

Temporary Leaders and Stable Institutions: How Local Bureaucratic Entrepreneurs Institutionalize China's Low-Carbon Policy Experiments

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Abstract

Traditional analysis of China's policy experimentation has focused on the role of central–local relations and rotating leaders in shaping the local agenda-setting process. Less is known about the role of less mobile mid-level local bureaucrats who serve as bridges in the implementation process. This paper examines why some cities have performed better than others at implementing and maintaining low-carbon policy experiments. Drawing on a comparison of four case cities and over 100 expert interviews, I argue that the availability of bureaucratic entrepreneurs and their resource mobilization capacity determine the level of local engagement in climate policy experimentation. This study shows that the institutionalization of local policy experiments is not only driven by the central government or rotating top local leaders but also by bureaucratic entrepreneurs who help policy experiments survive periodic changes in the bureaucracy. The findings have important implications for the fulfilment of China's 2060 carbon neutrality pledge.

Keywords: bureaucratic politics; policy experimentation; cadre rotation; climate policy; leadership; cities; China

Bureaucratic entrepreneurship is central to local governments' manoeuvring of political and economic resources in China's fragmented bureaucratic system.¹ This article examines bureaucratic entrepreneurship in local low-carbon policy experiments as a hard test of local governments' ability to institutionalize policies despite the regular turnover of top political leaders. The Chinese cities that have engaged in such experiments vary tremendously in the extent to which they have

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1 Lieberthal 1992.



been able to institutionalize these policies enough to survive a turnover in local leadership.

Much of the discussion of China's policy experimentation focuses on the role of rotating leading cadres in shaping local agendas. Previous studies have examined the uneven local engagement in policy experiments owing to local cadres' political patronages.² The lack of institutionalization in the policy process has left local policy experiments particularly vulnerable to failure, particularly when leading cadres change every three to five years.³ However, it is unclear why some areas have institutionalized their low-carbon policy experiments despite the turnover in their leaderships. I argue that mid-level bureaucrats, who hold more permanent and stable administrative positions, are the key.⁴ This study shifts the analytical focus from rotating leading cadres (*difanglingdao* 地方领导) to less mobile local cadres (*difangganbu* 地方干部) in the implementation of policy experiments.

In China's centralized political system, local governments, often referred to as provincial, municipal or township governments, are the implementers in China's policymaking, despite local interests not always aligning with national priorities.⁵ Unlike provincial governments, which generally pass the national call for policy experimentation to its lower levels of government, or the township governments, which do not have sufficient motivation and resources for low-carbon initiatives, municipal governments undertake most of the work in implementing the national low-carbon city experimental programme.⁶ Since 2010, 81 cities have joined the experimental programme, which is promoted by the National Development and Reform Commission, to become low-carbon pilot cities with specific targets and action plans to integrate low-carbon initiatives with municipal construction, building and transportation programmes.⁷ In this paper, I focus on the low-carbon policymaking of municipal governments.

I define bureaucratic entrepreneurs as local cadres who serve as implementation bridges to mobilize the necessary political authority and alliances to implement policy experiments. Departing from the general use of the term "policy entrepreneurs" to indicate leading and local cadres' distinct roles in orchestrating the policy experiments,⁸ I describe bureaucratic entrepreneurs as mid-level local bureaucrats who are central to forging horizontal implementation alliances. While leading cadres' political endorsement is crucial to setting policy experiments in motion and giving local bureaucrats the incentives and discretion to

2 Heilmann 2008; Chung 2000.

3 Fewsmith 2013; Eaton and Kostka 2014.

4 In this paper, the terms bureaucrats, officials and cadres are used interchangeably to refer to public servants who have permanent working positions in municipal governments. For more information about the structure of local bureaucratic systems, see Ang 2018, 105–09.

5 Chung 2000.

6 Interview 061900, Nanchang, 2018; Teng and Wang 2021.

7 NCSC 2017, 16–29.

8 Kingdon 1995; Zhu and Xiao 2015.

propose initiatives, bureaucratic entrepreneurs are the activists who largely determine the experiments' outcome.

I evaluate the level of local engagement in sustaining policy experiments in terms of the level of low-carbon policy institutionalization – that is, the creation of standards, regulations, laws and institutions.⁹ While China's policy experiments have been criticized for their lack of policy institutionalization,¹⁰ I show that in some cities the experiments have fostered a degree of low-carbon policy institutionalization over time. I compare the experiments in four pilot cities – Shenzhen 深圳, Xiamen 厦门, Nanchang 南昌 and Zhenjiang 镇江 – controlling for external influences from existing policy and institutions on their outcomes.

I draw on 127 interviews with policy practitioners from multiple levels of government, enterprises, non-governmental organizations and related experts involved in the local low-carbon energy transitions in Nanchang, Xiamen, Zhenjiang and Shenzhen between 2012 and 2018 (see [Table 1](#)). I conducted comparative case studies and expert interviews to unpack local decision-making processes. These four cases joined the National Low-Carbon City Pilot Programme at about the same time, and all experienced political turnovers during the policy process but demonstrated different levels of policy institutionalization over time. Because information about the governmental decision-making process on current issues is rarely disclosed, even more so in China's centralized political system, in-depth expert interviews are an indispensable source of insight into the local low-carbon policy process.¹¹ However, as insiders of government decision-making, mid-level cadres are often the key sources of information on the implementation and institutionalization process. No policy process could possibly progress to implementation and institutionalization stages without mid-level cadres' engagement, as they are the ones who propose, draft and implement low-carbon policies in their everyday work. Thus, to reconstruct the local policy process, I conducted interviews with local cadres who oversaw the implementation of low-carbon city pilot programmes in the case cities in 2013 and 2018.¹²

During interviews, I asked about who was driving the implementation process (and how). I found that while the turnover in leading cadres has indeed affected the policy implementation process in general, changes in bureaucratic entrepreneurs have more directly affected local areas' ability to sustain low-carbon policy experimentation. For example, while local officials in Nanchang noted that frequent changes in mayors and Party secretaries had prevented low-carbon issues from attracting sustained political attention, implementation remained continuous until the bureaucratic entrepreneur (the chief economist) left office.¹³ Others, such as officials from the Xiamen Construction and Administration Bureau, noted that municipal government leadership changes did not affect

9 Jacob et al. 2005.

10 Fewsmith 2013.

11 Mosley 2013.

12 Read 2018.

13 Interview 022300, Nanchang, 2018.

Table 1. **Distribution of Interviews**

Sources	Number
Provincial governments	10
Municipal governments	28
Township governments	4
Think tanks	23
Universities	19
Enterprises	20
Non-governmental organizations	8
International organizations	6
Media	4
Others	5
Total	127

Note:

Government-affiliated research institutes within the central and local governments are counted as think tanks.

local green building development owing to the continued institutionalization of policy experiments, which was pushed by the division head.¹⁴ In other areas, such as Zhenjiang, even following the departure of the mayor who championed low-carbon development, bureaucratic entrepreneurs were able to promote an evaluation system for low-carbon cities to the provincial level and establish a bureaucratic agency to specialize in the implementation of low-carbon policies.

These findings suggest that less upwardly mobile local officials, who often spend their entire career in one locality, are driving the bureaucratic entrepreneurship that has helped policy experiments survive local leadership turnovers. I argue that these stable bureaucratic entrepreneurs are capable of mobilizing the political authority and alliances that influence the implementation and institutionalization of low-carbon policy experiments. I triangulate my original data, consisting of interviews and critical unpublished government documents obtained through field research, with published data sources from statistical yearbooks, newspaper articles and policy documents.

