CLIMATE ADAPTATION WORKSHOP DELPHI STUDY REPORT:
FACILITATORS' VIEWPOINTS ON EFFECTIVE PRACTICES

July 20, 2020

Prepared by:
Marc J. Stern, Professor, Virginia Tech
Jennifer Brousseau, Graduate Research Assistant, Virginia Tech
Caleb O'Brien, Graduate Research Assistant, Virginia Tech
Kristin Hurst, Postdoctoral Associate, The Ohio State University
Lara J. Hansen, Executive Director, EcoAdapt

ABSTRACT

This summary report shares findings from a Delphi study conducted from February 2019 through March 2020 with 22 facilitators of climate adaptation workshops within the United States. The study involved four iterative surveys with experienced workshop facilitators to determine consensus around appropriate outcomes and best practices for multi-stakeholder, place-based climate adaptation workshops in the United States. For the purpose of this study, we defined these workshops as: *a convening or series of convenings designed to help multiple stakeholders develop strategies for adapting to climate change in a specific place.* The Delphi study culminated in a one-day workshop on March 27, 2020, attended by 17 Delphi participants and 2 additional climate adaptation workshop facilitators who did not participate in the iterative Delphi survey process. Breakout group discussions during the workshop provided additional insights into valued practices and key themes for future consideration in enhancing climate adaptation planning in the United States.

TABLE OF CONTENTS

EXECUTIVE SUMMARY

This report provides an exhaustive review of the findings of a four-round Delphi survey study and qualitative analysis of small group discussion with climate adaptation workshop facilitators. The key goal of the study was to identify areas of consensus regarding potential best practices for conducting high quality, multi-stakeholder, place-based climate adaptation workshops in the United States, which we define as:

> ***A convening or series of convenings designed to help multiple stakeholders develop strategies for adapting to climate change in a specific place***

Findings from the survey effort revealed some consensus on appropriate outcomes for these workshops and strategies for achieving those outcomes (see Tables ES-1 and ES-2). Additional topics that emerged in the iterative online survey effort included: the most common mistakes one can make in conducting climate adaptation workshops; the biggest challenges; who should attend; introductions and icebreakers; the sequencing of activities within the workshop; developing goals and objectives; appropriate group sizes; how to best conduct small group work; issues of equity and vulnerable populations; facilitator identity and bias; how to frame communications about climate change; where funding comes from and how to obtain it; how to evaluate climate adaptation workshops; constraints to collective action; and ideas for future research.

Responses to survey items associated with these topics and open-ended responses contained within the surveys revealed additional nuance about the conditions under which certain strategies may be better or worse to pursue. The surveys also revealed differences in stylistic choices as well as differences in the contexts in which climate adaptation workshops facilitators work. The consensus items shared in Tables ES-1 and ES-2 are those that appeared to bridge the wide diversity of contexts and approaches present within the sample. Some additional consensus emerged as well. Delphi participants agreed that the most important attendees are the people most likely to implement climate adaptation projects and that it is most effective to focus communications about climate change on **local** climate change effects and potential actions. Otherwise, answers to survey questions varied widely and were often described as context-specific. Details are provided within the full report.

Qualitative findings from four separate small group discussions with 17 climate adaptation workshop facilitators provided further insights into achieving the outcomes contained in Table ES-1. Qualitative analyses of transcripts of the 1.5-hour discussions revealed a number of principles associated with six key themes (Table ES-3). These principles are discussed in greater detail within the full report.

Overall, the study revealed that climate adaptation workshops can take many forms and that specific outcomes and strategies are largely context-specific. However, certain practices, particularly those associated with effective collaboration with local conveners ahead of time, identifying local champions, ensuring the local relevance of all content, providing opportunities for the development and strengthening of local networks, enhancing feelings of empowerment in participants, planning ahead to address specific constraints to action, and providing on-going support, can enhance the likelihood of positive outcomes.

Table ES-1. Consensus on appropriate outcomes for climate adaptation workshops.

CONSENSUS ACTION OUTCOMES
● An adaptive approach to planning, which accounts for uncertainty, is adopted
● Strategies developed have positive environmental impacts
● Participants assess and strengthen their adaptive capacity for addressing climate change
● Clear objectives and desired future conditions are prioritized
● Barriers and catalysts to adaptation are identified, and strategies are developed to address them
● Individuals/organizations have assumed roles and responsibilities to coordinate the implementation of specific strategies and actions

CONSENSUS LEARNING OUTCOMES
● Participants understand the impacts (current and projected) of climate change on resources relevant to them
● Participants understand the costs, benefits, and potential unintended consequences of different adaptation options
● Participants can communicate effectively about climate risks
● Participants understand the importance of clear goals and objectives
● Participants understand how existing management actions may or may not help address vulnerabilities
● Participants understand the concept of resilience
● Participants understand adaptive management, which involves learning through actions and adjusting future actions based on results
● Participants understand what uncertainty means in relation to climate change projections, impacts, and efficacy of interventions
● Participants know how to find credible information, maps, data, projections, case studies, etc.
● Participants learn how to prioritize climate adaptation actions
● Participants know the key stakeholders involved in their local climate adaptation processes
● Participants understand the long-term nature of climate adaptation
● Participants understand the perspectives and values of relevant stakeholders
● Participants can identify and assess climate vulnerabilities relevant to their context
● Participants understand the interconnectedness of decision making across sectors

CONSENSUS RELATIONAL AND EMOTIONAL OUTCOMES
● Participants leave feeling empowered to act
● Participants have a sense of hope
● Participants feel a sense of responsibility/ownership for climate adaptation
● Relationships among participants have been strengthened
● Participants become acquainted with potential partners for adaptation efforts
● Participants feel a sense of urgency
● Participants feel that adaptation actions will have positive effects on the community and the environment
● Participants leave feeling compelled to act
● Participants feel better connected to resources that can offer guidance on their adaptation efforts

Table ES-2. Consensus-based valued practices for conducting effective climate adaptation workshops.

STRATEGIES FOR PRIOR TO THE WORKSHOP

- ● Identify local champions who can move workshop outcomes forward
- ● Develop an understanding of participants' values and culture
- ● Assess the goals, knowledge, and prior experience of participants relevant to the workshop
- ● Work with participants to develop locally relevant examples for use in the workshop
- ● Understand existing management and planning structures to identify where adaptation actions can most easily occur and succeed

STRATEGIES FOR COMMUNICATING CONTENT

- ● Communicate the importance of clear goals and objectives
- ● Tailor information and materials to participants' existing knowledge (not too complex or simplistic)
- ● Use presenters who are excellent communicators (not just experts)
- ● Find and share relevant examples of successfully implemented adaptation projects
- ● Use complete and up-to-date information.

STRATEGIES FOR DESIGNING AND IMPLEMENTING WORKSHOPS

- ● Make sure everyone has an equal opportunity to be heard
- ● Set ground rules for appropriate interactions
- ● Don't try to do too much; keep the agenda realistic
- ● Have good backup plans for when things don't go as planned
- ● Be flexible and adapt to the needs of the group
- ● Build in time for open discussion
- ● Ensure all information is relevant to participants' context

STRATEGIES FOR EFFECTIVE FACILITATION

- ● Practice empathy and listening
- ● Be respectful of all perspectives
- ● Be responsive to questions and feedback
- ● Have a sense of humor
- ● Guide conversations through questioning

STRATEGIES FOR AFTER THE WORKSHOP

- ● Send follow-up/thank you email to all participants providing relevant materials and links to relevant information

STRATEGIES FOR ENHANCING THE LIKELIHOOD OF POST-WORKSHOP ACTION

- ● Provide simple and clear follow-up materials for future use/reference, including documentation of workshop outcomes and priorities
- ● Develop a concrete plan for post-workshop action including agreed-upon next steps with clear roles, responsibilities, and timelines for each item
- ● Help participants identify the information they will need to make decisions related to adaptation

Table ES-3. Key themes and principles identified in small group discussions with climate adaptation workshop facilitators.

KEY THEME	KEY PRINCIPLES
1. Pre-workshop preparation	***Work with local partners to***: • Ensure cross-sectoral representation at the workshop • Promote a full consideration of relevant stakeholders • Understand cultural norms and history of participants • Identify potential disruptors and strategize for effective facilitation • Identify potential local champions • Collaborate on workshop design and agenda development • Determine the appropriate size and scope of the workshop (smaller for plan development, larger for educational or general brainstorming objectives) ***Engage with potential attendees in the local community through surveys, interviews, calls, or meetings to***: • Understand baseline knowledge and attitudes relevant to climate adaptation • Develop clear objectives and relevant content • Develop trust • Determine appropriate timing and incentives and address logistical concerns, such as childcare ***Share information with participants before the meeting, such as***: • The agenda • Basic climate change information or other relevant science • Local projections relevant to vulnerability assessments to enable time to digest (especially for shorter workshops)
2. Equity and inclusion of vulnerable populations	***External facilitators can play a key role in identifying vulnerable populations and ensuring their inclusion and participation by asking questions about who is affected.*** ***External facilitators can foster engagement between powerful and vulnerable groups.*** ***Considering equity as a meaningful outcome, or a lack of equity as a risk factor in adaptation planning, can increase the engagement of vulnerable communities in climate adaptation processes and the development of adaptation solutions that are more broadly beneficial.***

KEY THEME	KEY PRINCIPLES
3. Local champions	*Work with local partners to identify champions from diverse sectors at the start of the planning process.* *Consider that multiple local champions might be appropriate.* *Consider critical characteristics of local champions.* • They are (or can be) trusted by others. • They (to the extent possible or relevant) reflect the characteristics of the local community. • They are committed to the work. • They are competent in planning, coordination, and communication. *Consider the specific roles that local champions might play, including:* • Linking together people from different sectors. • Promoting meaningful dialogue and relationships between participants. • Coordinating work. • Keeping the ball rolling. • Removing barriers to action. • Generating internal commitment and external support. *Consider the context.* • Can the work be successful without the active support of local government entities? • What sectors, organizations, or specific actors are critical for success? *Consider whether resources (and time) are needed to develop the leadership capacity of local champions.*
4. Facilitating learning	*Focus on local impacts to make climate science tangible, relevant, and actionable.* *Consider using past climate events as proxies to aid in planning for future conditions.* *Frame information in a way that is attentive to cultural norms and worldviews.* • Rely on local partners to understand what is likely to resonate in a community. • Be prepared to retool the workshop agenda in response to participants' reactions. *Present information using context- and culturally-sensitive technologies.* *Enable peer-to-peer dialogue and relationship-building.* *Ensure cross-sectoral dialogue.*

KEY THEME	KEY PRINCIPLES
5. Overcoming constraints to action	***Bolster feelings of self- and collective efficacy by building feelings of togetherness, highlighting community strengths, and developing realistic action plans.*** ● Design workshop activities to reveal shared values. ● Find ways for attendees to share what they feel are their community's greatest assets. ● Focus on actions that are within the control of attendees. ***Develop objectives that are specific, shared, and obtainable by the group that attends the workshop.*** ● Ask questions about what stakeholders value, what is meant by broad ill-defined terms, and what workshop participants can actually do. ● Be wary of assuming pre-existing objectives are sufficient for promoting post-workshop actions. ***Address organizational constraints.*** ● Bring perceived constraints into the open through discussion to enable brainstorming among participants to find ways to overcome barriers. ● Align adaptation work with pre-existing job responsibilities, organizational goals, or other projects. ***Enhance accountability.*** ● Encourage attendees to make clear commitments during the workshop. ● Designate an entity to follow up on next steps post-workshop, whether that be the external facilitator, local partner or local champion in the room.
6. Post-workshop support from external facilitators	***Planning ahead to provide ongoing support can enhance longer-term collaboration and adaptation.*** ***The format, modes of delivery, and content of ongoing support may vary from context to context. Discussion with local partners before, during, and after the workshop can enhance effectiveness.***

1. INTRODUCTION AND METHODS OVERVIEW

We conducted a Delphi study to identify areas of consensus regarding effective practices for multi-stakeholder, place-based climate adaptation workshops in the United States. For the purposes of this study, we define these workshops as: ***a convening or series of convenings designed to help multiple stakeholders develop strategies for adapting to climate change in a specific place***.

A Delphi study involves iterative surveys with a sample of experts about a particular subject. Our goals were to determine where there might be consensus regarding desired outcomes and valued practices for enhancing the outcomes of place-based climate adaptation workshops in the United States. This Delphi study included four rounds of online data collection. The first round of the Delphi study contained open-ended questions, asking participants to opine on the most effective practices for motivating attendance, communicating science, facilitating learning, promoting collaboration, and catalyzing post-workshop action. The research team qualitatively coded these insights to create statements for use in the second round of the Delphi study, which asked facilitators to rate and rank statements associated with each question and to provide a rationale for their scores. In the third round, each facilitator received a summary of the ratings and rankings from Round 2 and was asked to explain their degree of agreement or disagreement with overall scores and to provide additional comments and insights. We conducted the fourth round of online data collection as part of an online workshop held on March 27, 2020. Delphi participants who attended the workshop rated additional and reworded statements resulting from the third round.

