ACCO
ASSOCIATION OF CLIMATE CHANGE OFFICERS

Report

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Climate Adaptation:
A Survey of Concerns Facing Organizations

Introduction

As organizations and entities across sectors implement climate adaptation plans and policies, leaders are increasingly in need of high-quality information to make better decisions. To find this information, it is common practice for managers to look to their peers for lessons learned and best practices. This approach works well for seasoned constituencies who share time-tested experiences, which are often standardized and accredited. However, though rapidly rising in popularity, managing the impacts of climate change is still in its infancy. Field tested lessons have yet to crystallize and best practices have a long way to go before they are standardized.

To help resolve this issue, we took a hard look at the process of planning for climate impacts across sectors. We discovered emerging trends in climate adaptation in different sectors as well as obstacles identified by practitioners. These obstacles, which we refer to as "barriers," range from the simple to the complex. For example, some managers lack the time to research the latest climate change science. Some managers reported that, despite being tasked with managing impacts from climate change, they do not have financial support from their respective organizations. In still other cases, decision makers with clear mandates and well developed plans struggle with training their staff and have a difficult time communicating goals with various stakeholders.

The Climate Adaptation Survey was conducted in September of 2011 by the Association of Climate Change Officers (ACCO) Adaptation Working Group. Findings were presented and assessed at the adaptation workshop, *Enhancing Decision Making: A Roundtable Workshop on Improving the Understanding of the Economic, Environmental, and Operational Implications of Climate Change.* This paper examines the key findings from the survey and is intended to inform decision makers at organizations pursuing climate adaptation measures.

Methodology

In September 2011, ACCO sent out a survey on climate adaptation practices to individuals representing a broad range of sectors. The anonymous survey had 18-questions and included opportunities for comments and suggestions. The survey focused on perceived impacts of climate change, the implementation of climate adaptation within an organization, and barriers to incorporating climate adaptation into organizations. We defined adaptation as "the ability to change socio-economic systems

in response to experienced or expected climate change impacts interacting with non-climatic changes".[i] This definition informed the structure and focus areas included in the survey.

We divided barriers into three progressive stages: understanding, planning, and managing. Barriers in the understanding, or early phases, include the inability to detect the problem, difficulty gathering and using relevant information, and clearly defining the problem. Barriers in the planning phase include developing, assessing, and selecting options to address climate change. The last phase is managing, where barriers include implementing selected options, monitoring outcomes, and evaluating effectiveness.

Survey Responses Overview

ACCO sent out the Climate Adaptation Survey in Fall 2011 and received 423 responses. The respondents included a broad representation of organizations and sectors, based both in the United States and abroad. Because not all responses were complete, the percentages in the following figures represent percentages out of complete answers to a given question.

By Sector

In our analysis, we separated survey respondent's organizations into five categories: Private Sector, Government, Non-Governmental Organization (NGO), Academic, or Other. The survey produced a well distributed sample of respondents. Respondents from the private sector were the largest group, representing 29 percent of respondents. Those respondents categorized as "Other" were individuals unaffiliated with any organization, or respondents whose organization could not be identified or classified. Because respondents were often categorized as "Other" if they provided incomplete information, the results for that group were not analyzed in this report.