The article proceeds as follows. First, I describe China's low-carbon policy experimentation, ruling out alternative explanations of the research question. Then, I explain the two key concepts, bureaucratic entrepreneurship and resource mobilization, that are crucial to understanding the varied approaches to sustaining low-carbon policy experiments. I present a case study of the role of bureaucratic entrepreneurship in Nanchang's programme and compare how bureaucratic entrepreneurs have pursued different strategies to implement the policy experiments in four cities. Finally, I conclude with recommended strategies for low-carbon policy implementation moving forward.

14 Interview 120703, Xiamen, 2018; interview 101708, Xiamen, 2018.

Bureaucratic Entrepreneurship and Low-Carbon Policy Experimentation in China

Local government-led initiatives in China have long been characterized as “experimentation under the hierarchy.”¹⁵ Local governments have been the driving force behind the country’s recent economic miracle and have been tasked with devising innovative governing approaches to improve social welfare and the delivery of public goods.¹⁶ Recent research has shown that economic indicators no longer have a sufficient impact on mayors’ promotion; local leaders now pursue policy innovations as an alternative path to promotion.¹⁷ The literature on political tournaments and related bureaucratic evaluation matrix, which focuses on the small number of rotating leading cadres, may have created an unintended consequence,¹⁸ as it undermines the role of less mobile local bureaucrats, such as vice mayors, division heads and administrative staff. These less mobile local bureaucrats are in more stable administrative positions and, as I argue, are the sources of bureaucratic entrepreneurship in policy experimentation.

Local engagement in low-carbon energy transitions can be traced back to the late 1970s and 1980s when small-scale hydro and pilot wind power projects were initiated in an effort to combat the scarcity of electricity and alleviate poverty in remote areas. China was reluctant to commit to reducing domestic greenhouse gas emissions at the international level until local governments emphasized the political and economic benefits of low-carbon energy transitions by engaging in “Clean Development Mechanism” projects.¹⁹ The National Development and Reform Commission introduced a national low-carbon city experimental programme in 2010 to encourage local governments to explore decarbonization pathways. Under this programme, the central government gave local governments free rein to set their own low-carbon targets and plans.²⁰ They responded with policy innovations such as carbon emissions trading and monitoring systems and low-carbon legislation.²¹ While nearly half of the pilot regions installed a leading group structure (*lingdao xiaozu* 领导小组) to manage the programme, few set up bureaucratic agencies to implement low-carbon policies. The pilot cities thus encountered various implementation challenges owing to a lack of implementation alliances and local government leadership.²²

Previous research suggests that the frequent turnover of leading cadres has been a key barrier to adequate environmental policy enforcement and the continuity of local policy experiments.²³ I argue that while leading cadres such as municipal mayors and Party secretaries *do* play a key role in agenda setting,

15 Heilmann 2008.

16 Huang, Yasheng 2008; Oi 1999; Ang 2018.

17 Kennedy and Chen 2015; Huang, Xiaochun, and Zhou 2018.

18 Zhou 2007.

19 Lewis 2013; Schröder 2012.

20 Song et al. 2020.

21 NCSC 2017.

22 Lo, Li and Chen 2020.

23 Eaton and Kostka 2014.

bureaucratic capacity is more important for the continuity of local low-carbon policy experiments. Local officials interviewed for this study noted that implementation challenges associated with leadership turnover can be overcome when more administratively stable bureaucratic entrepreneurs build cross-divisional alliances to introduce low-carbon regulations and institutions.²⁴

Prior research on local responsiveness to policy experimentation in China has focused on how political patronage serves as an obstacle to creating formal institutions that can sustain policy experimentation.²⁵ These studies assume that a small number of upwardly mobile local leaders, and their central political backers, determine local engagement in policy experiments. The mid-level officials I analyse here have been largely overlooked.²⁶ These cadres focus on winning the approval of the immediate supervisors who control their career advancement, rather than the central cadre evaluation system,²⁷ which cannot assess their performance in non-economic policy areas.²⁸ Thus, local engagement in environmental policy has been determined by the willingness of local officials and local governments' resource mobilization capacity.²⁹

This article shifts the focus from leading cadres and their political patronage to exploring how bureaucratic entrepreneurs help to sustain local engagement in low-carbon policy experimentation despite the frequent turnover in mayors and Party secretaries. Trained local cadres can become bureaucratic entrepreneurs when they are promoted to divisional- or municipal-level leadership roles, which allow them to shape the agendas at these levels and to mobilize implementation alliances to aid the institutionalization of low-carbon policy.

Bureaucratic Entrepreneurship

I define bureaucratic entrepreneurship in terms of local officials' ability to mobilize political authority and alliances to implement and sustain low-carbon policy experimentation. Unlike leading cadres, who rotate in and out of senior posts, bureaucratic entrepreneurs are more permanent, mid-level local cadres (*ganbu* 干部). They are often ranked at the vice-*chu* (*fuchu* 副处) level but spend their entire careers in a single municipality.³⁰ The *chu* rank is a bridging bureaucratic tier that is responsible for preparing policy drafts, providing counsel to top leaders and reviewing and auditing local project development.³¹ These officials have specialized expertise and insights into local political dynamics. Those

24 Interview 040626, Zhenjiang, 2018; interview 22307, Nanchang, 2018; interview 01140712, Shenzhen, 2018; interview 191704, Xiamen, 2018.

25 Chung 2000; Jaros 2019; Jiang and Zhang 2020.

26 Ang 2018, 108–110; Tie et al. 2020.

27 Yang 2011; Tang, Hu and Hang 2016; Huang, Xiaochun, and Zhou 2019.

28 Yang 2011; Ang 2018, 122.

29 Tang, Hu and Hang 2016.

30 For a similar categorization of local officials, see Ang 2018, 108; Kennedy and Chen 2015.

31 “‘Chuzhang jingji’ shi quanli xunzu guaitai” (“Chuzhang economy” is a monstrosity of rent-seeking). *Guangzhou ribao*, 12 March 2014; “Chanchu ‘chuzhang jingji’ wotu” (Eradicate the ground of “chuzhang economy”). *Zhongguo jijian jiancha bao*, 25 March 2014.

with vice-*chu* or higher ranking have prominent roles in orchestrating horizontal implementation alliances and providing local leaders with policy suggestions.³² While previous studies on urban policy implementation focus on the leading cadres above *chu* level, this paper provides novel insights into the role of cadres at *chu* and *ke* 科 levels in institutionalizing low-carbon policy experiments.