We aimed to include at least 15 experts on climate change adaptation workshops within the study sample. Participants in the Delphi study were identified as climate change adaptation workshop expert facilitators based on the following criteria: each had led more than three climate adaptation workshops for at least 50 total participants and been undertaking this work for more than three years in the United States. An initial pool of candidates for the Delphi study was identified from the Climate Adaptation Knowledge Exchange directory listings, with additional candidates based on recommendations by this initial pool. We invited 24 individuals who met these criteria to participate in the study. Twenty-two accepted our first round of invitations. Two declined due to other commitments. We did not conduct a second round of invitations, because our first round yielded a sufficient sample for an effective Delphi study and reflected wide geographic and organizational diversity (participants represented 16 organizations and had conducted workshops in over two dozen states). The final study cohort of 22 individuals included representation from various levels of government, academia and private (either non-profit or business) sectors. Collectively, these facilitators had over 210 years of experience and had run more than 460 climate adaptation workshops for more than 12,000 people prior to the start of the Delphi study. Response rates for each round of the Delphi study were somewhat variable. All 22 experts participated in the first round. Twenty-one experts participated in the second and third rounds, though the single non-respondent for those two rounds was different. Only the 17 Delphi participants who attended the March workshop completed the fourth Delphi survey.

The March 2020 workshop involved 17 of the Delphi participants and two additional climate adaptation workshop facilitators who did not participate in the longer Delphi process. The two additional experts met the same criteria as Delphi participants and were invited to discuss, challenge, interpret, and augment the findings of the Delphi group. The workshop was facilitated by four members of the research team (Hansen, Stern, Brousseau, and O'Brien). During the workshop, four breakout groups addressed questions that emerged from the research team's review of survey responses in each round.

These breakout group discussions provided specific examples and additional nuance to help identify valued practices for future climate adaptation workshops.

We first present the results of the Delphi surveys, beginning with discussions of appropriate outcomes of climate adaptation workshops and strategies to achieve them. We then present findings associated with other topics that emerged after the first round. Following the full treatment of survey findings, we present the findings from a qualitative analysis of the four small group discussions held during the March 2020 workshop.

2. SURVEY FINDINGS

2.1 Defining success: workshop outcomes

We initially asked the Delphi experts to identify what they felt to be the "most important goals for participants" in place-based climate adaptation workshops, providing three categories: behavioral (or action) outcomes, learning outcomes, and "any other types of outcomes you think are important." The Delphi experts provided written descriptions of workshop outcomes, which we coded thematically to produce a list of 52 unique outcomes, which we categorized as "action outcomes," "learning outcomes," and "relational and emotional outcomes." In the second round, we asked Delphi experts to rate each outcome in terms of its degree and consistency of importance across place-based climate adaptation workshops.

For action outcomes, respondents were asked to indicate first how frequently they believed each potential outcome to be important to achieve (four-point scale: never, sometimes, usually, always). They were then asked: "When it does matter, how important is it?" (four-point scale: mildly important, moderately important, very important, critically important). Three categories were developed to reflect consensus for each action outcome, as depicted in Table 1.

Table 1. Outcomes categories reflecting consensus for *action outcomes*.

Category	Description
Consensus action outcome	Greater than 70% agreed that the outcome is consistently (usually or always) of high importance (very important or absolutely critical).
Situationally important action outcome	Greater than 70% agreed that the outcome is of high importance (very important to absolutely critical), but responses were variable across situations (fewer than 70% rated the outcome as usually or always important).
No consensus	Fewer than 70% agreed that the outcome is of high importance (very important or absolutely critical).

For learning outcomes and relational and emotional outcomes, a single scale was used to measure importance, with six response options: not important, mildly important, moderately important, very important, absolutely critical, and variable (it depends on the context). Three categories were developed to reflect areas of consensus for each set of outcomes, as depicted in Table 2.

Table 2. Outcomes categories reflecting consensus for *learning outcomes* and *relational and emotional outcomes*.

Category	Description
Consensus outcome	Over 70% opined that the outcome was very important or absolutely critical.
Near consensus outcome	Over 60%, but fewer than 70%, opined that the outcome was very important or absolutely critical.
No consensus	Fewer than 60% opined that the outcome was very important or absolutely critical.

All categorized outcomes statements were shared again with Delphi experts in the third round of the study. In this round, participants were asked the following questions:
1. Are any important outcomes missing from these tables overall?
2. Would you reword any of these outcomes to make them more universally applicable?
3. Do you disagree with any of the consensus-based valued practices as generally important across the board?
4. Please carefully read the outcomes in the 2nd and 3rd categories. For each table, can you describe specific conditions in which any particular outcome in one of these categories becomes essential? For each, please describe the specific conditions in which the outcome becomes more or less useful.

We used responses from the third round of the Delphi study to adjust the wording of some statements and identify potential additional outcomes for further discussion at the March workshop. Wording was only modified when it was believed to enhance the clarity of an outcome statement. When wording changes altered the meaning of an original statement, we created a new statement and included it in the fourth-round survey for Delphi participants that attended the March workshop. This fourth survey asked participants to rate the new statements on the same scales as previous rounds.

Below are the resulting consensus outcomes, followed by the more complete results in Tables 3, 4, and 5.

2.1.1 Consensus action outcomes
- An adaptive approach to planning, which accounts for uncertainty, is adopted
- Strategies developed have positive environmental impacts
- Participants assess and strengthen their adaptive capacity for addressing climate change
- Clear objectives and desired future conditions are prioritized
- Barriers and catalysts to adaptation are identified, and strategies are developed to address them
- Individuals/organizations have assumed roles and responsibilities to coordinate the implementation of specific strategies and actions

2.1.2 Consensus learning outcomes
- Participants understand the impacts (current and projected) of climate change on resources relevant to them
- Participants understand the costs, benefits, and potential unintended consequences of different adaptation options
- Participants can communicate effectively about climate risks

- Participants understand the importance of clear goals and objectives
- Participants understand how existing management actions may or may not help address vulnerabilities
- Participants understand the concept of resilience
- Participants understand adaptive management, which involves learning through actions and adjusting future actions based on results
- Participants understand what uncertainty means in relation to climate change projections, impacts, and efficacy of interventions
- Participants know how to find credible information, maps, data, projections, case studies, etc.
- Participants learn how to prioritize climate adaptation actions
- Participants know the key stakeholders involved in their local climate adaptation processes
- Participants understand the long-term nature of climate adaptation
- Participants understand the perspectives and values of relevant stakeholders
- Participants can identify and assess climate vulnerabilities relevant to their context
- Participants understand the interconnectedness of decision making across sectors

2.1.3 Consensus relational and emotional outcomes
- Participants leave feeling empowered to act
- Participants have a sense of hope
- Participants feel a sense of responsibility/ownership for climate adaptation
- Relationships among participants have been strengthened
- Participants become acquainted with potential partners for adaptation efforts
- Participants feel a sense of urgency
- Participants feel that adaptation actions will have positive effects on the community and the environment
- Participants leave feeling compelled to act
- Participants feel better connected to resources that can offer guidance on their adaptation efforts

Table 3. Action outcomes of climate adaptation workshops

Action outcome	Category
An adaptive approach to planning, which accounts for uncertainty, is adopted	Consensus
Strategies developed have positive environmental impacts	Consensus
Participants assess and strengthen their adaptive capacity for addressing climate change	Consensus
Clear objectives and desired future conditions are prioritized	Consensus
Barriers and catalysts to adaptation are identified and strategies are developed to address them	Consensus
Individuals/organizations have assumed roles and responsibilities to coordinate the implementation of specific strategies and actions	Consensus
Adaptation strategies are implemented	Situationally important
Underrepresented human communities are fully engaged in adaptation planning processes	Situationally important
The resulting adaptation plan makes a commitment to monitoring and evaluation	Situationally important
Public support is built for climate change initiatives through outreach and engagement	Situationally important
An adaptation plan is created	Situationally important
Political support is built for climate adaptation	Situationally important
Policy gaps and solutions relevant to climate adaptation are identified	Situationally important
Climate adaptation is integrated into all aspects of local or organizational planning	Situationally important
A climate vulnerability assessment is completed	Situationally important
Funding sources for implementation are identified	Situationally important
Participants commit to a consensus-based approach to promote fairness and equity, engaging underrepresented human populations in climate adaptation	Situationally important
Participants continue to seek out up-to-date climate-related knowledge after the workshop	No consensus
Participants develop strategies for addressing differences in power between stakeholders relevant to adaptation planning	No consensus
Participants assess and strengthen their organization's adaptive capacity to climate change	No consensus

Table 4. Learning outcomes of climate adaptation workshops

Learning outcome	Category
Participants understand the impacts (current and projected) of climate change on resources relevant to them	Consensus
Participants understand the costs, benefits, and potential unintended consequences of different adaptation options	Consensus
Participants can communicate effectively about climate risks	Consensus
Participants understand the importance of clear goals and objectives	Consensus
Participants understand how existing management actions may or may not help address vulnerabilities	Consensus

Participants understand the concept of resilience	Consensus
Participants understand adaptive management, which involves learning through actions and adjusting future actions based on results	Consensus
Participants understand what uncertainty means in relation to climate change projections, impacts, and efficacy of interventions	Consensus
Participants know how to find credible information, maps, data, projections, case studies, etc.	Consensus
Participants learn how to prioritize climate adaptation actions	Consensus
Participants know the key stakeholders involved in their local climate adaptation processes	Consensus
Participants understand the long-term nature of climate adaptation	Consensus
Participants understand the perspectives and values of relevant stakeholders	Consensus
Participants can identify and assess climate vulnerabilities relevant to their context	Consensus
Participants understand the interconnectedness of decision making across sectors	Consensus
Participants understand that climate change impacts are more often felt disproportionately in traditionally underprivileged human communities	Near consensus
Participants understand the basics of climate change processes	Near consensus
Participants understand the concept of adaptive capacity	Near consensus
Participants can effectively communicate how adaptation strategies are developed and the related decision-making processes	Near consensus
Participants learn strategies for broadening engagement to include underrepresented groups	No consensus
Participants understand the concept of transition	No consensus
Participants know how to develop a climate adaptation plan (including all steps from beginning to end)	No consensus
Participants understand their own personal values related to climate change	No consensus
Participants understand the concept of mitigation	No consensus
Participants can identify the strengths and weaknesses of data	No consensus
Participants understand the concept of resistance	No consensus
Participants become aware of potential sources of funding for adaptation efforts	No consensus
Participants understand how local efforts interact with regional and national efforts	No consensus
Participants understand the difference between social and ecological thresholds	No consensus
Participants develop an understanding of power differentials between stakeholders relevant to their adaptation planning	No consensus
Participants understand the concept of reference conditions	No consensus
Participants understand how to scale up from the local to the larger scales	No consensus
Participants have enhanced their ability to fundraise	No consensus

Participants understand how to carry out a stakeholder assessment, meaning who should be involved in adaptation planning/decision making and why	No consensus

Table 5. Relational and emotional outcomes of climate adaptation workshops

Relational and emotional outcomes	Category
Participants leave feeling empowered to act	Consensus
Participants have a sense of hope	Consensus
Participants feel a sense of responsibility/ownership for climate adaptation	Consensus
Relationships among participants have been strengthened	Consensus
Participants become acquainted with potential partners for adaptation efforts	Consensus
Participants feel a sense of urgency	Consensus
Participants feel that adaptation actions will have positive effects on the community and the environment	Consensus
Participants leave feeling compelled to act	Consensus
Participants feel better connected to resources that can offer guidance and individuals conducting similar adaptation planning/implementation	Consensus
Participants feel better connected to individuals conducting similar adaptation planning/implementation	No consensus

2.2 Strategies for success

Delphi experts were asked to identify what they felt to be the "best strategies for achieving each of the outcomes" they had listed in the categories described above in the first round of the study. The Delphi experts provided written descriptions of these strategies, which we coded thematically to produce a list of 109 unique strategies. We provided these strategies to Delphi experts in the second round of the study and asked them to rank each in terms of how frequently the strategy is important for success. Response categories included: never a good thing, rarely helpful, sometimes helpful, usually helpful, always helpful, always necessary for success.

Four categories were developed to reflect areas of consensus going into the third round of the Delphi study:

1. ***Consensus-based valued practice***. At least 70% of respondents noted the strategy to be "always helpful" or "always necessary for success."
2. ***Usually valued practice***. At least 70% of respondents noted the strategy to be "usually helpful," "always helpful," or "always necessary for success."
3. ***Variably valued practice***. Neither the top three response options (noted above) nor the bottom three response options (noted below) achieved a 70% majority of responses.
4. ***Less valued practice***. At least 70% of respondents reported that the strategy was "never a good thing," "rarely helpful," or "sometimes helpful."

All strategy statements were coded into the four categories above and shared again with Delphi experts in the third round of the study. In this round, participants were asked the following questions:

1. Are any important strategies missing from these tables overall?
2. Would you reword any of these strategies to make them more universally applicable?
3. Do you disagree with any of the consensus-based valued practices (category 1) as generally important across the board?
4. Do you feel any others should be considered ALWAYS important?
5. Please carefully read the strategies in the 2nd, 3rd, and 4th categories. For each table, please choose 3-5 strategies that you feel might be particularly useful or detrimental in specific situations. For each, please describe the specific conditions in which the strategy becomes more or less useful?

We used responses from the third round of the Delphi study to adjust the wording of some statements and to identify the conditions in which non-consensus strategies might be more or less important. We used these responses to again make adjustments to many of the statements. In cases where any wordsmithing changed the meaning of a statement, we created a new statement for the fourth-round survey. Participants were asked to rate strategies on the same scales as in the prior round.

