

**FROM DEMAND TO POLICIES AND OUTCOMES: A
RESEARCH AGENDA FOR SCHOLARS OF
CLIMATE POLICY**

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Climate change is a global problem, but policies to reduce greenhouse gas emissions are formulated by national and, in some cases, subnational governments. Progress in international negotiations on climate change depends on domestic political support for cooperation, but so far the world's major emitters have made little progress toward mitigating climate change. Although global warming is now widely recognized as a policy challenge among experts, ambitious measures to reduce greenhouse gas emissions are generally not a top priority for governments in domestic politics.

We believe that social scientists can play a role in changing this sorry state of affairs. Our goal in this report is to propose a research agenda for the social sciences on how citizen demand for climate change policy is mobilized in a way that begins to change the incentive structures of political leaders. We begin with a literature review on the state of the art

on popular demand for climate policy, mobilization for change, and the role of political institutions in determining whether popular demand and mobilization effect policy change.

For the research agenda, we propose a focus on an integrated approach to these stages of policy change.

Social scientists have created a large and useful body of literature on the different aspects of the problem—demand for climate policy, mobilization for action, and the incentives of political leadership to act—but these streams of research do not engage each other as much as they should. We begin by raising the questions of why relatively widespread concern about climate change has not prompted more ambitious policies and why social movements have enjoyed only limited success in forcing governments to act. Identifying barriers to mobilization, in turn, should lead researchers to examine the conditions under which political elites are responsive to bottom-up demands for change. Even high levels of mobilization are, after all, irrelevant to climate change unless they result in more ambitious policy.

To illustrate all three issues, we pay special attention to the case of the United States. The world's second-largest emitter of carbon dioxide after China, the United States still lacks comprehensive federal policy on climate change. While President Obama has used executive action as part of a piecemeal strategy to control greenhouse gas emissions, deeper emissions reductions will require legislative action in the Congress. At the same time, many US states have enacted and implemented ambitious policies on renewable energy and energy efficiency. Because of the sharp partisan polarization on climate change in American politics, the lack of federal legislation in the United States presents a central barrier to progress toward global climate change mitigation. Although addressing climate change is a problem for all countries—democracies and nondemocracies alike—overcoming the political and policy challenges in

the United States is especially important. In addition, much of the existing social research has considered the US case extensively, allowing us to propose an agenda that builds on current knowledge.

A REVIEW OF THE LITERATURE

To motivate our proposal for a research agenda, we first offer a concise summary of what we consider the most important advances and contributions in the study of the politics of climate change.

POPULAR DEMAND FOR CLIMATE POLICY

A broad social science literature investigates individual-level beliefs, attitudes, and policy preferences toward climate change. This literature includes surveys of both US and cross-national samples (recent reviews: Marquart-Pyatt et al. 2011; Weber 2010; Weber and Stern 2011) and collectively aims to understand the sources of opinion formation.

The most well-developed body of research studies the individual-level characteristics of climate change beliefs and attitudes. Studies consider demographic and political characteristics (Hamilton 2011; Krosnick et al. 2006; McCright and Dunlap 2011; O'Connor et al. 2002; Borick and Rabe 2010; Wood and Vedlitz 2007); risk perceptions (Leiserowitz 2005, 2006; O'Connor et al. 1999); cultural identities, values, and worldviews (Bord et al. 1998; Kahan et al. 2012); and knowledge (Brechin 2003; Kellstedt 2008; Malka et al. 2009). An important finding to highlight in this research is that there is increasing partisan polarization in attitudes about climate change in the United States (McCright and Dunlap 2011), as well as other democracies such as Australia (Tranter 2011), Canada (Lachapelle et al. 2012), and Great Britain (Poortinga et al. 2011; Whitmarsh 2011). A parallel literature examines similar factors at the aggregate level and finds that mass public attitudes on climate change are influenced by elite-

level cues, as well as economic conditions (Brulle et al. 2012; Kahn and Kotchen 2011; Scruggs and Benegal 2012).

