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Examining Climate Change Mitigation and Adaptation Behaviors among State and Local Public Sector Organizations in the United States

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Examining Climate Change Mitigation and Adaptation Behaviors among Public Sector Organizations in the United States

Abstract
Climate change has become a more salient issue on the United States (US) policy agenda at all levels of government. Increasing empirical evidence and identification of its potential risks to human populations have increased media, public, and policy maker interest. There is a gap, however, in our knowledge of sub-national decision making which suggests several questions: Are community leaders deciding to take action in response to climate change action, and, if so, what is the solution focus—mitigation or adaptation? Our study addresses this gap in the literature by reporting the results of a national survey of local, regional, and state decision makers whose organizations will be addressing community responses to the threat of climate change. We find that, in general, these agencies are not engaged in climate change policy, nor is the issue on their agendas. Among organizations considering policy responses, there is variation between types of agency and type of solution, mitigation versus adaptation.

Key words: Climate change, organizational decision making, public policy

Introduction
The problem of climate change has become a more salient issue on the U.S. policy agenda. Increasing empirical evidence of global warming and more precise identification of its potential risks to human populations have increased media, public, and policy maker interest in this topic (Krosnick, Holbrook, and Visser 2000; Krosnick et al. 2006; Kellstedt, Zahran, and Veldtiz 2008; Liu, Veldtiz, and Alston 2008). A first-ever US federal climate change mitigation policy is now being considered as President Obama works with other leaders on a viable international policy (Eilperin and Faiola 2009; Revkin and Broder 2009; Tankersley 2009). While climate change actions are being discussed at all levels of government, little is known about the process through which local and regional communities and their organizational leaders approach the problems generated by climate change and possible solutions to them. This gap in our knowledge of sub-national decision making suggests several significant questions: Are community leaders deciding to take action in response to climate change? If so, what is the solution focus of that action—mitigation or adaptation? What policy choices reach the agenda and how are alternatives evaluated and framed?

A number of public perception studies on climate change as a national concern in the U.S. have been conducted in the past, but research is lacking on the degree to which local decision-making organizations are engaging in mitigation or adaptation strategies needed to address the potential growing problem of climate change for their communities. Our study addresses this conspicuous gap in the literature by reporting the results of a national survey of local, regional, and state decision makers whose organizations will be addressing community responses to the threat of climate change for their constituencies. Specifically, we examine the degree to which decision makers in local, state, and regional public sector agencies, departments, and other organizations are incorporating climate change mitigation and adaptation into their planning, budgeting, and policy making activities. We examine which state and community organizational leaders are more concerned about climate change stressors and what is the focus of that concern—mitigation or adaptation or both. Findings provide insights on which local and state agencies in the US are most involved in climate change mitigation and adaptation. Further, they can serve as an initial point of discussion for why (or why not) these organizations are engaged in climate change problem solving and what the future holds.
How Organizations Address the Climate Change Problem

Addressing climate change decisions at any level of government is extremely complex since potential climate change impacts will affect so many aspects of society, from food and energy to health and economic development. The typical decision maker is faced with a daunting number of scenarios in trying to frame the growing threat of climate change in the context of the mission of the local and state public sector organization within which he or she resides. As scientific understanding of climate change impacts is increasing, the public sector is now increasingly focused on how to respond. Potential alternative solutions to these impacts are generally divided into two major approaches for taking policy action: mitigation and adaptation.

Mitigation activities seek to reduce the sources or enhance the sinks of greenhouse gases, most notably carbon dioxide (CO₂) (Intergovernmental Panel on Climate Change [IPCC], 2001). Decision makers have two avenues to influence the amount of greenhouse gases emitted into the atmosphere or stored in various sinks. The first is to regulate large source polluters usually associated with energy and manufacturing industries. Adoption of cleaner technologies and alternative manufacturing processes can significantly reduce the overall stress the US exerts on the climate change problem. The second avenue is aimed at the residential sector and individual behavior patterns. For example, local-level organizations can implement planning policies to reduce vehicle miles traveled (VMT) through increased development densities (Ewing et al. 2008), to encourage or mandate green building practices (Brown and Southworth 2008), or establish transit oriented developments, and other sprawl reduction strategies (Brody et al. 2006). The goal of these policies is to reduce the amount of greenhouse gases emitted through vehicular uses. Smart growth-related development patterns can also reduce greenhouse gas emissions resulting from residential energy use, which accounts for more than one-fifth of the total energy use in the US (Edwing 1997; Ewing and Rong 2008). Specifically, building housing types that require less energy (e.g. detached versus multi-family structures) as well as incorporation of energy efficient appliances and HVAC systems are well-known strategies for mitigating climate change within the residential sector (Randolph 2008).