We first share a summary of consensus-based valued strategies. We then share all strategies identified in the Delphi study in Tables 6-12. In the third round of the Delphi study, we asked participants to note any specific conditions in which certain strategies might be more or less useful. Superscripts in Tables 6-12 refer to cases in which at least one respondent suggested that a certain strategy would be more or less appropriate in different conditions, as follows:

D+ = More valuable in cases where there is **disagreement** or conflict on issues
D- = Less valuable in cases where there is **disagreement** or conflict on issues
S = More valuable for **shorter** workshops
I = More valuable with **indigenous** communities
L = More valuable for workshops with **larger** numbers of attendees

U+ = More valuable when **underprivileged** communities or strong imbalances in power are involved
U- = Less valuable when **underprivileged** communities or strong imbalances in power are involved
X- = Less valuable with **inexperienced** groups.

2.2.1 Consensus-based valued practices

Prior to the workshop
- Identify local champions who can move workshop outcomes forward
- Develop an understanding of participants' values and culture
- Assess the goals, knowledge, and prior experience of participants relevant to the workshop
- Work with participants to develop locally relevant examples for use in the workshop
- Understand existing management and planning structures to identify where adaptation actions can most easily occur and succeed

Communicating content
- Communicate the importance of clear goals and objectives
- Tailor information and materials to participants' existing knowledge (not too complex or simplistic)
- Use presenters who are excellent communicators (not just experts)
- Find and share relevant examples of successfully implemented adaptation projects
- Use complete and up-to-date information

Designing and implementing climate adaptation workshops
- Make sure everyone has an equal opportunity to be heard
- Set ground rules for appropriate interactions
- Don't try to do too much; keep the agenda realistic
- Have good backup plans for when things don't go as planned
- Be flexible and adapt to the needs of the group
- Build in time for open discussion
- Ensure all information is relevant to participants' context

Effective facilitation
- Practice empathy and listening
- Be respectful of all perspectives
- Be responsive to questions and feedback
- Have a sense of humor
- Guide conversations through questioning

After the workshop
- Send follow-up/thank you email to all participants providing relevant materials and links to relevant information

Enhancing the likelihood of post-workshop implementation of adaptation plans
- Provide simple and clear follow-up materials for future use/reference, including documentation of workshop outcomes and priorities
- Develop a concrete plan for post-workshop action including agreed-upon next steps with clear roles, responsibilities, and timelines for each item
- Help participants identify the information they will need to make decisions related to adaptation

Table 6. Strategies to employ <u>prior to</u> a climate adaptation workshop.

Strategy	Category
Identify local champions who can move workshop outcomes forward	Consensus
Develop an understanding of participants' values and culture	Consensus
Assess the goals, knowledge, and prior experience of participants relevant to the workshop	Consensus
Work with participants to develop locally relevant examples for use in the workshop	Consensus
Understand existing management and planning structure to identify where adaptation actions/implementation can most easily occur and succeed	Consensus
Develop the workshop agenda together with local partners[D+]	Usually valued
Understand preexisting relationships and conflicts and plan to address them before or during the workshop[D+]	Usually valued
Gain commitment from relevant local leaders to support the complete process from planning through implementation[D+]	Usually valued
Identify barriers to local behavior change relating to the workshop topic[D+]	Usually valued
Hold a pre-workshop call to help participants prepare[S]	Variable
Obtain commitment from relevant local leaders/decision-makers to attend[D+]	Variable
Engage participants in workshop planning[D+]	Variable
Share information about future climate projections with workshop participants before workshop begins	Variable
Hold an introductory community meeting before the workshop[D+]	Less valued

Table 7. Strategies to encourage attendance at climate adaptation workshops.

Strategy	Category
Reach out to all participants early and often	Usually valued
Communicate the important role each person/group plays in the process	Usually valued
Send each participant a personal invitation to the workshop	Usually valued
Work with groups that already have shared interests	Usually valued
Ask participants to suggest a person to take their place if they can't attend	Usually valued
Provide the agenda to all participants in advance	Usually valued
When working with specific organizations, ensure that organizational leaders communicate clear expectations about workshop attendance to their staff	Usually valued
Vet invitation list with local partners	Usually valued
Plan workshops at convenient times for participants if not part of work duties (e.g., after work hours or on weekend)	Variable
Have the invitation to the workshop come from known local figure	Variable
Conduct outreach at related meetings	Variable
Clearly communicate that participating in the workshop will be politically safe[D+]	Variable
Provide childcare during the workshop	Variable
Offer compensation for participants' time	Variable
Enable online participation at the workshop for those who can't attend in person	Less valued
Avoid using formal climate language in the workshop title	Less valued
Hold separate workshops for different stakeholder groups	Less valued

Table 8. Strategies for communicating content relevant to climate adaptation workshops.

Strategy	Category
Communicate the importance of clear goals and objectives	Consensus
Tailor information and materials to participants' existing knowledge (not too complex or simplistic)	Consensus
Use presenters who are excellent communicators (not just experts)	Consensus
Find and share relevant examples of successfully implemented adaptation projects	Consensus
Use complete and up-to-date information	Consensus
Use unbiased presenters	Usually valued
Incorporate traditional knowledge, cultural traditions, and frameworks in all aspects of work, if available and open for sharing[I]	Usually valued
Demonstrate what is known, what is unknown, and what is uncertain	Usually valued
Emphasize the importance of high-quality science in decision making[D-]	Usually valued
Ensure adequate language translation services to all participating groups	Usually valued
Use high resolution visuals linking climate change with local resources	Variable
Avoid incorporating too much climate science[D+]	Variable
Define and discuss co-production of knowledge as a workshop process	Variable
Incorporate equity/justice considerations into all components of the process	Variable

Table 9. Strategies for designing and implementing climate adaptation workshops.

Strategy	Category
Make sure everyone has an equal opportunity to be heard	Consensus
Set ground rules for appropriate interactions	Consensus
Don't try to do too much; keep the agenda realistic	Consensus
Have good backup plans for when things don't go as planned	Consensus
Be flexible and adapt to the needs of the group	Consensus
Build in time for open discussion	Consensus
Ensure all information is relevant to participants' context[L]	Consensus
Provide adequate instructions and materials for people to participate effectively	Usually valued
Ensure adequate time at the end of the workshop to review what has been covered	Usually valued
Use flipchart/dot voting/sticky note activities	Usually valued
Incorporate frequent breaks	Usually valued
Limit participants' use of phones during the workshop	Usually valued
Have a local leader give the welcome message	Usually valued
Lead participants in icebreakers/energizers	Usually valued
Include a social event (e.g., happy hour, group meal) [D+]	Usually valued
Keep the days relatively short (9-4ish)	Usually valued
Select a retreat style venue away from participants' jobs[U-]	Usually valued
Stick to the agenda	Usually valued
Emphasize the long-term nature of adaptation efforts	Usually valued
Align adaptation planning with ongoing initiatives	Usually valued
Highlight the relevance of the expertise of participants to adaptation planning	Usually valued
Build in consideration of the broader social and political landscape that affects participants' decisions about the future	Usually valued
Focus workshop on topics within participants' control	Usually valued
Identify and address organizational constraints of participants	Usually valued
Include opportunities for open sharing during the workshop (e.g., talking circles) [X-]	Usually valued
Assess whether group expectations have been met at the conclusion of the workshop	Usually valued
Ensure note takers are trained to effectively document and report information	Usually valued
Include exercises to rank priorities as a group[U+]	Variable
Start simple; add complexity as you go	Variable
Use mapping techniques to elucidate climate change drivers and predictors	Variable
Use scenario planning	Variable

Provide time to practice with specific planning tools during the workshop	Variable
Establish a clear theory of change	Variable
Have participants lead the process	Variable
Incorporate fun and games	Variable
Provide time for quiet, individual work	Variable
Include a field trip	Variable
Discourage the climate washing of a pet project (calling a pre-existing project a climate-related project to gain resources)	Variable
Use audience polling technology to provide feedback	Less valued
Have a poster session	Less valued
Use a graphic facilitator	Less valued
Hold separate workshops for underrepresented stakeholders[D+,I]	Less valued
Select quiet food that will not distract from the meeting (avoid loud wrappers, crunchy foods)	Less valued

Table 10. Strategies for effective facilitation within climate adaptation workshops.

Strategy	Category
Practice empathy and listening	Consensus
Be respectful of all perspectives	Consensus
Be responsive to questions and feedback	Consensus
Have a sense of humor	Consensus
Guide conversations through questioning	Consensus
Validate participants' emotions when they arise	Usually valued
Provide an opportunity for participants to share something positive about their community	Usually valued
Be aware of cultural differences, such as knowledge held by different genders and cultural norms for interaction	Usually valued
Use more than one facilitator	Usually valued
Encourage participants to share personal, not just professional, values	Variable
Create a safe space for exploring ideas by not asking participants to commit to any course of action	Variable
Ask participants to share something that inspires them	Variable
Build in moments for interpersonal connection when intensity level rises	Variable
Validate participants' spirituality when it arises	Variable
Engage in matchmaking: identify and promote relationships between specific participants who might make good partners for each other moving forward	Variable
Provide multiple formats of instruction and exercises to address diverse learning styles	Variable
Be prepared to implement conflict resolution mechanisms	Variable
Keep it professional; avoid diving into personal beliefs	Less valued

Table 11. Post-workshop strategies.

Strategy	Category
Send follow-up/thank you email to all participants providing relevant materials and links to relevant information	Consensus
Remain available for continued technical support upon request	Usually valued
Maintain a regularly updated online presence with materials and contact information	Usually valued
Track progress and implementation of workshop outcomes	Usually valued
Hold follow-up trainings and/or outings	Usually valued
Have regular check-ins with people charged with implementation to offer continued support and encouragement	Usually valued
Host a mingling event after the workshop for the purpose of continued conversation and more grassroots idea generation	Variable

Table 12. Strategies for enhancing the likelihood of post-workshop implementation of adaptation plans.

Strategy	Category
Provide simple and clear follow-up materials for future use/reference, including documentation of workshop outcomes and priorities	Consensus
Develop a concrete plan for post-workshop action including agreed-upon next steps with clear roles, responsibilities, and timelines for each item	Consensus
Help participants identify the information they will need to make decisions related to adaptation	Consensus
Identify local leaders to drive implementation	Usually valued
Identify no-regrets solutions for implementation that hold up regardless of uncertainties	Usually valued
Establish networks for peer support for ongoing work that happens after the workshop	Usually valued
Provide take-home talking points that participants can present to community leaders	Usually valued
Have co-leaders assume responsibility together for implementation (don't rely on only one)	Usually valued
Have participants volunteer for working groups for implementation	Usually valued
Follow-up with participants to remind them of deadlines	Usually valued
Connect participants with funding sources	Usually valued
Make videos for the workshop that can be shared more broadly	Less valued

2.3 Mistakes

In the first round of the Delphi study, experts were asked about the biggest mistakes one could make in the planning, facilitation, or follow-up to climate adaptation workshops that could inhibit the achievement of positive outcomes. Their responses (qualitatively coded and summarized in the list below) were used to develop survey items in subsequent rounds of the Delphi study.

The following is a list of the "biggest mistakes" participants shared in the first round of the Delphi study, as coded for summary purposes by the research team:
- Too much one-way communication from experts or facilitators
- Failure to understand cultural values/traditions at play prior to outset
- Excluding local expertise
- Ignoring local perspectives and concerns
- Too much climate science
- Insufficient follow-up
- Not providing clear steps forward
- Inadequate space for effective interaction
- Failing to consider the broader landscape of government and other actions relevant to the workshop participants' goals
- Insincerity about being open to feedback, not being openly responsive
- Not focusing on specific decisions facing (or needs of) participants; failing to highlight relevance of all portions of workshop
- Being too prescriptive; bringing in external solutions
- Overly rigid agenda
- Not identifying champions or gatekeepers
- Unclear goals and objectives
- Failing to tailor the process to the capacity of the group
- Being disorganized or inefficient with people's time
- Trying to pack too much in and running out of time
- Not understanding the goals of participants
- Lack of attention to inequity (not managing loud voices)
- Eschewing pre-workshop work
- Making it about the facilitators; assuming the facilitator knows the answers
- Not enough breaks
- Lack of evaluation following the workshop (mid and long-term)
- Overly complicated materials
- Inviting the wrong people
- Allowing groups in that don't have clear objectives
- Not providing refreshments
- Over-promising; setting up unrealistic expectations
- Poor presenters
- Materials that are too simplistic
- Avoiding treatment of uncertainty
- Avoiding climate impacts that haven't been modeled

- Ignoring emotions
- Not understanding what work has already been done
- Technical jargon
- Unclear agenda
- Outdated information
- Not having a sense of humor

2.4 Challenges

We asked several open-ended questions regarding the biggest challenges associated with planning, facilitating, or follow-up for climate adaptation workshops and ideas for avoiding or overcoming them. Responses were qualitatively coded. Table 13 summarizes the most common challenges identified and preliminary ideas for overcoming them. These strategies were developed far more extensively in subsequent rounds of the Delphi study. Many were also discussed at the March workshop (see **3. CONTRIBUTIONS FROM THE MARCH 2020 WORKSHOP BREAKOUT GROUPS**).

Table 13. Specific challenges identified in Round 1 of the Delphi study.