Another more recent line of scholarship focuses on the effects of personal experience on climate change opinion, and particularly the relationship between short-run and long-run exposure (real or perceived) to temperature anomalies and extreme weather events such as flooding, droughts, and hurricanes (Akerlof et al. 2013; Capstick and Pidgeon 2014; Egan and Mullin 2012; Hamilton and Keim 2009; Lang 2014; Rudman et al. 2013). This is an important direction of research given the scientific consensus about the intensifying weather-related effects of climate change. Evidence is mixed, but generally finds that personal experiences have, if anything, a short-term effect on climate concern.

Largely driven by concerns about the lack of deep public engagement with climate change, there is an emergent, but still empirically immature, literature that considers whether and how issue framing affects climate change attitudes. This is a critically important direction of research for scholars to pursue, given that many of the common frames employed by the media in its coverage of climate change reinforce the public's "perceptual divide" on the issue (Nisbet 2009). Studies of issue framing range from investigations of the problem's label itself—global warming versus climate change (Schuldt et al. 2011; Whitmarsh 2008; Villar and Krosnick 2010)—to studies of specific frames such as public health (Maibach et al. 2010; Myers et al. 2012), national security (Myers et al. 2012), and morality and ethics (Feinberg and Willer 2013; Markowitz and Shariff 2012).

This work is closely related to a growing body of work that focuses on potentially effective communication strategies (Lupia 2013; Moser 2010; Nisbet 2009), including how to potentially reach audiences with diverse perceptions about the issue (Myers et al. 2012).

A final area in the literature that deserves note relates to preferences for policy alternatives. Researchers increasingly have turned to understanding not just what people believe and think about climate change, but also what policies they will support to address the problem. Although some policies garner more support than others, survey respondents in the United States (Leiserowitz 2006; Ansolabehere and Konisky 2014; Shwom, Bidwell, and Dietz 2010; Smith and Leiserowitz 2014) and many other nations (Lachapelle et al. 2012; Bostrom et al. 2012; Leiserowitz 2007; Pietsch and McAllister 2010) tend to broadly express support for government policies to mitigate climate change (there has been little attention to adaptation or geoengineering policies). It is important to note that, despite evidence that the public supports various types of policy interventions, the public also tends to prioritize other issues (including other environmental issues) and to express a low willingness to pay to address the problem (Ansolabehere and Konisky 2014), which suggests a shallowness to these policy demands.

Among the important conclusions we take away from this extensive scholarship is that, to date, the bulk of scholarly attention has been on pinpointing the determinants of climate change beliefs, attitudes, and policy preferences. Less attention has been given to identifying the factors and mechanisms that will generate broader and deeper public engagement with the issue. Consequently, we do not sufficiently understand how to build more concern for and increase salience about climate change (e.g., through more education, building scientific literacy, alternative issue framing, or better alignment of message and messenger), and, perhaps more importantly, how this might translate into changes in individual-level behaviors (i.e., less carbon-intensive activities, higher willingness to pay for more carbon-intensive activities) and policy demands (i.e., voting, activism, and other types of political activity). (Notable exceptions are Lubell et al. 2007 and Roser-Renouf et al. 2014.)

We believe that broadening and deepening public engagement is critical for putting more pressure on governments to act on climate change, and that there is a critical role for social science research in paving the path forward.

MOBILIZING FOR CHANGE

While our review of the literature in the previous section makes it clear that there is considerable variation in individual-level beliefs, attitudes, and policy preferences when it comes to climate change, it should be clear that there is general awareness of the issue and broad aggregate support for government efforts to mitigate the problem. And yet, as we noted at the close of our survey, relative to public awareness and support for government action, the lack of sustained popular mobilization around the broad issue of climate change is striking. In making this claim, however, we need to differentiate between top-down formal organizational attention to the issue and sustained grassroots activity. There is actually a substantial amount of the former, but seemingly very little of the latter. In deploying this distinction, we focus exclusively on the United States. While it is clear that climate change has emerged as a major political issue throughout the world (Caniglia 2010; Dietz and Garrelts 2014), it is beyond the scope of this brief review to try to survey work on both forms of mobilization around the globe. What might be thought of as the “institutionalized” US climate change movement has developed over the past three decades from a marginal concern among the country’s environmental groups to a substantial national movement with components that focus at all levels of government (Caniglia, Brulle, and Szasz 2015).