Bureaucratic entrepreneurship has two components. First, the individual, usually a vice-mayor or department (deputy) head with the authority to command the administrative resources under his or her control, is central to the bureaucratic entrepreneurship. These officials have a prominent role in brokering political and economic resources as well as local expertise inside and outside the government to orchestrate the implementation of local policy experiments. For example, they might help to set the division's agenda or even command a coalition of administrators to specialize in proposing and implementing the low-carbon policy programmes.³³ Although the conventional wisdom suggests that local leaders' engagement in policy experiments is driven by political cover from the top national leadership and the bureaucratic evaluation criteria designed in Beijing,³⁴ the mid-level local cadres interviewed for this study were drawn to the policy experiments as a result of their personal expertise or prior engagement in low-carbon training through bureaucratic networks.³⁵ Rather than considering policy experiments to be a risky political endeavour, the mid-level local cadres in this study viewed them as an opportunity – learned through central officials' site visits, central policy appeals or personal networks – to provide higher levels of government with feasible solutions to the policy challenges of concern.³⁶

Second, the specialized task force comprising local officials at the *ke* level (below *chu*) and/or specialized staff on secondment plays a crucial role in conducting background research and proposing draft policies and implementation approaches.³⁷ This group does not generally reach out to secure external resources; the bureaucratic entrepreneurs typically do this.³⁸ The local officials involved in the early stages of the policy experiments often learn on the job; they can be bureaucratic entrepreneurs when they are promoted to key decision-making positions such as division head within their department.³⁹ Even though it is important not to overstate these local officials' commitment to the issue area in China's upward accountability political system, the organization of small task

32 Ang 2018, 108–09.

33 Interview 120803, Xiamen, 2018; interview 082600, Zhenjiang, 2018; interview 081724, Beijing, 2018; Shenzhen Development and Reform Bureau 2012.

34 Chung 2000; Kennedy and Chen 2015.

35 Interview 081200, Nanchang, 2018; interview 020600, Zhenjiang, 2018.

36 Interview 231900, Zhenjiang, 2018; interview 020600, Zhenjiang, 2018; interview 081200, Nanchang, 2018; interview 102000, Shenzhen, 2018.

37 For a detailed description of the bureaucratic hierarchy, see “Zhonggong zhongyang bangongting yinfa gongwuyuan zhiwu yu zhiji bingxing guiding” (The General Office of the Central Committee of the Communist Party of China issued the “Civil servant job and grade parallel regulations”). *Xinhua*, 27 March 2019, http://www.gov.cn/zhengce/2019-03/27/content_5377422.htm. Accessed 1 November 2021.

38 Interview 022300, Nanchang, 2018; interview 120803, Xiamen, 2018.

39 Interview 020600, Zhenjiang, 2018.

forces has provided a younger generation of local officials with an opportunity to thrive in an issue area previously alien to their expertise but in line with their superiors' policy preferences. Some administrators admitted that their involvement in bureaucratic entrepreneurship was largely because of their attempts to cater to their supervisor's policy preferences.⁴⁰ Policy experiments represent a way for local officials to impress their supervisors with their political achievements even though those innovations may not lead to immediate political gains.⁴¹ Almost all of the lower-level officials interviewed admitted that they would be unlikely to invest time and energy in a policy experiment if it did not match their superiors' (the bureaucratic entrepreneurs') interests.⁴² The task force set-up reveals that the success of bureaucratic entrepreneurship does not just depend on the character of individual bureaucratic entrepreneurs; the resource mobilization strategies they pursue during the policy experimentation process are also important.

Why is it in local officials' interest to institutionalize these policy experiments even after their boss (the Party secretary or mayor) has been transferred? One straightforward possibility is that local cadres see engagement in the experiments as beneficial to their career. Some leading cadres who supported the low-carbon policy experiments were promoted to the provincial government and left the city. However, local cadres usually stay in a single municipality, become advocates for low-carbon policy initiatives and continue trying to forge horizontal alliances to institutionalize these initiatives. What motivates them to do this?

First, bureaucratic entrepreneurs seek to enhance their agency's standing within the political system by advocating policies that fit organizational interests by, for instance, keeping relevant issues on the government policy agenda, expanding regulatory policy tools and securing extra government budgets and staffing. Bureaucratic entrepreneurs generally have a well-envisioned coalition strategy. Some bureaucratic entrepreneurs interviewed for this study mentioned that their pioneering role in low-carbon policy experiments enhanced their agency's bargaining power to access government resources for low-carbon training and international exchanges.⁴³ They were able to build on their successful policy experimentation experience to access financial support from higher levels of governments in order to sustain their city's policy experiment and introduce legal efforts to routinize the redistribution of government resources, such as municipal government budgeting, towards decarbonization.⁴⁴ Bureaucratic entrepreneurs also tend to keep pushing the envelope of policy experiments in their

40 Interview 120803, 2018, Xiamen; interview 022300, Nanchang, 2018; interview 082600, Zhenjiang, 2018.

41 Huang, Xiaochun, and Zhou 2019; Tang, Hu and Hang 2016.

42 Interview 082600, Zhenjiang, 2018; interview 191704, Xiamen, 2018; interview 022300, Nanchang, 2018.

43 Interview 041826, Zhenjiang, 2018.

44 Interview 081200, Nanchang, 2018.

division's interest to impress upon the central government that they are fulfilling the tasks assigned to low-carbon city pilots.⁴⁵

Second, bureaucratic entrepreneurs' actions are unlikely to be driven by the conventional bureaucratic evaluation system, as there is no evaluation metric that credits officials who excel at policy experimentation tasks.⁴⁶ But mid-level local cadres do indirectly care about political achievements and potential promotions related to policy experimentation; since their political achievements cannot be quantitatively measured, they must impress their supervisor who has the power to recommend promotion based on their personal efforts and achievements.⁴⁷ While Yuen Yuen Ang argues that local bureaucrats care more about compensation than promotion, I find that local cadres regard both opportunities for promotion to leading positions at vice-*chu* rank and compensation as incentives for bureaucratic entrepreneurship.⁴⁸ Their compensation (including salary and perks while in office and during retirement) largely depends on their rank within the bureaucratic system. The lack of checks and balances can sometimes lead mid-level cadres to engage in corruption to supplement their official salary.⁴⁹

Finally, some bureaucratic entrepreneurs who participate in low-carbon policy experiments simply see decarbonization as an emerging field with great potential. They have become familiar with the climate change issue through their bureaucratic networks and trainings.⁵⁰ They train their fellow bureaucrats, draft proposals and reach out to other bureaucratic agencies for collaboration and expert consultations.⁵¹

Resource Mobilization

Even following a rotation of leading cadres, bureaucratic entrepreneurs are able to build alliances with key actors inside and outside local government to mobilize the necessary political, financial and local expertise to institutionalize policy experiments. Building action alliances with key actors within their jurisdiction and in higher levels of government allows entrepreneurs to access the necessary implementing resources and pre-empt potential objections from opponents.⁵² They also engage a wide range of policy actors with related expertise inside and outside the local government, which helps them to develop feasible policy solutions.⁵³ Bureaucratic entrepreneurs have also created institutional measures that can increase the department's executive authority and policy implementation

45 Ibid.; Bachman 1991.

46 Song et al. 2020.

47 Huang, Xiaochun, and Zhou 2019.

48 Ang 2018.

49 "Nanchang shi fagaiwei yuan zongjingjishi bei gongsu" (Chief economist of Nanchang Municipal Government was indicted). *Pengpai*, 11 December 2017.

50 Interview 020600, Zhenjiang, 2018; interview 061900, Nanchang, 2018; interview 081725, Beijing, 2018.

51 Interview 250107, Shenzhen, 2018; interview 081200, Nanchang, 2013; interview 122600, Zhenjiang, 2018; interview 101708, Xiamen, 2018; Zhu and Xiao 2015.

52 Jones 1989.

53 Ditan chengshi pingjia zhibiao tixi bianzhi xiaozu 2018.

resources.⁵⁴ As I show below in the case analysis, depending on how strategic an entrepreneur's bureaucratic position is, these mid-level local cadres have a wide range of possible options for introducing institutional efforts such as standards, legislation and incorporating low-carbon issues into local social and economic development masterplans. Compared to the short time horizon of leading cadres within a particular locality, many bureaucratic entrepreneurs operate on a long-term basis and often spend their entire careers in a single municipality. Thus, it is in their interest to build and maintain enduring alliances within and outside the local government.⁵⁵ Institutionalizing low-carbon policies can help implement policy experiments despite the challenges associated with a change in local leadership.