Challenge (# coded)	Ideas for overcoming them
Moving the process forward after the workshop; Long-term commitment and accounting for the time necessary for success (10)	● Get funding in place for continued support ● Allocate staff time to work on adaptation ahead of the workshop ● Online, web-based tools and resources ● Set clear expectations for long-term commitment of participants prior to the workshop ● Set clear objectives and design all elements of the workshop around them ● Work with senior management of organizations/agencies to communicate that this is a clear priority ● Clearly align work with organizational and agency mission ● Ensure long-term support from facilitators ● Make all materials easily available online ● Regular check-ins and emails with relevant information ● Pay participants ● Establish clear contributions participants can make to actions ● Pre-workshop preparation (homework, surveys, pre-workshop meetings with different groups)
Despair or feelings of being overwhelmed (4)	● Focus on issues under participants' purview ● Demonstrate connection of potential adaptation activities to ongoing work ● Make all content directly relevant to the work of attendees; demonstrate linkages with their work and place ● Bring in peer groups who have had some success ● Don't overwhelm people with too much climate data or science; start with the basics and add from there
Funding (4)	● Pool resources from multiple agencies

Getting the right people in the room (4)	● Early outreach; local connections ● Identify local coalition leaders and work with them ● Vet invitation lists with several local community members
Clarity of objectives (3)	● Pre-workshop values discussions and identification and prioritization of objectives
Inability to innovate within the constraints of agencies and organizations (2)	● Break discussions down into "personally what do you think" and "professionally what do you think" ● Allocate staff time to work on adaptation ahead of the workshop
Engaging diverse parties during the workshop (2)	● Highly participatory format ● Pre-workshop: orientation materials, background summaries
Establishing material that is relevant, reliable, and authoritative (2)	● Spend time upfront before the workshop to understand local context ● Use high-resolution visuals linking climate change with local resources
Being overambitious (trying to do too much) (2)	● Focus on what is achievable in the time available, and avoid trying to cover everything ● Develop clear objectives
Getting off-track (2)	● Don't spend too much time focusing on the science ● Focus on actions that are within participants' wheelhouses ● Don't enable people to "climate wash" a pet project (using climate change to fund something only vaguely related) ● Set clear objectives and design all elements of the workshop around them
Technical capacity of facilitators to address all aspects of climate adaptation (1)	● More training for facilitators
Allocating staff time to work on adaptation (1)	● Pre-workshop efforts with decision-makers in participating agencies and organizations
Generating political support (1)	● Find local champions
Working with teams of diverse facilitators (1)	● Learn to share duties and find the right experts
Stakeholder fatigue (1)	● Focus on efficiency
Empowering local officials (1)	● Provide clear guidance for local leaders' welcoming messages (focusing on specific objectives of the workshop)
Quality small-group facilitation (1)	● Create and share a facilitators' guide with all small group facilitators ● Pre-workshop training with small group facilitators
Ensuring diverse voices are heard (1)	● Allow ample time for engagement
Earning the trust of participants (1)	● Allow time for people to share their personal and professional goals ● Be open to multiple viewpoints

| Relevance to priorities of participants (1) | ● Synchronize workshop activities with ongoing processes -- like land use plans or park development |

2.5 Who should attend?

In the second round of the Delphi study, experts were asked, "In general, how critical is it that representatives from each of the following categories of attendees are present at your workshops?" Responses are summarized in Table 14. Most respondents noted in open-ended comments that the appropriate set of attendees depends on the specific goals of the workshop and its political, social, and geographic context. The only area of consistent agreement (> 70%) was that the "people most likely to implement climate adaptation projects" should be in attendance. Otherwise, answers were variable. Only one respondent noted that climate skeptics should be excluded. This topic was considered in greater detail during the March workshop (see **3.1.4 Exploring culture, community norms, and history among participants**).

Table 14. Delphi experts' opinions about who should attend climate adaptation workshops.

Who should attend?	Shouldn't be there	Doesn't matter	Good, but not critical	Always critical	It depends
People most likely to implement climate adaptation projects	0%	0%	5%	71%	24%
Technical experts in likely climate change adaptation projects	0%	0%	24%	48%	29%
People most heavily impacted by potential adaptation projects	0%	0%	19%	43%	38%
Technical experts in climate change science	0%	0%	33%	33%	33%
People most acutely impacted by climate change	0%	0%	19%	29%	53%
Traditionally under-served, underrepresented, or vulnerable populations	0%	0%	14%	29%	57%
Policy Makers	0%	0%	29%	24%	48%
Local political leaders	0%	5%	33%	19%	43%
Business leaders	0%	5%	25%	15%	55%
Potential funders of climate adaptation projects	0%	0%	67%	0%	33%
Climate skeptics	5%	52%	14%	0%	29%

2.6 Introductions and icebreakers

In the second round of the Delphi study, we asked four open-ended questions to capture best practices for introductions and icebreakers. Specifically, we asked experts what they believed to be the best ways to introduce participants to each other and to describe two or three icebreakers they have found to be most effective. We also asked which introductions and icebreakers facilitators tried to avoid.

In general, we found a wide variety in the types of introductions and icebreakers facilitators used. While several points of disagreement emerged, there were also a few undisputed suggestions and concerns. Overall themes are summarized in Table 15.

2.6.1 Undisputed suggestions and concerns

Several experts suggested breaking participants up into pairs or small groups for introductions, particularly when working with larger groups. A few experts also saw the value in around-the-room standard introductions. No one disputed the idea of using pairs or breakout groups as an opportunity for participants to introduce themselves and get to know each other better. Some also suggested organizing time outside of the formal workshop for introductions and informal mingling – for example, arranging a pre-workshop call, sending around written introductions, or organizing a social event prior to the meeting.

Several suggestions involved having participants stand up and/or move around the room. Examples included having people step into the circle if a statement pertained to them or having them move to different corners of the room/line up in response to a question. With the exception of one person—who noted the importance of not asking people with physical constraints to move around—no one disputed the effectiveness of activities that involved getting people out of their seats.

The undisputed concerns related to introductions and icebreakers included: 1) avoiding any activity requiring people to touch each other; 2) avoiding topics that are culturally insensitive, offensive, or too personally revealing; 3) avoiding things that can lead to overly long answers; and 4) avoiding introductions that could highlight entrenched differences between people or produce tribalism (e.g., stances on specific issues).

2.6.2 Points of disagreement

Several experts referred to sharing names, titles and/or affiliations as standard elements of the introduction, while others raised concerns about these types of intros. For example, one person said that titles can introduce perceptions of inequality, making some people feel as though their perspective is less important. Others thought these types of intros were too boring, bringing down the energy of the group. Conflicting opinions also emerged over the topic of sharing goals and expectations during introductions. While some people mentioned that it helped to have people share what they wanted to get out of the meeting, others avoided these types of questions. One expert, for example, said these topics could create pressure to readjust the agenda to fit with participants' expectations.

There was also some disagreement related to the ideal tone of introductory activities. Some experts suggested that it was best to avoid topics that would lead to serious conversations about climate change or climate/adaptation-related challenges participants face. The concern was that these topics could potentially introduce negativity or "baggage" early in the workshop. Others advised against straying too far from the workshop topic during introductions. These experts suggested asking participants to answer questions such as what changes in the climate they have noticed, or to articulate their concerns related to climate change. Further, some experts recommended avoiding activities that could be perceived as too silly or trivial, while others suggested silly games such as telling mom or dad jokes or making animal noises.

Experts agreed that overly personal or potentially offensive questions should always be avoided, but there was some disagreement about the appropriateness of putting participants "on the spot" during introductions. Specifically, a few experts mentioned that they avoided any activity or question that

might make participants feel forced to talk, worried about what they were going to say, or feel otherwise uncomfortable. Others, in contrast, suggested activities that might fit this description, such as asking people to describe their craziest/most intense experience while doing fieldwork, or having them participate in a song, dance, or a skit.

Table 15. Introductions and Icebreakers.

Introduction/ icebreaker type	Use	Avoid	Conflicting opinions
General Introductions	● Have participants introduce themselves (or each other) in pairs or small groups ● Social activity or introductory call prior to meeting ● Adjust to the needs of the group	● Anything that would lead to overly long answers ● Anything that would introduce tribalism ● Letting people talk over each other	● Have people share their title and/or affiliation ● Around-the-room intros ● Share goals/expectations for the meeting ● Share reason for participating ● Share job/organizational duties
General icebreakers	● Favorite National Park, movie, Halloween costume ● Give people specific questions to discuss during breaks ● "Would you rather . . . ?" ● Work together to solve a challenge, creatively perform a task or discuss questions in small groups	● Anything too personal, culturally insensitive, or potentially offensive	● Tell mom or dad jokes ● Animal noise game ● Truths and lies game ● Have people identify whether they are a pessimist, pragmatist, or optimist ● Have a funny question or topic that participants answer ● What animal would you be? ● What's your superpower? ● Describe yourself as a color
Ways to get people moving and energized	● Move around the room/line up in response to a question ● Do a "survey" of the room where people raise their hands in response to a question. ● Poster sessions, sticky note exercises, consensograms, discussions ● Have people step into the circle if the statement pertains to them ● Give each participant a page from a story and have them assemble them in order without showing their page	● Having people touch each other	● Songs and dance led by a local participant ● Have participants put together a song or skit ● Line up according to how uncomfortable with uncertainty you are

Activities with some relation to the topic	● Say one word that comes to mind when you think about _____ ● Environmentally-themed activities, such as a quiz game about unusual adaptations or a simulation game about ecosystems. ● Have everyone point north and then talk about the importance of starting from the same place ● Serious games: game of floods, robust decision-making; decision analysis facilitated breakout	● Talking about success and failures	● Ask what changes in the climate you've noticed ● Articulate concerns related to climate change ● Mention a special place along the coast that concerns you most ● Share craziest/most intense experience while doing field work. ● Share a story or something special about your community

2.7 The agenda and workshop flow

Delphi experts were asked about the ideal proportions of time spent on specific activities within a climate adaptation workshop. Many respondents noted difficulty with this question, explaining that much of this would be context specific. However, some trends emerged in terms of general proportions of time spent (Table 16). Most experts reported that small group work should take up the largest portion of time in an ideal workshop, followed by presentations, large group discussions, and breaks. Some respondents noted that smaller proportions of time don't necessarily signify a lack of importance, but rather that some elements might be done before or after the workshop.

Table 16. Idealized proportions of time spent on specific activities within a climate adaptation workshop.

Activity	Responses about proportion of the workshop that should be spent on each			
	Mean	Mode	Minimum	Maximum
Breakout groups (or working in teams)	27%	20%	10%	58%
Presentations	18%	10%	8%	50%
All participant discussion	13%	10%	0%	20%
Breaks	11%	10%	2%	20%
Reporting out from small group work	7%	5%	2%	15%
Introductions	5%	5%	1%	10%
Icebreakers	3%	2%	0%	10%
Closing	3%	5%	1%	5%
Individual work	3%	0%	0%	12%
Discussing the agenda	3%	3%	0%	5%
Evaluation	2%	1%	0%	5%
Assigning tasks for after the workshop	2%	0%	0%	5%
Establishing ground rules for interaction	2%	1%	0%	5%

2.8 Developing goals and objectives

Because the importance of clear goals and objectives was apparent from the first round of the Delphi study, we asked experts in the second round about when they felt the goals and objectives for an

adaptation plan should be developed (Table 17). Only four respondents noted a specific and unique phase, either prior to (3) or during the workshop (1). All other respondents agreed that goals and objectives should be revisited and revised as needed throughout the process.

Table 17. When should the goals and objectives of an adaptation plan be developed?

Timing	% of respondents	Unique percent
Prior to the workshop	33%	14%
During the workshop	29%	5%
After the workshop	14%*	0%
Revisited and revised as needed throughout the process	81%	N/A

* All respondents who selected "After the workshop" also noted that goals and objectives should be revisited and revised as needed throughout the process.

2.9 Background materials

Delphi experts were also asked what type of background information they typically share with workshop attendees prior to the workshop. All reported sharing an agenda, but other elements were more variable (Table 18). Techniques for sharing climate science were further discussed during the March workshop (see

Table 18. What type of background information is typically shared with workshop attendees prior to the workshop?

Background information	% of respondents
Agenda	100%
Information on climate science	57%
Names and affiliations of all expected participants	43%
A preview of the specific tools participants will use for adaptation planning	43%
Other (write-in): Factsheets, briefs, reports	19%
Other (write-in): Goals and objectives	14%
Other (write-in): Specific local area climate projections	10%

2.10 Participant-to-facilitator ratio

Delphi participants were asked about the ideal participant-to-facilitator ratio for a climate adaptation workshop. Responses about the ideal participant-to-facilitator ratio ranged from 5 participants per facilitator to 30 participants per facilitator. The most frequent response was 10 participants per facilitator, and the average response was 12.5.

2.11 Breakout groups

2.11.1 Breakout group size
Experts were also asked what they considered to be the ideal group size for breakout groups. Responses ranged from three to ten participants per breakout group, with eight as the most frequent response and six people as the mean response.

2.11.2 When is a workshop too small for breakout groups?

In the third round, we asked Delphi experts at what size is a workshop so small that breakout groups are unnecessary. Answers ranged from four to 20 participants. Most provided a range (e.g., "7 to 10"). The average response overall, taking the midpoint of each range provided in addition to specific numbers offered, was ten participants.

2.11.3 Strategies for breakout groups
During the second round, we asked the Delphi experts to identify how frequently they felt specific practices for breakout groups (developed from Round 1) contribute to success. Creating and sharing a facilitators' guide with all small group facilitators was the most commonly favored practice (Table 19). Ensuring within-group diversity was the least consistently favored idea.

2.11.4 Reporting out
In the third round, Delphi experts were asked whether they felt it is important to always have small groups report out during a climate adaptation workshop. Most experts indicated that small group report outs are always important (Table 20).

Table 19. Strategies for breakout groups.