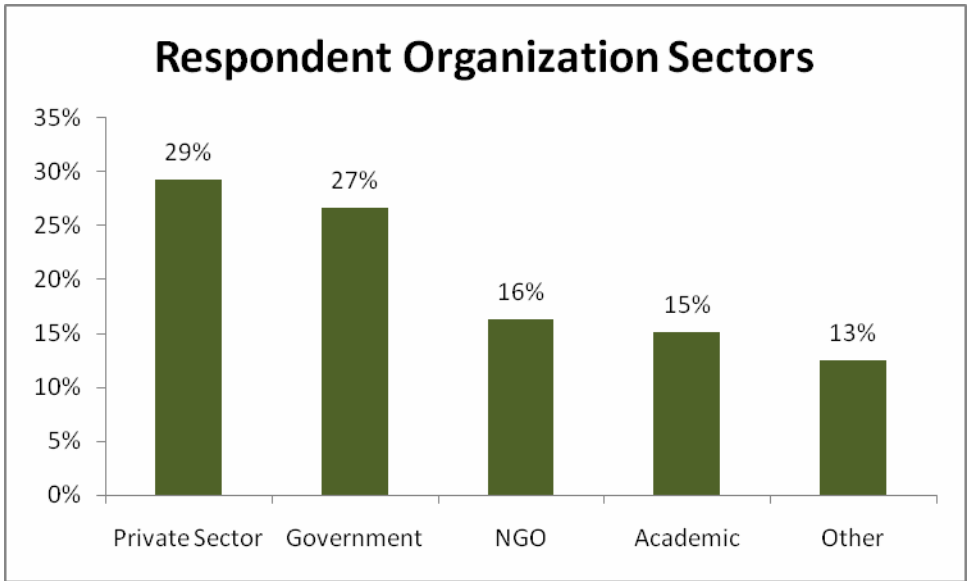

Figure 1 – Percentage of all respondents in each organizational sector. (n=423)

[i] Moser, Susanne C.; Ekstrom, Julia A. "A framework to diagnose barriers to climate change adaptation" PNAS 2010 107: 22026-22031. Available for free download at http://www.pnas.org/content/107/51/22026.

By Stakeholders

Respondents were asked to identify their stakeholders both in terms of their classification and the geographic range in which they operate. Some intuitive trends emerged from this data. Respondents from the private sector were much more likely to consider "Clients/Customers" as stakeholders and much less likely to consider the "General Public" as stakeholders than respondents from all other sectors. "Species/Habitat" was the stakeholder group reported least by respondents from all sectors.

Table 1 – Percentage of respondents in each sector reporting stakeholders in each category. Each row sums to 100% of completed responses to this question from the respondents in the sector.

Sector	General Public	Clients/Customers	Government Officials	Species/Habitat
Private Sector	19%	39%	33%	9%
Government	30%	17%	35%	18%
NGO	32%	18%	34%	16%
Academic	34%	21%	32%	14%
Other	32%	26%	32%	11%
All Respondents	**28%**	**25%**	**34%**	**14%**

There were few trends that emerged from responses on the geographic scale of stakeholders. Respondents identified stakeholders on a Local, Regional, and National scale with essentially equal frequency, while slightly fewer respondents identified stakeholders on a international scale. Government respondents in particular did not identify stakeholders as international, probably indicative of the fact that almost all government entities are on the national scale or smaller.

Table 2 – Proportion of respondents in each sector reporting stakeholders on each geographic scale. Each row sums to 100% of completed responses to this question from the respondents in the sector.

Sector	Local	Regional	National	International
Private Sector	24%	24%	27%	25%
Government	33%	31%	26%	11%
NGO	26%	24%	28%	21%
Academic	30%	27%	24%	19%
Other	21%	37%	21%	21%
All Respondents	**28%**	**27%**	**26%**	**19%**

Key Takeaways

The purpose of this survey was to evaluate the state of climate adaptation at a wide sample of organizations as well as to identify some of the barriers to climate adaptation. From the survey responses, we summarized five key takeaways.

Takeaway #1: A Majority of Organizations are Incorporating Adaptation

The survey asked respondents to categorize how climate change was incorporated at their organization. Over half of respondents reported being part of organizations which are incorporating climate change

adaptation in their operations and activities. Although climate adaptation is still a relatively new field, 51 percent of respondents indicated their organizations were either incorporating climate adaptation and mitigation "Together", incorporating climate adaptation and mitigation "Separately", or incorporating climate adaptation but not mitigation. Of these three categories, the majority of respondents indicated they were incorporating both climate mitigation and adaptation "Together".

