Project Concept Note

Varieties of Climate Governance

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How do states respond to the challenge of climate governance? This question has important practical policy implications but also suggests unexplored conceptual terrain. From a practical point of view, the Paris Agreement has anointed 'nationally determined contributions' – those emerging from national circumstances and politics – as the centrepiece of the global collective response to climate change (*Paris Agreement to the United Nations Framework Convention on Climate Change* 2015). For an adequate response to climate change, the aggregate response of countries must add up to what is suggested by science, *and* these contributions must be implemented. Any shortfalls, according to the Paris Agreement, are to be made up through repeated subsequent rounds of national contributions.

As this formulation suggests, the centre of gravity of the global climate response has shifted to national and sub-national scales. Yet, there is relatively little understanding of how states organize themselves internally to put together their national contributions, the forces that act on the determination of those contributions, and the factors that shape implementation possibilities. Until recently, the dominant framing of climate change has been as a global collective action problem, spurring analysis of the interaction *between* nations as sovereign political units, and the domestic factors that helped explain nations' participation in global cooperation. With the Paris turn, this has increasingly given way to explorations of dynamics *within* nations.

The result is a broader and more complex framing of the climate governance task. For example, the emergent literature on polycentric governance emphasizes experimentation at multiple sites of governance, allows for fluidity across scales, and interaction between state and non-state actors (Jordan, Huitema, and Forster 2018). Others emphasize the need for innovation, such as in clean energy systems, which may require a mix of national policies and accelerated diffusion (Mazzucato and Semieniuk 2018; Patt 2017). Another strand of literature suggest that the extent of 'co-benefits' between climate and non-climate outcomes, including the full range of Sustainable Development Goals will drive climate policy (Ürge-Vorsatz et al. 2014; von Stechow et al. 2015; McCollum et al. 2018). An empirical set of studies also emphasizes the importance and role of non-state actors as well as state and non-state partnerships in inducing and implementing climate action (Chan et al. 2015). Collectively, these diverse literatures point to the conceptual complexity of climate governance, including coordination across decision-making arenas, managing interaction across scales, designing systems for experimentation, harnessing the interaction of state and non-state actors, and ensuring systems of accountability.

There is evidence that states are formulating the institutional mechanisms with which to address these emergent and complex climate governance tasks (Iacobuta et al. 2018; Nachmany et al. 2014). For example, between 2012 and 2017, the number of national climate laws and strategies increased steeply; the proportion of emissions covered by laws or strategies rose from 43% to 70% over this period (Iacobuta et al. 2018). By 2017, 89% of greenhouse gas emissions were covered by some form of national target.

There have been various efforts to lift up the hood on this process of deepening national engagement and understand national climate politics at work. Early work in this genre sought to

deploy the tools of comparative politics to understand the implications of national political variables – electoral incentives, normative positions and institutional structures – on country choices regarding engagement with the global climate regime (K. Harrison and Sundstrom 2010). In subsequent literature, similar explanatory variables were deployed to explore the choice of climate policy instruments, in keeping with a growing attention on national implementation rather than participation in international regimes (Lachapelle and Paterson 2013; Pahle et al. 2018). The particular challenges of managing climate policy in a federal polity, such as the US, and balancing national coherence with local experimentation, are an important sub-theme (B. G. Rabe 2011). While most of this literature focuses on the developed world, there is some emergent literature on understanding climate policy processes in the developing world, which notably highlights very different themes, such as the prevalence of co-benefits and the challenges of limited institutional resources, rather than formal political structures (Held, Roger, and Nag 2013; Dubash and Joseph 2016). More recent studies deploy a process tracing approach to explain how different decision-making structures across countries mediate political pressures with resultant variations in policy outcomes (Meckling and Nahm 2018; Hochstetler and Kostka 2015). Collectively, these literatures provide useful ways into understanding emergent experiments with climate policy making in national and sub-national contexts.

However, there is far less empirical literature on the emergence of an intermediate layer of climate *institutions*, as opposed to policy, which is simultaneously being laid in many countries to routinize and systematic climate policy making. For example, the UK Climate Change Committee, as part of the UK climate legislation, through its analysis of departmental climate budgets, establishes an information based regulatory structure for climate policy. By contrast, Chinese experience (until recently) with central target setting through its powerful National Development Reform Commission establishes an administratively led approach to target setting and implementation that drives down to the provincial level. India's Committee of Secretaries coordination structure relies on inter-bureaucratic bargaining. This congealing of governance patterns into formal institutional structures is likely to continue, and become more important over time because of at least three factors: the spread of climate legislation and strategy; the growing focus on linking climate policy to other objectives that require institutional mediation; and the episodic pulls for updated policy through the Paris-stipulated 'nationally determined contributions'.

'Varieties of Climate Governance' is focused on this emergent world of formal climate institutions that shape and constrain climate governance in country-specific ways. The approach is designed to explore the diversity of factors that shape particular forms of climate governance, drawing on historical institutionalist approaches (Lockwood et al. 2017) even while the use of the term 'varieties' signals the search for empirical regularities amidst the diversity. While we are motivated by evidence that there are emergent structural elements to climate decision making – institutionalised spaces for decision making, formalised patterns, and regular participants – this is by no means to suggest a lack of fluidity or ongoing negotiation and contestation. Instead, the intention is to focus on the ways in which climate decision making is shaped and constrained by institutional form, even while avoiding suggestions that outcomes are over-determined by formal institutions.