The movement took shape and grew significantly in the wake of Dr. James Hansen’s dramatic testimony before Congress in the summer of 1988. Another significant spur to movement growth has been the myriad meetings and activities associated with the various stages of the United

Nations Framework Convention on Climate Change (UNFCCC), from the Rio Earth Summit in 1992 to Kyoto in 1997 and finally Copenhagen in 2010.

By 2010, Brulle (2014) identified 467 unique organizations as comprising the national climate change movement. In striking contrast to this fairly substantial top-down institutional structure, however, is the seeming paucity of sustained grassroots mobilization in the United States around the issue of climate change.

We emphasize the term “seeming” in the previous sentence to make a point. In point of fact, there has been very little research on grassroots mobilization on the issue. We assume this hole in the literature owes primarily to a lack of bottom-up mobilization on the issue, but we need more research to know for sure. One especially promising area of research, in this regard, would seem to be studies of collective community action in response to extreme weather events. As evidence continues to accumulate linking such events to global warming/climate change, we might expect to see increasing community mobilization in the wake of extreme climatic events.

To date, however, we are only aware of two studies that bear on this general topic. Zahran et al. (2008) show that localities that are more vulnerable to climate change impacts and more advantaged economically were more likely to voluntarily commit to a climate change mitigation campaign. While the study yielded important “information at the broad statistical level,” the researchers’ focus on every US county leaves the crucial community-level mechanisms shaping mobilization unexamined. One study that does explore the community context was conducted in Norway by Norgaard (2011). The author documents a striking disconnect between the experience of abnormal weather—in the form of a very warm winter in a small Norwegian town—and the community’s response, or lack thereof, to the events in question. Although residents viewed the lack of snowfall as part of a long-term trend, and despite the fact that the

absence of snow had serious economic impacts on the community's ski resorts, it was only casually associated with climate change and not in such a way as to trigger action. The prevailing view was that little could be done to mitigate climate change. The findings from the latter study are entirely consistent with those from a comparative study of community response to the proposed siting of environmentally risky energy projects in 20 US communities in the early 2000s (McAdam and Boudet 2012). In stark contrast to the consistent emphasis on reactive mobilization in the specialized literatures on NIMBY protests (Driscoll 2013; Rabe 1994; Inhaber 1997; Takahshi 1998) and "suddenly imposed grievances" (Walsh and Warland 1983; Walsh 1981, 1988), McAdam and Boudet document minimal collective action in response to the siting of the proposed projects. Of the 20 cases examined, only one produced significant opposition. How are we to understand this puzzling lack of mobilization in response to seemingly clear and destructive environmental threats? This is exactly what makes comparative studies of community response to extreme weather events such a compelling and potentially important research agenda in our view. Understanding the extent to which communities impacted by such events do and do not mobilize is critical if we are to understand the current barriers to collective action and the prospects for overcoming them.

One possible contributor to the inaction involves yet another form of mobilization, or rather counter mobilization, that also deserves more research attention. We refer to the activities and impacts of what has been termed the climate change denial countermovement (Dunlap and McKnight 2015). While there is an emergent literature on the topic (Dunlap and Jacques 2013; Elsasser and Dunlap 2013; Antonio and Brulle 2011; Oreskes and Conway 2010), most of the work to date is more speculative than systematic.

Encouraging more systematic work on the topic, including the impact that the denial countermovement's framing of the issue has had on popular

perceptions of it, is among the lines of research we hope to encourage through this review.