Strategies for breakout groups	How frequently is this important?					
	Never	Rarely	Sometimes	Usually	Always helpful	Necessary
Create and share a facilitator's guide with all small group facilitators	0%	5%	32%	0%	37%	26%
Allow time for participant report-outs following break-out groups	0%	0%	26%	21%	32%	21%
Have designated and trained facilitators for small groups	0%	0%	32%	16%	42%	10%
Conduct pre-workshop training with all small group facilitators	0%	0%	39%	11%	33%	17%
Ensure within-group diversity for small break-out groups	0%	0%	32%	32%	26%	11%

Table 20. Importance of small group report outs.

Is it always important to let small groups report out during an adaptation workshop?	
Yes	57%
No	24%
Context dependent	14%
Undecided	5%

Experts who indicated context dependence mentioned that report outs are best when the overall group is smaller, when there is adequate time during the workshop for report outs, and when the purpose of the workshop is to compare how multiple groups tackle the same issue.

We asked the experts when small group reporting out should be avoided. When asked in this way, only 29% of respondents suggested that reporting out is always important. Table 21 presents our thematic coding of the responses. Experts most frequently suggested avoiding reporting out when the overall group is very large, when time is limited, or when the outcome of the reporting is unlikely to be critical

to the workshop purpose. Experts indicated that reporting out might not contribute to overall workshop outcomes when the workshop is primarily aimed at building relationships, trying out a new tool, or working on very different projects in small groups.

Table 21. Conditions to avoid small group reporting out.

Under what conditions should report outs be avoided?	% of respondents
Large group size -- too many small groups for all to report out	33%
Limited time to adequately report out	29%
Report outs are not relevant for workshop purpose	29%
Always have report outs	29%
Talkative participants create lengthy, repetitive report outs	10%
Politically unsafe for participants to present their opinions	5%
Time of day when participants are tired	5%

We asked what Delphi experts have found to be the most effective means of capturing the work of small groups and sharing their findings with the larger group. We thematically coded the responses into ten practices for sharing participant findings (Table 22). Using flipcharts was the most frequently indicated report out practice.

Table 22. Practices for reporting out.

What are the most effective ways of capturing the work of small groups?	% of respondents
Flipchart	33%
Poster	24%
One note taker for group discussion who presents summary	14%
Filling out worksheets and discussing afterwards	14%
Post-it brainstorming	10%
All groups are tasked with answering the same questions	10%
PowerPoint	10%
Report out post-workshop (in written format)	10%
Storyboarding	5%
Take home assignments	5%

2.12 Equity and vulnerable populations

In the second round of the Delphi Study, about one quarter (26%) of the respondents indicated that incorporating vulnerable populations into adaptation planning processes was always important, whereas the remaining experts reported this to be context dependent. Another question asked how important it is that participants commit to equity and fairness in climate adaptation planning: 58% reported that it was absolutely critical or very important; 10% described it as moderately or mildly important; and nearly one-third suggested that it depends on the context.

In the third round, we sought to delve more deeply into issues of equity, asking the Delphi experts "Under what conditions are commitments to equity and fairness not important?" We found little

consensus about the importance of equity considerations for climate adaptation workshops. Just over half (12) of the respondents felt that equity considerations are always important. Several respondents suggested that there are specific situations where equity considerations could be less important: in uniformly wealthy communities, in the internal planning efforts of agencies, in very hierarchical systems, in planning efforts that do not involve the broader community, or in situations where there is not a salient environmental justice problem. See Table 23 for more details (see also **3.2 Equity and inclusion of vulnerable populations**, later in this report).

Several respondents felt that equity considerations could play a greater role. One noted that it "seems like a blind spot in our community." Another explained, "It may be uncommon that adaptation planners are comfortable or skilled in incorporating equity considerations. The lack of consensus with this question may [be] due to unfamiliarity or possibly a feeling of being overwhelmed by two huge challenges at once: equity and climate change."

Some respondents, however, also noted the possibility for confusion given the wording of the survey item and the need to draw distinctions between equity in the workshop planning/decision-making process (e.g., who gets invited, who gets a voice, who makes final decisions) and equity in workshop outcomes (subsequent planning and implementation).

Table 23. Round 3 responses about when commitments to equity and fairness may not be important.

Response category (# coded)	Example write-in responses from the survey
It's always important (12)	"I think equity and fairness, like positive environment impacts, should always be considered in the planning and decision-making process. This isn't to say these should always be the most important consideration, but they should be explicitly considered."
Definitional challenges (5)	"I think your question is too simplistic." "It may depend on what exactly is meant by this criteria. Once a group of participants have been identified for a planning process, then yes I think it is absolutely critical that the process be fair and equitable (all should have a voice in the discussions and products). If it is referring to who should be involved in a planning effort in the first place, and wanting to engage all possible stakeholders in a planning effort, I do see the potential for an "it depends" response. e.g., I can see a situation in which an agency or organization may want to do an internal planning effort."
Hierarchical barriers (3)	"I think it's important as broad intent, but how it is carried out is highly variable. When there are requirements coming down from above that don't allow it, it would be dishonest to commit to it. Equity and fairness are very broad, subjective terms. Does it mean that all people/grps get an equal say? Or at least a venue to have a voice? There are so many decision processes that this is not always possible. NEPA requires public process for certain types of decision-making, but not all. Does it mean that actions won't negatively impact or positively benefit one area/group at the expense or over another?"
There is potential for greater role (2)	"I think commitments to equity and fairness are always important however, they have not historically been an explicit part of adaptation workshops that I've been involved with. I do think it's our job as facilitators to be better at addressing and emphasizing this in our workshops, as it's not always something our partners are thinking about."

Contexts without environmental justice angle (2)	"I can't imagine that anyone would ever say that equity and fairness would not be important, IN THE CASE WHERE an inequity or unfairness arises. So I kind of wonder if this spread is indicating NOT that fairness is unimportant, but rather that there are places/situations where there is not an environmental justice problem."
When planning efforts do not involve broader communities (2)	"It's possible that [it] is not important in situations where planning and decisions do not directly involve broader communities - for example, adaptation planning for small, privately owned land parcels."
In uniformly wealthy communities (1)	"The only one I can think of is situations where the community is so wealthy that it essentially does not have anyone living in poverty in the community. This doesn't happen often, but I suppose it does happen."
Lack of skill/ capacity of facilitators (1)	"Equity and fairness is a very important consideration in adaptation planning and implementation! I don't agree with its low ranking. However it may be uncommon that adaptation planners are comfortable or skilled in incorporating equity considerations. The lack of consensus with this question may [be]due to unfamiliarity or possibly a feeling of being overwhelmed by two huge challenges at once: equity and climate change."

2.13 Facilitator identity and bias

2.13.1 Facilitator characteristics

In the second round, we asked the Delphi experts to indicate how frequently they felt specific facilitator characteristics (identified in the first round) contribute to success. Ensuring that facilitators are not advocates for a particular perspective was the most commonly favored idea (Table 24). Using only third-party facilitators was the least consistently favored idea.

Table 24. Importance of facilitator characteristics.

Facilitator characteristics	How frequently is this important?					
	Never	Rarely	Sometimes	Usually	Always	Necessary
Ensure facilitators are not advocates for any particular perspective	0%	0%	16%	16%	52%	16%
Use facilitators who are local and/or culturally compatible people	0%	0%	26%	32%	37%	5%
Use facilitators who are knowledgeable about regional and global climate issues	0%	0%	48%	21%	26%	5%
Use facilitators who are experts in climate change	0%	5%	53%	21%	21%	0%
Use only third-party facilitators	6%	22%	61%	11%	0%	0%

2.13.2 What is an unbiased facilitator?

In the third round, Delphi experts were asked an open-ended question about whether they thought it was important to have an "unbiased" facilitator and whether it is ever OK for facilitators to share their opinions on desired courses of action. Responses reflected a few key themes. Many respondents discussed the difference between advocacy and sharing expert opinions. Oftentimes, facilitators may have specific expertise and experience that enable them to share relevant anecdotes, ask guiding questions, or play devil's advocate. These roles were generally favored by respondents.

Delphi experts differed somewhat in their consideration of sharing *personal* opinions. While some noted that this is never appropriate, others noted specific contexts in which it can be. Some suggested that facilitators can make it clear when they are stepping out of their role as facilitator momentarily to share an opinion. Others, however, suggested that this should not happen, as facilitators are often imbued with a level of authority that carries weight among participants. Sharing personal opinions could thus unduly influence the process and potentially cause rifts between stakeholders groups and distrust of the facilitator. Some respondents suggested that facilitators should be especially careful to be neutral in contexts involving conflict or disagreement between stakeholders, while other contexts may not demand the withholding of personal opinions. Others noted that third party facilitators are not always available or affordable. In these cases, it is unrealistic, and perhaps disingenuous, for an internal (or local) facilitator to hide their opinions.

2.14 Communicative framing

In the second round of the Delphi study, participants were asked to evaluate different versions of messages about climate change adaptation. These messages were crafted using a variety of framing strategies grounded in theories of human psychology. In general, these theories suggest that certain framing techniques may be more persuasive than others (Stern, 2018), including:

- Focusing on immediate, present day impacts rather than distant future conditions
- Focusing on local rather than larger spatial scales
- Focusing on ways to avoid meaningful losses rather than ways to achieve new gains

The Delphi experts' opinions about these strategies are summarized in Table 25.

Table 25. Facilitator opinions in Round 2 about effective climate change communication strategies.

	Agree more with left	No preference	Agree more with right	
Communication about climate change adaptation should focus most on charting a course toward **desired future conditions**.	40%	40%	20%	Communication about climate change adaptation should focus most on addressing **immediate impacts**.
It is best to focus on **local** climate effects and potential actions.	70%	20%	10%	It is best to link messaging to larger-scale issues and problems **at the regional level**.
It is best to focus on **local** climate effects and potential actions.	84%	16%	0%	It is best to link messaging to larger-scale issues and problems **at the global level**.
Communication about climate change should focus first and foremost on **preventing the degradation or loss of places they care about**.	15%	40%	45%	Communication about climate change should focus first and foremost **on improving the places they care about to create a brighter future and new opportunities**.

It is best to link messaging to larger-scale issues and problems **at the regional level**.	85%	15%	0%	It is best to link messaging to larger-scale issues and problems **at the global level**.
Communication about climate change adaptation should focus most on **future generations**.	5%	70%	25%	Communication about climate change adaptation should focus most on **present day concerns**.

Respondents noted that selecting appropriate strategies depends on the audience and its members' perspectives. Therefore, in the third round of the study, we sought to understand attributes of the audiences with whom the Delphi experts work and whether framing strategies resonate more with some audiences than others. Most respondents reported working with workshop participants from across the political spectrum. However, seven reported working mostly with liberal participants, and one reported working mostly with conservatives. While those working mostly with liberal audiences appeared no different than other respondents on average, the only facilitator who worked predominantly with conservative audiences reported focusing on immediate impacts over desired future conditions. Their position was shared by one other respondent, who facilitated workshops with participants from a wide range of political views. Third round responses to similar questions asked in the second round are summarized in Table 26.

Table 26. Facilitator opinions in Round 3 about effective climate change communication strategies.

	Agree more with the statement on the left	No preference	Agree more with the statement on the right.	
Communication about climate change adaptation should focus most on charting a course toward **desired future conditions**	33%	57%	10%	Communication about climate change adaptation should focus most on addressing **immediate impacts.**
Communication about climate change should focus first and foremost on **preventing negative impacts to places people care about.**	29%	48%	24%	Communication about climate change should focus first and foremost on **improving the places people care about to create new opportunities.**
It is best to draw people's attention to **things they care about in their community** to motivate them.	76%	24%	0%	It is best to talk about **new possibilities for the future** to motivate people.
It is best to help people imagine how their work **can bring about good changes in their communities.**	29%	67%	5%	It is best to help people figure out **how to maintain the things they love** about their communities.

We also asked the Delphi experts whether they felt that certain arguments resonated more with specific audiences. While some respondents specified that certain messages were better for certain audiences (Table 27), most reported that it was difficult to predetermine how to divvy up their approach as presented or that multiple approaches were warranted in any given situation.

Overall, Delphi experts' responses are in line with lessons from prior research regarding the importance of local scales. They are somewhat less consistent with prior research regarding loss vs. gain and present vs. future impacts. Respondents most commonly noted that their responses are context-specific and that often both frames are appropriate to use.

Table 27. Framing strategies useful for specific audiences. *Darkened boxes indicate at least one expert suggested the strategy was useful for the corresponding group.*

Framing Strategy	Community leaders	Communities struggling with many problems	"Strong" communities that meet their members' needs	Communities not yet experiencing impacts	Communities already experiencing impacts	Underrepresented or disadvantaged communities	Forestry sector	The agriculture sector	Rural communities	Conservancies and trusts	Communities dependent on natural resources (extraction, recreation, water quality, spirituality)
Focusing on charting a course towards a desired future		■		■			■				
Addressing immediate impacts	■				■	■		■			
Focusing on preventing negative impacts to places people care about					■					■	
Focusing on improving the places people care about to create new opportunities			■								
Drawing attention to the things they care about	■		■								
Talking about new possibilities for the future	■	■									■
Helping people imagine how to bring about good changes in their community		■							■		
Figuring out how to maintain the things they love about their community			■								■

2.15 What makes climate adaptation workshops unique?

To help better understand the defining characteristics of climate adaptation workshops, we asked Delphi participants to identify what sets climate adaptation workshops apart from other types of public workshops (aside from the content). We also asked Delphi participants to consider how these elements might influence the use of different strategies. While responses may not actually be unique to climate adaptation workshops, they reflect several key themes that help to define the context of climate adaptation workshops (Table 28). Many of these themes were discussed in more detail at the March workshop (see **3. CONTRIBUTIONS FROM THE MARCH 2020 WORKSHOP BREAKOUT GROUPS**).