This project is analytical in its approach. The intent is to understand the factors that shape national climate institutions. In addition, however, towards the conclusion of the project, we seek to use the empirical material to inform normative lessons. What works well and what works less well as countries attempt to structure climate governance?

Research Questions and Research Design

Research Questions

The central purpose of this project is to shine a light on the formation of national climate institutions and the mediating effect of this emerging landscape on climate policy-making. Accordingly, the overarching questions for this project are:

1. How are national climate institutions formed, including driven by national specificities and their interaction with international influences, and what empirical regularities emerge in the resultant varieties of climate governance?
    a. What key factors shape forms of climate institutions and how do they interact?
    b. What empirical regularities emerge in the varieties of climate governance?
    c. How can the empirical evidence of varieties of climate governance inductively inform a conceptual framework for national climate governance?
    d. How do varieties of climate governance variously solve for climate governance functions, such as coordination, knowledge creation, deliberation, policy formulation, and accountability?
2. How do diverse forms of climate governance, in practice, shape climate decision making and implementation?
    a. How do institutional forms shape incentive formation, the structuring of political spaces, and normative shifts in society?

Research Design

As these questions suggest, the project is organized around a two part approach: a historical institutionalist approach to understanding the creation of institutional forms that informs theory-building, followed by a more detailed, policy-case inspired understanding of how climate institutions shape decision making in practice.

Consequently, the core of this project is organized around country case studies. The choice of case studies is dictated by three factors. First, we consider countries that account for a large share of global emissions, where the forms that climate institutions take are likely to be highly salient to global outcomes. Second, we seek a spread across developed and developing countries to capture early and late movers, and likely variation in state capacity. Third, we include country cases that have attracted attention for innovation in climate institution building. Based on these criteria, our country cases include: US, UK, Germany, Australia, China, India, Brazil, and South Africa. Clearly, these countries are not representative of global diversity, and notably the list does not include small, and least developed countries. This exclusion is largely driven by the first consideration: to focus on countries where climate outcomes are likely to be more material to the mitigation challenge.

While this study will emphasize climate governance around mitigation, in answering the first question above, it would be useful to explore and document the extent to which formal climate governance is developing around adaptation challenges, and, in particular, the links between them. In exploring the second question, this project will retain its focus on mitigation related cases of policy-making.

Climate governance operates across scales, with growing attention to sub-national and city governance. This project will emphasize national climate governance, but with attention to how structures of coordination and interaction across governance scales function. Attention to sub-

national scales may necessarily have to be greater in federal contexts, and/or where national climate governance has been limited for political and other factors.

A key objective of this project is to understand the full breadth of climate governance across economic sectors. Since the nature of the climate mitigation challenge is closely associated with linking climate considerations with the full range of greenhouse gas producing sectors – electricity, industry, urbanisation, agriculture and so on, a methodology that is restricted to a sub-set of these sectors would fail to capture whether and how institutional development encompasses the scale of the national climate challenge in a given country. For example, studies that focus on renewable energy policy processes may only be capturing bright spots where the linkage to climate change is particularly apparent and around which there is public debate. Hence, this project will aim to assess, in addressing Question 1, the extent to which institutional development captures the sweep of climate salient sectors.

A Framework for Country Case Study Papers

Each country case study will be broadly organised around two parts, mirroring the two research questions. The first part would understand the path dependent and country-specific ways in which climate institutions are constructed, drawing on the tradition of historical institutionalism. The second would seek to understand these institutions in practice, by exploring cases of particular decision making to understand how those decisions are filtered through formalised processes of governance.

How are National Climate Institutions Formed?

The forms of climate governance are likely shaped by a range of factors, such as domestic political interests, global political pressures and influences, existing governance traditions and institutions, and domestic institutional constraints, among others. Understanding the path dependent construction of climate institutions is a reminder, therefore, that countries do not start with a blank slate when designing climate institutions. This understanding helps send a message that ahistorical and non-contextual normative constructs of 'best practice' institutions are misleading. At the same time, context is not determinative and there is scope for intentionality in climate design. We are interested in exploring how path dependence and considered design come together and to then understand the finite variety of broad approaches to governing climate action available from the empirical record.

The starting point for country cases is consideration of a range of likely influences that could shape and constrain design of climate institutions, with particular attention to historical context. To enable a comparative analysis, we have developed as a starting point three broad categories of factors to consider when examining case studies: political systems, domestic-international interactions and the nature of the state. The idea is to provide a starting point for empirical work and, over time, to add to and refine this list of explanatory factors.

Political Systems:

This study can draw on a tradition of analysing the effects of political systems on environmental outcomes and policy choices. So far, however, the literature is less detailed in its examination of institutional forms. One strand examines the relationship between *democracy and environmental outcomes* (Bernauer and Koubi 2009; Li and Reuveny 2006; Ward 2008) and more specifically on GHG emissions outcomes (Bättig and Bernauer 2009; Lachapelle and Paterson 2013; Povitkina 2018).

One possible reason for a positive link between democracies and low emissions may be reduced corruption (Povitkina, 2018), which suggests the need for exploration of underlying institutions.

Diving deeper into *forms of democracy* are salient to this literature: what is the effect of majoritarian democracies, compared to proportional representation systems and first-past-the-post systems (Bueno de Mesquita et al. 2003; Bättig and Bernauer 2009; Lijphart 2012)? Does proportional representation, for example, by allowing representation of a broader set of interests, make dedicated attention to climate institutions more likely, while first-past-the-post systems focus attention on narrow constituencies of swing voters? Another important consideration is the party structure, and the presence or absence of parties that actively represent green interests, as in Germany's Green Party.

