 'save energy, reduce emissions' (节能减排) has since become a staple reference in policy texts where issues of climate change or energy are addressed, reflecting how entwined the two areas are. The Mid- and Long-Term Plan for Renewable Energy issued in 2007, put forward a goal of increasing the share of non-fossil fuels in the primary energy consumption to 15 % by 2020 (NDRC 2007b:18). The Law on Energy Saving was revised the same year and made energy conservation a national policy (Jiang et al. 2009:4261).The elevation of climate change as a policy issue meant that it became a recognized part of future development. In an official report in 2008, China's view of climate-change policy was explained as follows: 'Address climate change in the context of sustainable development. Climate change arises out of development, and should thus be solved along with development' (State Council 2008:11). In 2008 the 'scientific outlook on development' was incorporated into the Chinese constitution (Hallding et al. 2009:124), consolidating the advisory position of science.

China has in recent years experienced increased extreme weather such as droughts, floods and other natural disasters. Both the National Climate Change Programme (NDRC 2007a:16–19) and the first White Paper on Climate Change (State Council 2008:7–10) point to China's vulnerability from the negative consequences of climate change; the two texts cite

[7] See for example the 6th 5-year plan (1981-85) ch. 1,1.4 and 8th 5-year plan (1991-95) ch. 2,2

examples like the fact that the runoff from China's six largest rivers has decreased over the past 40 years and that the sea level has been increasing for the last 30 years. The costs incurred can become considerable. The drought in northeastern China in the winter of 2008/2009 caused economic losses of USD 2.3 billion and led to water shortages for more than 10 million people (Nature 2011:293). Extreme natural phenomena have also directly affected China's energy supply. In the summer of 2011 a NDRC representative indicated that the country would experience a serious energy shortage, as areas in the southwest and central regions usually served by hydropower had suffered severe droughts (*China Daily* 2011). Increasingly, extreme natural phenomena and disasters have been linked to climate change – by the media, by scientists and by the government. Thus adaptation and capacity building on managing future natural disasters have been given increased attention in climate-change polices.

The 2007 domestication of policy on climate change also spurred activity among the actors in the subsystem. For example, the volume of research articles on climate change in Chinese publications has grown from about 1000 articles published in 2006 to more than 8000 in 2010 (Wübbeke forthcoming). International ENGOs like Greenpeace and the Climate Group have not only continued working in China, but have also set up offices there. In 2007, several Chinese ENGOs youth groups established the first Chinese youth climate association, China Youth Action Network (CYCAN). It was also not before 2007 that subnational governments' handling of climate change became institutionalized. In 2007 most of the province governments established climate-change task forces and developed province-level policies on climate change (Qi et al. 2008:380). Earlier, a few local governments, among them Guiyang city government and Shaanxi province government, had initiated some activities related to climate change (PECE 2009:17–23; 2011:20–22), but activity level depended on the initiative of the government in question, not institutionalized management. The past few years have seen a dramatic rise in the activity level of lower-level governments in low-carbon projects. Moreover, climate-related activities conducted in China with foreign participation have increased significantly since 2007. For example, in collaboration with Swiss Agency for Development and Cooperation (SDC), Baoding, Dezhou, Jianchuan, Kunming, Meishan, Yinchuan city governments and Dongcheng District in Beijing Municipality have joined in what is known as the Low-Carbon City China Alliance (LCCC Alliance 2011).Britain's Chatham House, working together with local governmental organs, made an assessment of the provincial-level city Chongqing's low-carbon development (Preston et al. 2009:6). In 2010, the Climate Group surveyed cities that had started low-carbon activities. At least 18 cities had embarked on low-carbon projects, many in cooperation with both foreign ENGOs and Chinese universities and scientific institutions (Climate Group 2010:7). The various projects have approached the low-carbon concept in various ways, but all take their starting point in each city's unique situation, and seek to identify opportunities within these conditions. In 2009, a research team from the China Council for International Cooperation on

Environment and Development (CCICED)[8] and a task force of Chinese and foreign scientists and researchers issued a report on low-carbon development in China. This report indicated that a transition to a low-carbon economy is both feasible and profitable, citing the costs of the negative consequences of climate change, and the possibilities for China to become a leader on the world market for renewable energy technology. The report also underscored that a transition towards a low-carbon economy is consistent with the country's scientific outlook on development (CCICED 2009:2–8). The UNDP's China Human Development Report for 2009/2010, *China and a Sustainable Future: Towards a Low Carbon Economy and Society*, in collaboration with Renmin University, argued strongly for a turn towards a low-carbon development, warning that the development already achieved by China might be set back by future climate changes unless emission reductions were attended to (UNDP 2010: 99–101). The Chinese central government also has amassed a portfolio of bilateral collaboration on climate-change work, including the EU–China Partnership on Climate Change, a climate-change partnership with the Australian government and the US–China Partnership for Climate Action.

