# Experts and the science-policy interface in China's climate policy

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# Chapter 6: Experts and China's National Climate Policy

## 6.1 Introduction

After discussing SPI and China's foreign climate policy, this chapter examines SPI and China's national climate policy. I seek to answer the question: *How do the experts engage in China's national climate policymaking, and how do Chinese policymakers make (non)decisions based on the experts' advice and political considerations?* Section 6.2 briefly presents the key research institutes involved in China's national climate policymaking. Then, I use three case studies to explore experts' engagement with two types of policy problems. Section 6.3 explains the SPI of China's national target-setting on CO2 emissions reductions in 2009 and 2014, reflecting a moderately structured problem (ends). Section 6.4 examines SPI in China's Climate Law legislation (an unstructured problem). Section 6.5 discusses SPI in the policy selection between carbon taxation and the emissions trading scheme (ETS), reflecting a moderately structured problem (ends). Lastly, Section 6.6 addresses the question set out above of how policymakers make decisions at the national level.

## 6.2 Organisation of research institutes in China's national climate policy

Since the 2000s, a small but specialised community of experts in Beijing has emerged as 'the' experts that shape policy perceptions among the ministries (Wübbeke, 2013 (a): 716). These experts are routinely convened to provide scientific input for policy decisions within particular ministries or on cross-cutting matters (Gallagher and Xuan, 2018: 58). I classify these expert organisations into five categories: (1) High-level advisory body for top political leaders; (2) Research institutes under the State Council; (3) Ministry/department affiliated think tanks; (4) Universities, and (5) Research NGOs (Heggelund, 2007; Richerzhagen and Scholz, 2008; Wübbeke, 2010, 2013 (a); Liu, 2013; Interviews 01, 29, 45, and 66) (see *Table 6.1*).

The first category of influential expert organisations in China's national climate policymaking is the high-level advisory body for China's top decision-makers. For instance, the China Council for International Cooperation on Environment and Development (CCICED), founded in 1992, has played a unique role in providing policy research to trigger China's shift towards sustainable development (Interview 20). Additionally, the National Expert Committee on Climate Change (see 4.4.3.1), composed of experts in natural sciences and social sciences, also enjoys direct channels to high-level officials and political leaders (Interviews 24, 25, and 26).

*Table 6.1 Categories of expert committees and research institutes in China's national climate policy*

| Category | Examples of research institutes |
|---|---|
| High-level advisory body for top decision-makers | China Council for International Cooperation on Environment and Development (CCICED)<br>National Expert Committee on Climate Change |
| Research institutes under the State Council | Development Research Centre (DRC)<br>Chinese Academy of Sciences (CAS)<br>Chinese Academy of Social Sciences (CASS) |
| Ministry/department affiliated think tank | Energy Research Institute (ERI)<br>National Centre for Climate Change Strategy and International Cooperation (NCSC)<br>National Climate Centre (NCC)<br>Chinese Academy of Agricultural Sciences (CAAS)<br>Chinese Academy of Environmental Planning (CAEP) |
| University | Tsinghua University<br>Renmin University of China (RUC) |
| Research NGOs | Energy Foundation China<br>World Resources Institute (WRI) |

*Source*: this research.

The second category includes the research institutes subordinated to the State Council. The Chinese Academy of Sciences (CAS) and the Chinese Academy of Social Sciences (CASS) have strongly supported Chinese decision-makers regarding the basic science, strategies, and climate mitigation policies since the 1990s (Interviews 4, 11, and 23). Meanwhile, the Development Research Centre (DRC) also provides policy advice on facilitating low-carbon development and a low-carbon economy since the late 2000s (Wübbeke, 2013 (a): 717; Interviews 21 and 23).

Third, the ministry/department affiliated research institutes are the 'inner-core' that has shaped policy perceptions among the ministries (Heggelund, 2007; Richerzhagen and Scholz, 2008; Wübbeke, 2013 (a)). The Energy Research Institute (ERI) and the National Centre for Climate Change Strategy and International Cooperation (NCSC) play the most critical roles in China's national climate policy, particularly mitigation. Meanwhile, the National Climate Centre (NCC) is the leading semi-official research institute regarding basic scientific research on climate change (Interviews 13, 18, and 36).

Fourth, some top universities in Beijing provide knowledge for mitigation policies, such as Tsinghua University and Renmin University of China. Meanwhile, Peking University has a reputation for the basic science of climate change, e.g., geophysics and Paleoclimate research (Wübbeke, 2013 (a); Interviews 27, 42, 34, and 39).

Lastly, a category of research institutes that is often under-estimated due to China's authoritarian political system—research NGOs—contribute to a good deal of backstage policy research. Some significant examples are the Energy Foundation China and the World Resources Institute (WRI), both US-based organisations that provide funding and professional support for Chinese domestic research institutes to carry out research projects (Interviews 07, 31, and 36).

The research institutes introduced above are only some prominent examples often mentioned in the literature and interviews. Taking a closer look at each policy field, one can identify different research institutes as influential in conducting research and providing policy advice for policymakers. I now critically examine the experts' engagement with three policy issues.