The *separation of powers* within a political system, and its implications for creation of veto points, is also salient in some cases. These structures can reinforce attention to climate change, as Schreurs and Tiberghien (2007) argue has occurred in the EU, while in other countries, multiple veto points seem to have limited the scope of climate policy (Madden 2014). How do these arguments regarding climate apply to the formation of institutional structures? An important facet of the separation of powers is the *role of the judiciary* and past precedents for judicial intervention in environmental policy making (Ghosh 2019; Harrison 2010).

A particular aspect of political systems – the form and functioning of *federal systems* – is worth considering explicitly. Indeed, there is growing attention to sub-national action as the motor of change in reaction to a perceived absence of concerted national actions (Hsu, Weinfurter, and Xu 2017). The role of sub-national players is likely shaped by the particular politics around climate change in different countries. Are states, as in the US, empowered by a lack of federal action (Rabe 2007)? Is it driven by a perceived interest in promoting green industry, as in some German states (Weidner and Mez 2008)? Are incentive structures established by central governments through targets and credible incentive mechanisms, as in China (Qi and Wu 2013; Hochstetler and Kostka 2015)?

Moreover, what are the governance relationships and extent of flexibility in particular federal structures, and how does it affect climate institutions? For example, in some cases, such as the US, states can play the role of laboratories of experimentation (B. Rabe, Roman, and Dobelis 2006; Jogesh and Dubash 2015). In China, the relationship has been driven by credible establishment of targets for provinces by the centre, powered by a dominant central agency (Heggelund, Andresen, and Buan 2010). In India, there is an ambiguous relationship, where states have both experimented, but also largely mirrored institutional forms around sectoral institutions established at the centre (Dubash and Jogesh 2014). In addition, what processes are put in place for negotiation between federal and provincial governments? In Canada, a precedent of consultation and even the availability of a provincial veto exists (B. Rabe 2007). How do climate governance institutions reflect established traditions of federal politics, and to what extent do they challenge past precedent?

International and National Interactions

There is a rich literature on the interactions between the international system and domestic politics. Core ideas include the 'second-image reversed' imagery of states transformed by shifts in the global political economy (Gourevitch 1978) and Putnam's work on 'two–level games' – the simultaneous negotiation at international and national scales (Putnam 1988). Given the predominant framing of climate change, at least until recently, as a global collective action problem (Patt 2017), and the long-standing efforts to stimulate domestic action through the UNFCCC process, it is important to

consider whether and how these global influences have shaped domestic institutional form and function.

To begin with, at a global scale, there is evidence that concentrated moments of national climate institution building and policy setting – measured through formulation of laws, strategies and targets – are closely correlated with significant *global moments* such as Copenhagen and Paris (Iacobuta et al. 2018; Dubash et al. 2013). While this evidence is but correlative, it reinforces the need for deeper exploration into the dynamics between international and national moments in climate politics and governance.

In this deeper exploration, Putnam's *two-level game* notion captures the manner in which governments negotiate globally with an eye to what is contained with a domestic political feasibility set. Both international positions and domestic politics are malleable, but often only limitedly so, and they shift in a mutually shaping way. For our purposes here, it is reasonable to hypothesize that institutional form is guided, at least in part, by globally articulated domestic narratives and positions around climate change. Thus, India's strong domestic formulation of a 'co-benefits' based climate policy, one that then translates to emissions intensity reductions rather than absolute emission reductions, shapes the form of its domestic climate institutions (Dubash and Joseph 2016). In China, domestic institutions have shifted over time, as Chinese positions at the UNFCCC have evolved from an equity frame to an emissions intensity pledge and finally to an agreement on some absolute limits. Russia appears to have used the climate negotiations process to facilitate domestic change toward greater energy efficiency and reduced reliance on fossil fuel exports (Henry and Sundstrom 2012). In the case of the EU, the effort to be central to the normative and institutional evolution of the climate regime has required a credible and ambitious domestic climate policy (Costa 2008). Thus, the EU has sought to position itself as the starting point of a virtuous cycle of climate governance. Understanding domestic climate institutional form requires understanding a country's changing relationship with global climate politics as part of a two-level game.

Another mechanism for international influence is the prevalence of *institutional diffusion* or *institutional transplant.* In pursuing domestic institution building, the starting point is frequently models from conceptually-adjacent countries. For example, the spread of environmental ministries itself is likely a diffusion process (Aklin and Urpelainen 2014), as is the rise of independent regulatory agencies (Levi-Faur 2005; Dubash and Morgan 2013). The UK Climate Change Committee for example, was an early example of an institutional innovation that has aroused discussion in other countries (Fankhauser, Averchenkova, and Finnegan 2018, 24). And India's National Action Plan process bears more than a family resemblance to the Chinese sector-by-sector approach.

Finally, international legal processes, such as the Paris Agreement, place *concrete obligations* on countries, such as formulation of NDCs, their updating and reporting requirements. At minimum, these requirements place demands on national institutional design. But more interestingly, they can also provide *hooks and openings for domestic political actors* who are 'beneficiaries of compliance' such as renewable energy companies and 'victims of non-compliance' such as vulnerable communities (Dai 2010). It is worth exploring both the mechanical and the political space aspects of formal international processes on domestic climate institutions.

