

Chinese Climate-Change Policy, 1988–2013: Moving On Up

Iselin Stensdal

Abstract: *China's domestic climate-change policy has changed remarkably since 1988. In the late 1980s, the central government viewed climate change as a highly scientific, foreign-affairs issue, and any policies were limited to scientific investigations. A mere decade later, climate change was seen as a developmental issue. By 2007 climate change had become a national priority. Since then, climate-change policies have expanded in measure and in scope. In this article I employ the advocacy coalition framework (ACF) to explain the policy changes. The ACF takes into account the overall sophistication of socioeconomic conditions in China as well as the climate-change advocacy coalition's communications and active use of their amassed knowledge to influence policy.*

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

China has become a central actor in international politics, making an understanding of its policies on climate change essential. In this article I have two aims: first, to trace the development of China's policy on climate change, and second, to explain this evolution by employing the advocacy coalition framework (ACF) (Jenkins-Smith and Sabatier 1994; Sabatier 1998), which I have found fruitful in illuminating mechanisms for policy change in China. The analytical construction of a subsystem with coalition classifications aims at detecting the reasons for policy change in a complex world by prioritizing certain aspects. I argue that the ACF points to socioeconomic development in China between 1988 and 2013 as an important catalyst that contributed to change in its climate-change policy subsystem. ACF also highlights the advocacy coalition's policy-oriented learning and communication of the knowledge acquired as a further explanation.

Policy is a broad term that can meaningfully be applied to very different phenomena, from a formal text to a discourse, a process, or an outcome (Ball 1993). In this article I use the term in several ways, the most important of which is *policy* as a text that instructs conduct. But I also include climate change as an issue that has become institutionalized and incorporated into governmental structures. Prior to 2007, no policy texts focused specifically on climate change; the term *climate change* occurred in other policy texts. Tracing how climate change was handled and which entities were responsible for it can indicate the importance accorded to climate change as a policy issue in China.

I begin by explaining the basic principles of the ACF and how the development of China's policy on climate change fits within the framework. I then describe the development of the climate-change policy subsystem, followed by ACF explanations for the changes.

The ACF and China's Climate-Change Policy Subsystem

How are policies made in China? In one of the foundational works on Chinese policy formation, Lieberthal and Oksenberg (1988) describe how, despite a formal central-provincial-local hierarchy, China's political system is characterized by fragmentation of authority. Lampton (1987) finds considerable bargaining in Chinese politics, and he shows that not all bargainers are equal; the ability to influence policies decreases greatly the farther from the decision point one is situated. Examining environmental policies, Lieberthal (1997) explains the cross-pressures on local environmental protection agencies by the political domain's vertical (*tiao*) and horizontal (*kuai*) lines of authority, with *kuai* authority generally being the more powerful. Jahiel (1997) emphasizes that the reforms that have promoted economic development have also had a negative effect on the implementation of environmental policy. In addition, those reforms have enabled pollution-control policies to make use of economic incentives. In an update on the country's fragmented authoritarianism, Mertha (2009) sees the introduction of small leadership groups and the delegation of previous government-held responsibilities as two reasons why China has become less authoritarian. This development has enabled the emergence of policy entrepreneurs who use issue framing to promote their views on political issues.

Environmental protection and climate change are not solely the domain of the government and the bureaucracy. Ma and Ortolano (2000) conclude that when it comes to control of industrial pollution, citizens have some local channels through which to voice their complaints, and that the media and nongovernmental organizations (NGOs) are important in enforcement of environment regulations. In line with these findings, Yu (2012) investigates different kinds of NGOs and finds that those concerned with climate change have been contributing and disseminating knowledge and resources, recently by means of the Internet. Stalley and Yang (2006) examine the beliefs of university students and conclude that their environmentalism is not likely to make them a source of pressure for political change. The researchers find signs of environmentalism; however, by assuming that contention is a prerequisite for political change, they overlook other forms of influence at play in China, as shown by the advocacy coalition framework (ACF).

The main contribution of the ACF to the study of changes in climate policy in China is that it highlights how actors outside the government may impact policymaking and not merely act as enforcement watchdogs. Moreover, with the policy issue as the key variable, the ACF can encompass relevant state agencies as well as actors outside the bureaucracy. Applying the ACF to China is a new approach. The framework has been used extensively to analyze a diverse range of environmental issues in the United States, Canada, and the European Union (Sabatier and Jenkins-Smith 1993; Litjin 2000; Nedergaard 2008), but not to my knowledge concerning China.