## 6.3 Case I: National target-setting on $CO_2$ emissions reductions

In 2009 and 2014, the Chinese government announced its first-ever relative and absolute $CO_2$ emissions reduction target: the 40-45% $CO_2$ intensity reduction target by 2020 and 2030 as its peak year of $CO_2$ emissions successively (see 4.4.3.3 and 4.4.4). Setting such targets presents the feature of addressing a moderately structured problem (ends) based on a common value— reducing $CO_2$ emissions while ensuring China's economic development. Yet, experts have various projections and scenario analyses regarding China's socio-economic development in the short- and mid-term. This section explains the Chinese experts' scientific input and the policymakers' political considerations that supported China's relative and absolute $CO_2$ emissions reduction targets.

### 6.3.1 Setting China's first-ever relative $CO_2$ emissions reduction target in 2009

Concerning the scientific input for setting China's $CO_2$ reduction targets for 2020, more than five high-end research institutes in Beijing have jointly or independently undertaken research on the topic since 2007: the DRC, ERI, CAS, CASS, DRC, NCC, and RUC (CAS, 2009; Jiang et al., 2009; Lin, 2010). These projects are commissioned by the Chinese government (e.g., the State Council and the NDRC) or financially supported by international NGOs (e.g., the Energy Foundation China) (Interviews 07, 17, and 40). While some have publicly released their research results (e.g., the ERI and CAS), others only submitted their estimated targets to the officials (21st Century Business Herald, 2009; Interviews 27, 36,

and 42).

Regarding the interaction of science and politics in setting China's $CO_2$ emissions reduction target, two-way communication exists between the experts and the officials. When undertaking the government-commissioned research projects, the experts presented the projected models and scenarios to the officials and adjusted them following the officials' consideration for factors such as urbanisation, energy consumption, economic growth, industrial transformation, etc. After the back-and-forth discussion with the top-level officials, the experts completed the reports detailing their estimation of the $CO_2$ emissions reduction target for 2020 (Interviews 27 and 42).

Although each research institute can influence policymaking, some acquired more access to approach policymakers directly due to the experts' formal and 'informal relationships' (*關係 guanxi*) with the officials (Williams, 2014; Interviews 10 and 21). For instance, He Jiankun and his colleagues in the Low-carbon Economy Lab at Tsinghua University attended the internal meetings several times to present their projection on China's roadmap of energy and low-carbon development (Deng, 2009; China Development Institute, 2017; Interviews 04, 06, 13, 18, 23, 24, 26, 34, and 36).

While different expert groups variously estimated that the $CO_2$ intensity reduction target could be from 20-25% to 40-45%, it was the top-level political leaders at the State Council that decided for the more stringent 40-45% target (see *Table 6.2*) (21st Century Business Herald, 2009; China Economic Weekly, 2009; Interview 27).

*Table 6.2 Research institutes and various estimations of $CO_2$ emissions reduction target for 2020*

| Research institutes | Estimation of $CO_2$ emissions reduction target for 2020 |
|---|---|
| Tsinghua University | 40-45% |
| Energy Research Institute (ERI) | 44% |
| Chinese Academy of Social Sciences (CASS) | 35-40% |
| Chinese Academy of Sciences (CAS) | 40% |
| Renmin University of China (RUC) | 20-25% |

*Sources*: Author's compilation of CAS (2009); Chinanews.com (2009); Jiang et al. (2009); Lin (2010); UNDP China and RUC (2010).

According to the experts engaged with the backstage policy research, the models,

data, and estimated range proposed by the Tsinghua experts were eventually accepted by the officials (21st Century Business Herald, 2009; Wübbeke, 2013 (a): 729; Interviews 27 and 42). Meanwhile, the National Expert Committee on Climate Change did not take the less ambitious targets—20-25%, and 35-40% proposed by the CASS (led by Pan Jiahua) and RUC (led by Zou Ji) during the internal discussion and hence, did not recommend this to the government (Lin, 2010; Interviews 04 and 34) (see 6.3.3 for further discussion).

### 6.3.2 Setting China's first-ever absolute $CO_2$ emissions reduction target in 2014

Similar to setting the relative reduction target in 2009, different expert organisations have variously estimated the date for China to peak its $CO_2$ emissions, ranging from 2025 to 2040 (see *Table 6.3*) (Asuka, 2016; Interviews 06, 26, and 27). The research institutes with ambitious estimations include the ERI (the 2-degree scenario) and the CAS. The experts suggested that China can peak its $CO_2$ emissions by around 2020~2025 and 2025~2030. The least ambitious target was proposed by the RUC experts. The experts emphasised China's enormous cost of peaking $CO_2$ emissions before 2050 (UNDP China and RUC, 2010).

*Table 6.3 Research institutes and their estimated peak year of China's CO2 emissions*

| Research institute | Scenarios | Peak year of coal consumption | Peak year of $CO_2$ emissions |
|---|---|---|---|
| Tsinghua University | Continued effort | 2035 | 2040 |
| | Accelerated effort | 2020 | 2030 |
| Energy Research Institute (ERI) | Business-as-usual | N/A | 2040 |
| | Low-carbon | N/A | 2030 |
| | Enhanced low-carbon | 2020 | 2030 |
| | 2-degree | N/A | 2020~2025 |
| Chinese Academy of Social Sciences (CASS) | Low-carbon | 2025~2030 (Peak year for the industrial sector) | After 2030 |
| Chinese Academy of Sciences (CAS) | Low-carbon technology | N/A | 2025~2030 |
| Renmin University of China (RUC) | Business-as-usual | N/A | After 2050 |
| | Emissions Control | N/A | After 2030 |
| | Emissions Abatement | N/A | Around 2030 |

*Sources*: Author's compilation of Jiang et al. (2009); CAS (2009); UNDP China and RUC (2010); CASS (2014).