Adaptation, the second major approach for decision makers to address the growing threats from climate change and global warming, is to adjust human systems in response to “actual or expected climatic stimuli or their effects” (IPCC 2001, p. 750). While there has been movement in adopting and implementing adaptation practices, the pace is still very slow (IPCC 2007). Adaptation is closely related to such concepts as vulnerability (or the risk of a system to change) and resilience (or the adaptive capacity to cope to change) (see, for example Adger et al. 2007). Many of the practices associated with adaptation to climate change impacts are focused at the local level (Moser 2009). Communities at risk from the adverse impacts of climate, such as sea level rise are generally more likely to engage in adaptive behavior (Brody et al. 2008a). These policy responses fall squarely into the domain of local and regional planning organizations (Gore and Robinson 2009), which have the ability to adopt policies that manage and direct land use, protect naturally occurring wetlands, accommodate growing floodplains, and structurally mitigate against the possibility of sea level rise through public works projects (Pizarro et al. 2006).

Mitigation activities typically require working at regional or super-regional scales where a multitude of greenhouse-gas emitters must be affected to make a significant impact in alleviating the problem. Adaptation, on the other hand, tends to involve more localized activities, such as coastal zoning regulations implemented by planning organizations (Smit et al. 2000, Adger 2001). The differences between mitigation of, and adaptation to, climate change are also illustrated by the actors involved (Füssel and Klein 2006). The types of actors involved in mitigation are relatively limited to the energy and transportation sectors. These organizations are usually well-organized, linked closely to national policy-making, and have prior experience in undertaking medium to long term planning decisions.
In contrast, adaptation decisions may require a more diverse set of actors, including environment, natural resources management, tourism, agriculture, developers, water supply, and coastal managers (Smit and Pilifosova 2003). These stakeholders usually have limited resources and tend to be more focused on localized jurisdictions and short-term issues. In measuring policy impacts, emissions reductions through mitigation activities can be easily expressed in CO2-equivalent units and used for cost-benefit analyses if the cost of mitigation activity is known (Fankhauser et al. 1999, Fankhauser and Tol 2005). However, for adaptation activities there is no single easily-measurable unit. Furthermore, these units will vary across activities and must be valued in the context of the local socio-economic and political conditions or affected sector. These issues make cost-benefit analysis of adaptation activities difficult to conduct and often incomparable from one situation to the next.

Finally, the amount of time it takes to accrue benefits derived from mitigation and adaptation behaviors differs (Peltonen et al. 2005). Mitigation activities typically take several decades to show evidences of impact; whereas the benefits of adaptation would be evident in a few years.

While most of the focus on climate change solutions to date has focused on mitigation activities, adaptation solutions are rapidly gaining support. There is now a growing belief that public policies aimed at reducing the adverse impacts of climate change need to have a diverse portfolio of both mitigation and adaptation actions (Ausubel 1993; Smit et al. 2000; Horstmann 2008; Giddens 2009). Although mitigation and adaptation activities are fundamentally different approaches to addressing the problem of climate change, they can be viewed as complementary sets of organizational behaviors (Smit et al. 2000; McEvoy et al. 2006). For example, by reducing the impacts of climate change, mitigation measures diminish (or theoretically eliminate) the need for adaptation activities. However, scholars have also cautioned that mitigation and adaptation practices can be in potential conflict with each other (Hamin and Gurran 2009). Protecting open space as an adaptive response to accommodate expanding floodplains also reduces the amount of land available for new low-energy developments. Also, it is suggested that as more attention is focused on adaptation solutions, the perceived need for mitigation (personal and societal) responses will be reduced, possibly resulting in an increase in negative behaviors. For example, Giddens (2009, p. 162), states that until recently “discussing adaptation was taboo among environmentalists, on the grounds that it would adversely affect efforts directed at combating climate change itself.”