My data come from various written primary sources—policy documents, statistics, published texts, and videos from environmental NGOs (ENGOS) and scientists—and from personal communications in 2011 and 2012 with ENGO employees, government officials, and climate-change scientists in Beijing. I have also used secondary sources such as research publications, news articles, and reports.

The Climate-Change Policy Subsystem and Advocacy Coalition

The Policy Subsystem

My focus here is on China's domestic climate-change policies. In explaining policy change, the ACF takes the policy subsystem as the most useful unit of analysis. Such a subsystem may consist of actors from various levels of government, as well as private or even international organizations. These actors seek to influence policies within the subsystem and can be subsumed into advocacy coalitions. The agents of an advocacy coalition are defined by shared normative and causal beliefs; over time, they participate in coordinated activities (Sabatier 1998).

I refer to the principal actors in this article as the "climate-change advocacy coalition." This coalition comprises individuals and groups that share a concern for the consequences of climate change in China. They want greater attention to be given to climate change within the economic growth objectives established for the nation. Always strong on scientific expertise, this grouping has grown with the emergence of ENGOs in the mid-1990s and international ENGOs after the turn of the century.² Closest to China's decisionmakers are the scientists who serve as members of the National Advisory Committee on Climate Change (NACCC). NACCC advises the National Leading Working Group on Addressing Climate Change (NLWGACC). Scholars and scientists in the coalition are also employed at the National Development and Reform Commission's (NDRC) Energy Research Institute, the China Meteorological Administration (CMA)'s National Climate Center, the Chinese Academy of Science (CAS), the Chinese Academy of Social Sciences (CASS), and universities such as Peking University and Tsinghua University (Wübbeke 2010).

Chinese ENGOs have included climate change among their focal areas. The Friends of Nature, Global Environmental Institute, Global Village of Beijing, and China Youth Action Network are examples of Chinese ENGOs working with climate change. The World Wildlife Federation has been operating in China since 1980, and a significant number of other international ENGOs and think tanks have set up offices in China since 2000. Examples include Greenpeace, the Climate Group, the Nature Conservancy, the World Research Institute, the Natural Resources Defense Council, and the Energy Foundation's China Sustainable Energy Program. Their offices are often staffed by a mix of foreigners and Chinese nationals. In general, the big international ENGOs have access to the funding needed for larger climate-related projects.

Sections of the media are also involved in the coalition, promoting awareness and spreading information to the general public. Examples include *China Environmental News* and *China Green Times*, with their long history of working together with ENGOs. On the business side, China Renewable Energy Industries Association is an example of a representative of climate-friendly businesses.

The Role of Beliefs

Within the ACF, policies can be read as belief systems, which encompass value priorities and perceptions. Likewise, an advocacy coalition's views on a given policy issue can be seen as beliefs. Mapping out these beliefs provides a way to chart the influence of various actors over time: the more similar policies become actors' beliefs, the more power over policy formation those actors are considered to have (Sabatier 1998). For this study I have used statements, reports, and briefings published by the advocacy coalition members or

groups, as well as conversations with ENGO employees and climate-change scientists, to determine beliefs.

The ACF arranges beliefs hierarchically. *Policy core beliefs* are held coalition-wide, concern causal assumptions and normative perceptions of the issue in question, and identify value priorities such as the relative value of economic development as opposed to environmental protection. Core beliefs are the glue that holds the coalition together. Members of the climate-change advocacy coalition share the view that climate change poses a threat to China, its economic development in particular. They also agree that it is in China's own best interest to mitigate greenhouse gas (GHG) emissions, in accordance with the national vision of development. This normative belief has become more pronounced since the beginning of the twenty-first century. In the ACF, *secondary aspects* are beliefs concerning the details of the issue—for example, regarding measures to be taken in response to climate change. These may vary within a coalition. Actors will be most prone to change their *secondary aspect* beliefs; changing *policy core* beliefs is naturally much harder (Sabatier 1998).