Nature of the State

States do not embark on climate governance with a blank slate. Rather, forms of climate governance are likely to be strongly shaped by existing structures and practices. Unpacking these influences puts

this project into conversation with a wide range of intellectual traditions seeking to unpack the nature of the state.

Understanding different *bureaucratic traditions, politics and capacities* is one possible starting point. How do different bureaucracies manage to structure and shape outcomes, using what tools, and with what effects? In China, often considered a strong state, Kostka (2016) shows how the use of strong incentive structures can, in fact, distort outcomes by side-lining non-primary targets, lead to faking of data, and riding rough-shod over local context. How do bureaucracies deal with the challenge of bureaucratic integration versus fragmentation, a key issue for a problem as large in scope as climate change (Jordan and Lenschow 2010)? What sorts of strategic coordination bodies are put in place? What cognitive frameworks are deployed and how widely are they shared? Jordan and Lenschow (2010), for example, discuss the implications of consensual (Scandinavian countries) versus legal (Germany and US) approaches and their implication for coordination. The other side of the coin to coordination is also important: does climate change provide a useful weapon in what is often a tussle for relative position across bureaucracies? How can climate change be deployed to disrupt established bureaucratic orders? A conceptually thin but practically important aspect of understanding bureaucracies, particularly in the developing world, is the question of their capacities to engage the complexities of climate governance. The literature suggests this is a constraint even in large emerging economies such as China (Richerzhagen and Scholz 2008) and India (Dubash and Joseph 2016).

A conceptually larger literature explores the larger question of how different states are likely to approach the climate change challenge on a crude spectrum from deploying the market with suitable adjustment of price signals to more deliberate strategies of industrial transformation (MacNeil 2014). The latter notion, which holds open the possibility of marrying climate transformation objectives to an earlier *developmental state* literature, particularly opens a rich vein of inquiry. Recent inquiries have explored developmentalism tied to Green Growth in South Korea (Kim 2016), a re-reading of the American experience with innovation that privileges the state's leadership (MacNeil 2014; MacNeil and Paterson 2012), China's state-led renewable energy push (Chen and Lees 2016), and the interaction between developmental states and the space for global environmental regulation (Meckling 2018).

An important determinant of a successful developmental state is its ability to simultaneously understand and therefore steer the private sector, even while it retains control over its agenda – the 'embedded autonomy' of Evans (1995), or in its more encompassing framing, 'state-society synergy' (Evans 1997). Meckling and Nahm (2018), for example, explore the implications for autonomy in decision making of different forms of decision making in California and Germany for renewable energy policy formulation. In India, a weak state relied on creative coalitions around energy efficiency to meet its targets (Harrison and Kostka 2014) and even created new opportunity structures by building missions around renewable energy (Dubash 2011). An important aspect of state-led green transformation is the extent to which it explicitly addresses broader politics, such as the links between green industrial policy and job creation – Lockwood (2015) argues that this link was explicitly addressed in Germany but relatively ignored in the UK. A related literature that starts with understanding forms of social organisation aimed at shaping and influencing the state is also highly relevant. This includes, for example, the literature on climate governance entrepreneurship (Boasson and Huitema 2017) and on advocacy coalitions (Aamodt and Stensdal 2017).

Toward Mapping Varieties of Climate Governance

In keeping with the historical institutionalist approach of this project, much of the exposition in country cases will necessarily focus on the influences over time that operate on shaping specific forms of climate governance with references to the factors discussed above. In addition, it would be useful to reflect on how thinly or thickly institutionalised climate decision-making has become relative to decision making in other sectors, as well as whether there are key moments or turning points in the historical trajectory.

Moreover, to enable a synthetic discussion toward mapping the varieties of climate governance, it would be helpful for each country case paper to also include an analytical description of climate governance that follows a consistent template. This will include:

- Organisational structure for climate governance, in order to understand formal relations of decision-making hierarchy, information flows, and scope for external consultation;
- A discussion of roles along functional lines, including vertical coordination, horizontal coordination, policy formulation and implementation, knowledge creation and accountability mechanisms.
- A discussion of horizontal distribution of powers at the federal level, distribution of powers with sub-national levels, and structures for interaction with non-state actors.

A key objective for the July workshop will be to agree on forms of parallel construction of country cases that enable a future synthetic treatment.

Question 2: How do Climate Institutions Shape Decision Making in Practice

The first part of each case study will examine how patterns of climate governance have crystallized, to different extents and in different ways, into formal institutional structures. This second part seeks to understand the effect, in practice, of emergent structures of climate governance. While the first part seeks to capture the sweep of institutionalisation across a range of decision-making areas, part two will explore a sub-set of this terrain in order to understand how decision-making is shaped by emergent institutional filters.

The approach here will rely on picking a small set, likely two, decision-making processes for deeper examination using a process tracing approach. The choice of which process to study will likely be shaped by prior information that suggests scope for interesting insight. The intention here is not to be representative, but illustrative of how institutions can shape decision-making and policy practice.