Resource mobilization, as a strategy of bureaucratic entrepreneurs, contains five dimensions that have not yet been articulated in the literature on policy experimentation in China. First, local officials enjoy a level of discretion that is greater than normally recognized. The mid-level and less mobile local officials can create institutional measures to sustain policy experimentation even after a change in top leadership, which would normally be unthinkable in China's centralized political system. Second, it underscores bureaucratic entrepreneurs' sophistication in navigating the bureaucratic boundaries of building allied actions with actors who have political and executive resources beyond the entrepreneurs' immediate reach. Third, it illustrates that mid-level bureaucrats are not only the implementers and targets of state mobilization in policy experimentation, they can also act as agents to mobilize policy experiments from the bottom up.⁵⁶ Fourth, compared to rotated top leaders, who often seek to demonstrate political achievements and have few incentives to institutionalize their policy concerns, less mobile local officials tend to employ more institutionalized measures that can support longer-term interests for them and/or their department through policy experimentation. Fifth, resource mobilization reveals the important role of department (deputy) heads at the vice-*chu* level, together with their fellow officers, in building action alliances and introducing institutional measures that are largely immune to political cycles in the municipal government. In short, bureaucratic entrepreneurship involves actively advancing policy experimentation rather than merely implementing Beijing's policy guidance.

While China's top-down, campaign-style mobilization has been criticized for disrupting the local bureaucratic process, the resource mobilization led by local governments has become almost indispensable for the implementation of policy experimentation.⁵⁷ Policy engagement can be "sporadic" when government mobilization is not backed up with the institutional support needed for long-term policy enforcement, as Iza Ding and Denise van de Kamp show in their study of

54 Zhu and Xiao 2015.

55 Interview 081807, Zhenjiang, 2018.

56 Perry 2011.

57 Guo 2019; Ang 2018.

the implementation of pollution penalties.⁵⁸ Nevertheless, local resource mobilization is needed particularly in new issue areas that have not been institutionalized in the existing policy system, such as low-carbon policy experimentation.⁵⁹ Unlike the campaign-style mobilization that uses Party discipline to pressure local officials to implement new policy tasks advanced by the national government, local engagement in low-carbon policy experiments has not been driven by top-down political pressure but by local leaders' willing involvement in orchestrating the policy implementation.⁶⁰ In contrast to the campaign-style mobilization in which local officials have been assigned to policy tasks that are irrelevant to their expertise, local low-carbon policy experiments have often been pushed by local officials with relevant expertise in macroeconomic planning and environmental protection.⁶¹ My empirical data from the case cities illustrate that local officials involved in institutionalizing low-carbon policy initiatives come mainly from divisions with similar obligations such as the environmental protection and resources divisions in different departments (for example, the development and reform bureaus, and the housing and urban–rural development bureaus). As I discuss below, the low-carbon expertise local officials have gained through policy experimentation and their longevity in the locality have prepared them to be potential bureaucratic entrepreneurs for advancing the low-carbon policy institutionalization in local areas and regions despite the changes in local leadership.

I focus here on the *subtle* resource mobilization process initiated by bureaucratic entrepreneurs in municipal governments and how it influences the outcome of local policy experiments. Previous research on the mobilization of policy innovations has focused on economic development and elections – highly politicized issue areas that often involve high political risks as well as promotion incentives for local officials. These studies implicitly assume that the central government has the ultimate authority to shape the process and outcome of local policy experiments and that the political cover provided by central authority determines the level of local officials' engagement in policy experiments.⁶² Therefore, the central–local perspective is insufficient for explaining local engagement in non-economic issues, which have conventionally been thought to lack bureaucratic incentives but have gradually become central to local policy experiments.⁶³ Previous studies on low-carbon policy experiments have revealed relatively little about why some areas are doing better than others at sustaining policy experiments, particularly after experiencing a turnover in leadership. By contrast, I examine how local cadres protect policy experiments from the challenges brought

58 Ding and van de Kamp 2020.

59 Gilley 2017.

60 Perry 2021.

61 Ibid. On the impact of campaign-style environmental policy implementation, see Guo 2019; Eaton and Kostka 2014; van Rooij 2006; Teng and Wang 2021.

62 Kennedy and Chen 2015; Chung 2000.

63 Huang, Xiaochun, and Zhou 2019.

Table 2. Different Types of Local Engagement in Policy Experimentation

	Political Authority		
		High	Low
Implementation Alliance	High	Substantive engagement (e.g. Shenzhen)	Performative engagement (e.g. Nanchang)
	Low	Symbolic engagement (e.g. Zhenjiang)	Sporadic engagement (e.g. Xiamen)

Notes:

The categories in this typology are inspired by Ding 2020; Wang 2018; Ding and van de Kamp 2020.

by leadership changes and different types of local engagement in policy experimentation (Table 2).

Bureaucratic Entrepreneurship in Low-Carbon City Pilot Experiments

Nanchang, the capital city of Jiangxi province, was a surprising candidate for pioneering low-carbon city policy experimentation for many reasons. It has often been regarded as a backward inland city owing to its relatively small GDP, which is about a fifth of Shenzhen's GDP. Nanchang has the largest freshwater lake in China and abundant mineral resources, but it is not rich in energy resources. It has, however, managed to keep advancing its experimental policy programmes despite a high turnover in leading cadres and has introduced a series of policy experiments including a promotional low-carbon act, a specialized low-carbon fund and the construction of an underground transportation system.⁶⁴ Even though its political leaders changed three times between 2010 and 2018, its low-carbon policy programme remained strong until the chief economist left in 2017. How did a bureaucratic leader, rather than the top political leaders, exercise such a strong influence over Nanchang's low-carbon policy process?

Liu Hua 柳华, a former member of Nanchang's Development and Reform Bureau Party Committee, steered Nanchang to become one of the first low-carbon pilot cities in China without the direct involvement of top local leaders. Owing to Liu's efforts, Nanchang had already been involved with low-carbon issues before it joined the National Low-Carbon City Pilot Programme in 2010. In 2009, it had hosted the high-level "Nanchang Low-Carbon and Ecology Economy Conference," which was supported by the State Council and seven national ministries and aimed at facilitating a global low-carbon technology exchange and cooperation. While the Nanchang Development and Reform Bureau, led by Liu, was determined to establish Nanchang as a national low-carbon pilot city, the top municipal government leaders were more cautious, worried that low-carbon policies would constrain local development.⁶⁵ Nanchang's

⁶⁴ NCSC 2017.