The year 2009 saw further expansion of climate-change polices in China. Prior to the 15th UNFCCC COP in Copenhagen (COP15), which was intended to complete the Bali Road Map, China's State Council adopted the country's first carbon-specific goal. The State Council decided that China would lower its carbon intensity[9] by 40–45% by 2020 compared to 2005 levels (Reuters 2009). Earlier reduction measures in China had been measured in terms of energy saved, not in terms of emissions as such. In 2009 Premier Wen Jiabao declared: 'In the years ahead, China will further integrate actions on climate change into its economic and social development plan…' (NDRC 2009:4). The term 'low-carbon' (低碳) began to appear in official statements, reports and policy texts. Together with the continued emphasis on long-term research and energy conservation efforts, there has been a slow but steady diversification of China's policies on climate change, often using pilot projects to test the water for various policy measures. New market-based measures were tested. In 2008 China's first carbon exchange was set up in Tianjin, with more exchanges established in the following years. Then in 2010 the government announced five provinces and eight cities for low-carbon pilot projects.[10] Shenzhen, both a low-carbon pilot city and a pilot for carbon trading, set up a carbon exchange in 2010, with British funds (*Caixin Weekly* 2011).

The most recent elaboration of China's climate-change policies came with the 12th 5-year plan (2011–2015), published in 2011. The plan confirmed an increase in earlier energy saving measures, such as

[8] As early as in 1992 the Chinese government established CCICED, a high-level international advisory body on key environmental and development issues in China, to put forward policy recommendations to the Chinese leadership (CCICED 2008).
[9] Amount of carbon emitted per unit of GDP.
[10] The cities are Tianjin, Chongqing, Shenzhen, Xiamen, Hangzhou, Nanchang, Guiyang and Baoding; the provinces are Guangdong, Liaoning, Hubei, Shaanxi and Yunnan (NDRC 2010).

expanding the 11th 5-year plan's Top 1,000 Energy Consuming Businesses Programme to Top 10,000 Energy Consuming Businesses Programme under this period, as well as a further policy diversification in dealing with climate change. Among main aims of the 12th 5-year plan is to reduce carbon intensity by 17 % by 2015, as against 2010 levels. This was the first time a 5-year plan included a carbon-specific target. The plan further stipulated that a trial carbon market would be implemented during the plan period; resource taxes would be improved and standards established for energy conservation. Also in 2011, preparations were undertaken for a climate-change law (*Legal Daily* 2011).

Table 1. China's GHG emissions and GDP

Year	CO_2 emissions, MtCO2e[1]	Place on emitting country ranking	Percentage of world total emissions	GDP, million RMB[2]
1988	2,191.9	4th	10.71	1,504,280
1998	3,423.4	3rd	14.87	8,440,200
2008	7,200.1	1st	24.01	31,404,540

[1] = Million tonnes CO_2 equivalents, [2]= local currency unit.
Sources: Emissions data: World Research Institute Climate Analysis Indicators Tool, GDP: World Bank database

All in all, there have been massive changes in China's economic situation, its GHG emissions and climate-change policies over the past 20 years. During these years, China has shown astonishing growth. Its CO_2 emissions grew 3.5 times, whereas GDP increased more than 15 times in the same period (see Table 1). In the late 1980s, climate change was treated as a scientific issue bound up with foreign affairs. Gradually it began to feature in policy documents as a national concern, and in 2007 received its own national programme. Since then, its priority nationally has been moved up further, always in line with the objective of future economic development. This increased attention to climate change as a policy issue was promoted by the Climate Change Advocacy Coalition, to which we now turn.