This summary suggests that the potential list of policy responses is extensive, and that actions to address mitigation and adaptation goals will no doubt require multiple government activities to achieve desired results. The question is, under what circumstances do local and state decision makers commit to these policy actions and concomitant resource allocations.

Theoretical Approach

The basic question under examination, then, is whether or not climate change as an issue has been identified by local and state decision makers as a relevant problem and placed on the agenda of appropriate rule-making bodies for policy making solutions. The organizing approach for this research comes from the agenda setting literature. Guided by the core agenda setting works of Kingdon (1995), Baumgartner and Jones (1993), and more recent scholars (see, for example, Wood and Vedlitz, 2007) which focus on the pre-decision stage of policy making we will direct our attention to: 1) whether local, regional, and state policy makers, and their respective organizations, view climate change as a problem requiring attention and a policy solution; and 2) whether the focus of that attention is on mitigation or adaptation (or both).

In addition to the general contribution we hope to make in the climate change and policy making literature, this study will contribute to and expand the agenda setting literature, in particular as it is applied at local levels of decision making. Kingdon’s original framework has rarely been applied at the local or
sub-national government level (for exceptions, see Lieberman 2001; and Liu et al. in 2010) and this example will illustrate its utility at this scale.

We pay particular attention to the role of the decision maker’s organization or agency type in framing the problem and potential solutions. There is not a great body of literature that examines how members of distinct government agencies or organizations might differentially view the same problem. For example, it is possible that members of state health organizations might view climate change issues, problems, and alternative solutions quite differently from those in state agriculture agencies. While this has not been directly tested, there are some suggestions in the existing literature that indicates this might be the case. West (1988) finds that different types of professional specialists within agencies differ in how they approach problems and solutions. Fleischmann, Green and Kwong (1992) argue that, in local economic development activities, the organization leading the effort will make a difference in the approach taken relative to other organizations. Bingham et al. (1995), for example, suggest that different government agencies disagreed about the types of ecosystem information needed to frame issues and address problems.

From a broader policy domain perspective Zahariadis and Allen (1995) find that some ideas get embedded in certain policy domains or networks, and that these ideas will direct those actors to accept or reject some ideas over others. From a spatial perspective, Lewis (2001) suggests that development decisions vary from central city, suburb, and rural communities, which may have implications for responses to climate change problems. Where the organization is physically located and what its jurisdiction is (narrow or broad, local, regional, or state) may influence its choice of climate change solution. In general, then, some solutions to a common problem will be acceptable to some actors or organizations but not to others. The acceptability of an alternative, of course, was a significant component of Kingdon’s (1995) framework in that a decision maker would be less inclined to support a policy solution that could not be expected to receive adequate support for its sustainability and implementation. In his discussion on the survival of alternative solutions he states that multiple criteria will support survival, including technical feasibility, goodness of fit with the organization itself (or, community, as he calls it), public and political acceptance, and the availability of funding in the future (1995, p. 200). It is obvious that these criteria will vary across organizational types and will influence the acceptance of either mitigation or adaptation as a viable solution. This is an important consideration as we focus our attention on what policy alternatives are being considered for the problem of climate change. These studies are suggestive that agency type may be a strong factor in assessing problems and potential solutions across issue areas. Explaining this differential response to an acceptance of mitigation or adaptation across domains will be an important contribution of this analysis.