I measure the policy influence of advocacy coalition members on a two-tier level similar to the policy beliefs hierarchy of policy core beliefs and secondary aspects. First 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 indicates to what degree members of the coalition manage to create attention around a climate issue and convince policymakers of the importance of regulating it. Second is *policy-measure decisions*: the convergence between the government's specific policy measures adopted and the coalition members' 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. I distinguish between different kinds of influence to better demonstrate this advocacy coalition's sway over policies. Implicit in these assessment parameters is the assumption of a causal relationship between the activities of members of the advocacy coalition and ensuing policy change.

Technical Information and Exogenous Variables as Conditions for Change

The role of technical information in the making of policies and disputes over them is accorded special importance within the ACF (Sabatier 1998). Modification of the beliefs held by coalition members is referred to as *policy-oriented learning* and is understood as the “relatively enduring alterations of thought or behavioral intentions which result from experience and are concerned with the attainment or revision of policy objectives” (Jenkins-Smith and Sabatier 1994, 182). Such learning is instrumental to the members, as they seek knowledge to help further their policy objectives. As we shall see, this point has been important in the case of China's climate-change policies.

The prospects available to policy subsystem actors for exerting influence depend on two types of exogenous variables. The first kind, *relatively stable parameters*, includes factors such as basic features of the policy problem in question and essential sociocultural values. The second variable, *events external to the subsystem*, is more dynamic, entailing 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). Actors' reactions to the altered situation and their use of the opportunities presented may result in policy change (Jenkins-Smith and Sabatier 1994). The actors within China's climate-change advocacy coalition frequently work together. Often an international ENGO or a company funds a project that is then coordinated by an ENGO and executed in collaboration with Chinese universities and local government.

To fully assess the progression of a policy change, follow a policy issue over at least a decade (Sabatier 1998). The Chinese climate-change policy subsystem has evolved and expanded since global warming became an international concern. To my knowledge, the first mention in a Chinese journal of anthropogenic climate change dates from 1979 (Fu and Hu 1979). From a focus on purely scientific research on climatic conditions in the late 1980s to more conventional energy improvements to carbon trade, a speedy increase in the complexity of climate-change policies occurred after 2007.

Having presented the basic premises of the ACF and how I interpret the case of China to fit this framework, I now turn to the development of Chinese climate-change policies.

Global Warming or Economic Development? 1988–1997

By 1988 China was well under way with large-scale reforms, from a planned to a market-based economy, in the struggle to eradicate poverty (Liu 2011). The pace of economic growth was fast between 1988 and 1997, with most years showing double-digit GDP growth rates (World Bank 2013). However, this economic expansion came at a price: a rapid increase in GHG emissions and a great toll on the environment.

Climate change as a policy issue was brought to China from the international arena, with the 1989 decision to start international negotiations for a framework convention. Initially, the Chinese government viewed climate-change policy as a highly scientific issue that belonged mainly to the sphere of foreign affairs. The first signs of a broader institutionalization of climate change came in 1987 when the then State Science and Technology Commission founded the Chinese National Climate Committee, with the objective of coordinating research on climate change. Further institutionalization came with the establishment of the National Climate Change Coordination Group (NCCCCG) in 1990 with members from relevant governmental organs. The Ministry of Energy and the State Planning Commission argued for giving priority to economic development over energy restructuring (Liu 2011).

At the 1992 UN Conference on Environment and Development in Rio de Janeiro, Premier Li Peng stated that, in cases in which the goal of environmental protection came into conflict with the goal of economic growth, priority should go to the economy (Beuermann 1997). Climate change was viewed in this context. At this time the Chinese government still upheld views on the scientific uncertainties of climate change. In 1989 the Chinese government had organized a research program of 500 experts (Economy 2004). Between 1991 and 1995 China also initiated two national research projects in order to reduce these uncertainties and explore the possible consequences of climate change for the country (Ren 1997). Scientists thus became the first domestic climate-change actors, on the initiative of the central government. In 1992 the US National Research Council mentioned the personal engagement of Ye Duzheng, chairman of the Chinese National Committee for the International Geosphere-Biosphere Program, as one reason for the international involvement and activity of Chinese climate-change scientists (Beuermann 1997). In the international climate arena, the Kyoto Protocol was negotiated in 1997. However, China was skeptical of the protocol's flexible mechanisms, one of which was later to be known as the Clean Development Mechanism (CDM) (Lewis 2008).