The Climate Change Advocacy Coalition – the Expert Coalition

The Climate Change Advocacy Coalition is made up of individuals and groups that share a concern for the consequences of climate change in China, and who want China to step up efforts in GHG emissions abatement. The composition of the coalition has changed over time, with

the emergence of ENGOs from the mid-1990s and international ENGOs in the 2000s, but it has always remained strong on scientific expertise.[11] In 1989 the Chinese government organized a research programme involving 500 experts (Economy 2004:183). The US National Research Council pointed in 1992 to the personal engagement of Ye Dunzheng, former special advisor to the Chinese Academy of Sciences (CAS) and chairman of the Chinese National Committee for the International Geosphere-Biosphere Programme, as one reason for the international involvement and activity of Chinese climate-change scientists (Beuermann 1997:224). Scientists and researchers make up a large part of the advocacy coalition. Closest to China's decision-makers are members of the National Advisory Committee on Climate Change (NACCC), advising the NLWGACC. Scholars and scientists belonging to this coalition can be also found at the NDRC's Energy Research Institute (ERI), the CMA's National Climate Center, the CAS, the Chinese Academy of Social Sciences (CASS), and universities such as Peking University, Renmin University and Tsinghua University (Wübbeke 2010:27–36). Scientists and experts have warned of China's vulnerability to the threat of climate change and presented policy recommendations that go beyond official policies in reports, written statements and increasingly through the media, whether in interviews or by publishing articles (Chen 1992:68–70; Li 2009; Wübbeke 2010:27; *Point Carbon* 2011).

Chinese ENGOs have included the climate-change issue in their work portfolios. Friends of Nature, Global Environmental Institute, Global Village of Beijing, China Climate Action Network (C-CAN) and China Youth Action Network (CYCAN) are all examples of Chinese ENGOs working with climate change. WWF has been operating in China since 1980, whereas a significant number of international ENGOs and think-tanks set up offices in China after 2000. Greenpeace, the Climate Group, the Nature Conservancy, World Research Institute (WRI) and the Natural Resources Defence Council (NRDC) are all examples. These offices are often staffed by a mix of foreigners and Chinese nationals. It is mostly international large ENGOs that have the funding needed for larger climate-related projects. Parts of the media also belong to this coalition, promoting awareness and spreading information to the general public. Example here include *China Environmental News* and *China Green Times*, with their long history of collaboration with ENGOs. As to the subnational governments, one example is the city government of Guiyang, which published the 'Action Plan for Low-Carbon Development in Guiyang (Outline) 2010–2020' in 2010. Here it is stated that, despite having to rely on coal for the foreseeable future, Guiyang will use its advantages to achieve a low-carbon city while maintaining economic development (Government of Guiyang 2010:6–7). Further, Guiyang city is among the 2010 appointed eight low-carbon pilot cities. Selection of these cities was not arbitrary; quite a few of the governments had already initiated actions to reduce GHG emissions (Climate Group 2010). On the business side, China Renewable Energy Industries

[11] The coalition closely resembles an 'epistemic community', as described by Peter Haas (1992:3). I am indebted to Steinar Andresen for pointing this out.

Association (CREIA) is an example of a representative of climate-friendly businesses. What all the actors within this coalition have in common is that they often work together. One recurrent pattern is that the international ENGO or a company funds a project, coordinated by an ENGO and executed in collaboration with expertise and local government. One such project is the Global Environment Institute's (GEI) project *Identifying Opportunities and Key Stake Holders to Mitigate the Energy and Environment Crisis in Southern China*, started in 2007, which brought together research centres, independent enterprises, government organs, financing bodies and ENGOS in the search for market-based solutions to improve the energy efficiency and increase the share of renewable energy sources in Guangdong province (GEI 2008:16).

Table 2. Climate Change Advocacy Coalition 1988–2011

Actors:
Climate-change scientists, ENGOs, environmental media such as *China Green Times*, some officials from SPDC/NDRC's Climate Change Department, parts of State Environmental Protection Agency (SEPA)/ Ministry of Environmental Protection (MEP), some officials from MOST, a few subnational governments, such as Guiyang city government, some CMA employees, some businesses.
Policy core beliefs:
Causal beliefs: Trust in IPCC reports; climate change is a threat to China and its development.
Normative beliefs 1988–1997: Climate change should be handled primarily by the by developed countries. China should actively do its best at its current stage of development to reduce its GHG emissions.
Normative beliefs 1998–2011: China should do its utmost to reduce its GHG emissions and focus on capacity building, all in accordance with its current stage of development. Abating climate-change consequences should be a guiding premise for China's future development.

The ACF assumes that in addition to policy-oriented learning, variables external to the policy subsystem may serve as catalysts of policy change. Such exogenous variables can alter the constraints and resources of the subsystem actors and coalition members' perception of *status quo* policies, in turn inducing them to change their strategies (Sabatier 1998:102, 104). How can this be linked to the changes that taken place in China's policies on climate change? As the next part will show, the socioeconomic development and the strong scientific competence of the members of the Climate Change Advocacy Coalition have both been significant.