Research Sampling Methods

A detailed survey focusing on climate change issues and orientations was administered to a national sample of local, regional, and state agency decision makers from March to October in 2006. An original starting sample point of 1,528 agency personnel from key state, regional, and local agencies and interest groups (and the Coast Guard) that might be affected by climate change were identified. Local and regional agencies included public health, municipal planning organizations, chambers of commerce, and county planning organizations (which also address transportation and energy sector issues). State level agencies included public health, economic development, agriculture, environment, and emergency management along with similar interest group organizations. At local levels, where the total number of such agencies is large, random samples were selected and target sample sizes generally ranged from 80 – 100 for each unit types. For state agencies, all 50, and where possible the District of Columbia, were included. When states had more than one agency dealing with environmental matters, all were included. For interest groups, again where large numbers existed, random samples ranging from 60 – 80 units
were selected for each type (environmental, emergency, agriculture). Nine regional Coast Guard officials were identified.

Leaders or directors in each sampled unit were sent letters requesting their participation in the national study. They were given the option of taking the survey on the web or by phone. An overwhelming majority of respondents chose to take the survey on the web. A total of 579 surveys were completed. Following standard AAPOR response formulas, we had a response rate of 39%, and a completion rate of 80%. For purposes of this analysis, where our focus is on public agency response and action, we excluded interest group and Coast Guard respondents from our analytic sample resulting in a total of 415 agency officials included in the present study.

Data Analysis

Our goal, then, is to see to what extent these agency decision makers are focused on climate change and take it into consideration in their policy planning activities. We focus on attention to both mitigation and adaptation concerns. We used two questions from the survey to measure the degree to which leaders in organizations consider climate change mitigation and adaptation in their decision making; these are:

1. If mitigation is defined as human intervention to reduce the sources of greenhouse gases, is mitigation something your organization considers in its decision making?
2. If adaptation is defined as adjustments in natural or human systems in response to climate change conditions or effects, is adaptation something your organization considers in its decision making?

Both questions asked respondents to place their answers on a scale ranging from 0 (never considers) to 10 (frequently considers).

In Figure 1 we present a graph of the overall responses to the two questions.

**Figure 1. Consideration of mitigation and adaptation measures, entire sample**

Consideration of mitigation and adaptation measures on a scale of 0-10, where 0 means the organization “Never considers” and 10 means the organization “Frequently considers” mitigation or adaptation.
It is clear that, among the full sample of state and local decision makers, neither climate change mitigation nor adaptation actions are of significant concern. Overwhelmingly, the modal category for consideration by respondent’s agency of mitigation and adaptation actions is zero—no consideration of these issues at all. And virtually all of the lower consideration categories are selected more frequently than subsequent higher consideration ones. This is discouraging for those expecting to see higher levels of concern from local and state decision makers on this issue.

In spite of this limited attention to the issue, overall, the data may reveal that specific state and local agencies are paying more attention to one or both, of the climate change action responses. Perhaps, for these agencies and their leaders, climate change and solutions to it have been identified as a problem worthy of being placed on the public decision agenda. This possibility is tested in Tables 1 and 2, where we array mean consideration scores for mitigation and adaptation action responses across our six categories of the local and state decision organizations we sampled: planning, public health, economic development, agriculture, environmental, and emergency management.

The greatest level of support for both responses comes, as might be expected, from environmental agencies. But even they don’t reach the midpoint of concern/consideration. There does seem to be modest support from most other agencies, except for public health. But again, overall levels seem, except for environmental agencies, relatively small. It is interesting that, relatively speaking, agricultural agencies do seem concerned about the potential impact to their sector of climate stresses.

Table 1. Mitigation considerations by organization type, ranked by mean value

<table>
<thead>
<tr>
<th>Type of Organization</th>
<th>Mean</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental</td>
<td>4.58</td>
<td>64</td>
</tr>
<tr>
<td>Planning</td>
<td>3.71</td>
<td>155</td>
</tr>
<tr>
<td>Agriculture</td>
<td>3.61</td>
<td>23</td>
</tr>
<tr>
<td>Emergency Management</td>
<td>3.60</td>
<td>30</td>
</tr>
<tr>
<td>Economic</td>
<td>3.24</td>
<td>51</td>
</tr>
<tr>
<td>Public Health</td>
<td>2.47</td>
<td>86</td>
</tr>
<tr>
<td>Total</td>
<td>3.51</td>
<td>409</td>
</tr>
</tbody>
</table>

Consideration of mitigation measures on a scale of 0-10, where 0 means the organization “Never considers” and 10 means the organization “Frequently considers” mitigation.
Table 2. Adaptation considerations by organization type, ranked by mean value