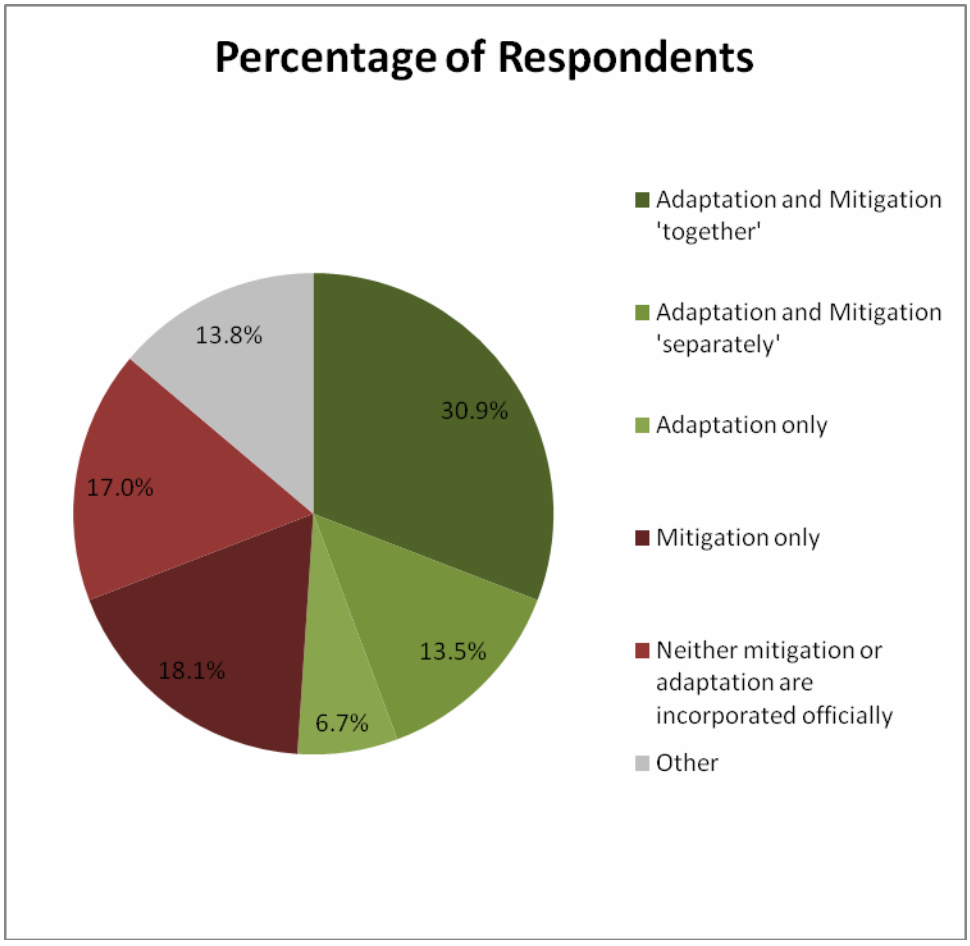

Figure 2 – Distribution of responses to Question 6, "Is climate change incorporated within your organization's policies?" (n=282)

Takeaway #2: Organizations Use Varied Sources of Climate Adaptation Data

In order to understand how organizations are getting information on climate adaptation, the survey asked respondents to rate how often they use various sources of climate change information on a 10-point scale. We found that respondents didn't exhibit dramatic differences in the frequency with which they used various information sources. Our results indicated that organizations are utilizing low-reliability information sources, such as the internet and magazines, almost as frequently as higher quality sources like peer reviewed journals. Ideally, we would have found highly reliable sources such as peer-reviewed journals and government reports being used much more frequently than unverified sources from the internet. Especially considering that many respondents commented that a lack of clear actionable

information was a barrier, these results illustrated that people simply aren't sure where to get good information.

However, the survey question did not delve deeply into how decisions are actually made using this information. It is plausible that organizations use more accessible sources of information, such as the internet, to keep up to date on climate adaptation news and events, but generally consult more reliable sources for obtaining actionable information used to make important decisions.