Again, He Jiankun and his Tsinghua laboratory played a vital role in persuading decision-makers to select 2030 as the date (Vaughan and Branigan, 2014; J. He, 2017; Interviews 27 and 42). During 2012 and 2013, He Jiankun and his colleagues published several articles and repeatedly presented their recommendations in closed sessions with high-level officials. Ultimately, the Chinese political leaders adopted the recommendation and announced peaking China's carbon emissions in 2030 (J. He, 2017; Interviews 27 and 42) (see 6.3.3).

### 6.3.3 How did Chinese policymakers make the decision? Timing as a critical consideration

After the experts suggested reduction targets, how did the political leaders make the final decision? Why did Chinese policymakers select the most ambitious option in 2009 but not make the same choice in 2014? Timing is a critical factor to explain how Chinese policymakers decided on China's relative and absolute carbon reduction targets.

Regarding the proposition that timing matters, Chinese policymakers' primary concern was to build a positive image before the Copenhagen COP in 2009. China had long insisted that it was only an emerging economy and policymakers asked for more time to develop instead of setting a timetable to reduce its carbon emissions. Yet, between 2007 and 2009, China's attitude changed to set an ambitious target to respond to Western pressure (see 5.2.3). Therefore, the State Council adopted the most rigorous option—40-45% from all the experts' estimations (21st Century Business Herald, 2009; Interview 27).

When deciding the date to peak China's $CO_2$ emissions in 2014, Chinese policymakers wanted to demonstrate that China is making progress (J. He, 2017; Interviews 05, 21, and 24). Since 2010, China became the second-largest economy and has formed the Group of Two (G2) with the US. Hence, considering that the G2 received significant attention and was playing a critical role in the run-up to the 2015 Paris Climate Change Conference, China had to propose a more stringent goal to demonstrate its political will to reduce its carbon emissions (China Development Institute, 2017; Interviews 26, 27, and 42). Under the circumstances, setting a target that was not ambitious enough, with for instance 2040 as the peak year, would be embarrassing (Zhang, 2011 (b): 250-252).

Yet, if the primary concern was to build a positive national image in international society, why have Chinese policymakers not picked up the most ambitious target (2020~2025)? This is because such targets must be feasible and achievable (K. Brown, 2015; Interviews 27, 36, and 42). As a National Energy Administration (NEA) official explained, if China cannot meet its commitment on time, it means that "China's policy planning is not scientific at all, which would harm China's image" (BTC, 2017). According to experts in the

closed-door meetings, the officials and the experts agreed that the estimated $CO_2$ peak date should be within the safe area, which is one hundred percent achievable (Interviews 34 and 39). Hence, although some research institutes estimated 2025 could be the time to reach the carbon peak, Chinese decision-makers ultimately decided on the safer date—2030—as its officially announced target (China Development Institute, 2017; J. He, 2017; Interviews 03 and 23).

Given that Chinese policymakers add some political considerations before making the decision, I consider experts' impact on China's target-setting on $CO_2$ emissions reduction as level 4 (high).

## 6.4 Case II: Legislation of China's Climate Law: loud thunder, little rain

China's draft Climate Law enables analysis of science-policy interactions as an unstructured problem as policymakers and experts agree on goals and principles (values) in the Law, but contest which policy instruments (i.e., carbon tax) should be used. Further, the fragmented authority and the bureaucratic competition among ministries have led to some fundamental contestations that hinder the uptake of the experts' scientific input.

### 6.4.1 Multiple scientific input for drafting China's Climate Law

Like the target setting for climate change mitigation, many research institutes participated in China's draft Climate Law. Since different ministries (i.e., the NDRC, MEP, and CMA) are motivated in introducing their targets and measures into the law, officials instructed their affiliated think tanks to study and prepare for drafting the law. Thus, several research institutes studied the same policy issue as a whole and provided the entire package of policy recommendations,[42] namely the draft Climate Law (Interviews 21, 32, and 33). One CMA official even stated that it is perhaps the first time many esteemed expert teams simultaneously drafted the same law (CMA, 2012).

Two expert teams stand out. The first expert team was led by Chang Jiwen from the Institute of Law of the CASS. The experts undertook the research project commissioned by the MEP and supported by the Switzerland–China bilateral collaborative framework (CMA, 2012). Another expert team was commissioned by the NDRC. Composed of experts from the China University of Political Science and Law (CUPL) and the NCSC, Wang Canfa from

[42] According to the function of China's political system, a more common situation is that a government ministry/department divides a policy into several parts and commissions research projects to different research institutes. While each expert team submits the research results and policy suggestions, the officials integrate research that touches upon the same topic for further consideration (Interviews 21, 42, 52, and 53).

the CUPL served as the leading expert.

As a key think tank that has long supported the Chinese Party-state with research behind law-making, the CASS experts were more high-profile in discussing the issue in media and academia (21st Century Business Herald, 2012). The CUPL and NCSC experts seemed more 'orthodox' since their work is directly commissioned by the NDRC, indicating the authority mandated by the State Council (Interviews 15 and 24). Meanwhile, the ERI, Tsinghua University's School of Law, and the CAS's Institute of Science and Development were also proactive in studying China's Climate Law (Interviews 11 and 36).