Explaining policy change – Socioeconomic development and the role of knowledge

When we look at the evolution of climate-change policies in China, is the change in 2007 particularly stands out. What can explain the shift? Within the ACF explanations, the exogenous variable *events external to the subsystem* changes in socioeconomic conditions and the *policy-oriented learning* of members of the Climate Change Advocacy Coalition can shed light on the mechanisms that resulted in policy change.

ACF explanation: Socioeconomic development

In line with the ACF theory that changes in relevant socioeconomic conditions can lead to policy changes (Jenkins-Smith & Sabatier 1994:183), we have seen that China's deliberate and conscious change from being a poor developing country to becoming a middle-income country over the past 30 years has had an unfortunate and unintentional consequence: China currently ranks the top GHG-emitting country in the world. As the economy grew, China's GHG emissions followed suit. This socioeconomic development has altered both the resources and constraints of the policy subsystem actors – and so the calls from the Climate Change Advocacy Coalition to adopt climate-change policies and start abatement measures became increasingly relevant from around 2000. Around this time, the central government's attention to the general environmental degradation – also a consequence of the rapid economic growth – began to grow. The fact of environmental degradation combined with the GHG emissions prospects gave the Climate Change Advocacy Coalition more clout. It seems highly likely that this situation has had an effect on the Climate Change Advocacy Coalition's *agenda-setting* in Chinese policies.

As to the resources and constraints of subsystem actors, socioeconomic development has brought a general sophistication in most areas of society since 1988, public or private. The actors have matured. Advancing from a low- to middle-income country has also made the Chinese government capable of handling increasingly complex policy matters. Several rounds of bureaucracy restructurings and a general improvement of the official system, together with the fact that officials have become increasingly knowledgeable, have enabled the government to take on climate change as a policy issue in recent years and to refine the country's fiscal policies. The socioeconomic development has opened up for additional actors to emerge and join the policy subsystem. Also, since 1988, the arrival and development of ENGOs as part of the loosening of state control has been important for how climate change has been handled. And finally, as China has developed, so has the level of Chinese expertise on matters of relevance to climate-change policies. Just like climate change, knowledge knows no borders, and the Chinese expert community have worked closely with foreign counterparts, in IPCC committees and on local projects in China. Project partners and funding for various projects are

sometimes international as well. Thus, the core policy beliefs of the Climate Change Advocacy Coalition are not without foreign influence.

With new stages of economic development come new opportunities. Sometimes solutions to curbing GHG emissions coincide with development objectives, such as improving the energy consumption structure of industries. Could it be that low-carbon development is regarded as having economic benefits, and is promoted because of economic self-interest? In answering criticism that the ACF does not adequately account for interests, Jenkins-Smith and Sabatier (1994:195–196) admit that differentiating between beliefs and interests gives rise to issues of both methodology and theory. Economic development has been and still is the ultimate objective of the Chinese government. Hence, it is to be anticipated that no other official policy may conflict with this objective except under very special circumstances, such as when a natural disaster strikes. Thus it seems plausible that one underlying motivation for the government's intensification of climate efforts involves the assessment of the costs and benefits of taking mitigation actions now, against the costs of adaptation later on. China's vulnerability to the consequences of climate change is often cited internationally as a reason why China has come to regard climate change as important. *The Second National Assessment Report on Climate Change*, a collaborative venture involving MOST, CMA, CAS and other relevant ministries and published in November 2011, warned, *inter alia*, of rising costs of food production as a climate change consequence (Reuters 2011; NDRC Climate Change Department 2011). The UNDP 2010 Human Development Report pointed out that achieving reductions in carbon intensity will incur incremental costs (UNDP 2010:63–64). With the limited finances available to the Chinese government for covering services and policy areas, it might be a reasonably priced insurance to instigate mitigation actions now and thereby lessen the future consequences of climate change. By extension, safeguarding future energy security, future food security and other development concerns may also have been crucial concerns for the central leadership when deciding to steer China down the low-carbon path.

Self-interest is not unimportant for the other subsystem actors either, but this depends on the different organizational positions. For ENGOs, which view the world through 'green lenses', it is easy to promote more far-reaching mitigation policies; for a business, promoting the most cost-effective high-emitting option is a no-brainer; but for a governmental official with responsibility for juggling many important policy issues the choice might not be as clear-cut. In such a situation, receiving counsel from expertise can prove pivotal, as the next paragraphs will show.