From Global Issue to National Interest: 1998–2006

From the late 1990s to 2006, economic development continued at a rapid pace in China, bringing more wealth but also increased demands for natural resources and energy.

Between 1998 and 2006, China's CO₂ emissions in kilotons almost doubled (World Bank 2013). When Hu Jintao and Wen Jiabao became president and premier, respectively, in late 2002, they were faced with the task of responding to the poor state of the environment and the rising scarcity of natural resources while maintaining economic growth. As climate change became more of a domestic issue, the climate-change advocacy coalition took shape within the policy subsystem.

The first Chinese ENGOs were set up in the 1990s. The aim was cooperation with the state, as these environmental activists genuinely wanted to help the government. From the late 1990s a significant number of international ENGOs also started conducting environmental and energy-saving projects in China. Between 2000 and 2002 alone, international ENGOs and US-affiliated research centers launched thirty-nine energy projects in China, ranging from market construction for technology used in energy saving to energy-policy development (Turner and Wu 2001; Zusman and Turner 2005).

In 1998 the Chinese government initiated its most comprehensive bureaucratic restructuring to date, which also had institutional consequences for climate-change policy. The NCCCG secretariat was moved from CMA to the State Planning and Developing Commission (SPDC),³ and the NCCCG membership base broadened. This change reflected the shift in the government's perception of climate change from a scientific issue to a development issue (Liu 2011). Seeking to strike a balance between the goals of economic growth and environmental protection, the Chinese leadership in 2003 introduced the guiding principle of "scientific outlook on development." According to this principle, the future development of China would be guided by science and scientific advice (Hallding, Han, and Olsson 2009). Moreover, the central government began to pay more attention to the environmental costs of the country's economic development, such as industrial soot and dust emissions (OECD 2007).

During this eight-year period, climate change emerged gradually in national policy documents; it was no longer merely part of an international negotiation process. The Tenth Five-Year Plan (2001–2005), issued in 2001, was the first such plan to actually mention "climate change" (*qihou bianhua*). The term also appeared in the specialized meteorological and environmental five-year plans for the period.⁴ The macroeconomic views of the NDRC have come to dominate policymaking on climate change since 2003, and from 2005 climate change became a security issue on the leadership's agenda, with a focus on Chinese research on the severe impacts of climate change (Hallding, Han, and Olsson 2009; Liu 2011).

Another important shift came with the integration of the Kyoto Protocol's CDM into Chinese law. China ratified the Kyoto Protocol in 2002, by extension agreeing to implement abatement activities in China. Previously, the official stance had been that emissions reduction should be conducted only in the developed countries. In 2004, authorities for overseeing CDM projects in China were appointed, and in the following year the State Council adopted rules for CDM administration (Lewis 2008).

In 2005 the Renewable Energy Law was adopted, promoting the expansion of 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 as well as the local availability of such energy sources. These two factors were important for the Chinese central government in its decision to incorporate renewable energy sources in the national electricity generation structure (Zhao, Zuo, Fan, and Zillante 2010). To further counter the abrupt 5 percent annual rise in energy intensity (a measure of the amount of energy needed to achieve a particular level of GDP) that China experienced between 2002 and 2005, the Eleventh Five-Year Plan in 2006 announced the target of reducing energy intensity by 20 percent by 2010. (Energy intensity is a measure of the amount of energy needed to achieve a

particular level of GDP.) To accomplish the reduction, a range of energy-conservation measures were implemented (Price et al. 2011).

Climate Change as a National Priority: 2007–2013

Elevated Bureaucratic and Governance Importance

In 2007, the same year China became the country with the highest GHG emissions and the Intergovernmental Panel on Climate Change (IPCC) issued its fourth assessment report, a series of measures made climate change a domestic policy issue in its own right in China, institutionally and in terms of policy. Despite the turbulence in the world economy beginning with the 2007–2009 financial crisis, China managed to maintain respectable economic growth rates—which, however, also contributed to higher GHG emissions. Increasingly, Beijing gave priority to environmental degradation and now also to the consequences of climate change.