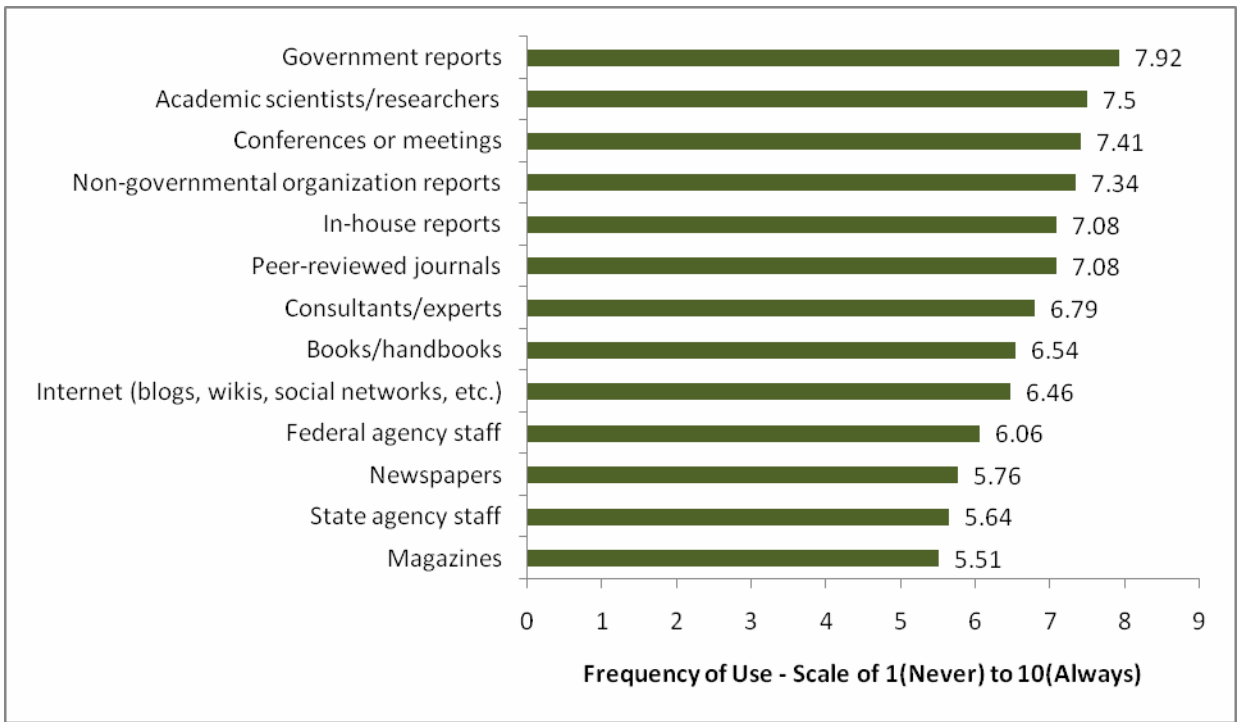

Figure 3 – Average rating for frequency of use (on a scale of 1-10) of various sources of climate change adaptation information.

Takeaway #3: Many Organizations Face Barriers for Adaptation

Many respondents identified experiencing barriers in understanding, planning, or managing climate adaptation. For both planning and managing climate adaptation, more respondents reported experiencing barriers than reported not experiencing barriers. Because the three barrier stages on the survey represent different stages of maturity for climate adaptation (you must understand before you plan, and plan before you manage), it makes sense that more organizations are experiencing barriers in the later stages. Most respondents appeared to believe that they had moved past understanding climate adaptation, with only 31 percent reporting barriers to understanding adaptation and 55 percent reporting no barriers. This implied that many of the organization represented had moved past understanding and were facing barriers in planning and managing their adaptation efforts. Over 40 percent of respondents reported facing barriers in these latter stages, indicating that climate adaptation at many organizations surveyed still had maturing to do.