⁶⁵ Interview 0222307, Nanchang, 2018.

involvement in the experimental programme, therefore, was driven not by top local political leaders but rather a mid-level local bureaucrat.⁶⁶

Despite the top political leaders' scepticism about low-carbon development, the Bureau, and Liu in particular, prepared Nanchang's low-carbon city pilot application, even before the establishment of the climate change division of the Jiangxi Development and Reform Commission.⁶⁷ Only after the National Development and Reform Commission approved the application did the municipal government upgrade the chair of the Leading Group for the Low-Carbon City Pilot from vice-mayor to mayor.⁶⁸ These leading groups, as an important implementation mechanism, were set up by municipal governments to coordinate the cross-divisional actions in local areas and regions. However, the effectiveness of a leading group largely depends on the level of its chair's (often a mayor or vice-mayor) involvement in orchestrating policy implementation.⁶⁹ Liu's bureaucratic position furnished him with a range of strategic skills in areas such as policy framing and alliance building, which enabled him to introduce low-carbon issues to the local policy agenda and gave him the authority to integrate low-carbon issues into the local economic master plan. This shielded low-carbon issues from potential critics and opposition from top local leaders.⁷⁰

Orchestrating the resource mobilization process

One of the key challenges facing Nanchang's low-carbon city experimental programme stemmed from its unsupportive top political leaders, the mayor and the Party secretary. These leaders were concerned that attempts to control carbon emissions would constrain local industrial development.⁷¹ Liu argued that the programme would offer an opportunity and emphasized the benefits of becoming a national pilot, which included laying the groundwork for future work and obtaining national policy support to help Nanchang gain a reputation for low-carbon development.⁷² The Development and Reform Bureau, having the authority to draft major government documents, had been incorporating the low-carbon issue into the annual work reports of the municipal government despite top local leaders' scepticism about low-carbon development.⁷³

One local official, who was part of Nanchang's bureaucratic entrepreneurship on low-carbon policy experiments and the policymaking process, recalled that the Party secretary seldom disapproved if low-carbon issues were written into the

66 Interview 061900, Nanchang, 2018; interview 081724, Beijing, 2018; interview 100824, Nanchang, 2018; interview 022300, Nanchang, 2018.

67 Interview 061900, Nanchang, 2018; interview 022300, Nanchang, 2018.

68 NCSC 2013.

69 Interview 022300, Nanchang, 2018; interview 090803, Xiamen, 2018.

70 Interview 061900, Nanchang, 2018; interview 022300, Nanchang, 2018.

71 Interview 022300, Nanchang, 2018.

72 Ibid.; interview 061900, Nanchang, 2018; interview 081724, Beijing, 2008.

73 Interview 022300, Nanchang, 2018.

government work report or agenda.⁷⁴ Since the Party secretary approved the draft document, the Bureau could promote the low-carbon issue by emphasizing it as a priority on the bureaucratic agenda. The official further explained that prioritized issues with detailed action and investment plans were then submitted to the Standing Committee of the Nanchang Municipal Government. Their implementation would then be supervised and evaluated throughout the next year.⁷⁵ By incorporating low-carbon issues into the work of Nanchang's municipal government, the Development and Reform Bureau was able to secure political endorsement for low-carbon policy implementation despite top political leaders' scepticism about decarbonization. Low-carbon issues appeared in Nanchang Municipal Government's Work Report between 2009 and 2016 in various forms such as a low-carbon conference, low-carbon city pilot construction and low-carbon living.⁷⁶

Another common challenge overcome by Nanchang in its climate policy experimentation was a lack of financial resources. This was a problem for the city's low-carbon policy programme from the beginning, but Nanchang gradually mobilized financial resources from various sources to support low-carbon research and projects. For example, in collaboration with the Ministry of Finance, Nanchang secured a US\$250 million loan from the World Bank for its underground railway construction between 2009 and 2017.⁷⁷ It also established important vertical government alliances with national and provincial climate change agencies.

While the national government allocated no institutionalized low-carbon subsidies to the pilot cities, the national and provincial governments each allocated 8 million yuan (US\$1.2 million) to support Nanchang's low-carbon city pilot construction after it became a national pilot city.⁷⁸ A provincial official attributed Nanchang's low-carbon policy progress to Liu's efforts to build action alliances with higher levels of government and his provision of policy advice to top local political leaders. He mentioned that Liu had kept the national-level Department of Climate Change updated on the city's policy progress and briefed top local leaders on Nanchang's low-carbon initiatives, particularly through drafting government policies such as action and implementation plans.⁷⁹ An official from Nanchang commented that accessing financial resources was less of a challenge than cross-divisional coordination.⁸⁰ While Nanchang established a leading group for its low-carbon city pilot at the beginning of its policy experimentation, the cross-divisional alliance within the local government was not coordinated from the top down – Liu instead mobilized it from the bottom up.

74 Interview 022300, Nanchang, 2018; interview 020600, Zhenjiang, 2018.

75 Interview 022300, Nanchang, 2018.

76 See the Nanchang Municipal Government 2009–2016.

77 World Bank 2020.

78 Interview 061900, Nanchang, 2018.

79 Ibid.

80 Interview 022300, Nanchang, 2018; interview 120803, Xiamen, 2018.

The passage of the Promotional Act on Nanchang's Low-Carbon Development in 2016 was a turning point in setting the path towards local low-carbon policy institutionalization. The Development and Reform Bureau had for years attempted to create a specialized fund to incentivize the local industrial sector's participation in the development of low-carbon industries.⁸¹ The Act authorized the establishment of a low-carbon development fund with 5 million yuan in annual municipal financial support to sponsor low-carbon-related research and business. The second Chinese city to pass such an act, Nanchang received a good deal of positive publicity. As chief economist, Liu linked the city's low-carbon policy experiments to national concerns about growth pattern transformations and framed low-carbon development as a pillar of local economic catch up. He noted that Nanchang would increase in importance in this process, as it could share lessons with other inland cities that aspired to boost their economic growth while maintaining sustainable urban living. An implicit motivation for Nanchang to join the policy experimentation was to access external financial subsidies to implement local low-carbon policy programmes, particularly allied actions with higher levels of government.⁸²

Bureaucratic entrepreneurs' mobilization of a cross-divisional bureaucratic alliance is particularly crucial to the implementation of local policy experiments. The bureaucratic entrepreneurs in Nanchang did not rely on the mayor, who chaired the leading group mechanism (*lingdaoxiaozu* 领导小组), for policy orchestration. Instead, the Nanchang Development and Reform Bureau co-opted the vice-mayor, who supervised the Bureau, and the director of the Nanchang Municipal Legal Office, who showed an interest in low-carbon issues, when pushing the Promotional Act.⁸³ While Liu encountered little opposition within the Development and Reform Bureau, the Legal Affairs Committee of Nanchang's Municipal People's Congress constantly challenged the need for a promotional act. The Legal Affairs Committee insisted that if the proposed act focused on promoting low-carbon issues, departmental regulations would suffice.⁸⁴ The debate between the Legal Affairs Committee and the Development and Reform Bureau on the necessity of passing a promotional act was in deadlock until the chairman of the Municipal People's Congress and the Municipal Party Committee endorsed it and listed it as the number one legislation on the local agenda.⁸⁵

The Promotional Act on Nanchang's Low-Carbon Development was passed by the Nanchang Municipal People's Congress in April 2016 and approved by the Jiangxi Provincial People's Congress in June 2016. It authorized the Nanchang Department and Reform Bureau to incorporate low-carbon indicators into its drafting of various masterplans on issues like social and economic

81 Interview 081200, Nanchang, 2013.

82 Interview 061900, Nanchang, 2018.

83 Interview 022300, Nanchang, 2018; NCSC 2017, 71–75.

84 Ibid.

85 Ibid.

development, land use and urban–rural development. However, the Act did not steer Nanchang on to the path to which it aspired and local implementation stalled after Liu left after being charged with corruption.⁸⁶