The existing literature illustrates the insights a careful process tracing can yield. Laird and Stefes (2009) highlight both historical conjunctures such as the Chernobyl disaster but also the progressive institutionalisation of support for renewable energy to explain its more rapid advance in Germany compared to the US. Meckling (2015) examines how firm preferences are translated into strategies in the presence of institutional environments, in this case, in the context of the EU ETS. He explores how the distributive implications and perceived regulatory pressure from institutional forms can shape firm strategies such as opposing, supporting and hedging. Jakob et al. (forthcoming) in examining the climate policy process in three developing countries – South Africa, Indonesia and Vietnam -- find that the interests and relative influence of actors are set in an economic, institutional discursive and environmental context that orchestrates political interactions and the ultimate shape of policy. Shen and Xie (2018) argue that high level signalling in favour of renewable energy promotion through apex government bodies that determine climate policy are likely to run into constraints without the construction of a supporting ideological coalition around clean energy. Dubash (2011) shows how the construction of new climate-oriented institutions – national 'missions' for solar energy and energy efficiency – created new political spaces for bureaucratic and other

actors to engage. Lockwood (2013) looks specifically at the impact of the UK Climate Change Act on shaping incentives – here the creation of carbon budgets—but also whether and how it served to alter group identities.

This literature, however, does not set out to explicitly examine the impact of institutional form on policy and decisions, but rather comments obliquely on institutions in the course of unpacking policy process. The purpose of this project will be to deliberately pick those processes that intersect directly with emergent climate institutions -- such as when they are delegated explicitly to those institutions, or where climate institutions define the process through which decisions are made – in order to understand the effects of a climate institutions filter. The examples above suggest that it is highly unlikely climate institutions will subsume, whole cloth, decision-making related to climate change. Instead, it is more likely that new institutional forms will operate in more subtle ways, such as by creating new political spaces, empowering previously marginalised constituencies, shifting incentives to which firms and other bureaucracies react, and shifting the conditions for normative and ideological understanding around alternative policy choices. In addition to playing a partial role, climate institutions may structure and shape choices only at selected points in the policy process.

For the purpose of this project, it would be useful to have an elastic framework drawing across disciplinary boundaries that captures the range of ways in which and moments in time that climate institutions structure and shape decisions. As a starting point, it may be useful to consider three pathways for exploring how institutions may play a role.

First, using a rational actor construct, institutions may operate through a logic of consequentialism, by shaping and structuring incentives, for example. Indeed, arguably this view best captures the way in which institutions are assumed to work in policy circles.

Second, drawing on a more political institutionalism, climate institutions may not be neutral with respect to interests, but may, deliberately or accidentally, affect the landscape on which competing interests operate. Ultimately, this may result in a change in incentives – a logic of consequentialism – but the focus here is on the political pathway.

Third, a sociological and organisational theory view of institutions provides a rich set of insights on how they matter. They may have effects on normative understandings through a "logic of appropriateness" March and Olsen (1996). Drawing on organizational theory, they could be part of a larger search for legitimacy as climate change takes on global currency (DiMaggio and Powell 1983), leading to the creation of rationalised myths that induce ceremonial action to signal compliance (Meyer and Rowan 1977). It is also worth exploring whether formal institutions have an effect, over time, of shifting broader public narratives around climate change and therefore political willingness for action.

This section of each case study paper should be written to draw out the insights from the two examples chosen on the impacts of emergent climate institutions on decision-making process. The idea is less to generalise and more to tell a well-documented causal story on the ways in which climate institutions can shape and constrain outcomes, drawing on a diverse set of disciplinary ideas.

Normative Dimensions of Climate Governance

This project is designed to understand climate governance in its empirical complexity, and to outline a framework through which to communicate that understanding in comparative context. Having done so, a supplementary part of the project could, subject to the interest of participants, proactive seek to engage governments, academics and civil society in a conversation around desirable

directions for the construction of climate institutions in specific contexts. Rather than being prescriptive, the intention will be to stimulate a series of historically and contextually rooted conversations within countries, drawing on comparative experience. Participants may choose to return to a discussion of whether and how to engage in this process once the research work is closer to conclusion.

References

Aamodt, Solveig, and Iselin Stensdal. 2017. "Seizing Policy Windows: Policy Influence of Climate Advocacy Coalitions in Brazil, China, and India, 2000–2015." *Global Environmental Change* 46 (September): 114–25. https://doi.org/10.1016/j.gloenvcha.2017.08.006.

Aklin, Michaël, and Johannes Urpelainen. 2014. "The Global Spread of Environmental Ministries: Domestic–International Interactions." *International Studies Quarterly* 58 (4): 764–80. https://doi.org/10.1111/isqu.12119.

Bättig, Michèle B., and Thomas Bernauer. 2009. "National Institutions and Global Public Goods: Are Democracies More Cooperative in Climate Change Policy?" *International Organization* 63 (02): 281. https://doi.org/10.1017/S0020818309090092.

Bernauer, Thomas, and Vally Koubi. 2009. "Effects of Political Institutions on Air Quality." *Ecological Economics* 68 (5): 1355–65. https://doi.org/10.1016/j.ecolecon.2008.09.003.

Boasson, Elin Lerum, and Dave Huitema. 2017. "Climate Governance Entrepreneurship: Emerging Findings and a New Research Agenda." *Environment and Planning C: Politics and Space* 35 (8): 1343–61. https://doi.org/10.1177/2399654417730713.

Bueno de Mesquita, Bruce, Alastair Smith, Randolph M. Siverson, and James D. Morrow. 2003. *The Logic of Political Survival*. Cambridge, Mass: MIT Press.

Chan, Sander, Harro van Asselt, Thomas Hale, Kenneth W. Abbott, Marianne Beisheim, Matthew Hoffmann, Brendan Guy, et al. 2015. "Reinvigorating International Climate Policy: A Comprehensive Framework for Effective Nonstate Action." *Global Policy* 6 (4): 466–73. https://doi.org/10.1111/1758-5899.12294.