ROLE OF POLITICAL INSTITUTIONS: A COMPARATIVE PERSPECTIVE

When citizens, social movements, and organized interest groups demand climate policy, the effect of these demands on outcomes depends on the configuration of political institutions. Climate policies typically carry costs, as their implementation requires deviating from business as usual. Political scientists have shown that the willingness of governments to act on a problem depends on how institutions aggregate the interests of expected winners and losers from policy (Truman 1951; Wittman 1995; Golden and Min 2013). Both in democratic and autocratic systems, different societal interests pursue their goals through political channels (Olson 1993; Bueno de Mesquita et al. 2003).

These observations underpin much of contemporary analysis of climate politics. Because climate policies require reductions of greenhouse gas emissions, the opposition to climate policy often comes from societal interests that benefit significantly from the use of carbon-intensive energy (Cheon and Urpelainen 2013. Heavy industries depend on inexpensive electricity for their profits; coal mining companies face reduced demand for their product in the face of ambitious climate policy).

Political institutions shape the ability of both the advocates of climate policy and their opposition to pursue their goals. Scholars of comparative politics have found that democratic governments are generally more inclined toward environmental policies because political competition makes politicians prioritize the interests of the general public instead of the particular interests of the fossil fuel industry and the heavy industry (Payne 1995; Ward 2008; Bättig and Bernauer 2009). However, there is considerable variation within each regime type. In the case of democratic systems, political systems often exhibit “malapportionment”; that is, the

over-allocation of legislative seats to rural areas. Broz and Maliniak (2011) show that such malapportionment is associated with low energy taxes because people living in rural areas consume large amounts of energy and would oppose policies that raise energy prices. This same malapportionment of Senate seats also ensures that US states with small populations are well represented, ensuring that their fossil fuel industries have their advocates on Capitol Hill.

Conversely, the ability of advocates to shape policy also depends on political institutions. To illustrate this notion, consider how green parties tend to do poorly in majoritarian systems, where the candidate with the most votes in a district captures the seat, compared to proportional systems (Müller-Rommel 1998). Because green parties are often the most committed advocates of climate policy and potential coalition partners for larger parties, proportional electoral systems appear to give environmental interests greater access. When green parties succeed in passing climate policy, they in turn create clean technology industries that support further policy, resulting in a cycle of positive reinforcement (Aklin and Urpelainen 2013).

For us, the most important conclusion from this budding literature is the contingent effect of citizen demand for climate policy on outcomes. The same level of demand may result in very different policies depending on malapportionment, electoral rules, and, more generally, the allocation of access across interest groups.

FUTURE DIRECTIONS: FROM DEMAND TO POLICY AND OUTCOMES

In our review of the literature in the previous section, we separately surveyed work on:

- public opinion on, or popular demand for, policy attention to the issue of climate change;
- actual grassroots mobilization in response to the issue (or related environmental threats); and, finally,
- comparative work on how formal political institutions mediate between citizen inputs and policy outcomes.

There are many questions still to be explored in these individual literatures, and we certainly encourage scholars to pursue them. But we also believe that the best opportunity for social scientists to enhance democracies' efforts to address climate change lies in studying the dynamic links between these three phenomena. More specifically, we lay out a provisional research agenda that will take as its focus and aim a far better empirical understanding of (a) the factors and dynamic processes that either facilitate or impede the translation of popular demands for policy attention on climate change into grassroots mobilization around the issue, and (b) the ways in which these latter efforts may or may not compel institutionalized political actors to modify their policy preferences on the matter. We take up each of these research agendas in turn.

THE RELATIONSHIP BETWEEN POPULAR DEMAND FOR REMEDIAL ACTION AND MASS MOBILIZATION

In our brief surveys of these two literatures in the previous section, we took pains to underscore the stark contrast between the substantial popular support that exists for official remedial action on climate change and the almost total absence of sustained grassroots mobilization (as opposed to top-down advocacy) around the issue. More than anything else, it is the puzzle posed by this disconnect that motivates this first dimension of the proposed research agenda. That is, we mean to encourage research that would either help us understand the barriers to mobilization in the face of strong attitudinal support for policy change or the dynamic processes that allow groups to overcome these barriers.