Bureaucratic entrepreneurs often have unchecked power in China’s authoritarian bureaucratic system and are by no means immune to corruption, even in seemingly less lucrative policy experiments. In March 2017, Liu was removed from office and investigated for accepting over 10 million yuan (US\$1.5 million) in bribes and using the Nanchang Low-Carbon Promotion Association to launder money.⁸⁷ An interviewee with direct experience of the matter revealed that Liu had contacted him or her to establish this association to launder Liu’s illegal appropriation through research funds and project bribes.⁸⁸

Low-carbon issues were moved down the bureaucratic agenda following Liu’s departure, which resulted in Nanchang’s insufficient implementation of low-carbon policy experiments. At the time of my field research in Nanchang in 2018, the low-carbon fund was untouched because the Development and Reform Bureau had not issued a government document specifying the criteria for accessing the fund. This is in line with the national government’s comment on Nanchang’s lack of recent progress in low-carbon policy experimentation owing to the removal of the implementation bridge (Liu). When I was conducting the second-round interviews in Nanchang in late 2018, local officials admitted that they were occupied by conventional obligations, which left the low-carbon policy experiments untended.⁸⁹ While the low-carbon policy frame continued to appear in Nanchang Municipal Government’s Work Report in 2018 and 2019, there has been no substantive progress in the city’s low-carbon policy institutionalization since Liu’s departure in 2017.⁹⁰

Low-Carbon Policy Experiments in a Comparative Context: Variation in Policy Institutionalization

To trace the relationship between bureaucratic entrepreneurship and low-carbon policy institutionalization, it is useful to compare Nanchang with three cases that have taken starkly different approaches to low-carbon policy institutionalization. Zhenjiang, Xiamen and Shenzhen joined the national low-carbon city experimental programme at roughly the same time as Nanchang. All four case cities have maintained an above-average level of energy intensity and have encountered challenges associated with the turnover of leading cadres and/or local cadres in low-carbon policy experimentation between 2010 and 2018. However, Nanchang,

86 Interview 022300, Nanchang, 2018; interview 081724, Beijing, 2018; interview 061900, Nanchang, 2018; interview 101708, Nanchang, 2018.

87 “Zongjijingshi de hutuzhang” (Confused account of the chief economist). *Zhongguo jijian jiancha bao*, 7 December 2017.

88 Ibid.

89 Interview 081724, Beijing, 2018; interview 242426, Nanchang, 2018.

90 See Nanchang Municipal Government 2018–2019.

Zhenjiang and Shenzhen have achieved a higher level of policy institutionalization than Xiamen in terms of establishing low-carbon institutions, regulations, standards and legislation.

In Shenzhen, bureaucratic entrepreneurs engaged in ground-breaking institutional efforts that led this city to become a pioneer in local low-carbon energy transitions. Although it was late to join the National Carbon Emissions Trading (ETS) Pilot Programme, Shenzhen was the first city to successfully engage over 700 key carbon emitters from the industrial and building sectors in the National ETS Pilot Programme by passing the first legal act on carbon emissions trading in China in 2013 – the Shenzhen Carbon Emission Trading Interim Ordinance. Well before the Shenzhen ETS was operational, the former vice-mayor, Tang Jie 唐杰, had forged alliances with a group of trained professionals from research institutes, business actors and international agencies to research the programme's design and proposed introducing a legal act on the Shenzhen ETS to prevent the market failure that occurred in the European Union ETS.⁹¹ In addition to building local low-carbon expertise in Shenzhen, Tang also mobilized political and financial support from other key agents such as the mayor, the National Development and Reform Commission, the Shenzhen Development and Reform Bureau, and the Shenzhen Development and Investment Company. The government–business alliance between Shenzhen Municipal Government and the Shenzhen Development and Investment Company enabled the city to mobilize capital critical to the implementation of expansive urban renewal and other ecological projects in the Shenzhen International Low-Carbon City Programme.⁹² The Shenzhen Carbon Exchange, with 40–50 full-time staff members, is a leading low-carbon institution established from Shenzhen's ETS experimentation in 2013 and has continued to engage in implementing carbon emissions reductions despite Tang's retirement in 2016.⁹³ In 2020, Shenzhen further strengthened its low-carbon policy system by passing a carbon finance act.⁹⁴

Zhenjiang, a prefectural city in Jiangsu province with a coal-dominant energy mix, introduced a set of institutional elements to its low-carbon policy experimentation even after a change in top political leaders. In 2017, as a result of its bureaucratic entrepreneurship efforts, the Zhenjiang Development and Reform Bureau formed a cross-divisional vertical alliance with the Jiangsu Provincial Standardization and Supervision Commission and successfully promoted a set of low-carbon city evaluation standards to the provincial level. The newly promoted vice-director (Zhou Derong 周德荣), who used to work closely with the former mayor (Zhu Xiaomin 朱晓明) on Zhenjiang's low-carbon policy experimentation, emerged as the bureaucratic entrepreneur who championed the

91 Interview 240107, Shenzhen, 2013. Although he held a leadership position in Shenzhen's low-carbon city pilot programmes, Tang started as a mid-level cadre in the municipal government a decade previously.

92 Gong 2021.

93 Interview 240107, Shenzhen, 2018.

94 Standing Committee of Shenzhen's People's Congress 2020.

inclusion of low-carbon issues on the Zhenjiang Development and Reform Bureau's agenda. Zhou endorsed an administrator's proposal to develop the first set of government standards on local low-carbon city construction in response to central government concerns about the lack of nationwide evaluation standards on low-carbon city experiments.⁹⁵ Zhou mobilized a division of officials under his supervision to draft the Low-Carbon City Evaluation Standards. At the same time, he formed a grand action alliance by inviting relevant experts and professionals from other agencies. The Low-Carbon City Evaluation Standards, proposed by the Zhenjiang Development and Reform Bureau, later become a provincial standard in Jiangsu and applies to all low-carbon city construction in this region.⁹⁶

The case of Xiamen is strikingly different from the other three. Xiamen joined the National Low-Carbon City Pilot Programme in 2010 with a few proposed projects such as applying low-carbon standards to its Jimei New Town 集美新城 construction, establishing a carbon emissions trading system and implementing a low-carbon policy regulatory system; however, none was implemented. The city's government took a rather cautious approach to decarbonization between 2010 and 2018 and engaged in only sporadic implementation of policy experiments, with no substantive institutional efforts introduced for local decarbonization. The shifting of the low-carbon administrative authority from the Xiamen Construction and Administration Bureau to the Xiamen Development and Reform Bureau in 2010 led to the loss of bureaucratic entrepreneurship on low-carbon issues in the city. Owing to local apathy towards low-carbon policy experiments, the Xiamen Development and Reform Bureau delegated low-carbon policy tasks to administrators who were temporarily seconded to the Bureau and lacked the authority for resources mobilization. This prevented the formation of an alliance of trained personnel in implementing low-carbon policy experiments. Bureaucratic entrepreneurs in the Xiamen Construction and Administration Bureau were unable to gain the top political leaders' endorsement or to form a cross-divisional action alliance to counter opposition from developers and the township government. Thus, the Xiamen Construction and Administration Bureau's proposed low-carbon standards were never adopted in the Jimei New Town construction.⁹⁷ When a new Party secretary, Wang Menghui 王蒙徽, took office in 2013, the municipal government pushed low-carbon issues aside and instead promoted Wang's new development strategy, "Beautiful Xiamen."⁹⁸ As a result, the lack of bureaucratic entrepreneurship

95 Interview 082600, Zhenjiang, 2018; interview 032400, Zhenjiang, 2018.

96 Ditan chengshi pingjia zhibiao tixi bianzhi xiaozu 2018.

97 Interview 101708, Xiamen, 2018; Song et al. 2020.

98 Interview 030223, Xiamen, 2013; "Meili Xiamen zhanlue guihua" (Beautiful Xiamen strategic planning). *Xiamen ribao*, 5 March 2015.

jeopardized Xiamen's low-carbon policy implementation, and its low-carbon policy experimentation was not insulated from the impact of top leaders' turnover.