During 2010 and 2012, the experts conducted intensive research and organised international and domestic conferences accumulating input from foreign and domestic academics (Nachymany et al., 2015). Even the China Association for NGO Cooperation (CANGO) participated in the debate and organised meetings to collect local officials and the publics' opinion (Ma, 2015). Afterwards, three drafts were submitted to the NDRC. The CASS's draft was first released on 18 March 2012 for public consultation on the internet. The CASS experts then submitted the revised draft to the NDRC. Meanwhile, the CUPL and NCSC, and the CAS (collaborating with the Energy Foundation China) also provided their Climate Law drafts directly to the NDRC for deliberation (Interview 36).

*Table 6.4* compares the two drafts of China's Climate Law submitted by the CASS and CUPL+NCSC experts. There were some significant differences: First, concerning the attribute and structure of the law, the CASS experts designed China's Climate Law as a comprehensive law with more detailed guidance (made up of ten chapters with one hundred and fifteen articles). Meanwhile, the CUPL+NCSC experts designed China's Climate Law as a basic law with guidelines (made up of seven chapters with only thirty-nine articles).

Second, regarding the different goals of the draft law, the CASS version aimed to synthesise pollution prevention, combating climate change, and ecological recovery. Reflecting the NDRC's ambition to ensure their power to coordinate many policy areas that are in relation to climate change, the CASS experts included regulations on water, transport, pollution, buildings, and so on in the Climate Law (Ma, 2015). On the other hand, the CUPL+NCSC experts' goal was relatively simple: to coordinate the targets and measures of climate change mitigation and adaptation to peak $CO_2$ emissions by 2030 and achieve carbon neutrality before 2060 (Chang and Tian, 2021). Hence, their draft focuses primarily on juxtaposing climate change mitigation and adaptation related work.

*Table 6.4 Comparison of the two drafts of China's Climate Law*

| | CASS | CUPL+NCSC |
|---|---|---|
| Commissioned Ministries | MEP + NDRC | NDRC |
| Attribute of the law | Comprehensive law with more detailed guidance | Basic law with only principled guidelines |
| Structure of the draft law | Ten chapters with one hundred and fifteen articles | Seven chapters with thirty- nine articles |
| Goals | To synthesise pollution prevention, combating climate change, and ecological construction | To coordinate the targets and measures of climate change mitigation and adaptation to peak $CO_2$ emissions by 2030 and achieve carbon neutrality before 2060 |
| Principles (values) | Sustainable development; scientific response; social participation; juxtaposing both mitigation and adaptation; focusing on both voluntary and mandatory emissions reduction | Risks precautionary; juxtaposing on both mitigation and adaptation; government steering; market incentives; public participation |
| Instruments | A mixture of regulations and standard, subsidies and incentives, and information instruments, etc.; mentioned both Cap-and-Trade and carbon tax | A mixture of regulations and standard, subsidies and incentives, and information instruments, etc.; only mentioned Cap-and-Trade |

*Source*: Author's analysis based on CMA (2014); Ma (2015); Chang and Tian (2021).

Lastly, concerning the instruments adopted in the draft Climate Law, the CASS experts listed a policy mix, mentioning both Cap-and-Trade and carbon tax. Yet, when the CUPL+NCSC experts designed a toolkit of policy measures, including Cap-and-Trade, they did not adopt a carbon tax (Ma, 2015).[43] Concerning the officials' response to the experts' scientific input, the State Council's Legislative Affairs Office organised a formal consultation to solicit opinions from government ministries, industries, and other stakeholders by the end of 2014 (CMA, 2014; Nachymany et al., 2015). Yet, although the State Council has listed

[43] Regarding the policy discussion on carbon tax during the same time, see Section 6.5.

the Climate Law as a key research item in its Legislative Plan for 2016, the draft Climate Law was not mentioned in the post-2016 Legislative Plans and has not been passed as of June 2021. Experts employed at the NCSC and DRC[44] still advocate the Climate Law (Tian, 2018, 2019; Tian and Zheng, 2020; Chang and Tian, 2021).

### 6.4.3 When science meets politics: three contestations that hinder the uptake of science

Although there seems to be a certain degree of political momentum and scientific input for the Climate Law, China has not completed the legislative process. This sub-section explains the three contestations regarding the necessity, attribute, and content of the Law. Since the issue is an unstructured problem, such contestations cannot be solved by expertise/science but must deal with politics. Hence, while experts played an essential role in agenda-setting and policy formulation, their impact is somewhat limited in the law-making process.

#### 6.4.3.1 Climate Law or Energy Law? Contestation on the necessity of China's Climate Law

The contestation starts with considering whether China must legislate a Climate Law. Supporters claim that although there are more than thirty laws, acts, and regulations related to climate change in China,[45] none of them are climate change- or low-carbon-driven. As NDRC officials complained, the current laws insufficiently regulate and implement climate change-related policies (Ma, 2015). Since many change-related policy regulations have not yet been included in China's current law system,[46] there should be room for climate change legislation (Ding and Yang, 2015; Tian, 2018; Interviews 05, 24, and 28).

On the other hand, opponents objected to the necessity and urgency of China's Climate Law as it overlaps with current laws. They argued that the cost of revising the existing laws is less than making a special law on climate change (Ma, 2015; Interviews 20, 32, 33, and 34). For instance, some advocated incorporating the climate change-related articles into the current energy-related laws to complete the Energy Law (21st Century Business Herald, 2012; Interviews 04 and 06). Others preferred to legislate the Law on

[44] Worth noting is that Chang Jiwen, the leading expert of the CASS team during 2010 and 2012, has joined the DRC's Institute of Resources and Environment Policies in 2014 (Interview 33).