Before we turn to the actual lines of research we hope to encourage, we first offer some speculative comments on the stark disconnect between popular attitudes and behavior in regard to climate change. In point of fact, there is probably always a substantial gap between awareness and action, regardless of the issue at stake, but there is reason to believe that this gap is substantially greater in the case of global warming than with other issues. We can think of at least five reasons why this might be the case.

The first is simply the daunting challenge to mobilization posed by the ubiquitous free-rider problem (Olson 1965). The seriousness of the free-rider problem would seem to be that much greater as the number of potential beneficiaries of the public good that is at stake increases. Given that the benefits of remedial action on global warming would apply to literally everyone on the planet, you simply cannot get a larger beneficiary population than that, which presumably would make the free-rider problem that much more difficult to overcome.

Second, it is reasonable to assume that translating awareness into action is easier when the nature of the injustice or threat at issue is transparent. So, for example, highly publicized videos of police violence against African Americans make the issue of police practices that much more salient and visible, helping, in turn, to catalyze protests on the matter. By contrast, the effects of climate change tend to be gradual and therefore less readily apparent. (The exception here may be extreme weather events, which we will have more to say about below.)

Third, the more complex an issue is, the harder it is to mobilize collective action in response to it. Some issues are transparent on their face—the death of a pedestrian struck by a drunken motorist, the gang rape of a woman on a public bus, etc.—making mobilization much more likely. It would be hard to imagine a more complex issue than climate change, making the work of grassroots organizers that much harder.

Fourth, mobilization depends as much on a shared sense of collective efficacy as it does on outrage or fear at some perceived injustice or threat. But the long-term consequences of climate change are potentially so far-reaching and frightening as to encourage a sense of futility and powerlessness in those who are aware of them.

Finally, most public issues do not spawn well-funded, highly motivated countermovements devoted to sowing confusion on the issue. Climate change is a notable exception to this rule. That is, the presence and apparent effectiveness of the climate change denier countermovement may also pose a distinct challenge to grassroots mobilization on the matter.

Given this unique combination of challenges confronting those who would mobilize around the issue, it becomes all the more important to encourage research to better understand the barriers to action and the contextual factors and dynamic processes that might allow organizers to overcome these barriers. With that in mind, we highlight a number of distinct areas of research that we see as especially promising in this regard.

Depth interviews with proponents of action. Survey data consistently show that a majority of Americans support remedial action on climate change. And yet precious little grassroots action on the issue has emerged. The question is why. Moving beyond the limits of survey research, depth interviews with a large number of randomly chosen proponents of remedial action might help us to better understand what forms of action they have in mind as well as identify other cognitive or psychological barriers that may be presently impeding popular mobilization in regard to the issue.

Impact of denier countermovement. To this point, the impact of the denier countermovement has been far more assumed than demonstrated. We can imagine various methodological approaches to assessing impact and would want to encourage any work in this area that seemed viable. In our view, however, one especially promising avenue for research would be small group experiments. One can easily imagine surveying experimental subjects beforehand regarding their views on climate change and then, through various experimental conditions, seeking to assess diminished confidence in their views as well as likelihood for participating in individual or collective action when exposed to denier countermovement arguments and information. Well-crafted survey experiments of larger populations in the United States and elsewhere are another promising way to understand the effects of the denier countermovement.

Comparative case analysis. We argued above that, for the most part, the effects of climate change are so gradual as to forestall awareness and action. We did, however, note that extreme weather events represent a potential exception to this rule. Accordingly, we encourage comparative research on communities that have experienced extreme weather events linked to global warming/climate change. How do these communities make sense of the events in their wake? Do they come to attribute the events to global warming? Does such a consensus then lead to forms of popular mobilization around the issue? Does this mobilization generate pressure on government officials to adopt mitigation and/or adaptation measures? And do the answers to these questions vary by type of event (e.g., tornado, hurricane, flood, etc.) or various characteristics of the effected communities (e.g., strength of prior environmental consciousness, dominant political orientation, SES, civic capacity, etc.)? Among the many virtues of this kind of research would be that we would likely learn as much from the negative as the positive cases. That is, while most social movement research tends to “select on the dependent variable” and study only cases of successful mobilization, here we would be as interested in understanding why some communities did not mobilize, as why some did.