ACF explanation: Policy-oriented learning

The ACF anticipates that technical information and knowledge will have a special role in policy change (Sabatier 1998:99)— and China's climate-change policy subsystem confirms this assumption. The mechanisms of climate change may be the same now as they were in 1988, but *information* and *knowledge* about the phenomenon have certainly evolved.

Most probably, the accumulated knowledge about climate change that climate scientists have amassed and the Climate Change Advocacy Coalition members have drawn attention to, has had a considerable effect on the *agenda-setting* of Chinese policies. When the first national policy document to mention climate change was issued in 2001 – the 10th 5-year plan – Chinese climate scientists had been researching climate change and reporting to the government for more than 10 years. Also in 2001 the IPCC's 3rd report was published, concluding that previous uncertainties surrounding climate change were now significantly reduced. The Climate Change Advocacy Coalition members' *policy-oriented learning* has brought a better understanding of the phenomenon of climate change, its impacts on China and on ways of dealing with the various aspects of climate change. For the climate change scientists, gathering knowledge has also been their designated task. The coalition's *policy core beliefs* have not changed, but have more probably deepened as the uncertainties about climate change have been reduced. With continued accentuation of the consequences of climate change for China, highlighting challenges related to extreme weather and to food security concerns, among other challenges, scientists of the Climate Change Advocacy Coalition have convinced the country's central leadership that climate change must be figured into the equation when national policies are designed. The degree to which the coalition has influenced *agenda-setting* of Chinese policies becomes apparent in the content of the 2007 National Climate Change Programme, which summed up the most recent scientific findings on apparent climate change, the anticipated impacts, and policy measures for dealing with future challenges.

Moreover, the various collaborations within the Climate Change Advocacy Coalition have been a frequently used strategy to show the government that the policy options supported by the coalition are feasible. The Climate Change Advocacy Coalition has had some influence on the *policy-measure decisions.* The carbon intensity target was announced by the government in 2009, but it was being discussed on the draft level already in 2007 (Herzog 2007). NACCC proposed the carbon intensity target to the NLWGACC after months of deliberation, but the proposal was originally formulated by the Low Carbon Laboratory at Tsinghua University (Wübbeke 2010:28–31). Another example is the Guangdong Environmental Partnership programme's project the *Green Guardian Education Initiative*. The initiative had in 2010 trained 400 schoolchildren to become 'energy-saving guides' for their local community. The children's volunteering had already reduced energy use in the residential area by 10 % (DeGroot 2010:89–91). In 2011, the NDRC's Climate Change Department and the MEP information office initiated a kick-off tour *Cool China*, around the chosen low-carbon pilot areas, to spread information on low-carbon development. And as part of the larger *Cool China* programme in 2011 and 2012, one activity has been training schoolchildren to become 'low-carbon managers'. They are to record their households' monthly carbon emission levels, which can be plotted into an online tool to generate spread-sheets and graphs, enabling them to analyse household emissions (*People's Daily* 2011).

Thus there are signs of Climate Change Advocacy Coalition's persuasive efforts as regards climate-change policies in the growing attention

devoted to climate change since 1988 by the government, and also in the adoption of more specific policy measures after 2007.

Table 3. Changes in Chinese climate-change policies 1988–2011

Early beliefs	**Changes**
Policy core:	
Climate change is a foreign policy issue	Climate change is primarily a domestic issue
Climate change is a scientific issue	Climate change is a development issue
Economic development outranks other policy goals	Climate change is taken into consideration when the future direction of China's economic development is decided
Secondary aspects:	
Natural science research on possible consequences for China, strengthen climate-change observations	Expanded areas of research: in *disciplines* (natural sciences and other fields, such as economics) - and in *research topics* (future scenarios, adaptation issues, mitigation models etc.)
Climate change is a matter to be dealt with by developed countries	Great expansion of domestic policies: mitigation/energy restructuring, adaptation & capacity building, awareness efforts

The paragraphs above give some indications as to how the Climate Change Advocacy Coalition has had some sway over Chinese climate-change policies. Here, however, we should note a caveat regarding the explanatory power of the ACF. Although the ACF may illustrate how various actors join in and try to influence government policies, it is important to bear in mind that central political decisions in China are still largely top–down exercises. As China has developed in recent decades, the government has gradually shifted from keeping a tight grip on most issues in society to looser forms of control. Although there is communication between coalition members and the decision-making government entities, evidence of actual persuasion is hard to find. The ACF's method of breaking down policy texts into beliefs and seeing which coalition it most resembles can be a useful explanation, but there might be other reasons for the change in addition to pressure from the advocacy coalition. Looking at the development of policy, I have found evidence to indicate that the central government makes informed decisions based on advice from the coalition, but we must be careful not to jump to conclusions as to the *de facto* power of the Climate Change Advocacy Coalition.