[45] For instance, the Renewable Energy Law, Law on Promoting Cleaner Production, and Energy Conservation Law are some examples that are related to climate change mitigation. Meanwhile, the Grassland Law, Forest Law, Meteorology Law, and Agriculture Law are some examples of China's existing laws, which are about climate change adaptation.

[46] For example, 'carbon sink' and the relevant policy regulations have not been incorporated into China's Forest Law.

Promoting Low-Carbon Economy to stimulate China's economic and industrial development (Interviews 04 and 06). During the policy deliberations, the NDRC eventually guided the discussion to legislate a new law on climate change rather than incorporate climate change into the current law system (Interviews 20 and 34).

#### 6.4.3.2 Soft law or hard law? Contestation on the attribute of China's Climate Law

The second contestation was whether to make the Climate Law a soft policy or a hard law. Initially, the NDRC's and experts' intention was to legislate a hard law to ensure its authority and power in influencing policymaking and implementation (Ma, 2015). The best example is the CASS experts' recommended draft, which contains more than one hundred articles of detailed regulations for addressing climate change (Interviews 04 and 13). The experts argued that if China's Law is soft policy, it ends up like the current energy- or environmental-related laws/policies that have a symbolic existence with minimal binding power and enforcement (Interviews 21, 32, and 33).

Yet, when the NDRC released the official draft Climate Law to solicit comments for amendment, only seven chapters with less than forty articles were left. One can interpret this as a compromise of bureaucratic competition, since many targets and measures mentioned in the draft Law conflicted with others and were still under debate (Interviews 07, 11, and 14). As an NDRC official explained, "rather than to put concrete targets in the articles, the draft Climate Law only lists who has the authority and legal liability to make and implement such policy targets" (Ma, 2015: 7).

#### 6.4.3.3 Contestation on the content of China's Climate Law: jurisdictions and policy venues

The third contestation is about the content of China's Law—a 'chicken-and-egg problem.' The fragmented bureaucratic apparatus pushes the central government to legislate a Climate Law to define each ministry's jurisdiction clearly. Yet, parochialism and bureaucratic competition among different ministries is the primary obstacle that hinders the promulgation of the law.

To consolidate its policy influence in the climate change arena, each ministry proposed targets under its jurisdiction and raised new instruments to expand its policy venue. For instance, the MOF proposed a carbon tax or environmental tax, the MEP promoted the concept of a Green GDP, and the NDRC boosted the ETS. However, the ministries have not yet reached a consensus on which policy targets and measures should be included in the Climate Law and the corresponding legal responsibility (Haas, 2013; Ma, 2015; Interview 20).

### 6.4.4 Indefinite postponement of China's Climate Law?

I consider experts' impact on legislating China's Climate Law as level 3 (moderate). Since around 2009, several expert teams in Beijing have promoted the Climate Law. The science-push (experts proactively submitted the draft Climate Law to the NDRC) and the policy-pull (the NDRC commissioned the expert teams to draft the Climate Law) models can both describe the interplay between science and politics. However, the State Council has not passed China's Climate Law as of June 2021, indicating the difficulties in addressing this unstructured policy problem. As one NCSC expert puts it, "the legislation on climate change is not just a law-making procedure but also a process that co-opts different opinions and builds consensus" (Tian, 2018: 62).

While China established the Ministry of Ecology and Environment (MEE) to supersede the MEP in Spring 2018, the NDRC's Department of Climate Change was transferred to the MEE. It indicated China's plan to further synergise the energy, environment, and climate change-related policies (Chang and Tian, 2021). Yet, it remains unknown when China will adopt its Climate Law. Although the MEE listed the Climate Law as its future task in *China's Policies and Actions for Addressing Climate Change* (2018), officials took such a task away from the 2019 white paper (MEE, 2019). My observation is that only when the MEE coordinates the related ministries regarding their jurisdictions on climate policy can China's Climate Law be completed.

## 6.5 Case III: Market instrument: Carbon tax vs. the ETS

The third case for analysing SPI is policy selection between a carbon tax and a carbon emissions trading scheme (ETS) since the late 2000s. This case enables engagement with a moderately structured problem (ends) where there is consensus on the value of taking new instruments to enhance climate mitigation domestically, but contestation on which measure is more feasible and effective. Although the experts seemed to prefer a carbon tax rather than building an ETS, Chinese policymakers eventually chose the ETS during the 2010s.

### 6.5.1 Carbon tax

Since 2008, three government-affiliated think tanks were influential in lobbying Chinese policymakers to adopt carbon taxation:[47] (1) the Research Institute for Fiscal Science

[47] 2007 is the watershed of China's research on carbon taxation. Before 2007, few Chinese experts had studied carbon taxation since addressing climate change had yet to become a priority in China's domestic policy agenda (Interview 4). At the same time, experts thought it would be unrealistic for China to levy a carbon tax due to its potential negative impact on China's economy (Liang, Fan, and Wei, 2007; Chen and Li, 2007).

(RIFS)[48] under the Ministry of Finance (MOF), (2) the Energy Research Institute (ERI) under the NDRC, and (3) the Chinese Academy for Environmental Planning (CAEP) under the MEP (later moved to under the MEE). In 2009, these institutes separately released their research reports on a carbon tax, suggesting that China levy a carbon tax in around 2012 (Su et al., 2009; Wang et al., 2009).