Table 28. What sets climate adaptation workshops apart from other types of planning workshops?

Theme (# coded)	Suggested strategies/other relevant comments (summarized and paraphrased).
High uncertainty (4)	Additional time and intentional effort to consider and address uncertainty in planning processes
Feelings of loss and anxiety (4)	Building in extra time to address emotions; focusing on empowerment to act; creating community to build a sense of collective efficacy, or belief that people working together can make a meaningful difference
Scale (4)	The scale of the problem (in terms of time, spatial extent, and costs) is huge. Focusing on the costs of inaction, building skills, establishing shared baseline knowledge of the problem and associated impacts, greater cross-collaboration, and long-term planning are each important
Complexity (3)	Climate change is complex, and the information is also novel to many. Strong emphasis on building shared knowledge base and cross-sector collaboration are critical
Polarization (3)	Welcoming all participants; carefully selecting the language used; focusing on adaptation rather than mitigation
Limited control (2)	Climate change causes and impacts are largely outside the immediate control of participants. Therefore, building cross-sectoral collaboration, adaptive and responsive planning, and considering the importance of long-term resilience, resistance, and transition are particularly important
Urgency (2)	This can actually make it easier for people to collaborate who might not have otherwise, as long as hope and empowerment are effectively cultivated
The necessity of cross-sectoral collaboration (2)	A need to focus on shared problem definition, shared learning, shared decision-making, and relationship-building

2.16 Funding

We asked Delphi participants about the most typical sources of funding for conducting climate adaptation workshops with broad audiences (Table 29). Private foundations were the most commonly cited source, followed by funding from the federal government. County-level funds were the least commonly cited.

Table 29. What are the most typical sources of funding to conduct climate adaptation workshops with broad audiences?

Funding sources	% of respondents
Private foundations	76%
Federal government	71%
State government	24%
Community	10%
Unspecified organization	5%
Academia	5%
County government	5%

We also asked Delphi participants to respond in an open-ended text box to the following question: "What strategies do you believe are most promising for securing funding for implementation?" We thematically coded the responses, which are summarized in Table 30.

Table 30. What strategies do you believe are most promising for securing funding for implementation?

Strategy	% of respondents	Examples/comments from respondents
Make persuasive arguments	29%	● Make the business case ● Frame the need for the project regardless of climate change ● Form personal relationships with potential funders
Demonstrate impacts of the work	24%	● Conduct and disseminate evaluation results with agreed upon metrics ● Share successful examples with clear positive results
Attach to already funded work	24%	● Build adaptation into ongoing planning and implementation processes
Seek diverse sources of funding	14%	● Public and private
Multi-party collaborative initiatives	10%	● Work together with other organizations as much as possible
Seek private funding more often	10%	● Private funding can be quicker, more flexible, and less onerous
Create a searchable database	5%	● A state-by-state effort to create a database for both funding and technical support
Provide seed funding/grant writing support	5%	● These could be provided separately or in combination by interested funders hoping to catalyze this work
Incorporate brainstorming for funding into workshops	5%	● Difficult with an already packed agenda.

2.17 Evaluation

Responses to the first survey indicated numerous constraints to implementing high quality evaluation. In the second round of the Delphi, participants rated each item in Table 31 in terms of the extent to which it functions as a constraint to conducting high quality evaluation of workshops.

Table 31. Delphi participants' opinions about constraints to conducting high quality evaluations of climate adaptation workshops.

| Constraint	Minor	Moderate	Major
Lack of funding	14%	29%	57%
Lack of staff time	10%	38%	52%
Lack of motivation from participants to respond	29%	33%	38%
Not sure how to design a high-quality evaluation	45%	20%	35%
Not sure what to measure	38%	38%	24%
The feeling that it just isn't as important as other priorities	50%	25%	25%

Delphi experts were then asked to share their ideas for moving beyond these constraints in an open-ended text box. Their responses are summarized below, and the number of respondents who indicated each idea are noted in parentheses.

- Dedicate funding to evaluation in the budget (6)
- Need to work with funders to ensure both funding and <u>long-term</u> evaluation (4)
- Establish clear objectives prior to workshop (1)
- Engage evaluation experts early in the process of workshop design (1)
- Document plans/actions in partnership with implementing organizations so that future evaluators/practitioners can evaluate long-term impacts by tracking resulting actions (1)
- Seek guidance on feasible and relevant metrics (1)
- Build effective monitoring into planning through adaptive management (1)

2.18 Constraints to collective action

In the third round of the Delphi study, experts were asked what they felt to be the biggest constraints to collective action around place-based climate adaptation. Items were developed from open-ended comments on the first two rounds of the Delphi study and the broader literature on collective action and collaborative governance.

First, respondents indicated how often they felt each item to be a major constraint on a three-point scale: rarely (1); sometimes (2); and usually (3). Then, respondents were asked to select up to three that they considered to be the biggest constraints. Responses are summarized in Figure 1.

Figure 1. Facilitators' beliefs about constraints to collective action
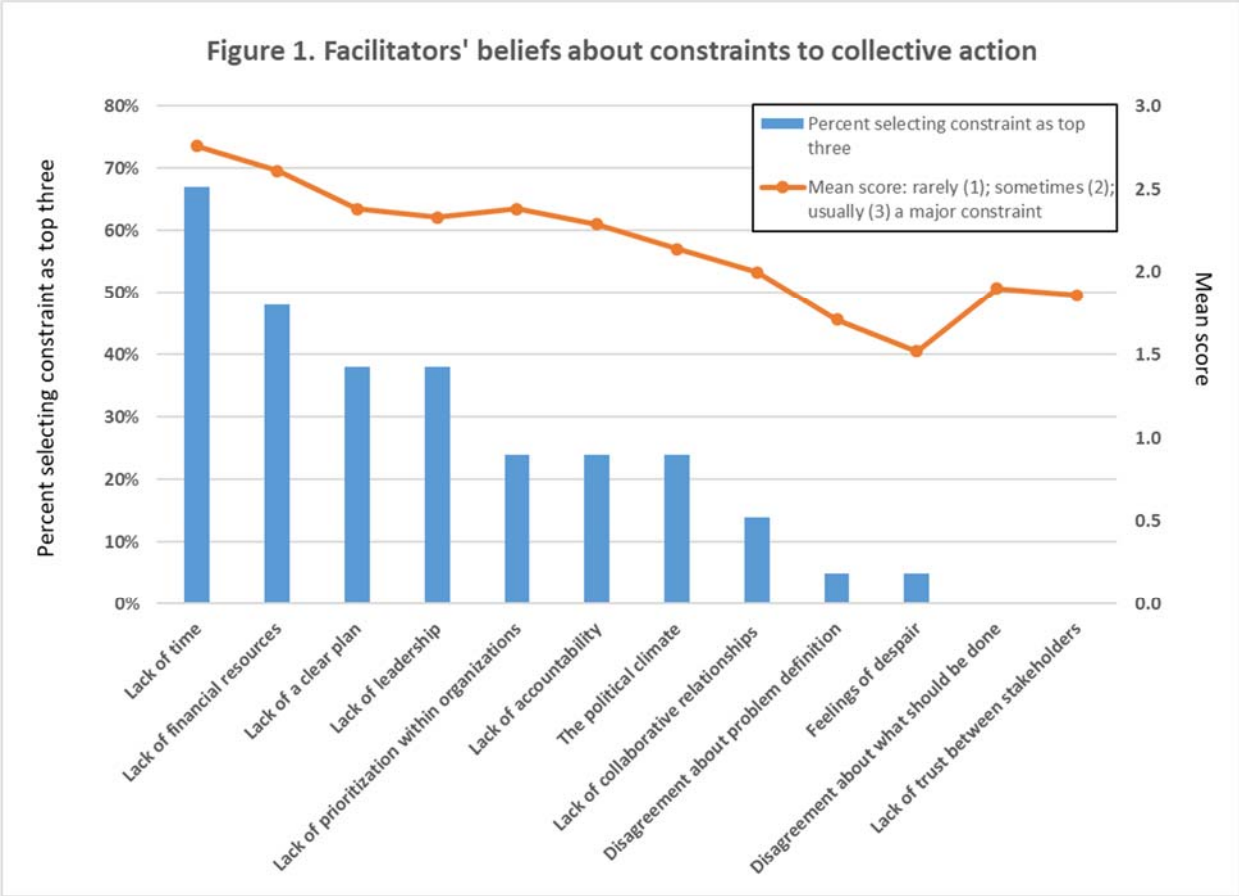
Overcoming constraints to action is further addressed in section 3.5 of this report, though respondents discussed a different, though overlapping, set of constraints in the breakout groups.

2.19 What makes the biggest difference?

In the third round of the Delphi study, we asked the expert facilitators the following question: "If you could put your finger on <u>one thing</u> that seems to make the biggest differences in the outcomes after a climate adaptation workshop, for better or worse, what would it be?" Responses are summarized in Table 32.

The most common set of responses involved strategically aligning the planning process with participants' assets, requirements and constraints. In these experts' view, success is linked to developing clear objectives for the workshop and focusing on decisions, actions and outcomes within the group's control. Furthermore, by linking the plan to preexisting processes, requirements, and systems, participants' goals are more likely to be implemented and lead to better outcomes. Additional responses are shared in Table 32. Elements in this table were discussed extensively at the March workshop (see **3. CONTRIBUTIONS FROM THE MARCH 2020 WORKSHOP BREAKOUT GROUPS**).

Table 32. The most important factor for climate adaptation workshops.

Factor (# coded)	Explanation	Example
Strategic objectives (12)	Develop clear objectives for decisions, actions and outcomes within group's control, preferably tied to preexisting processes, requirements and systems.	"Aligning outputs to fit into existing management processes and goals. I.e. understand existing management planning and decision process and design an adaptation process to address these specific questions, the questions on manager's desks today and in the near future. This practical approach also shows participants how to use available information and tools to address future questions."
Support structures (4)	Funding and institutional support (e.g. staffing)	"In my experience, working with federal agencies primarily, its institutional support (via funding and staffing). " "Sustained FUNDING to deliver on identified adaptation actions"
Workshop timing (3)	Meet communities where they are and at the right time. Tailor workshop to audiences' level and be strategic about when in a community's process to hold a workshop.	"Aligning the content and activities to where the participants are at right now - i.e., if they are just getting started vs. ready for more complex concepts and activities - it's best to align a workshop to helping them take the next step forward. The most challenging thing is when you have a group that is a mix of both (just getting started vs. ready for more complex ideas and discussions)!"
Local champions (3)	Find local champions to move action forward	Having participants who volunteer to serve as leaders in moving forward on implementation.
Enhanced relationships (2)	Build productive relationships among workshop participants	"What new relationships to each other and the topics were generated in the workshop and how can these be furthered? In our rural counties, while agency staff know each other, they rarely sit down together and look at climate change. The new insights gained from listening to each other should be capitalized on. How can they continue to work together? What might each be doing that is counterproductive to resilience? How can solutions be integrated across all departments?"
Enhanced motivation (2)	Validate participants, build hope	"Make sure that participants feel like their recommendations are taken seriously and matter"
Facilitator actions post-workshop (2)	Ongoing facilitator availability, follow up surveys	"Good to do a follow up survey of participants to find out how they think they can apply workshop, and perhaps later another survey to follow up on progress."

2.20 Ideas for future research

In the third round of the study, we asked the Delphi experts an open-ended question about the most important unanswered questions surrounding climate adaptation workshops for future research. We grouped similar questions and developed a list of research questions reflecting the full diversity of responses, arranged below under topical headings.

Moving toward post-workshop implementation
- How do workshops influence post-workshop outcomes?
- What strategies can overcome barriers to move from adaptation planning to implementation?
- What are participants' biggest constraints to post-workshop engagement? Can workshops help to address those constraints?
- How do characteristics within the community (i.e. political climate, economic situation) influence outcomes post-workshop?
- How does the type and scale of a workshop influence outcomes post-workshop?
- What factors are essential for the long-term sustainability of implementation efforts?

Collaboration
- How can processes be best designed to work across relevant stakeholder groups and jurisdictional boundaries?

Equity and underrepresented populations
- How can equity be integrated into the adaptation process? What are the implications of integrating and failing to integrate equity into the process?
- What is the significance of tribal or indigenous culture in the adaptation process?

Leadership
- How does leadership impact adaptation planning and implementation? How can an adaptation network develop this leadership?

Learning
- How can facilitators measure the participants' understanding of climate science and the adaptation process pre-workshop, and how can they tailor their workshops to the learning needs of the group?

Communicative framing
- What message framing inspires people to adapt to climate change?

The relationship between adaptation and mitigation
- To what extent does adaptation planning influence climate change mitigation efforts?

3. CONTRIBUTIONS FROM THE MARCH 2020 WORKSHOP BREAKOUT GROUPS

Prior to the workshop, each participant was provided a draft of this report and a list of questions that emerged from the research team's review of survey responses in each round of the Delphi study (Figure 2). The questions were then divided between breakout groups to maximize coverage, such that each group was tasked with discussing at least six of the questions over the course of 1.5 hours. All questions were discussed by at least one breakout group. Each breakout group's discussion was recorded and transcribed verbatim. Three researchers at Virginia Tech qualitatively coded the transcripts, first organizing the data by the questions listed in Figure 2, and then progressing through an open-coding process to identify emergent themes in the data. The research team developed analytical memos associated with each key theme. These memos provided specific examples and further explanation of key strategies that emerged as important within the Delphi survey and discussions at the workshop.