Pilot projects on framing and mobilization among specific groups. Some years back the Centers for Disease Control and Prevention (CDC) undertook a series of pilot projects designed to see if they could successfully mobilize grassroots action in response to the obesity “epidemic.” Having spent many millions of dollars over a ten-year period, carefully studying the epidemiology of the epidemic and then mounting a nationwide public health education campaign based on the epidemiological results, they were puzzled as to why greater awareness had not yet translated into popular mobilization around the issue. Sound familiar? As an issue, obesity is similar to global warming in a number of respects. Its effects are gradual and therefore not all that visible. Its most frightening impacts are long term and therefore not all that salient in the here and now. And, unlike issues that impact very clear segments of the population—gays and lesbians, women, African Americans, etc.—neither obesity nor global warming are “owned” by specific groups in society. To counter this, CDC organized a series of projects designed to see if they could frame obesity in ways that would increase the awareness and salience of the issue within specific groups, spurring them in turn to undertake collective action on the matter. Among the specific groups targeted in this effort were faith-based communities, parents groups, employees, and social justice organizations. With sufficient funding support, something similar could be imagined in regard to the issue of climate change.

Climate framing and individual behavior. As noted in our literature review, scholars have begun to investigate how alternative frames (e.g., public health, national security, economic development, morality) around climate change can intensify concern and salience among the public. More research of this type is necessary, but we think it is critical that this line of inquiry also evaluates how frames can help translate concern about climate change into changes in political behavior. We believe this research can pay large dividends toward understanding the disconnect between

concern and policy action, and for creating conditions whereby elected officials are more likely to act.

For example, does a moral framing induce more political participation (e.g., voting, making political donations, joining political groups) on the issue? How does this compare to alternative framings of the issue? Similarly, how do frames change the amount that citizens are willing to pay to address the problem, for example through higher fuel prices or their willingness to reduce their own carbon footprint? And, in both cases, does the messenger of the frame matter, and for which segments of society? We can imagine multiple research designs to get at these types of questions, including laboratory experiments, survey experiments, focus groups and deliberative polling, and perhaps even longitudinal surveys designed to capture changes from exposure to information campaigns, and media coverage of events.

Interest group advocacy. Organized public interest groups have been advocating for policy action on climate change for decades. These interest groups have historically succeeded in mobilizing public support for their causes, but have not been as successful in creating a groundswell of support for action on climate change. What accounts for this lack of success in general, and for variation in achievements cross-nationally, and within nations across subnational governments? Studies that investigate interest group strategies, with respect to both tactics and communication strategies can reveal what is and what is not effective.

Alternative pathways to policy action. The lion's share of focus in the climate mitigation literature has been on policies designed to explicitly reduce greenhouse gases, such as regulatory caps on emissions, cap and trade programs, and carbon taxes. Because these policies are specifically discussed in the context of climate change, they tend to evoke strong reactions from a public that in many democracies is polarized on this issue. Less understood is whether there are alternative policies that

achieve similar goals that do not evoke the same reaction, and if widespread collective action around these policies is more likely. An example is policies to move national and subnational governments toward cleaner energy economies through positive incentives for renewable technologies, rather than negative incentives for using fossil fuels. The end point is the same (lower greenhouse gas emissions), but the political, economic, and social forces to get there may differ substantially. Studies of these types of alternative pathways can leverage comparative experiences across nations, as well as within nations at regional or local governance scales (either through quantitative or qualitative analysis).