In general, the ERI, CAEP, and RISS experts agreed that a carbon tax would be a feasible and have a small impact on China's economy. Yet, regarding the policy framework for introducing a carbon tax, the experts' opinions varied, mirroring their supervising ministries' perspectives (Interviews 28, 34, and 39) (see *Table 6.5*).

Reflecting on the policy stance of the NDRC which is in charge of meeting the target of carbon intensity reduction, the ERI suggested adopting the carbon tax on the production side to control enterprises that produce fossil fuel. Additionally, it preferred to put carbon taxation as a single tax category or combine it with energy taxation under the authorisation of the National Energy Administration (NEA). Further, to decrease the negative impact on China's economy, the NDRC experts suggested adopting the tax neutrality principle—while levying a carbon tax, the government reduces the tax revenue elsewhere to offset the tax burden (Meng, 2010). However, RIFS and CAEP considered putting the carbon tax into the environmental tax or consumption tax. This makes enterprises which consume fossil fuel products the object of carbon taxation (RIFS, 2009; Su et al., 2009; Wang et al., 2009).

Although the scientific input for levying a carbon tax seemed sufficient, the policy journey of carbon taxation in China is not smooth. The government has not levied a carbon tax at the time of writing. Once the NDRC launched the ETS pilot in October 2011, the carbon tax was parked. Although the State council, NDRC, MOF, and MEP officials have repeatedly released signals of introducing a carbon tax every few years (Tanpaifang.com, 2016; Ideacarbon, 2017), carbon taxation has yet to be put into practice. Today, experts employed at the government-affiliated think tanks (i.e., the ERI, MEE, and RIFS) are still lobbying the Chinese government to levy a carbon tax (CCDI, 2020). Hence, I consider experts' impact on China's policymaking in this case level 3 (moderate).

[48] The RIFS was renamed as the Chinese Academy of Fiscal Science (CAFS) in February 2016.

*Table 6.5 Comparing three official think tanks' scientific input for carbon tax*

| Research Institute | ERI | CAEP | RIFS |
|---|---|---|---|
| Supervising ministries | NDRC | MEP | MOF |
| Common scientific evidence | 1. Carbon tax has just little negative impact on China's economy<br>2. Carbon tax has a positive impact on energy conservation<br>3. Carbon tax has a positive effect on curbing $CO_2$ emissions | | |
| Differentiated scientific evidence | A carbon tax on fossil fuels is better than directly on carbon emissions | A consumer levy scheme on carbon tax leads to a better effect | |
| Common policy proposition | 1. Carbon tax is a desirable instrument to reduce $CO_2$ emissions<br>2. Start with a low-rate tax and increase the tax rate incrementally<br>3. Start levying a carbon tax around 2012 | | |
| Different policy proposition | 1. Adopt carbon tax on the production side<br>2. Carbon tax as a single tax category or combine it with 'energy tax'<br>3. Adopt the 'tax neutrality' principle: levying a carbon tax while reducing other taxes | 1. Adopt carbon tax on the consumption side<br>2. Put carbon tax into 'environmental tax' or '(resource) consumption tax' | 1. Adopt carbon tax on the consumption side<br>2. Carbon tax as a single tax<br>3. Do not support the tax neutrality' principle: levying a carbon tax without reducing other taxes |

*Source*: Author's analysis based on RIFS (2009), Su et al. (2009), Wang et al. (2009), and Interviews 3, 10, and 20.

### 6.5.2 Experts promoting the ETS in China

In addition to carbon taxation, a loose network which contains more policy actors has aided scientific input for promoting China's ETS simultaneously since around 2009. Not only domestic research institutes but international actors acted as knowledge brokers to stimulate the birth of China's ETS. Yet, compared to the draft Climate Law and carbon taxation, the policy suggestions and proposals provided by the experts were far from systematic and completed. Considering that the national policymakers' attitudes and the policy debate remained unclear, the knowledge-oriented actors were primarily selling the 'idea of carbon trading' rather than well-designed programmes (Interview 03 and 20) (see *Table 6.6*).

*Table 6.6 Knowledge-oriented actors engaged with promoting the ETS in China*

| Category | Examples of organisations | Research or activity focus |
|---|---|---|
| Domestic research institutes | Tsinghua University, Chinese Academy of Social Sciences (CASS), Energy Research Institute (ERI) | Institutional design for a cap-and-trade system, e.g., developing the carbon market management measures and the design of an allowance allocation system |
| Domestic business organisations | SinoCarbon | Developing the guidelines for corporate emissions accounting and the design of an emissions reporting system |
| | Tianjin Climate Exchange (TCX), China Beijing Environment Exchange (CBEEX) | Promoting the voluntary emission reduction transactions |
| International organisations | Asian Development Bank, World Bank, | Capacity building and training programmes for both officials and enterprises |
| International NGOs | Ecofys, the Climate Group, World Resources Institute (WRI), Nature Conservancy, Energy Foundation, and the Environmental Defense Fund (EDF) | |

*Source*: Author's fieldwork.