Six key themes emerged from our analysis: (1) Pre-workshop preparation; (2) Equity and inclusion of vulnerable populations; (3) Local champions; (4) Facilitating learning; (5) Overcoming constraints to action; and (6) Post-workshop support from external facilitators. The sections that follow discuss each key theme in more detail, including anecdotes and quotes, and culminate in key principles reflecting the general agreement among participants regarding valued practices relevant to each key theme.

3.1 Pre-workshop preparation

Prior to climate adaptation workshops, participants stressed the importance of leveraging local partners' expertise and learning about the broader cultural, social, and political context of host communities. Key themes included working with local partners to ensure cross-sectoral representation, to determine workshop size, and to collaborate on workshop design to ensure that it matches the range of local cultural norms. Most participants discussed working intensively with a small core of local conveners to achieve these goals. Participants also discussed the benefits of engaging the broader community in which the workshop will take place and strategies for doing so.

3.1.1 Building the invitation list

Getting the right people to attend the workshop begins with creating the invitation list in coordination with the local partners.

> *"One of the most critical parts of every workshop I've ever done is getting the invite list right, having it vetted, making sure that you open it up to as many people as possible recommended by your core five or 10, whatever it is. Having those people be the referees is really important."*

Experts described the external facilitator's role as an adviser to the local convening team, providing guidance so the team thinks in a structured way about whom they need in the room. Key considerations include ensuring representation across sectors and that decision-makers, and those most heavily impacted by decisions, attend. Some participants recommended providing a table or matrix with sections for each relevant sector (e.g., public health, local businesses, NGOs, etc.) and working with the local team to fill in each of the sector boxes with who they think should attend.

> *"We have a steering committee task force, strategy team . . . It's a group of people associated with the convening organization. We give people very specific guidance about how to form it. We work with five sectors across the community: natural systems, economy, built systems, cultural systems and health and emergency services . . . you really want one or two people across each of these sectors. You want them distributed across the planning area. You don't want them all from the urban area if your planning area includes rural communities. You want that nice geographic mix. That nice sector mix. And you also want to get those folks coming in from underrepresented populations."*

Once the team has identified a "champion" from each sector, the local partners can reach out to these invitees and ask them to recommend additional representatives from these sectors they believe should be invited (See **3.3 Local champions**).

3.1.2 Workshop size

Local partners and external facilitators can work together to determine workshop size based on the scope of the workshop. *"You need to start as a team defining the goals, direction, and scope of the workshop, because that is going to dictate who is critical to have in the room."* Open-door workshops (i.e., anyone who wants to come can join) are ideal for raising awareness or initial brainstorming sessions. When a specific plan for action is a desired outcome, participants suggested smaller, more targeted groups. One expert proposed applying a "concentric circles of engagement" approach to determine when to engage with a smaller vs. broader group:

> *"Sometimes, we think about these concentric circles of engagement. There is that core team designing the workshop, the facilitation team, whatever you want to call it. Then there might be that smaller more intimate conversation with like fifteen people and then there is the broader community engagement level. So then I don't always feel so bad about drawing a circle and saying, ok, let's have this conversation and move things forward, getting it ready for a bigger community discussion and knowing that avenue is there and that we aren't trying to exclude people."*

3.1.3 Sending invitations

Invitations are generally sent out by local partners, who typically know the best way to contact invitees. Some participants suggested a networked approach to invitations, as potential attendees may also be more inclined to join the workshop if the invitation comes from someone they know and trust.

> *"What we have found is that when they know Sara. She is on the built environment (sector), and Sara puts out a call to her colleagues within the community working in built environment. They come because Sara invited them, because it must be OK because Sara is leading this up . . . We have had workshops where an entire sector was missing, because we couldn't find anyone to put their head up in that sector. It's less that way now, but really early on we couldn't get medical people in the room until they began to realize that climate impacted health and medical issues. So the early ones were rough that way, but we leverage other people's relationships to get other people in the room."*

Participants suggested that external facilitators should check in periodically pre-workshop to ensure local partners have invited representatives across sectors. Several experts shared experiences where voices from entire sectors were absent from the workshop due to either lack of time to invite participants or lack of clarity about who is responsible for inviting participants. One expert shared an experience about a lesson learned from a workshop where a lack of time and clarity impacted the outcome:

> *"There were a lot of diverse voices that I think would have been great to have in the room that weren't, because we didn't allow enough lead time. There were some groups who we reached out to and they were like, 'Oh, well, this isn't our issue.' Not having enough time to build that relationship, and have the person who needed to connect with them (the local champion), who could really say, 'But you know, it IS your issue, and it is important to have your voice in the room.' It was one of those things where we were like, 'Okay, well, chalk that up for next time, and not let that happen again.'"*

3.1.4 Exploring culture, community norms, and history among participants

>*"A deep understanding for the culture is a make-or-break."*

Most experts emphasized the importance of "pre-work" or "frontloading" prior to the workshop, so external facilitators have a baseline understanding of the history of the community and key actors to help guide the workshop design. This involves working with local partners to learn more about the range of cultural and social norms within the community. One expert's experience from working with tribes in Alaska highlights the value of leveraging local partners' knowledge, especially in tribal or rural communities:

>*"What do you need to train me about your community or culture? And ask that question in the planning process so that everybody is on board about what to say and not to say. How to speak and who to speak to and not to speak to. What's correct etiquette? It's just such a sensitive thing. Just knowing that that is a predictable issue, particularly in rural communities. Plan for it."*

Local partners can provide facilitators with background information about the dynamics among participants, including power structures, pre-existing conflicts, or collaborations that exist between participants.

>*"I would add that one of the biggest pitfalls is to come into a community process forgetting that these people have history. That comes up certainly with tribal relations, with local government, with lots of other things, with context. I think that's one of the things we have learned with our task forces, because they will say you can't put these two people at the same table. So when we break up into breakout groups, Marge and Harry have to be at separate tables."*

This can also inform how best to communicate with local stakeholders after the workshop.

>*"The core team has also helped us review and refine information, both providing that nimble, direct, honest input to help guide it forward. But also to provide input on hey we're going to a public open house event, how do we package this information in a way that's useful and gets to the goals of the project or gets the right type of feedback? We have had some 'stop the presses,' like you can't talk about it or show it in this way in our community. So that has been super useful to use the inner group also as a sounding board to how to take this out in the community and create those tendrils."*

One expert shared her experience facilitating a workshop with insufficient knowledge of the local cultures:

>*"Understanding that local culture, I can't emphasize enough . . . I will go again to the Mormon culture. It was so important before we started anything was to understand the structure of their religion and their beliefs system. How they live in a community together. Their whole emphasis in their belief system about preparedness. Their outreach mechanisms they have. Understanding the mindset of the community would also dictate who you want on your stakeholder team and everything that you speak.*

The language that you choose to use. As facilitators in . . . County, we don't use 'climate,' but we use resiliency. Even understanding the subsectors, like how the farmers are feeling. We had farmers leave the meeting because we shared some projected material [about] what was going to happen droughtwise . . . They got up and left. So I just can't underscore that pitfall enough."

Local partners can also identify who they believe may be a "local champion," "honest skeptic," or "disrupter." Experts differentiated disrupters from skeptics, describing disruptors as negative individuals who may try to derail the workshop process or dominate the conversation. Honest skeptics don't "throw a wrench" in the process but require convincing to support and engage in adaptation strategies. One expert welcomed honest skeptics:

"Some of our best people have started out as skeptics . . . In community workshops, we see the most 'ah-ha' moments with people who came in a little skeptical, and it's why we encourage people who have honest skepticism about this to come through the door…it's actually why we almost lost a roomful of ranchers, because they were in that moment realizing that their family lineage of ranching was at risk, that their children weren't going to be able to grow what they were growing, that their entire system was set up for something that probably wasn't going to be able to happen in the future…But I think making the workshop a safe place for honest skeptics is one of the things that precipitates these ah-ha moments."

If local partners feel disruptors need to be invited, facilitators and local partners can work together to determine the best strategy to interact with them either before or during the workshop. One expert recommended organizing a pre-workshop discussion with disrupters, so they can voice and work through concerns beforehand. If a disrupter is powerful in the community, one expert proposed designating a session during the workshop where that individual can present their viewpoint. Another suggested instead inviting them to a social event after the workshop, so they can still feel involved but not disrupt the workshop.

3.1.5 Collaboration on the workshop agenda and design

Local partners can often provide insights on what will or will not work in their community based on their prior knowledge/experience working with participants. One expert discussed icebreakers as an example:

"How you open a workshop will be very different in different places. What those icebreakers are. We have suggested things, and we have had people come back and say 'that will not work here, and here's why.' This is how our community operates, and we will have one of those uncomfortable frozen moments if you try to open up the workshop this way. I think having this really honest feedback . . . You have this channel and you can get it. If they know that part of their job is to make sure that this workshop is structured in a way that actually is going to work for the people that they know will be in the room, then they will give that honest feedback."

3.1.6 Engaging participants before the workshop

Facilitators used multiple techniques to engage participants prior to the workshops beyond sending out agendas or other logistical information. These strategies included information provision, surveys,

interviews, and meetings to assess baseline knowledge and attitudes, set expectations, and adapt workshop strategies to fit the local context and culture.

Providing baseline information and allowing time for processing vulnerabilities
Experts suggested sharing local climate science information to address vulnerabilities before the workshop, especially if time is limited during the workshop.

> *"We have really advocated for holding pre-workshop calls to get the 'Climate Change 101' and local vulnerability stuff done before the workshop so that there is time for people to digest it, ask questions, vent about their concerns."*

Experts suggested that addressing climate vulnerabilities in advance might be particularly important for shorter workshops, so participants have time to process what they have heard and feel motivated to address those vulnerabilities at the start of the workshop. One expert commented, *"Nothing should be new information for people. They should already come into the workshop having a good idea of the changes that are happening and how it's going to affect the focal resources that they're working on for this workshop."* In other cases, workshops may be designed to last two days (one day to address vulnerabilities and one day for the adaptation plan) or as part of a series, allowing adequate time for workshop participants to work through what they have heard during the vulnerability assessment.

Assessing baseline knowledge and attitudes and ongoing projects
Several experts recommended surveys as a tool to understand attendees' preexisting knowledge and/or perceptions so that organizers can use this information to design workshop material. Facilitators and local partners can work together to design surveys to learn more about participants' preexisting knowledge of climate change, attitudes towards climate change, concerns about climate impacts in their community, and goals for the workshop. One expert described the value of surveys at the start of a series of workshops in one community:

> *"We were really prepared, going into the community with that knowledge, and I think, when possible, it is always a good thing. And then we . . . figured that our table was way too complex, and we needed to go back to the basics of climate 101 and then that became a useful tool. By the third workshop, everybody really understands the science, and they are comfortable with creating adaptation strategies for their community."*

When time and resources are available, several experts described their use of one-on-one interviews prior to a workshop to learn about participants' knowledge of climate change, roles, goals, existing projects, and challenges they are facing in their work. Interviews promote two-way communication between facilitators and participants and offer both parties the opportunity to probe for additional information to guide workshop design, which surveys might fail to provide.

> *"We were able to do a week-long, in-person engagement, like every day, one-on-one with different agencies. We'd ask them all the same questions to give us the lay of the land a little bit before we had the meeting… We got to ask--from their perspective-- what they would like, and we used those interviews to then craft the agenda for the first workshop… We got to go out and do field trips so people could show us, 'Well this is what I work on,' and, 'These are the issues we're facing,' and 'Well, here's what I know about climate change and what I'm curious about with climate change.' It just helps immensely when you're trying to facilitate the conversation, too, because people can*

tell you things that they may not say in a bigger group, so you can be prepared to ask questions sometimes that they might want to ask but be too nervous, because it might lead to some bad feelings or sticky feelings."

Facilitators can frame strategy development during the workshop around existing projects/frameworks within the community that participants identify during surveys or interviews. One expert elaborated on this point:

"So, when I'm working with a bureaucracy--state government--I would like to know more about the policies, their mission, their reporting structure, how decisions are made, so that I can frame things for and with them, or at least ask good questions to get them to meet me halfway on where their job is compromised on climate impacts."

Building relationships and setting expectations
Interviews also provide a way for external facilitators to build trust with attendees by sharing their approaches, answering questions, and requesting input. Facilitators can use interviews to learn who the champions are that support the process and can identify additional participants to invite to the workshop.

"We did interviews with people that were going to make the decision or be affected by it. From those interviews, we spent an hour with them. Once they had a better understanding of what we were trying to do and what the project was all about, they would recommend additional people that they thought would be important to include. And then we would go interview those people."

Several experts encouraged pre-workshop calls or meetings to discuss participants' objectives and the specific objectives of the workshop. These discussions can help build a more effective agenda (see **3.5 Overcoming constraints to action**, below) and identify the most appropriate people to invite to the workshop (e.g., those most heavily impacted, people with specific expertise, opinion leaders in certain sectors).

Although funding is often not available to conduct extensive interviews or hold in-person meetings prior to a workshop, experts acknowledged their high value, especially in communities with pre-existing conflicts among groups, lack of trust in outsiders or the government, high skepticism about climate change, or little to no prior network development.

Experts also noted the importance of overcoming barriers to attendance. In the Delphi survey, careful consideration of convenient timing for participants and providing childcare and stipends were noted. In the breakout sessions, multiple participants stressed the importance of providing stipends.

"One of our most successful workshops, which I ran with TNC in the Keys, we really wanted to have as many stakeholders as possible and to really do that we needed to pay stipends for people to attend. We had the right participation to get the results we wanted. And I know that isn't always doable, but I do think that makes a difference."