In short, the ACF points to two reasons for changes in China's climate-change policy. First, the socioeconomic development of the past 20 years served both to mature the policy subsystem actors and bring about the large increase in China's GHG emissions. Secondly, the Climate Change Advocacy Coalition's active use and communication of the knowledge

amassed through policy-oriented learning have had impacts on both *agenda-setting* and the *policy- measure decisions* of China's climate-change policies.

Concluding remarks – Will China become a low-carbon hero?

From 1988 to 2011 there was a remarkable development in China's climate-change policies. In the late 1980s and early 1990s, such policies were limited to investigating the future implications for China. Gradually, climate change began to appear in policy texts, as in the 10th 5-year plan in 2001. However, the kick-off for climate change as a policy issue in its own right came in 2007 when the National Climate Change Programme made climate change a national policy issue. Since then the climate-change policy subsystem has grown to encompass a variety of issues, from mitigation-based legislation on personal vehicles and regulations of energy source, to plans for adaptation. Concurrently with the development of the policies, the Climate Change Advocacy Coalition emerged, made up of concerned individuals from ENGOs – Chinese and international –, climate-change scientists, and sections of the media. After 2007, more subnational governments actively joined in collaborating with members of the advocacy coalition.

In explaining the change in climate-change policies, the Advocacy Coalition Framework (ACF) shows how the socioeconomic development experienced by China has acted to change the policy subsystem. In the late 1980s China was a low-income country, with few climate-concerned individuals or groups, and a bureaucracy less capable of dealing with such a complex matter as climate change. In the course of the following 20 years new actors, such as ENGOs, emerged and other actors matured. Today, Chinese officialdom is far better geared to tackling this policy issue. One reason for this advance is the expert advice channelled to government officials, which links in with the second ACF explanation for policy change: the *policy-oriented learning* of the Climate Change Advocacy Coalition, followed by dissemination of its new-found knowledge. By conveying information and knowledge about climate change and its consequences for China, the Climate Change Advocacy Coalition has had effect on the *agenda-setting* of policies, such as in the National Climate Change Programme. Further, the Climate Change Advocacy Coalition has had some influence on *policy-measure decisions*, with the carbon-intensity target as one notable example.

From merely investigating the prospects for China, the central government now actively deals with the many aspects of climate change. The development since 2007 is indeed praiseworthy. What then can we say as to the future? The 2011 diversification of climate-change policies – introducing market-based mechanisms into national policies – points to a future with a more comprehensive arsenal of climate policies. The world probably has yet to see the end of the various measures that China will

initiate to abate its emissions, making it too early to deliver a final verdict on China's climate-change policies. While putting the 'hero' title on hold for now, it seems likely that the subsystem will continue to grow in the coming years, so the number of nested subsystems within the larger climate-change subsystem can also increase. Market mechanisms can be expected to play a greater part in future policies on climate changes. The commitment to greater use of renewable sources of energy caters to energy-security concerns as well as GHG-emissions concerns.

That said, however, the coming years may also bring fluctuations that are difficult to predict today. The world economy, for instance, could certainly impact on the Chinese climate-change policy subsystem. There are some actors not discussed in this report who profit or will come to profit from climate-change policies and low-carbon initiatives, such as the renewable energy industries. On the other hand, there are also actors who do not benefit from new climate-change policies, but may have to bear the rather heavy costs of the transition to a low-carbon development, such as the energy-intensive industries. If and how these actors join in actively and react in the future can impact on policies. Policy development has proceeded rapidly in 2007. Revisiting the subsystem in five to ten years will be a valuable exercise. When we consider policy developments up until now, however, we may conclude that any climate-change policy which also helps economic growth and development is much more likely to be sustained in the future than are policies that do not entail such win–win opportunities.

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Fridtjof Nansens vei 17, P.O. Box 326, NO-1326 Lysaker, Norway
Phone: (47) 67 11 19 00 – Fax: (47) 67 11 19 10 – E-mail: post@fni.no
Website: www.fni.no