<table>
<thead>
<tr>
<th>Type of Organization</th>
<th>Mean</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental</td>
<td>4.41</td>
<td>64</td>
</tr>
<tr>
<td>Emergency Management</td>
<td>3.47</td>
<td>30</td>
</tr>
<tr>
<td>Agriculture</td>
<td>3.26</td>
<td>23</td>
</tr>
<tr>
<td>Economic</td>
<td>3.20</td>
<td>51</td>
</tr>
<tr>
<td>Planning</td>
<td>3.01</td>
<td>154</td>
</tr>
<tr>
<td>Public Health</td>
<td>2.94</td>
<td>85</td>
</tr>
<tr>
<td>Total</td>
<td>3.29</td>
<td>407</td>
</tr>
</tbody>
</table>

Consideration of adaptation measures on a scale of 0-10, where 0 means the organization “Never considers” and 10 means the organization “Frequently considers” adaptation.

To probe these organization-based responses a little deeper, we present, in Figures 2 and 3, a more detailed breakdown of specific consideration responses for each group. To simplify the view slightly, we grouped the original 0 – 10 scale into five options—0, 1-3, 4-6, 7-9, and 10.

We are able to learn a little more from this array. For both mitigation and adaptation, environmental and agricultural organizations are the lowest on the 0 option, while emergency management ones are the highest on the 0 option. Not surprising, environmental organizations are one of the highest scoring on the 10 option. But what is surprising is that emergency management scored highest on the 10 option. From this finding it would appear that there is significant disagreement among the emergency management profession about how important climate change mitigation and adaptation may be to their decision and policy making. As Brody et al. (2008b) found, through measuring and mapping indicators of risk to climate change, adaptation behaviors among counties are mostly situated along the coast; we tested to see if coastal proximity might be driving this difference.
Figure 2. Detailed mitigation consideration by organizational type

Consideration of mitigation measures on a scale of 0-10, where 0 means the organization “Never considers” and 10 means the organization “Frequently considers” mitigation.

Figure 3. Detailed adaptation consideration by organizational type

Consideration of adaptation measures on a scale of 0-10, where 0 means the organization “Never considers” and 10 means the organization “Frequently considers” adaptation.
We present the breakdown of agency mitigation and adaptation concerns by coastal and non coastal states in Table 3.

Table 3. The impact of coastal location on mitigation and adaptation concerns

<table>
<thead>
<tr>
<th></th>
<th>Non-Coastal</th>
<th>Coastal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning</td>
<td>Mean 3.54</td>
<td>Mean 4.26</td>
</tr>
<tr>
<td></td>
<td>Frequency 112</td>
<td>Frequency 39</td>
</tr>
<tr>
<td>Public Health</td>
<td>Mean 2.66</td>
<td>Mean 2.08</td>
</tr>
<tr>
<td></td>
<td>Frequency 61</td>
<td>Frequency 24</td>
</tr>
<tr>
<td>Economic</td>
<td>Mean 2.93</td>
<td>Mean 3.64</td>
</tr>
<tr>
<td></td>
<td>Frequency 29</td>
<td>Frequency 22</td>
</tr>
<tr>
<td>Agriculture</td>
<td>Mean 3.50</td>
<td>Mean 4.00</td>
</tr>
<tr>
<td></td>
<td>Frequency 16</td>
<td>Frequency 6</td>
</tr>
<tr>
<td>Environmental</td>
<td>Mean 4.09</td>
<td>Mean 5.57</td>
</tr>
<tr>
<td></td>
<td>Frequency 43</td>
<td>Frequency 21</td>
</tr>
<tr>
<td>Emergency</td>
<td>Mean 2.56</td>
<td>Mean 5.40</td>
</tr>
<tr>
<td>Management</td>
<td>Frequency 18</td>
<td>Frequency 10</td>
</tr>
</tbody>
</table>