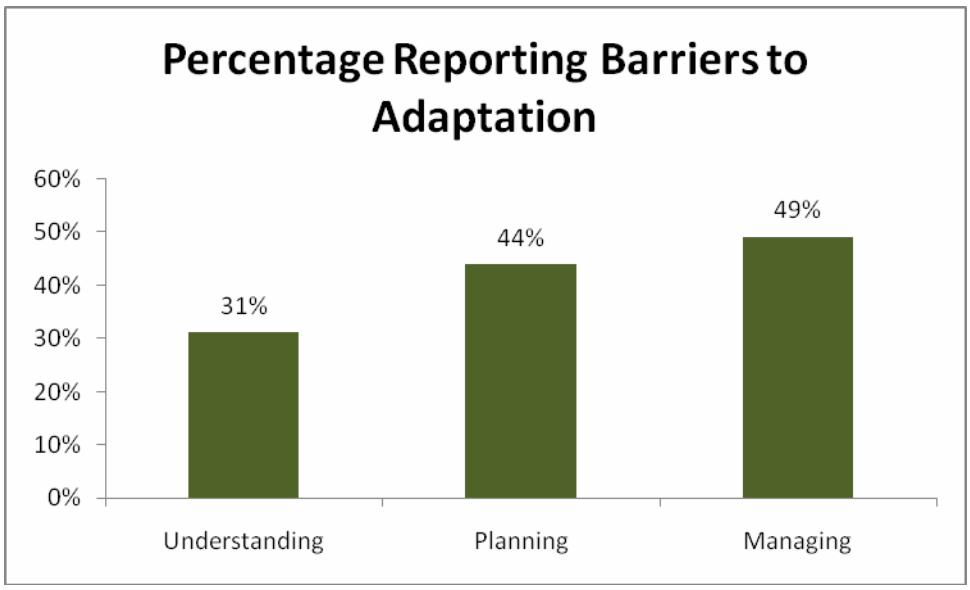

Figure 4 – Percentage of respondents reporting a barrier in each of the climate adaptation phases above. (n=251)

Takeaway #4 – Barriers Arise from Uncertainty and Lack of Resources

A major component of the survey asked respondents to describe the barriers they face in understanding, planning, and managing climate change adaptation. Though the responses varied, barriers related to uncertain information available or insufficient resources appeared consistently. The two are almost certainly related: without good information it is very hard to commit resources to climate adaptation. Below are descriptions of the responses to each barrier as well as examples of barriers from respondents.

Understanding

Barriers to understanding seemed to revolve around both internal and external factors. Internally, the lack of certainty and political polarization of climate change made it difficult for organizations or certain individuals within organizations to understand that climate change was actually happening and would affect the organization. Organizations with this barrier couldn't progress very far in adaptation as they couldn't even agree on the need to begin pursuing climate adaptation. Externally there were problems in obtaining good, clear information that could be used in decision making. Many respondents didn't have the technical resources to understand specific impacts on their organizations and didn't know where to find information elsewhere. If an organization does not have an in-house expert, it can be difficult or impossible to take dense scientific reports on global climate change phenomena and turn them into organization-specific adaptation needs. Barriers in understanding expressed by respondents included:

- "Lack of understanding of science and climate change impacts due to distortion or inadequate information in the public/media."
- "Some people still don't believe climate change is actually happening."

- "Key barrier is lack of certainty around the future climate scenarios and therefore difficulty of planning for future, e.g. infrastructure investments, agricultural research directions etc."
- "Lack of local level modeling on changes to temperature and rainfall"

Planning

The barriers in planning expressed by respondents mirrored some of the concepts that emerged in barriers for understanding. Without clear data on climate impacts on one's own organization, it is extremely difficult to craft an effective plan, especially for climate impacts which may occur well into the future. Contributing to this information barrier was another barrier: a lack of leadership and clear goals for adaptation on a national level, which was expressed often by government respondents. Finally, respondents noted that there were always limited resources, and if there was not clear leadership and information on adaptation, it's likely that another competing priority within the organization would win resources over climate adaptation. Barriers in planning expressed by respondents included:

- "Lack of high resolution (less than 10 km) climate scenario data, time framework for significant impacts too distant (2050?) for justifying starting adaptation."
- "Lack of a National Adaptation Plan of Action."
- "The lack of local framework for understanding climate change as national challenge is a difficulty common for many implementing agencies as there are no common goals for national planning processes in terms of climate change adaptation."
- "Limited financial and human resources have prohibited much planning from being done."

Managing

Like with barriers for understanding and planning, barriers for managing often related to lack of resources and uncertain climate knowledge. Especially in sluggish economic times, climate champions within an organization can struggle to make a compelling case that climate change adaptation is a priority *right now,* and convince leadership to allocate resources to address it. Multiple respondents provided only the words "lack of resources" as their response, indicating this barrier was paramount and prevented them from even getting their program off the ground to encounter other, management specific barriers. As expected, barriers in management resulted from barriers in the earlier two stages. Climate adaptation cannot be managed if it is not understood and planned for first, and this was reflected in responses which directed us to see a previous response to understand management barriers. Barriers in managing expressed by respondents included:

- "Resources are difficult to prioritize in the current economic climate."
- "Insufficient financial and human resources."
- "Without a plan in place we are not able to manage."
- "Lack of data and of planning capabilities leave us in a guessing and reacting mode."