Table 2 depicts the comparative outcomes of the four cases. My analytical framework explains the variations across local areas and regions in navigating low-carbon policy experiments through challenges associated with changes in top leaders. The different types of local engagement need not be static. Local areas and regions over time demonstrate a combination of different types of policy implementation in experimentation – substantive, performative, symbolic and sporadic – given the evolving dynamics between the political authority and implementation alliance mobilized by the bureaucratic entrepreneurs in the policy process. While both performative and symbolic implementation reflect the gaps between the goals that bureaucrats or the government are set and actual results, there are distinct differences in the motivations behind local bureaucratic entrepreneurs' or the government's choices of specific policy actions.⁹⁹ Performative implementation by local governments tends to promote policy initiatives that are visible and which cater to the expectations of the external policy sponsors, such as higher levels of government or international sponsors, without caring much about the feasibility of local implementation. Symbolic implementation by local governments often involves substantial actions that deal with low-carbon implementation challenges, such as challenging the status quo of invested local interests, but which may fall short of achieving proposed policy goals because of lack of implementation capacity. This framework helps to shed light on the type of local engagement in China's policy experimentation and its potential impact on the policy outcome.

First, when both implementation alliance and political authority's support are strong (as in Shenzhen), local policy engagement tends to be the most substantive. The local area has a strong implementation alliance to mobilize the human and financial capital needed for policy experimentation. Bureaucratic entrepreneurs in such cases are extremely effective at exploiting the policy windows to advance institutional efforts, transcending the limits of the underlying individual authority that might otherwise serve as a potential barrier to long-term policy institutionalization. Shenzhen has achieved the most substantive progress of the four cases studied here, particularly because of its bureaucratic entrepreneurs' strong capacity to build a government–industrial alliance. For example, with the former vice-mayor's coordination, Shenzhen's low-carbon policy experiments were not only endorsed by its top political authority, such as former mayor Xu Qin 许勤, but also backed by the Municipal People's Congress. In 2014, a revision of the Shenzhen Emission Trading Ordinance, which was introduced by the Shenzhen Municipal Government and passed through the Municipal People's Congress, further strengthened the local commitment to decarbonization in energy efficiency improvement and emission reductions, particularly in the

99 For a discussion of “performative governance,” see Ding 2020; for a discussion of “symbolic legitimacy,” see Wang 2018.

transportation sector.¹⁰⁰ Shenzhen's efforts continued even after it changed mayor and vice-mayor in 2017 and 2016. In 2020, Shenzhen was the first local region to pass a green financial legislation – the Shenzhen Green Finance Legal Act – to strengthen local financial institutions' environmental information disclosure practice.¹⁰¹

Second, when there is a strong implementation alliance but the support from political authority is weak, the local area exhibits performative engagement in low-carbon policy experiments (as in Nanchang). The bureaucratic entrepreneur in Nanchang failed to mobilize leading cadres from the municipal government with the authority to orchestrate industrial engagement in decarbonization, as occurred in Shenzhen. Instead, the bureaucratic entrepreneur focused on making bureaucratic connections with higher levels of government, such as the Ministry of Finance, the Jiangxi Provincial Development and Reform Commission and the National Development and Reform Commission, to forge external implementation alliances for resource mobilization. For example, Nanchang managed to secure considerable financial resources from international and domestic actors for its underground railway construction and set up a low-carbon fund for the development of low-carbon policy experiments.¹⁰²

In an environment where there is a lack of local political authority support for policy experiments, bureaucratic entrepreneurs tend to focus on developing new and visible policy actions to attract and impress the external policy sponsors. They care less, however, about the feasibility of local implementation or the need to strengthen policy implementation. The bureaucratic entrepreneur in Nanchang admitted that his motivation for pushing the Promotional Act on Nanchang's Low-Carbon Development was to impress the national government despite the Promotional Act itself being difficult to implement.¹⁰³ After Nanchang issued the Act, the national government promised further financial assistance to the city's low-carbon policy initiatives.¹⁰⁴ The Nanchang case shows that the bureaucratic entrepreneur's seizure of a cross-level government alliance was helpful in bringing in policy initiatives to ensure the external sponsors' expectation of providing financial support. But the local political authority's lack of support for low-carbon development in Nanchang made the bureaucratic entrepreneur rely too much on external support in the implementation of low-carbon policy experiments.

The Nanchang case demonstrates the way that performative engagement prioritizes external policy sponsors' expectations over the feasibility of local implementation, particularly when an issue area lacks support from local political

100 "Xu Qing: yi genggao biaozhun jiakuai tuijin tanshichang jianshe" (Xu Qing: Speed up the building of Shenzhen carbon emission system). *Shenzhen tequ bao*, 8 July 2014.

101 Standing Committee of Shenzhen People's Congress 2020.

102 Interview 061900, Nanchang, 2018; interview 0222307, Nanchang, 2018; interview 101200, Nanchang, 2018.

103 Interview 061900, Nanchang, 2018.

104 Ibid.

authorities and must rely on external financial and political resources to maintain or advance local policy experimentation. This leads to unsustainable local implementation and exposes the limits of bureaucratic entrepreneurship in Chinese local governments.

Third, when the implementation alliance is weak but the political authority's support is strong (as in Zhenjiang), the local area tends to exhibit symbolic engagement in policy experimentation. Zhenjiang bureaucratic entrepreneurs successfully gained the backing of the vice-mayor (Yi Yuqian 裔玉乾) on low-carbon issues and established a low-carbon development agency staffed by four full-time government officials. As a renowned low-carbon city pilot, Zhenjiang tried to sustain its decarbonization commitment even after the departure of one of its top political leaders (Zhu Xiaomin, the former mayor), but the institutional efforts fostered by the intra-governmental alliance were insufficient to help the city overcome challenges presented by the carbon-intensive energy and industrial structures in its growth pattern transformation.¹⁰⁵ Zhenjiang's institutional efforts, such as setting up the Zhenjiang Low-Carbon Development Division and promoting the Low-Carbon City Evaluation Standards, can be symbolic if no industrial alliance is formed during policy implementation.

In contrast to Nanchang's performative engagement, which was reliant on external policy sponsors for financial resources, Zhenjiang has mainly relied on the municipal government for financial support, with a tight budget for climate change issues, and focuses on sustaining low-carbon initiatives to retain the low-carbon "label" (symbol) as part of the city's branding.¹⁰⁶ Being less reliant on external sponsors for resource mobilization and having more consistent local political authority support allows Zhenjiang to devote more attention to dealing with local implementation challenges. In recent years, Zhenjiang has not only continued to host the International Low-Carbon (Zhenjiang) Conference but has also modernized energy storage facilities to green its energy supply while shutting down some of the key coal-powered facilities.¹⁰⁷ The Zhenjiang government signed a strategic agreement with the National Grid to advance its electrification of energy consumption.¹⁰⁸ If this city can continue to strengthen its implementation alliance to green its energy supply and industrial sectors, it may be on the right track to move from symbolic engagement to substantive engagement in low-carbon energy transitions.