Adaptation

<table>
<thead>
<tr>
<th></th>
<th>Non-Coastal</th>
<th>Coastal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning</td>
<td>Mean 2.88</td>
<td>Mean 3.41</td>
</tr>
<tr>
<td></td>
<td>Frequency 111</td>
<td>Frequency 39</td>
</tr>
<tr>
<td>Public Health</td>
<td>Mean 3.27</td>
<td>Mean 2.04</td>
</tr>
<tr>
<td></td>
<td>Frequency 60</td>
<td>Frequency 24</td>
</tr>
<tr>
<td>Economic</td>
<td>Mean 2.66</td>
<td>Mean 3.91</td>
</tr>
<tr>
<td></td>
<td>Frequency 29</td>
<td>Frequency 22</td>
</tr>
<tr>
<td>Agriculture</td>
<td>Mean 3.06</td>
<td>Mean 4.00</td>
</tr>
<tr>
<td></td>
<td>Frequency 16</td>
<td>Frequency 6</td>
</tr>
<tr>
<td>Environmental</td>
<td>Mean 4.56</td>
<td>Mean 4.10</td>
</tr>
<tr>
<td></td>
<td>Frequency 43</td>
<td>Frequency 21</td>
</tr>
<tr>
<td>Emergency</td>
<td>Mean 3.61</td>
<td>Mean 3.80</td>
</tr>
<tr>
<td>Management</td>
<td>Frequency 18</td>
<td>Frequency 10</td>
</tr>
</tbody>
</table>

For mitigation, levels of concern do seem to be tied to coastal location. For all agencies except public health, decision makers in coastal regions seem substantially more concerned about mitigation. The greatest differences occur in state emergency management agencies, but relatively higher levels of concern occur in environmental, planning, agriculture and economic agencies in coastal regions.

Surprisingly, the effect of coastal location does not result in substantially greater concern for adaptation across all agencies. Greater concern for adaptation does appear for coastally located planning, economic and agricultural agencies, but not for the others.

Coastal status clearly plays a role in directing attention and concern toward climate change mitigation and adaptation, but the attention is not equally distributed among agencies. Rather, mitigation concern seems to be much higher in environmental and emergency management agencies in coastal states while greater adaptation concerns lie mainly in these states planning, economic development and agricultural agencies.

Diffusion of the Climate Change Agenda

In the previous discussions we have seen the factors that focus local, regional and state organization attention and concern about the potential impacts of global warming on their communities and the relative emphasis on mitigation or adaptation responses. The next step is to see to what extent these heightened climate change interests may be finding their way into policy and planning processes at the local, regional and state levels. To examine this possibility we must first look to see if respondents in our sample are discussing climate change issues and impacts with others in their organizations or communities who could be affecting planning and policy contexts and directions.
We asked each of the respondents in our organization sample if they had talked to other people about global warming and climate change. Eighty-seven percent of the sample said that they had done so. So climate change is part of the information flow and knowledge exchange for most of our respondents. The key question, then, is to whom they are talking. Are they talking only to friends and family about this potential problem or are they talking to other key organization and community leaders who could be playing leadership roles in future planning and policy debates surrounding climate change impacts?

The answer is both. Ninety percent of our respondents report talking to friends and family about climate change concerns. But even more importantly, almost as many, 87%, report speaking to co-workers about climate change, 42% report speaking with their supervisors about it, 23% have spoken to their organization’s research department and 78% have spoken to others in the professional community about climate change and global warming.

We also approached this communication issue from the other direction. Who was contacting our respondents to ask them about the issue of climate change? Again, large numbers of queries, 83%, are coming from friends and family. But 72% of respondents report that their co-workers have asked them about it as have 28% of their supervisors and 19% of their research departments. Clearly, the foundation is being built within the organizational community for greater discussion about climate change and, ultimately, greater planning and policy reaction to it.