Domestically, the ERI, CASS, and Tsinghua University provided the first batch of experts devoted to exploring the feasibility of running an ETS in China (Kong and Freeman, 2013; Interviews 24, 27, 36, and 42). Business actors from existing Environmental Exchanges (e.g., the Tianjin Climate Exchange and the China Beijing Environment Exchange), intermediaries and consultancy companies (e.g., SinoCarbon), were also proactive in lobbying the central and local governments and industries to experiment with carbon trading (Shen, 2015; Biedenkopf, van Eynde, and Walker, 2017; Interviews 31,37, 38, and 43).[49]

Although domestic experts and professionals were innovative in research and designing China's ETS, they encountered many challenges from those who supported carbon taxation. Between 2009 and 2010, most of China's domestic studies (including research of high-end experts) suggested that a carbon tax would be more appropriate and effective, given the administrative efficiency and the tradition of China's regulatory governance style (Zeng et al., 2008; Zhang, 2011 (b); Bachus and Cao, 2013; Gippner, 2017). Those experts considered that implementing an ETS in China would require a remarkable administrative framework and a transparent and accurate carbon accounting system, all of which were not yet in existence (Bachus and Cao, 2013: 117). Further, there was still a lack of expertise and institutional capacity for building the ETS at both national and local levels around 2009 and 2010 (Interview 20).

Even experts working on designing the ETS remained cautious and somewhat conservative. For instance, Hongbo Chen from the CASS maintained that the market size and the legal ownership of the certified emission reduction was still unknown (Cao, 2009). Lu Xuedu, the high-end expert-official promoting CDM, stated that the potential interests of the ETS should not be overhyped, given that the Environmental Exchanges and emissions trading systems in China were still in their infant stage (21st Century Business Herald, 2010; Interviews 20, 36, 39, and 48). Zhong Xiang Zhang (2011 (a): 232), a top environmental economist, supplemented that: "In case of a domestic carbon trading scheme, China needs a reasonable length of time to develop and operate a national carbon market." He suggested a pilot ETS in selected sectors or regions (Zhang, 2011 (b)).

Meanwhile, many international actors provided knowledge and financial assistance to China to facilitate an ETS experiment through capacity-building projects (Interviews 31). Key examples are the Asian Development Bank and World Bank, the European Union (EU)

[49] While several experts have experiences assisting the government with designing the institutional framework for CDM, the business professionals are also veteran CDM project developers who have survived the most turbulent times in the CDM market in 2008. These survivors have sensed new profit opportunities in building China's ETS and seek to expand the market by using their accumulated expertise (Shen, 2015: 348).

and its member countries such as Germany, EU-based NGOs such as Ecofys, the UK's Strategic Programme Fund (SPF) and the Climate Group, the US government and US-based NGOs such as the World Resources Institute (WRI), Nature Conservancy, Energy Foundation, and the Environmental Defense Fund (EDF) (Han et al., 2012; Kong and Freeman, 2013; Biedenkopf, van Eynde, and Walker, 2017; Gippner, 2017; Interviews 35, 38, 44, 45, 46, and 48). The EU is one of the earliest and perhaps the most decisive player that contributed to the agenda-setting stage and later local experimentations of China's ETS (Biedenkopf, van Eynde, and Walker, 2017: 102; Gippner, 2017: 363; Interview 46).[50] Within EU-China cooperation, study tours of Chinese delegations were arranged by the EU member states and the UK to learn the practice of the EU ETS. The officials, experts, and professionals from environmental Exchanges composed the Chinese delegation with most participants from Beijing, Shanghai, and Guangdong Province (Gippner, 2017; Interviews 46, 53, 54, 55, and 57). According to the Chinese participants, the study trips to the EU regions (and the UK) influenced Chinese policymakers' thoughts and pushed China towards the adoption of the ETS as the main GHG mitigation instrument (Gippner, 2017). First, the positive impression of the EU ETS experiences gave Chinese centrak officials confidence in running an ETS in China (Gippner, 2017: Interviews 27, 53, and 57). Second, since local officials were also impressed by the EU ETS, they became proactive in lobbying the centre to launch the pilot ETS which presents a bottom-up manner of policy dynamics (Goron, 2014: Chen, 2017; Interview 57).

Since China has a great potential carbon market and has not yet designed its institutional framework for the ETS, international stakeholders have incentives to 'export' their ETS models to China based on their domestic systems and experiences. Hence, there was an implicit competition between different stakeholders such as the EU, the US, Australia, and Japan (Biedenkorf, van Eynde, and Walker, 2017; Interviews 46, 65, and 67).

Eventually, the Chinese government released a signal that China would explore carbon trading in 2010. Considering that many institutional and technical aspects of the ETS had not yet been prepared and designed, the central policymakers made a pragmatic choice—choosing a bottom-up approach to construct China's carbon market (Kong and Freeman, 2013: 204). The NDRC spent some time communicating with local governments to find candidates that were willing to undertake the pilot ETS project. Then, the Chinese government launched the ETS pilot in five cities (Beijing, Tianjin, Shanghai, Shenzhen, and Chongqing) and two provinces (Hubei and Guangdong) in October 2011, with the intention

[50] In terms of financial support, the European Commission provided €2.8 million in funding from June 2007 to January 2010 towards the EU-China Clean Development Mechanism Facilitation Project, which was implemented in the context of the EU-China Partnership on Climate Change (Biedenkopf, van Eynde, and Walker, 2017: 102).

to establish a nationwide carbon market by the end of the 12th FYP period (2015).[51] I Consider experts' impact on China's ETS policymaking as 4 (high).