Chen, Geoffrey C., and Charles Lees. 2016. "Growing China's Renewables Sector: A Developmental State Approach." *New Political Economy* 21 (6): 574–86. https://doi.org/10.1080/13563467.2016.1183113.

Costa, Oriol. 2008. "Is Climate Change Changing the EU? The Second Image Reversed in Climate Politics." *Cambridge Review of International Affairs* 21 (4): 527–44. https://doi.org/10.1080/09557570802452854.

Dai, Xinyuan. 2010. "Global Regime and National Change." *Climate Policy* 10 (6): 622–37. https://doi.org/10.3763/cpol.2010.0146.

DiMaggio, Paul J., and Walter W. Powell. 1983. "The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields." *American Sociological Review* 48 (2): 147. https://doi.org/10.2307/2095101.

Dubash, Navroz K. 2011. "From Norm Taker to Norm Maker? Indian Energy Governance in Global Context: Indian Energy Governance in Global Context." *Global Policy* 2 (September): 66–79. https://doi.org/10.1111/j.1758-5899.2011.00123.x.

Dubash, Navroz K., Markus Hagemann, Niklas Höhne, and Prabhat Upadhyaya. 2013. "Developments in National Climate Change Mitigation Legislation and Strategy." *Climate Policy* 13 (6): 649–64. https://doi.org/10.1080/14693062.2013.845409.

Dubash, Navroz K., and Anu Jogesh. 2014. "From Margins to Mainstream?: State Climate Planning in India as a 'Door Opener' to a Sustainable Future." Centre for Policy Research, Climate Initiative. http://www.cprindia.org/research/reports/margins-mainstream-state-climate-change-planning-india-door-opener-sustainable.

Dubash, Navroz K., and Neha B. Joseph. 2016. "Evolution of Institutions for Climate Policy in India." *Economic and Political Weekly* LI (3): 44–54.

Dubash, Navroz K., and Bronwen Morgan, eds. 2013. *The Rise of the Regulatory State of the South: Infrastructure and Development in Emerging Economies*. Law and Global Governance. Oxford, New York: Oxford University Press.

Evans, Peter. 1997. "State-Society Synergy: Government and Social Capital in Development" uciaspubs/research/94. https://escholarship.org/uc/item/8mp05335.

Evans, Peter B. 1995. *Embedded Autonomy: States and Industrial Transformation*. Princeton Paperbacks. Princeton, N.J: Princeton University Press.

Fankhauser, Sam, Alina Averchenkova, and Jared Finnegan. 2018. "10 Years of the UK Climate Change Act." Policy Paper. London School of Economics and Political Science, Grantham Research Institute on Climate Change and the Environment, Centre for Climate Change Economics and Policy. http://www.lse.ac.uk/GranthamInstitute/publication/10-years-climate-change-act/.

Ghosh, Shibani. 2019. *Indian Environmental Law: Key Concepts and Principles*.

Gourevitch, Peter. 1978. "The Second Image Reversed: The International Sources of Domestic Politics." *International Organization* 32 (04): 881. https://doi.org/10.1017/S002081830003201X.

Harrison, Kathryn. 2010. "The United States as Outlier: Economic and Institutional Challenges to US Climate Policy." In *Global Commons, Domestic Decisions: The Comparative Politics of Climate Change*, edited by Kathryn Harrison and Lisa McIntosh Sundstrom. American and Comparative Environmental Policy. Cambridge, Mass: MIT Press.

Harrison, Kathryn, and Lisa McIntosh Sundstrom. 2010. *Global Commons, Domestic Decisions: The Comparative Politics of Climate Change (American and Comparative Environmental Policy)*. MIT Press.

Harrison, Tom, and Genia Kostka. 2014. "Balancing Priorities, Aligning Interests: Developing Mitigation Capacity in China and India." *Comparative Political Studies* 47 (3): 450–80. https://doi.org/10.1177/0010414013509577.

Heggelund, Gørild, Steinar Andresen, and Inga Fritzen Buan. 2010. "Chinese Climate Policy: Domestic Priorities, Foreign Policy, and Emerging Implementation." In *Global Commons, Domestic Decisions*, edited by Kathryn Harrison and Lisa McIntosh Sundstrom, 229–60. The MIT Press. https://doi.org/10.7551/mitpress/9780262014267.003.0008.

Held, David, Charles Roger, and Eva-Maria Nag, eds. 2013. *Climate Governance in the Developing World*. Cambridge: Polity.

Henry, Laura A., and Lisa McIntosh Sundstrom. 2012. "Russia's Climate Policy: International Bargaining and Domestic Modernisation." *Europe-Asia Studies* 64 (7): 1297–1322. https://doi.org/10.1080/09668136.2012.701388.

Hochstetler, Kathryn, and Genia Kostka. 2015. "Wind and Solar Power in Brazil and China: Interests, State–Business Relations, and Policy Outcomes." *Global Environmental Politics* 15 (3): 74–94. https://doi.org/10.1162/GLEP_a_00312.

Hsu, Angel, Amy J. Weinfurter, and Kaiyang Xu. 2017. "Aligning Subnational Climate Actions for the New Post-Paris Climate Regime." *Climatic Change* 142 (3–4): 419–32. https://doi.org/10.1007/s10584-017-1957-5.