In 2007 the NCCCG was altered again: It was renamed the National Leading Working Group on Addressing Climate Change (NLWGACC). It was moved directly under the State Council, with Premier Wen Jiabao as its head and the NDRC Climate Change Department as its secretariat (Liu 2011). In 2007, most provincial governments established climate-change task forces and developed province-level policies on climate change, all in response to the central government’s command. Nonetheless, curbing GHG emissions sometimes coincided with local interests, such as improving energy efficiency to sustain economic growth (Qi, Ma, Zhang, and Li 2008).

Advocacy coalition members became increasingly active from 2007 onward. International NGOs such as Greenpeace and the Climate Group set up offices in China, and Chinese NGOs created the China Climate Action Network. One example of a project in which several types of advocacy coalition agents came together is the Global Environment Institute’s Identifying Opportunities and Key Stake Holders to Mitigate the Energy and Environment Crisis in Southern China. Started in 2007 the project brought together research centers, independent enterprises, government organs, financing bodies, and NGOs in the search for market-based solutions to improving energy efficiency and increasing the share of renewable energy sources in Guangdong province (GEI 2008). Earlier, a few local governments, among them Guiyang city and Shaanxi province, had initiated some activities related to GHG mitigation (PECE 2009). But the level of climate activity depended on the initiative of the government in question, not institutionalized management. In 2008 China’s first carbon exchange was set up in Tianjin, and more such exchanges were established in the ensuing years.

Further in 2007, the *National Climate Change Programme* document was issued. Earlier afforestation measures and efforts undertaken to reduce China’s energy intensity and energy consumption were now referred to as “climate-change activities.” Saving energy is beneficial both to the environment and for the economic use of valuable energy sources; these had been stated goals of national policies for decades.⁵ The measures spelled out in the *National Climate Change Programme* for future GHG mitigation likewise were not actually new; they continued earlier energy-restructuring efforts and a strengthening of laws and institutions, particularly in the energy sector (NDRC 2007a). From 2007 on, energy policies became explicitly connected to the reduction of GHG emissions and climate change. The phrase, “Save energy, reduce emissions” (*Jie neng jian pai*), has since become a staple reference in policy texts where issues of climate change or energy are addressed, reflecting how the two areas’ entwinement. Elevating climate change to a policy issue made it a recognized element in future development planning (State Council 2008). In 2008 the

“scientific outlook on development” was incorporated into China’s constitution (Hallding, Han, and Olsson 2009), thereby consolidating the advisory position of science.

In recent years China has experienced increased extreme weather—major droughts, floods, and other natural disasters. Both the National Climate Change Programme (NDRC 2007a) and the first White Paper on Climate Change (State Council 2008) note the country’s vulnerability to the negative consequences of climate change. The costs incurred can be massive—for example, the drought in northeastern China in the winter of 2008–2009 brought economic losses of \$2.3 billion and led to water shortages for more than 10 million people (*Nature Climate Change* 2011). Increasingly, such extreme natural phenomena and disasters have been linked to climate change—by the media, scientists, and the government. In China’s climate-change policies, heightened attention is now given to adaptation and capacity building to manage future natural disasters.

In line with the prescriptions of the National Climate Change Programme, the government continued restructuring the energy mix, including a noteworthy increase in the use of nonfossil energy sources. The Mid- and Long-Term Plan for Renewable Energy set the target of increasing the share of nonfossil energy sources used in primary energy consumption to 20 percent by 2020, as opposed to 6.8 percent in 2007 (NDRC 2007b; National Bureau of Statistics 2012).

Trading Up: 2009–2013

The year 2009 saw further expansion of climate-change policies in China. Immediately prior to the annual meeting of the UN Framework Convention on Climate Change in Copenhagen (COP15), the State Council decided that China would lower its carbon intensity—the amount of carbon emitted per unit of GDP—by 40 to 45 percent by 2020 compared to 2005 levels (Reuters 2009). Earlier reductions had been measured in terms of energy saved, not in terms of emissions as such. In 2009 Premier Wen 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” 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 steady diversification of China’s policies on climate change. New market-based measures have been tested, and in 2010 the government selected eight cities and five provinces for low-carbon pilot projects.⁶

Warning of China’s vulnerability to the threat of climate change, scientists and other experts have presented policy recommendations that go beyond official policies in reports, written statements, and increasingly through the media, whether in interviews or by publishing articles (Wübbeke 2010; Reklev and Chen 2011). In 2010 the Guiyang government published its *Action Plan for Low-Carbon Development in Guiyang (Outline) 2010–2020*. The plan states that Guiyang, despite having to rely on coal for the foreseeable future, intends to become a low-carbon city while maintaining economic development (Government of Guiyang 2010). Guiyang city was among the eight that were declared low-carbon pilot cities in 2010. The selection was not arbitrary, as quite a few of the city governments had already initiated actions to reduce GHG emissions (Climate Group 2010).