*HOW FORMAL POLITICAL INSTITUTIONS MEDIATE BETWEEN CITIZEN
INPUTS AND POLICY OUTCOMES*

The above research agenda on the relationship between popular demand for action and mass mobilization is an important element of social change for climate mitigation. However, neither the public nor social movements are directly responsible for the enactment and implementation of policies that would reduce greenhouse gas emissions. Large reductions in greenhouse gas emissions require ambitious policies that make emitting costly to the emitters, but even if societal demand for climate mitigation increases, change in policy is not obvious. Therefore, another component of our proposed research agenda focuses on the ability of citizens' inputs to induce policy change under various formal political institutions. At this time, the relationship between societal demand for change and policy outputs under various political institutions remains poorly understood largely because of the lack of empirical material. As we have noted above, citizen concern about climate change has not prompted large-scale mobilization in major emitter countries. Thus, a research agenda on the mediating role of political institutions must be based on a careful review of instances of social mobilization for climate change. Variation in the policy effects of such instances can be used to develop a theory of how

formal political institutions affect policy in times of social mobilization for climate change policy.

To address this challenge, we propose the following concrete ideas for research:

Identifying obstacles to change. One line of inquiry that could rapidly produce relevant hypotheses on the role of political institutions would be a series of extended, structured interviews with policymakers operating under different political institutions. Such interviews could present the interviewees with various scenarios of social mobilization and collect information about their likely responses.

Structured, focused case studies of climate mitigation efforts. By now, many national and subnational jurisdictions, such as California, Copenhagen, Germany, and Japan have put a lot of effort into climate change mitigation. Detailed case studies focusing on capturing changes over extended periods of time could be used to both develop and test hypotheses about why politicians in different jurisdictions sometimes respond to social mobilization and sometimes do not. Generic studies of these cases are readily available, but, with few exceptions such as Rabe (2004), we are not familiar with detailed political analyses that specifically focus on mapping the strategies of policymakers under various institutional constellations and societal cross-pressures. The success stories could then be contrasted with a “control group” of similar jurisdictions that faced societal mobilization but did not act.

Pilot projects on policy effects of mobilization. Above, we proposed pilot projects on framing and mobilization. Such projects should have an evaluation component that focuses on pathways to policy change. For example, if a pilot project mobilizes citizens in municipalities to demand policies and public investments into renewable energy, the effects of such mobilization on the views and behavior of elected officials and

administrators can be mapped. In the United States, one could imagine studies that compare the effects of social mobilization on processes and outcomes in state regulatory commissions for electricity generation, municipal councils, and even state environmental and energy agencies. A careful mapping of the institutional design of such agencies would shed light on the role of political institutions in mediating citizen demands for change. Analogous studies at the cross-national level might focus on electoral rules, malapportionment, interest group access, and other political institutions to evaluate how they enable or stunt grassroots mobilization efforts.

The politics of paradigm shifts. Responding to climate change in the comprehensive manner that science tells us is necessary requires displacing incumbent industries and practices in multiple sectors of national economies (electricity, transportation, agriculture, etc.). And it is necessary that this displacement occur at a pace that exceeds that which might happen with normal market-driven technological innovation. These conditions create difficult politics as established constituencies, backed by strong political support in legislatures and administrative agencies, aim to protect the status quo. Comparative case studies of past disruptions of a similar scale (a relevant example may be tobacco) can provide insights into the challenges created by addressing climate change.

CONCLUSION

Climate change is a political problem that cannot be solved unless citizens and interest groups mobilize to demand effective climate policies from their political leaders. Beginning with this simple observation, this report has proposed new directions for research on climate policy. Taken together, these directions constitute a research agenda on mobilizing demand for climate policy in ways that push governments to act. Effective mitigation of climate change requires the kind of widespread, sustained social mobilization that makes mitigation policies a necessity if politicians

are to survive in office. A successful research program on the politics of climate change mitigation should produce knowledge that enables societies to address the problem of global warming more effectively. We have used the case of the United States to illustrate the need for forward-looking research on using social mobilization to shape climate policy in the states and at the federal level. Because the United States plays a pivotal role in international climate negotiations and has yet to formulate a comprehensive federal climate policy, research on the American politics of climate change is particularly important for progress toward solving the problem.

At the same time, there is a need for similar research regarding other major emitting countries of the world. China is the world's largest emitter and a manufacturing powerhouse, while India's huge population and growing consumption of coal ensure that its prominence in climate politics will increase over time. For this reason, we have also pointed to the clear need for comparative political analysis in this proposed research agenda.

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