Takeaway #5: Sectors Exhibits Different Priorities

When examining the responses to questions broken down by respondent sectors, we found that the private sector exhibited some different priorities than the other sectors. The survey asked respondents to rate climate change impacts (on a scale of 1-5) on the degree to which they anticipated each impact would affect their organization. Respondents from the private sector rated impacts related to habitat and wildlife lower than the rest of respondents, which indicated that the private sector isn't as concerned about these

impacts on their operations. Additionally, the private sector gave impacts overall lower ratings than any other sector did. A possible explanation for these differences may exist in the stakeholders identified by the private sector. The private sector respondents differed from all other respondents by reporting Clients/Customers as their primary stakeholder. Because certain clients or customers may have been perceived as less affected by the loss of a species than the general public, private sector respondents may have been less sensitive to habitat and species issues.

The government sector respondents were the most concerned about climate change impacts, giving the highest overall average rating and the highest average ratings in all but two of the impact categories. As governments are directly responsible for the health and well being of citizens and environment, it may have been easier for government respondents to draw the connection between their own work and climate change impacts.

NGO respondents exhibited low scores compared to government respondents, which was somewhat surprising given that many of the NGO's surveyed worked on environmental issues. It is possible that the wording of the question, which asked respondents to rate the impacts on "your own organization", may have caused these lower scores. NGO's are often small, information-based outfits that in and of themselves wouldn't be greatly impacted by climate change. Perhaps if the question were reworded to include stakeholders, the NGO sector would have exhibited greater concern about climate change impacts.

On average, all respondents were less concerned about habitat and species impacts as compared to other physical impacts of climate change. Increased temperature, increased flooding, increased drought and reduced air quality ranked as the most important concerns for respondents overall.

Table 3 – Average rating (scale of 1-5) of anticipated effect of climate change impacts on organizations in each sector. Higher ratings indicate a greater anticipated effect of a climate change impact.

	Private Sector	Government	NGO	Academic	Other
Increased temperature	3.21	3.70	3.31	3.56	3.33
Rising sea/lake levels	3.04	3.28	2.78	2.41	2.50
Increased coastal erosion	2.76	2.94	2.73	2.29	2.50
Increased flooding	3.51	3.95	3.29	3.39	3.00
Increased drought	3.20	3.74	3.35	3.44	3.00
Increased hurricane	3.17	2.71	2.47	2.29	2.67
Reduced air quality	3.18	3.33	3.08	3.17	2.83
Loss of natural habitat	2.60	3.45	3.20	3.17	3.17
Increased invasive species	2.37	3.46	2.80	3.15	3.33
Decreased animal biodiversity	2.31	3.20	2.80	3.10	2.17
Decreased plant biodiversity	2.38	3.13	2.90	3.20	2.17
Overall	**3.21**	**3.7**	**3.31**	**3.56**	**3.33**

Respondents from the private sector reported the highest frequency of barriers in the planning stage, as well as the largest difference in frequency of barriers between the understanding and planning stages. Of all private sector responses indicating barriers, only 22 percent of barriers were in understanding climate

adaptation, while 38 percent were barrier in planning and 40 percent were barriers in managing. The private sector had the greatest proportion of respondents reporting barriers in planning, approximately 5 percentage points higher than all other sectors.

The NGO sector exhibited the sharpest difference between barriers in planning and managing. While only 21 percent of NGO barriers were identified as planning barriers, 45 percent of NGO barriers were in managing climate adaptation. Clearly, the NGO sector respondents felt as if they have good understanding of climate adaptation, but struggled more with actually implementing and managing climate adaptation effectively.