Another major elaboration of China’s climate-change policies came with publication of the Twelfth Five-Year Plan (2011–2015) in 2011. Among the main aims in this five-year plan, the first to include a carbon-specific target, is to reduce carbon intensity by 17 percent by 2015 from 2010 levels. The new plan confirms an increase in previous energy-saving measures, such as expanding the Eleventh Five-Year Plan’s Top 1,000 Energy Consuming Businesses Program to the Top 10,000 Energy Consuming Businesses Program. The plan

further stipulates that trial carbon markets are to be implemented during the period, resource taxes are to be improved, and standards established for energy conservation. Also in 2011, preparations were undertaken for a climate-change law (*Legal Daily* 2011; 12th Fifth-Year Plan 2011). In 2012, the seven assigned emission trading scheme (ETS) pilot projects, prepared for startup by designing mechanisms and determining enterprises, would be covered. In June 2013 Shenzhen city was the first to launch its pilot scheme, with most others set for launch the same year (Reklev 2013).

In all, the past twenty-five years have seen massive changes in China's economic situation, GHG emissions, and climate-change policies. China has shown astonishing economic growth. Whereas its CO₂ emissions multiplied more than three times over, GDP increased more than twenty-six-fold in the same period (World Bank 2013). Until the late 1980s, climate change had been 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 climate change received its own national program that made dealing with the issue a national priority. Since then, its national priority has moved up further, always in line with the objective of future economic development for the country. Why did these policies develop? In the following section I present ACF-based explanations for this change.

Explaining Policy Change

What explains the evolution of climate-change policies in China? Within the ACF approach, changes in socioeconomic conditions and the policy-oriented learning of the climate-change advocacy coalition members can shed light on the mechanisms that resulted in policy change.

Socioeconomic Development

In line with the main tenet of ACF theory—changes in relevant socioeconomic conditions can lead to policy changes (Jenkins-Smith and Sabatier 1994)—I find that China's deliberate shift from being a poor developing country to becoming a middle-income country also had some unfortunate and unintentional consequences. As the economy grew, so did the country's GHG emissions. This socioeconomic development altered the resources and constraints of the policy subsystem actors. By the turn of the century, the calls from the climate-change advocacy coalition to adopt climate-change policies and start abatement measures became increasingly relevant. The central government began to pay greater attention to the general environmental degradation that was a consequence of the country's rapid economic growth. The fact of environmental degradation, combined with the prospects of continually rising GHG emissions, gave more clout to the climate-change advocacy coalition—a situation that has most probably had an effect on the 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, public as well as private, since 1988. The actors have matured. As the country has advanced from a low- to a middle-income country, the Chinese government has become capable of handling increasingly complex policy matters. Several rounds of bureaucracy restructuring 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. Moreover, since the 1990s the emergence and development of ENGOs as part of the loosening of state control has been important for how climate change has been handled in China. Finally, as the country has

developed, so has the level of Chinese expertise on matters of relevance to climate-change policies. Members of the Chinese expert community have worked closely with foreign counterparts, on IPCC committees as well as on local projects in China.

With new stages of economic development come new opportunities. At times, solutions to curbing GHG emissions may coincide with developmental objectives, such as improving the energy-consumption structure or building new strategic clean-energy industries. Could low-carbon development now be recognized as having economic benefits and is being promoted because of economic self-interest? In responding to criticism that the ACF cannot adequately account for interests, Jenkins-Smith and Sabatier (1994) admit that differentiating between beliefs and interests gives rise to problems of methodology as well as theory. Economic development has been and remains the ultimate objective of the Chinese government. Hence, it is logical that no other official policy may conflict with this objective except under very special circumstances, as when a major natural disaster strikes. Plausibly, then, one underlying motivation for Beijing's intensification of climate-change efforts relates to assessment of the costs and benefits of taking mitigation actions sooner rather than later.