105 "Zhenjiang wenshi qiti paifang tijian baogao chulu" (Zhenjiang's carbon emissions mix report). *Zhongguo huanjing bao*, 14 September 2020.

106 Interview 231900, Zhenjiang, 2018; interview 020600, Zhenjiang, 2018.

107 "Quanguo zuida guimo dianwang chuneng xiangmu touru yunying chengwei chaoji chongdianbao" (The largest grid energy storage project in China is put into operation and becomes a super "charging treasure"). *Jingji ribao*, 2 August 2018.

108 "Gongsi yu Zhenjiangshi shengtai huanjingju qianshu zhanlüe hezuo xieyi" (Company signed a strategic agreement with Zhenjiang Ecology and Environment Bureau). State Grid Zhenjiang Power Supply Company, 18 September 2021, http://www.js.sgcc.com.cn/html/zjgdgs/col606/2021-09/18/20210918162409630837588_1.html. Accessed 21 December 2021.

Last, when both implementation alliance and political authority's support are weak, local policy experiments tend to be sporadic (as in Xiamen) as they lack the political authority and implementation alliance to prepare the necessary resources to implement the policy experiments. The absence of bureaucratic entrepreneurship in Xiamen was largely owing to the fact that no leading divisional cadres championed low-carbon issues within the Xiamen Development and Reform Bureau after it was tasked with overseeing low-carbon policy experimentation in 2010 and so no effective action alliances formed in Xiamen despite the rich local expertise on decarbonization.¹⁰⁹ Other than a carbon emission monitoring project launched in 2016, low-carbon policy experiments in Xiamen have remained static for years.¹¹⁰

Discussion and Conclusion

By shifting the focus from rotated top local leaders to the role of less mobile local cadres who act as bureaucratic entrepreneurs in the implementation of low-carbon policy experiments, this study shows that mid-level local officials are by no means powerless to shape local engagement in China's policy experimentation. These bureaucratic entrepreneurs are capable of building implementation alliances with key actors inside and outside local government to mobilize the political and economic resources needed to implement policy experiments. In doing so, local governments have been able to help institutionalize low-carbon policy experiments and insulate policy implementation processes from the effects of periodic political leadership changes. The institutional efforts mobilized by bureaucratic entrepreneurs in Shenzhen, Zhenjiang and Nanchang protected local low-carbon policy initiatives from changes in the political leadership. Institutionalized experimental policy efforts were not driven by higher-level governments through the bureaucratic evaluation system or political patronage with top political leaders in Beijing, but by local bureaucratic entrepreneurship. It is worth noting that neither the changes in local leadership nor the reorientation of the higher-level political agenda changed the course of low-carbon policy experimentation as much as did changes in bureaucratic entrepreneurs, as illustrated in all four cases. Instead, the availability of bureaucratic entrepreneurship and its capacity to mobilize implementation alliances and political authority's support determine the implementation outcome of low-carbon policy experiments.

While bureaucratic entrepreneurship can be a powerful force for advancing local low-carbon policy experimentation, the current government-dominated and highly centralized decision-making process poses implementation challenges for local policy experiments, particularly when key industrial actors are excluded from the decision-making process from the beginning. All of the four case cities

109 Interview 191704, Xiamen, 2018; interview 102512, Xiamen, 2018; Song et al. 2020.

110 Interview 081200, Xiamen, 2018; interview 191704, Xiamen, 2018.

depended on their cross-level or cross-divisional governmental alliances to mobilize the political and financial resources required for policy implementation; three of the four cases show insufficient policy implementation because of their failure to form an industrial alliance. This shows that without a broader local implementation alliance, government-led mobilization alone cannot produce a substantive implementation outcome.

Evidence that bureaucratic entrepreneurs rely predominantly on government-affiliated agencies to build alliances defies the claim that China's policy-making process has pluralized.¹¹¹ The alliance-building strategies that bureaucratic entrepreneurs have pursued in low-carbon policy experiments contrast sharply with the confrontational strategies that the policy entrepreneurs employed in hydro politics in south-west China. These confrontational tactics focused on issue framing at the agenda-setting stage, which, as Mertha suggests, would be insufficient to mobilize the huge political and financial investments required to implement low-carbon experimental policy programmes.¹¹²

In sum, the implementation dynamics of low-carbon policy experiments suggest that bureaucratic entrepreneurship is powerful, despite the limited political and economic resources commanded by mid-level cadres in China. While the lack of institutionalization in China's policy experiments has been well documented, the case of low-carbon city experiments highlights that policy experimentation can provide a framework within which bureaucratic entrepreneurship and institutional efforts emerge.

Creating a group of trained administrative personnel within the bureaucracy is crucial for fostering bureaucratic entrepreneurship because these less mobile local officials can be the future advocates and policy entrepreneurs for decarbonization. Given their familiarity with the local policy- and decision-making processes, trained local cadres can become a resource to champion the introduction of institutional efforts that can help to prevent the implementation failures that may result from a change in top political leaders. The creation of a group of trained bureaucrats can also help to enforce local low-carbon policies, as the local government needs to assign specialized personnel focused on implementation to ensure proposed policy programmes and standards are carried out.

The implementation of experimental policy programmes remains difficult in local areas and regions where no bureaucratic entrepreneurs are available to coordinate horizontal and vertical implementation alliances. Ultimately, however, the low-carbon policy experiments that have been undertaken in local areas can help to foster a division of labour specialized in low-carbon issues and the growth of low-carbon institutions that can improve China's decarbonization outcome.¹¹³ Globally, local areas and regions in which governments have built grand alliances with industrial sectors and non-governmental organizations

111 Mertha 2009.

112 Ibid.

113 Hoffmann 2011.

are also more likely to achieve ambitious climate goals such as in the case of California. China's 2060 carbon neutrality pledge suggests that it may need to consider taking a more pluralistic implementation approach to achieve its decarbonization goals, starting by installing a consolidated low-carbon bureaucratic capacity and fostering government–business alliances at all levels of government.

Acknowledgements

This paper benefited from comments and suggestions from Miranda Schreurs, Joanna Lewis, Thomas Rawski, John James Kennedy, Ye Qi, James Cook, Jaros Kyle, Iza Ding, Shiming Yang, Juheon Lee, Ewan Kingston, Pooja Vijay Ramamurthi, Simon Montfort, Sau Kan Chen, Tianrong Pan, Dongping Wang, Yang Zhang, Haiyu Xie and Ting Guan. Financial, travel and institutional support was received from the China Scholarship Council, the Technical University of Munich, and the Asian Studies Center at the University of Pittsburgh.

Conflicts of interest

None.

Biographical note

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摘要：传统中国政策实验研究重点关注央地关系和领导轮换对地方政策议程设置的影响，但是较少关注到流动性较低的中层官员在政策执行中的角色和作用。本项研究旨在回答，为什么一些城市比另一些城市更成功且可持续地开展低碳政策实验。基于四个城市案例的比较研究和超过一百个专家访谈，我认为地方政府对于低碳政策实验的参与程度取决于地方政府内部是否有政策企业家类型的中层官员及其资源动员能力的高低。本研究显示，中国地方政策实验的进程并非完全受控于中央政府或者经常轮换的地方主要领导，而在于是否有中层官员协助政策实验推进，并使其免受领导换届的影响而持续发展。本项研究对于理解中国双碳目标的实现路径具有重要启示。

关键词：官僚制；政策实验；官员轮换；气候政策；领导力；城市；中国

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