Iacobuta, Gabriela, Navroz K. Dubash, Prabhat Upadhyaya, Mekdelawit Deribe, and Niklas Höhne. 2018. "National Climate Change Mitigation Legislation, Strategy and Targets: A Global Update." *Climate Policy* 18 (9): 1114–32. https://doi.org/10.1080/14693062.2018.1489772.

Jakob, Michael, Christian Flachsland, Jan Christoph Steckel, and Johannes Urpelainen. forthcoming. "The Political Economy of Climate and Energy Policy: A Theoretical Framework."

Jogesh, Anu, and Navroz K. Dubash. 2015. "State-Led Experimentation or Centrally-Motivated Replication? A Study of State Action Plans on Climate Change in India." *Journal of Integrative Environmental Sciences* 12 (4): 247–66. https://doi.org/10.1080/1943815X.2015.1077869.

Jordan, Andrew, Dave Huitema, and Johanna Forster, eds. 2018. *Governing Climate Change: Polycentricity in Action?* Cambridge, United Kingdom ; New York, NY: Cambridge University Press.

Jordan, Andrew, and Andrea Lenschow. 2010. "Environmental Policy Integration: A State of the Art Review." *Environmental Policy and Governance* 20 (3): 147–58. https://doi.org/10.1002/eet.539.

Kim, Eun-sung. 2016. "The Politics of Climate Change Policy Design in Korea." *Environmental Politics* 25 (3): 454–74. https://doi.org/10.1080/09644016.2015.1104804.

Kostka, Genia. 2016. "Command without Control: The Case of China's Environmental Target System." *Regulation & Governance* 10 (1): 58–74. https://doi.org/10.1111/rego.12082.

Lachapelle, Erick, and Matthew Paterson. 2013. "Drivers of National Climate Policy." *Climate Policy; London* 13 (5): 547–71.

Laird, Frank N., and Christoph Stefes. 2009. "The Diverging Paths of German and United States Policies for Renewable Energy: Sources of Difference." *Energy Policy* 37 (7): 2619–29. https://doi.org/10.1016/j.enpol.2009.02.027.

Levi-Faur, David. 2005. "The Global Diffusion of Regulatory Capitalism." *The ANNALS of the American Academy of Political and Social Science* 598 (1): 12–32. https://doi.org/10.1177/0002716204272371.

Li, Quan, and Rafael Reuveny. 2006. "Democracy and Environmental Degradation." *International Studies Quarterly* 50 (4): 935–56. https://doi.org/10.1111/j.1468-2478.2006.00432.x.

Lijphart, Arend. 2012. *Patterns of Democracy: Government Forms and Performance in Thirty-Six Countries*. 2nd ed. New Haven: Yale University Press.

Lockwood, Matthew. 2013. "The Political Sustainability of Climate Policy: The Case of the UK Climate Change Act." *Global Environmental Change* 23 (5): 1339–48. https://doi.org/10.1016/j.gloenvcha.2013.07.001.

———. 2015. "The Political Dynamics of Green Transformations: Feedback Effects and Institutional Context." In *The Politics of Green Transformations*, edited by Ian Scoones, Melissa Leach, and Peter Newell, 86–101. Earthscan.

Lockwood, Matthew, Caroline Kuzemko, Catherine Mitchell, and Richard Hoggett. 2017. "Historical Institutionalism and the Politics of Sustainable Energy Transitions: A Research Agenda." *Environment and Planning C: Politics and Space* 35 (2): 312–33. https://doi.org/10.1177/0263774X16660561.

MacNeil, Robert. 2014. "Climate Policy, Energy Technologies, and the American Developmental State." In *Climate Innovation: Liberal Capitalism and Climate Change*, edited by Neil E. Harrison and John Mikler, 45–71. Energy, Climate and the Environment Series. London: Palgrave Macmillan UK. https://doi.org/10.1057/9781137319890_3.

MacNeil, Robert, and Matthew Paterson. 2012. "Neoliberal Climate Policy: From Market Fetishism to the Developmental State." *Environmental Politics* 21 (2): 230–47. https://doi.org/10.1080/09644016.2012.651900.

Madden, Nathan J. 2014. "Green Means Stop: Veto Players and Their Impact on Climate-Change Policy Outputs." *Environmental Politics* 23 (4): 570–89. https://doi.org/10.1080/09644016.2014.884301.

March, James G., and Johan P. Olsen. 1996. "Institutional Perspectives on Political Institutions." *Governance* 9 (3): 247–64. https://doi.org/10.1111/j.1468-0491.1996.tb00242.x.

Mazzucato, Mariana, and Gregor Semieniuk. 2018. "Bridging the Gap: The Role of Innovation Policy and Market Creation." In *The Emissions Gap Report 2018*. Nairobi: United Nations Environment Programme.

McCollum, David L, Luis Gomez Echeverri, Sebastian Busch, Shonali Pachauri, Simon Parkinson, Joeri Rogelj, Volker Krey, et al. 2018. "Connecting the Sustainable Development Goals by Their Energy Inter-Linkages." *Environmental Research Letters* 13 (3): 033006. https://doi.org/10.1088/1748-9326/aaafe3.

Meckling, Jonas. 2015. "Oppose, Support, or Hedge? Distributional Effects, Regulatory Pressure, and Business Strategy in Environmental Politics." *Global Environmental Politics* 15 (2): 19–37. https://doi.org/10.1162/GLEP_a_00296.