### 6.5.3 Why carbon taxation lost, and the ETS won? Timing, bureaucratic competition, and considerations of governance scale

From the above descriptive analyses, the question emerges of why China chose ETS over the carbon tax when many high-end research institutes recommended the latter, and when the ETS is much more difficult? I address the two questions by discussing timing and governance scale.

Chinese policymakers have not levied a carbon tax since it is undesirable in terms of timing. China's tax burden has risen sharply since the 2000s and it has just kicked off the tax-for-fee reform to convert fees on vehicle and transportation fees into a single fuel tax in 2008. Given that the central government is also preparing for the resource tax reform, introducing a carbon tax would be too complex for the industries (Interviews 15, 25, and 31).

Second, although levying a carbon tax can help improve China's international image, the policy impact of carbon taxation is restricted domestically. Further, although the MOF has been enthusiastic about introducing a carbon tax, the potential benefits for local governments remain opaque since such taxes would not bring a guaranteed income to local public finance. Since the benefits from carbon taxation are not tangible, local governments and industries that are eager for economic growth find no incentives to support the central policymakers' decision (Bachus and Cao, 2013: 118; Kong and Freeman, 2013: 198; Interviews 09, 10, 34, 60, 63, and 64).

Third, bureaucratic competition between the MOF, MEP, and NDRC explains why there was contestation. During the policy debate, all the ministries wanted to use the carbon tax as leverage to retain their status in the State Council. Former Director of the RIFS, Jia Kang, has pointed out that there were 'obvious oppositions' inside the government (Haas, 2013), since the top-level decision-makers did not reach consensus on whether China should levy carbon taxation separately (Tanpaifang.com, 2016). Given that carbon dioxide is not identified as a 'pollutant' by the Chinese government, it is attributed to the NDRC's jurisdiction instead of the MEP. Therefore, the more powerful NDRC did not agree to including the carbon tax in the environmental tax (Interview 12 and 34).

Considerations of timing and governance scale (i.e., the upper and lower levels of

[51] The time for establishing China's national ETS was later moved from 2015 to 2016 and then to 2017, and eventually 2021. This indicates the difficulties of establishing the world largest carbon trading market.

governance) also explain China's decision to launch the pilot ETS in 2011. In terms of timing, both disadvantages and opportunities existed when Chinese policymakers decided to experiment with the ETS instead of carbon taxation. Although the ETS seemed high profile among the industrialised countries (and the EU ETS in particular), the performance of different regions' ETS systems was not as satisfactory as expected around 2010. Moreover, the carbon price was decreasing due to the global financial crisis since 2008. Yet, Chinese policymakers saw building an ETS as an opportunity since China had encountered a bottleneck in the CDM market. Although China had been the biggest seller of certified emissions reductions (CERs) under the CDM system since 2007, the CDM had been becoming insignificant as a source of support for emissions reduction in China since 2010 (Han et al., 2012: 35). Hence, building an ETS could rescue China's carbon credit market (Kong and Freeman, 2013: 197-198; Interviews 37 and 38).

Concerning the proposition that scale matters in China's policy choice of the ETS, both international and domestic factors were taken into consideration by Chinese policymakers. To think of the upper level of governance, the ETS allows China to connect with the global carbon market and exert more influence on global politics and the global economy (A. Lo, 2016). Although it had just become the world's second-largest economic entity in 2010, China found itself a powerless player that passively accepted the price, rules, and standards decided by the international market (Kong and Freeman, 2013; A. Lo, 2016; Interviews 35, 36, 37, and 38). Further, Chinese actors have complained that even though they supply the most CERs, they do not have parallel bargaining power to participate in the CDM system (A. Lo, 2016; Interviews 37 and 38). However, once China established the national carbon trading market, it would gain international influence by retaining growing revenues as trading volumes increase over time and the growing power to set global carbon prices (Kong and Freeman, 2013: 197-199).

To think of the lower governmental levels, local officials and stakeholders saw the ETS as a new profitable opportunity in general due to the brokering of domestic intermediaries and consultancy companies (Shen, 2015: 349; Interviews 65 and 66). Hence, compared to carbon taxation, the Beijing decision-makers did not receive much resistance from the localities (Interviews 51, 52, 53, 54, 55, and 57).

To sum up, scientific input alone is not enough to explain China's climate policymaking. No matter which instrument is more effective, efficient or administrative feasible, "political considerations will probably end up being the decisive factor" (Bachus and Cao, 2013: 122) in the adoption and the implementation of the ETS in China (Goron and Cassisa, 2017: 102). Further, Chinese decision-makers' considerations and choices are heavily influenced by the existing institutional and political 'milieu' (Goron, 2014: 6) in multi-level climate governance.

## 6.6 Inferences

This chapter set out to answer the question of *How do the experts engage in China's national climate policymaking, and how do Chinese policymakers make (non)decisions based on the experts' advice and political considerations*? The three case studies showed that while the experts provided sufficient scientific advice, policymakers tend to add some political considerations before making the final decision. First, timing matters. Different timings can lead to different considerations of policymakers (e.g., to demonstrate its ambition or ensure the ambitious goal is achievable) (Case I: national target-setting for $CO_2$ emissions reduction). Second, scale matters. While making a policy decision, not only the factors at the present governance level, but factors at the higher (international) and lower (subnational) governance levels will be considered by Chinese policymakers (Case III: carbon tax vs. ETS). Third, the feature of China's political system (i.e., fragmented authority and bureaucratic competition) remains an obstacle that hinders experts' attempt to solve an unstructured problem (case II: the Climate Law).