Discussion and Policy Implications

Our study is one of the first to examine the degree to which local and state decision makers and their respective organizations are considering climate change in their policy-making activities. Results of our survey reveal important patterns associated with the degree to which decision makers and their organizations consider climate change mitigation and adaptation in their policy-making activities. First, it is clear that climate change mitigation and adaptation are generally low-priority issues for local and state decision maker organizations in the US when compared to other issues such as jobs or transportation. This lack of attention to the problem may partially stem from its ambiguous and politically polarizing nature and the difficulty of defining (and perceiving) climate change as a “focusing event” (Birkland 1997, 1998). Unlike disasters, such as major hurricanes, earthquakes or floods climate change is a slow-onset, difficult to predict problem with no easy and widely acceptable solutions. Because there is no defining event or clearly identifiable evidence of the problem, opportunities to link and trigger policy change through organizational initiatives are rare. Organizational attention to climate change may also be frustrated by the lack of knowledge and certainty about potential localized impacts. Downscaling from regional climate models has limitations and sea level rise within set time frames is difficult to predict. Nevertheless, even in the face of uncertainty, local jurisdictions (e.g. Charleston, SC, Sarasota, FL, Berkeley, CA) across the US are using best available data to mitigate and adapt to climate change.

This linkage between event and policy change is one of the critical connections in the agenda setting framework, and without it decision makers have little tangible evidence with which to link a solution, and associated resources and organizational initiative. The policy window, according to Kingdon (1995), provides that critical moment where policy change can occur in response to an event. Nothing of this sort of opportunity was raised in the surveys.

Organizations are also inundated with so many complex issues that unless the problem is readily amenable to a solution, it is difficult to act upon in the face of other priorities (Kingdon 1995; Burstein 1991). Organizations may be further discouraged by the fact that there is no federal mandate or standardized resources to implement mitigation or adaptation activities, particularly at the local level. Competition from other issues that are more salient and perhaps more acceptable, lack of a focusing event or window of opportunity, and the general uncertainty surrounding climate change as an issue with the subsequent difficulty of defining the climate change impact problem at the localized level are all
relevant factors from an agenda setting perspective that are in evidence in this data. These factors will, in all likelihood, keep climate change off the agenda for some time.

Examining responses across organizational types reveals that, as expected, decision makers in environmental agencies are most likely to state that they consider climate change mitigation or adaptation in their decision making. In our findings, agricultural groups give an unexpectedly high amount of consideration to climate change mitigation and adaptation policies, compared to most other groups. This finding could reflect the sensitivity of the agriculture sector and agricultural practices to weather and climate changes, in general, and to the potential for a warmer climate and the severe economic ramifications of increased drought from global warming.

Equally unanticipated are the highly split scores for emergency management and the relatively low scores from planning-related and health agencies. As previously discussed, it is anticipated that planning and emergency management agencies will play key roles in adopting and implementing policies to mitigate or adapt to the adverse impacts associated with climate change. Adaptation measures, in particular, fall squarely in the domain of local planners. Our findings, however, suggest that these agencies and actors have yet to strongly embrace this eventuality.

Our study does confirm previous findings that coastal entities most at risk to the adverse impacts of climate change, such as sea level rise, are paying more attention to mitigation and adaptation issues (Brody et al. 2008a). This interest is, however, even for coastal states, not sustained across all agencies but is focused among a few. As a major agenda item for local, regional and state decision makers, in both coastal and non coastal states, it is clear that mitigation and adaptation to climate change stresses still have a long way to go before becoming a major focus of local, regional and state policy making and resource allocation.

The results of our survey indicate emerging opportunities for increased integration of climate change considerations in organizational decisions making. Climate change issues are becoming a common topic of discussion in the professional as well as social information and knowledge sharing networks. As this diffusion of concern on climate change becomes more organized and focused, it will result in creating strong advocates that will help bring this issue to the forefront. No doubt this will take time but does have a strong potential to develop into an agenda based policy network that promotes innovative climate change management policy options by pooling in individual know-how and experiences.

In conclusion, while this study is unable to delve into why these organizations are/are not responding to the threat of climate change impacts, the agenda setting framework does allow us to form a better understanding of the basic context of decision making at the sub-national levels of decision making and it also points to several lines of possible inquiry. Further research needs to be done on the specific reasons these organizations are choosing mitigation or adaptation, what the barriers and constraints are to adopting these alternative solutions, and how this understating can contribute to advancing local and regional responses to climate change. The research presented here, however, does lay the ground work for this important line of questioning.
References


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