———. 2018. "The Developmental State in Global Regulation: Economic Change and Climate Policy." *European Journal of International Relations* 24 (1): 58–81. https://doi.org/10.1177/1354066117700966.

Meckling, Jonas, and Jonas Nahm. 2018. "The Power of Process: State Capacity and Climate Policy." *Governance* 31 (4): 741–57. https://doi.org/10.1111/gove.12338.

Meyer, John W., and Brian Rowan. 1977. "Institutionalized Organizations: Formal Structure as Myth and Ceremony." *American Journal of Sociology* 83 (2): 340–63. https://doi.org/10.1086/226550.

Mildenberger, Matto. forthcoming. "The Logic of Double Representation in Climate Politics." Draft version. Santa Barbara.

Nachmany, Michal, Samuel Fankhauser, Terry Townshend, Murray Collins, Tucker Landesman, Adam Matthews, Carolina Pavese, Katharina Rietig, Philip Schleifer, and Joana Setzer. 2014. "The GLOBE Climate Legislation Study: A Review of Climate Change Legislation in 66 Countries: Fourth Edition." London: GLOBE International and Grantham Research Institute. http://eprints.lse.ac.uk/63656/1/__lse.ac.uk_storage_LIBRARY_Secondary_libfile_shared_re pository_Content_Grantham_Globe%20climate%204ed_Globe%20climate%20legislation%2 04ed._2015.pdf.

Pahle, Michael, Dallas Burtraw, Christian Flachsland, Nina Kelsey, Eric Biber, Jonas Meckling, Ottmar Edenhofer, and John Zysman. 2018. "Sequencing to Ratchet up Climate Policy Stringency." *Nature Climate Change* 8 (10): 861–67. https://doi.org/10.1038/s41558-018-0287-6.

Paris Agreement to the United Nations Framework Convention on Climate Change. 2015. Vol. No. 16-1104. https://treaties.un.org/Pages/showDetails.aspx?objid=0800000280458f37&clang=_en.

Patt, Anthony. 2017. "Beyond the Tragedy of the Commons: Reframing Effective Climate Change Governance." *Energy Research & Social Science* 34 (December): 1–3. https://doi.org/10.1016/j.erss.2017.05.023.

Povitkina, Marina. 2018. "The Limits of Democracy in Tackling Climate Change." *Environmental Politics* 27 (3): 411–32. https://doi.org/10.1080/09644016.2018.1444723.

Putnam, Robert D. 1988. "Diplomacy and Domestic Politics: The Logic of Two-Level Games." *International Organization* 42 (03): 427. https://doi.org/10.1017/S0020818300027697.

Qi, Ye, and Tong Wu. 2013. "The Politics of Climate Change in China." *Wiley Interdisciplinary Reviews: Climate Change* 4 (4): 301–13. https://doi.org/10.1002/wcc.221.

Rabe, B. G. 2011. "Contested Federalism and American Climate Policy." *Publius: The Journal of Federalism* 41 (3): 494–521. https://doi.org/10.1093/publius/pjr017.

Rabe, Barry. 2007. "Beyond Kyoto: Climate Change Policy in Multilevel Governance Systems." *Governance* 20 (3): 423–44. https://doi.org/10.1111/j.1468-0491.2007.00365.x.

Rabe, Barry, Mikel Roman, and Arthur Dobelis. 2006. "State Competition as a Source Driving Climate Mitigation." *N.Y.U Environmental Law Journal* 2005–2006. https://heinonline.org/HOL/LandingPage?handle=hein.journals/nyuev14&div=7&id=&page= &t=1559227017.

Richerzhagen, Carmen, and Imme Scholz. 2008. "China's Capacities for Mitigating Climate Change." *World Development* 36 (2): 308–24. https://doi.org/10.1016/j.worlddev.2007.06.010.

Schreurs, Miranda A., and Yves Tiberghien. 2007. "Multi-Level Reinforcement: Explaining European Union Leadership in Climate Change Mitigation." *Global Environmental Politics* 7 (4): 19–46. https://doi.org/10.1162/glep.2007.7.4.19.

Shen, Wei, and Lei Xie. 2018. "The Political Economy for Low-Carbon Energy Transition in China: Towards a New Policy Paradigm?" *New Political Economy* 23 (4): 407–21. https://doi.org/10.1080/13563467.2017.1371122.

Stechow, Christoph von, David McCollum, Keywan Riahi, Jan C. Minx, Elmar Kriegler, Detlef P. van Vuuren, Jessica Jewell, et al. 2015. "Integrating Global Climate Change Mitigation Goals with Other Sustainability Objectives: A Synthesis." *Annual Review of Environment and Resources* 40 (1): 363–94. https://doi.org/10.1146/annurev-environ-021113-095626.

Ürge-Vorsatz, Diana, Sergio Tirado Herrero, Navroz K. Dubash, and Franck Lecocq. 2014. "Measuring the Co-Benefits of Climate Change Mitigation." *Annual Review of Environment and Resources* 39 (1): 549–82. https://doi.org/10.1146/annurev-environ-031312-125456.

Ward, Hugh. 2008. "Liberal Democracy and Sustainability." *Environmental Politics* 17 (3): 386–409. https://doi.org/10.1080/09644010802055626.

Weidner, Helmut, and Lutz Mez. 2008. "German Climate Change Policy: A Success Story With Some Flaws." *The Journal of Environment & Development* 17 (4): 356–78. https://doi.org/10.1177/1070496508325910.