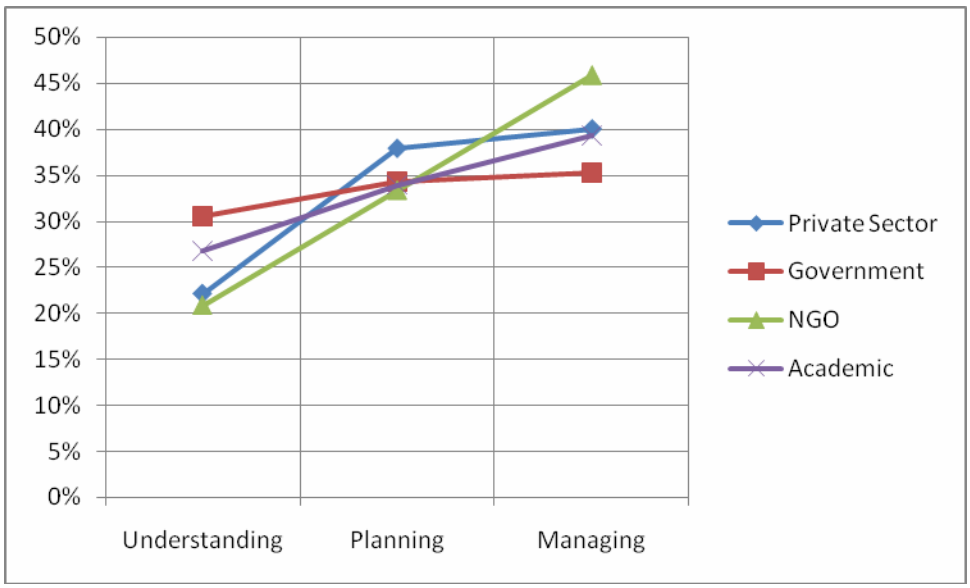

Figure 5 – Proportion of barriers in understanding, planning or managing climate adaptation identified by respondents in each sector. Percentages represent the total number or respondents in each sector answering "Yes" to having a barrier in a particular stage out of the total number of "Yes" responses in all stages.

Conclusion

Climate adaptation is a growing field, and with good reason. The prospects that climate change mitigation can prevent the potentially destructive effects of climate change are looking less and less likely. A report by PwC published in November 2012 concluded that the global rate of decarbonization needed to increase at least six-fold in order to give a 50 percent chance of holding warming to 2 degrees. More likely, the report concluded, the world was looking at warming of 6 degrees or greater over the next century.[ii] Warming of this extent will assuredly have impacts on many aspects of everyday life and business and adaptation to these impacts is clearly necessary.

However, adaptation often is overshadowed by its flashier relative, mitigation. Breaking ground on costly improvements to stormwater infrastructure may not be attractive in comparison to cutting ribbon for a new solar array projected to pay for itself within a few years. Mitigation can bring tremendous

[ii] PricewaterhouseCoopers LLC. "Too late for two degrees: Low carbon economy index 2012". http://www.pwc.com/en_GX/gx/low-carbon-economy-index/assets/pwc-low-carbon-economy-index-2012.pdf

benefits to organizations such as reducing costs, increasing efficiency, driving innovation, and improving reputation. Many programs such as EPA's Climate Leadership Awards exist which give valuable recognition to organizations that make strong contributions to climate change mitigation, but few exist for recognizing adaptation. There are compelling reasons for pursuing climate adaptation strategies as well, but they have yet to be recognized in the same way as mitigation strategies. Climate adaptation strategies are essential for risk management and long term planning for organizations. For organizations to be best prepared for climate change, they must both mitigate to reduce future impacts and adapt to those impacts that are impossible to mitigate away.

This report provides some encouraging signs for the future of adaptation. Half of organizations surveyed had incorporated adaptation of some sort at their organization, and over a third had incorporated both mitigation and adaptation. However, many organizations still reported barriers in climate adaptation, especially with uncertainty of information and lack of resources. For climate change adaptation to continue to grow on par with mitigation, clarity of information and goals will be essential. Some of mitigation's success may come from the fact that the greenhouse gas goals are so clear and quantifiable. A key development for adaptation must be to develop clear goals and metrics, enabling and empowering practitioners to apply those goals and metrics to their own organizations.

Acknowledgments

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About ACCO

The Association of Climate Change Officers is a 501(c)(3) non-profit membership organization for executives and officials worldwide in industry, government, academia and the non-profit community. ACCO's mission is to advance the knowledge and skills of those dedicated to developing and directing climate change strategies in the public and private sectors, and to establish a flexible and robust forum for collaboration between climate change officers. For more information about ACCO, please visit www.ACCOonline.org.

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