China's vulnerability to the consequences of climate change is often cited internationally as a reason why it is taking climate-change issues very seriously. The 2011 Second National Assessment Report on Climate Change, a collaborative venture involving (among others) the Ministry of Science and Technology, CMA, and CAS, warned, *inter alia*, that the costs of food production could rise as a consequence of climate change (NDRC 2011; Reuters 2012). Initiating mitigation actions now and lessening the future consequences of climate change might have been seen as a reasonably priced form of insurance. By extension, safeguarding future energy and food security may also have been crucial factors for the central leadership in deciding to steer China down a low-carbon path.

Self-interest is not unimportant for the other subsystem actors either, but this will depend on the positions of the various organizations. ENGOs, viewing the world through green lenses, find it easy to promote more far-reaching mitigation policies, while, for a business concern, promoting the most cost-effective but perhaps high-emitting option is a no-brainer. But for a government official with responsibility for juggling many important issues, the choice might not be so clear cut. In such a situation, receiving expert counsel can prove pivotal.

Policy-Oriented Learning

ACF anticipates that technical information and knowledge will have a special role in policy change (Sabatier 1998), and China's climate-change policy subsystem confirms this assumption. The actual mechanisms underlying climate change may be the same now as they were in 1988, but our knowledge about the phenomenon has certainly evolved. The accumulated knowledge about climate change that climate scientists have amassed and that climate-change advocacy coalition members have put in focus has probably had a considerable effect on the agenda setting of Chinese policies. When climate change was first mentioned in a five-year plan—in the tenth, in 2001—Chinese climate scientists had already been researching and reporting on the issue to the government for more than ten years. The IPCC issued its third report the same year. It concluded that previous uncertainties surrounding climate change were now significantly fewer.

The policy-oriented learning of members of China's climate-change advocacy coalition has brought a better understanding of the impact of climate change on China and ways of dealing with it. For climate-change scientists, accumulating ever-greater knowledge has also been their designated task. Although the policy core beliefs of the coalition have not

changed, they have probably deepened with reduced scientific uncertainties. By regularly emphasizing the consequences of climate change for China, coalition members have convinced the country's central leadership that climate change must be figured into the equation when it designs national economic policies. 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; it sums up the most recent scientific findings on anticipated climate change, the likely impact, and policy measures for dealing with future challenges. The declared principle of "scientific outlook on development" seems to have made the advice of the advocacy coalition more relevant in policy decisions. When local governments, as in Guiyang, have gone beyond the call of duty and formulated low-carbon action plans, they have made climate change a more visible policy issue.

The various collaborations within the advocacy coalition have been a frequently used strategy to show the government that the coalition-supported policy options are feasible. Indeed, the coalition has had some influence on policy measure decisions. As mentioned, coalition members initiated more than thirty energy-related projects between 2000 and 2002, ranging from feasibility studies of sulfur dioxide trading schemes to rural electrification by renewable energy sources. Renewable energy has now become an integrated part of China's future energy development, and government agencies have adopted policies similar to the strategies of the various coalition projects. The carbon ETS announced in 2011 was preceded by studies of trading schemes undertaken by coalition members earlier in the 2000s (Zusman and Turner 2005). The carbon-intensity target was announced by the government in 2009, but it had been up for discussion on the draft level already in 2007 (Herzog 2007). The 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 (Wübbecke 2010).

On a smaller scale, another example is a project of the Guangdong Environmental Partnership program, the Green Guardian Education Initiative. By 2010 the initiative had trained 400 schoolchildren to become "energy-saving guides" for their local communities, resulting in a 10 percent reduction in energy use in residential areas (DeGroot 2010). In 2011 the NDRC's Climate Change Department and the MEP information office initiated "Cool China," a program for the chosen low-carbon pilot areas. One activity of the program in 2011 and 2012 trained schoolchildren to become "low-carbon managers." They are to record their households' monthly carbon-emission levels, which can then be plotted into an online tool to generate spreadsheets and graphs, enabling them to analyze household emissions (*People's Daily* 2011).

These are just a few indications as to how the climate-change advocacy coalition has managed to exert some influence over climate-change policies in China. However, a caveat is also in order: Although the ACF may be used as a tool for showing how various actors join in and seek to influence government policies, bear in mind that central policy decisions in China are still largely top-down exercises. True, 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. But although communication occurs between coalition members and the decisionmaking government entities, evidence of actual, direct persuasion is rare. The ACF's method of breaking down policy texts into beliefs and comparing them to the coalition's advocated stances can be a useful device, but there may be other reasons for policy change in addition to pressure from an advocacy coalition. In examining the development of policy, I have found indications that the central government and occasionally the subnational governments make informed decisions on the basis of advice from the coalition, but analysts

must be wary of jumping to conclusions as to the actual power of China's climate-change advocacy coalition.

Conclusion

Remarkable developments in China's climate-change policies occurred between 1988 and 2013. In the late 1980s and early 1990s, such policies had been limited to inquiring into the possible future implications for the country. Climate change was seen as a highly scientific, foreign affairs issue, and any policies were limited to instigating scholarly investigations. Gradually, mentions of climate change began to appear in official policy texts, starting with the Tenth Five-Year Plan in 2001, and climate change emerged as a developmental issue. The crucial shift came in 2007, when the National Climate Change Programme made climate change a national priority. Combined with a restructuring of the energy mix, two important new policies have been introduced since then: the carbon-intensity target and the introduction of carbon-market mechanisms.

What lessons can we draw? In this study I have confirmed the importance of scientific knowledge in policy change. Today, Chinese officialdom is far better geared to tackling climate change. One reason is the expert advice channeled to government officials—and that 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 newly acquired knowledge. By conveying information and knowledge about climate change and its consequences for China, the advocacy coalition has been able to exert some influence on the agenda setting of policies, as in the National Climate Change Programme. The coalition has also had some influence on policy-measure decisions, with the carbon-intensity target as one notable example. We have also seen that actors outside the state bureaucracy can have an impact on Chinese policies. Concerned individuals from ENGOs (Chinese and international), climate-change scientists, and the media have devoted time and energy to working on this important issue. In that regard, China is not so different from other countries. What distinguishes China is that these actors almost always choose strategies of cooperation.

Policy developments concerning climate change in China since 2007 are indeed praiseworthy. What of the future? The 2011 diversification of climate-change policies points to a future with a more comprehensive arsenal of climate policies. That said, however, the coming years may also bring difficult-to-predict fluctuations. The state of the world economy could certainly affect the Chinese climate-change policy subsystem. Furthermore, some actors not discussed here may 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, such as the energy-intensive industries, that do not stand to benefit from new climate-change policies and indeed may have to bear heavy costs in the transition to a low-carbon society.

Policy development has proceeded rapidly since 2007. Revisiting the subsystem in five to ten years can provide valuable insights. Considering Chinese policy developments up until now, we may conclude that any climate-change policy that also assists other goals, such as economic development or environmental protection, is more likely to be sustained in the future than policies that do not entail such win-win opportunities.

Notes

Iselin Stensdal is a research fellow at the Fridtjof Nansen Institute (FNI), where she works on Chinese climate and energy policies, as well as Asian countries' interests in the Arctic region. Her main research interests are Chinese environmental, energy, and climate policy, as well as international climate negotiations. Her

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¹ The coalition closely resembles an “epistemic community” as described by Haas (1992). I am indebted to Steinar Andresen for this point.

² The SPDC was renamed the National Development and Reform Commission (NDRC) in 2003.

³ At least since the Ninth Five-Year Plan, there has been an increasing tendency to issue other long- or short-term strategies or specialized five-year plans as well. Many can be found (in Chinese) at www.ndrc.gov.cn/fzgh/ghwb/default.htm.

⁴ See the Sixth Five-Year Plan (1981–1985), chap. 1, point 1.4, and the Eighth Five-Year Plan (1991–1995), chap. 2, point 2.2.

⁵ The cities are Tianjin, Chongqing, Shenzhen, Xiamen, Hangzhou, Nanchang, Guiyang, and Baoding; the provinces are Guangdong, Liaoning, Hubei, Shaanxi, and Yunnan.

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