3.1.7 Key principles for pre-workshop engagement
- ● Work with local partners to:
  - o Ensure cross-sectoral representation at the workshop

- o Promote a full consideration of relevant stakeholders
- o Understand cultural norms and history of participants
- o Identify potential disruptors and strategize for effective facilitation
- o Identify potential local champions
- o Collaborate on workshop design and agenda development
- o Determine the appropriate size and scope of the workshop (smaller for plan development, larger for educational or general brainstorming objectives)
- ● Engage with potential attendees in the local community through surveys, interviews, calls, or meetings to:
  - o Understand baseline knowledge and attitudes relevant to climate adaptation
  - o Develop clear objectives and relevant content
  - o Develop trust
  - o Determine appropriate timing and incentives and address logistical concerns, such as childcare
- ● Share information with participants before the meeting, such as:
  - o The agenda
  - o Basic climate change information or other relevant science
  - o Local projections relevant to vulnerability assessments to enable time to digest (especially for shorter workshops)

3.2 Equity and inclusion of vulnerable populations

3.2.1 Vulnerable populations

While a broad definition of "vulnerable populations" in the context of climate change might include any group of people adversely impacted by climate change (Kirshen et al., 2018; USGCRP, 2016; Williams-Rajee and Evans, 2016), certain groups may commonly face elevated risks due to either greater sensitivity from other pre-existing stressors or lower adaptive capacity resulting from a host of socio-economic pressures. These groups often include the elderly, traditionally oppressed populations, those with lower income, and the less educated.

Participants at the facilitators' workshop stressed the importance of paying attention to those who are affected by decisions, rather than only those stakeholders capable of making decisions, enacting them or attending a workshop. Some experts opined that equity issues concerning vulnerable populations are less commonly considered in agency-related work around natural resource management, where direct links to human populations are sometimes not as apparent (e.g., habitat restoration for an endangered species).

> *"Often, decision makers… haven't necessarily thought through who will be affected by the decision as much, because that will affect the whole issue of whether equity or justice is important."*

> *"Decisions are being made about managing those watersheds that will impact the water quality or water availability for cities that are many miles away. It was interesting that no one for those water districts was involved in those decision processes. It was an example where, wow, we should have asked that question, but we didn't, and it was too late. But it's an example of the people who are making the management decisions might not be really even considering how the impacts will be because the impacts could*

be dozens if not hundreds of miles away from where you are actually doing the work on the ground."

3.2.2 Facilitators' roles

"In my opinion, it is everyone's responsibility to try to include them (vulnerable populations) in the process. I don't know how to do that yet. That's part of one of the things we're learning now and how do you authentically do that it is often a mystery to me."

While some experts struggled to delineate a clear role for facilitators, one suggested that the external facilitators can bring about greater inclusion of vulnerable populations by asking questions of local partners.

"*Who this is going to impact? Who (do) you need to support this decision to implement it? . . . So, it is not just saying we need to make the representation here diverse and equitable. We need to be, as the facilitator, learning a little more context to this, leading the logical connections to who should be at the table who may not be."*

Effectively engaging vulnerable populations can be challenging. For example, external facilitators can come into an on-going process wherein some stakeholders have been involved for years while other stakeholders who are affected have not been included in the process. In these and other cases, real or perceived power differentials can make it difficult to facilitate comfortable and open dialogue. Several experts indicated their organizations have started internal trainings to include equity and diversity considerations in workshop activities.

One facilitator described a tool their organization designed to understand the long-term impacts of a proposed adaptation project and minimize potential risks to the community. They include inequity as a risk factor, asking project leaders to evaluate if the project is in an area where individuals have low access to insurance or where more than 15% of individuals rely on social services such as food banks, and how the proposed project would impact each of these groups.

Another expert shared their experience serving as a mediator between local government (the agents holding the power) and vulnerable groups to create a space for dialogue to happen:

"We were hosting a climate dialogue in San Antonio. As part of that dialogue, we had local non-profits talk about climate issues for the people that they serve . . . We worked with the city to identify the right people, but we created the platform for those people who are sometimes marginalized and outside of the city and sometimes fighting for city resources to be able to share their stories with this broader and diverse group. Then it took away that general dichotomy between the city and the marginalized organizations or groups."

In short, incorporating vulnerable populations into climate adaptation workshops remains a challenge, but external facilitators can take steps to promote inclusion and encourage broader participation.

3.2.3 Key principles

- External facilitators can play a key role in identifying vulnerable populations and ensuring their inclusion and participation by asking questions about who is affected.
- External facilitators can foster engagement between powerful and vulnerable groups.
- Considering equity as a meaningful outcome or a lack of equity as a risk factor in adaptation planning can increase the engagement of vulnerable communities in climate adaptation processes and the development of adaptation solutions that are more broadly beneficial.

3.3 Local champions

3.3.1 What is a local champion?

A local champion can initiate change processes in a community, engage other key stakeholders, build networks, identify sources of funding, coordinate work, and drive implementation (Elbakidze et al., 2010; Kirchner et al., 2012; Martins and Ferreria, 2011; Ravindra, 2004). Experts described local champions as important throughout the adaptation process, including initiating the process, identifying and recruiting participants, diffusing ideas, and maintaining motivation and commitment over time.

> *A local champion "will make sure those things [climate adaptation planning and implementation] are happening, and if it's not showing up on the agenda, they'll go ask about it."*

3.3.2 Local champions and community readiness

Some participants suggested that the existence of a local champion is a critical prerequisite for successful climate adaptation workshops that lead to meaningful outcomes. Without local champions, climate adaptation workshops may only be able to achieve more modest objectives, such as general education and preliminary network-building, as opposed to comprehensive planning and implementation.

> *"So readiness, to me, not only means you have a local champion, but they are already thinking ahead about funding. They are already out of the shoot before the plan is even a third of the way created. They are already looking into the future and putting into their mind key people on the ground to handle the primary priority challenges.*

3.3.3 Who are local champions?

While certain characteristics of local champions appear to be consistent across contexts, others may vary. Consensus emerged around the importance of identifying people who are widely trusted within their communities and who have the commitment, time, and energy to ensure the process succeeds. Some also noted the importance of engaging local champions who can represent traditionally under-represented groups. Typical characteristics of local champions included people who are from the local community, share common characteristics with the people in the networks they engage, and are charismatic, persistent, and proactive.

Local champions can be either formal or informal leaders. A number of specific identities for local champions were identified in the breakout groups. **Organizational champions** support climate

adaptation efforts within their own organizations. These champions can help to counter organizational constraints to fully participating in climate adaptation processes. One participant explained that organizational champions "basically hand down authority or lead the organizations to give people the authority and the permission to take the time to move into these areas fully." **Political champions** can be elected officials or "people who own the purse strings." Political champions who are already bought into processes like these may engage in workshops as full participants or official discussants. Others might be engaged in less formal ways or through formal presentations after a workshop, depending on the consensus of the local conveners regarding whether they might stifle or enrich the participation of others within the workshop.

We term other local champions who are directly embedded within the climate adaptation network as **network champions**. These are the individuals who connect others, keep projects moving forward, and seek broader support for the work. Oftentimes, they may fill similar roles to what are known as a "backbone support organizations" in the collective impact literature, in that they can help to articulate and communicate a common vision and overall strategic direction, facilitate dialogue and coordinate work between partners, lead specific projects, and build external support for the overall effort (Kania and Kramer, 2011). These champions can emerge from virtually any sector.

3.3.4 Champions from all sectors

The importance of finding multiple champions across different sectors emerged in each breakout group. One participant, for example, regularly works with local conveners to create a local task force with representatives of relevant sectors (environmental, infrastructure, business, health, and emergency services) to help develop the agenda for the workshop and invite participants. The goal is to identify potential local champions from each sector to get engaged early in the process. This tends to enhance the likelihood of building broader networks with higher levels of participation.

Participants also discussed the pros and cons of **local government vs. non-profit champions**. Some participants noted the abilities of non-governmental organizations, such as The Nature Conservancy, to "bring people together" and to "push ideas forward that came out of the workshops." Others noted the critical importance of champions within local government. General consensus emerged that both types are important.

Local government champions can enhance the public accountability of an initiative and clear political or bureaucratic roadblocks associated with climate adaptation. Non-governmental organizations often have considerable expertise and resources to contribute to projects and can often assume the role of backbone support organizations that can coordinate the efforts of others. They can also push government agencies along when inertial roadblocks are the problem. Specific efforts to enroll and develop local government champions might be particularly important in political contexts that do not generally support climate adaptation initiatives.

> *"When we've had nonprofits that led the charge without the local government champion, it was climbing Mount Everest in terms of getting the thing on the ground to happen."*

3.3.5 Identifying and developing local champions

Clear consensus was expressed about the importance of leveraging the knowledge and pre-existing connections of the local conveners. Time spent with local conveners in discussion of the importance of local champions and the representation of diverse sectors emerged as a critical component of success. When pre-existing local champions are not apparent, training people who are interested in moving the process forward can be a successful alternative. One participant described a two-year process of training a local champion in leadership skills with some seed funding. The process converted an interested, but inexperienced, person, into a local leader for climate adaptation.

> *"Sometimes these things take time and there isn't funding available . . . it takes a persistent person to try to piecemeal together the little pieces of funding to have that champion."*

3.3.6 Key principles
- Work with local partners to identify champions from diverse sectors at the start of the planning process.
- Consider that multiple local champions might be appropriate
- Consider critical characteristics of local champions:
    - They are (or can be) trusted by others.[1]
    - They (to the extent possible or relevant) reflect the characteristics of the local community.
    - They are committed to the work.
    - They are competent in planning, coordination, and communication.
- Consider the specific roles that local champions might play, including:
    - Linking together people from different sectors.
    - Promoting meaningful dialogue and relationships between participants.
    - Coordinating work.
    - Keeping the ball rolling.
    - Removing barriers to action.
    - Generating internal commitment and external support.
- Consider the context
    - Can the work be successful without the active support of local government entities?
    - What sectors, organizations, or specific actors are critical for success?
- Consider whether resources (and time) are needed to develop the leadership capacity of local champions.

3.4 Facilitating learning

3.4.1 Focus on local impacts

Participants agreed that facilitators and workshop presenters should focus on local projections and impacts rather than basic climate science. Local impacts can serve as an entry point for workshop attendees to understand broader climate science and empower participants to tackle a daunting global

---

[1] Questions to consider: Are they well-known? Are they well-liked? Are they respected? Do people think they are competent? Do they create divisions in the group?

issue. Participants noted a distinct shift in the field away from providing basic climate literacy toward an applied approach focused on asset management, risk assessment, and on-the-ground planning.

> *"When I first started this, 12 years ago, I would have started out with, you know, 'carbon dioxide goes up into the atmosphere, and it traps heat.' I wouldn't do that anymore… I've tried to flip it to figuring out which climate data people think are most relevant, and then going into the details."*

> *"It's important to share information that's relevant, that people can act on, at the scale that's relevant to them, because cognitive psychology tells us that if we overwhelm people and don't give them something they can do that matches the scale of the problem, then they are likely to shut down."*

Focusing on local climate data can sidestep controversies about climate change, remove jargon that can turn off some audiences, and help to avoid patronizing other attendees who are already well aware of the basics of the greenhouse effect and other related processes. One facilitator shared an anecdote revealing the value of foregoing the basic science in favor of local impacts and projections:

> *"I've had several workshops that I've done in communities where people have said 'Thank you for taking the science out of it,' and I'm like, 'But I didn't!' I turned it so that it's more of a focus on why it matters to you… if you talk about phenology changes in their back yard or seeing blooms at different times or drought or flooding, those are things that people can really relate to. They understand what it means, and they feel like they have some control over it as well… Otherwise it becomes a paralysis situation where you throw your hands up, 'well, the climate's changing, what can I do?'"*

One respondent described using past extreme events as "proxies" for climate projections during a planning process. Again, the focus on local events appears to remove some of the boundaries associated with sharing underlying scientific processes.

> *"'You had a flood in 2018, and it was a 100-year flood, and you had to react to that and respond to that. What if that kind of flood starts to happen every five years instead of every 100 years?' That can anchor people in their own experience a bit more rather than showing them a bunch of quantitative projections about the statistical probabilities of floods."*

If the timing and workshop structure allows, some participants suggested sharing basic climate-science information before a workshop to help establish a common baseline of knowledge and free up time during the workshop to focus on local impacts and adaptive actions (see **3.1 Pre-workshop preparation**).

Participants were divided on how or whether climate scientists should be involved in workshops. Participants generally bemoaned the tendency of climate scientists to dive too deeply into technicality and overwhelm the audience. One participant suggested having climate experts on hand to answer questions instead of giving a presentation. Having experts present at the workshop can also help participants know where to direct future questions. Another participant suggested drawing on local experts who are known within the community and have a better understanding of the local context.

3.4.2 Responsiveness to local contexts

Facilitators emphasized the importance of being flexible and responsive to the range of participants' social and cultural norms and contexts, framing the stages of workshop development and execution as a process of co-creation among the facilitators, local conveners, and participants (see **3.1 Pre-workshop preparation**).

On a mechanical level, participants noted the value of delivering information in a manner that is sensitive to the local context. One participant described a climate adaptation workshop on a Pacific island where the facilitators adapted their approach to the context. Working with local champions, they developed a set of pictorial flip charts that explained climate change and the likely local impacts and had them printed on fabric, which was well-suited to the cultural context and the rigors of the tropical climate.

On the opposite end of the spectrum of technologies, another participant described an adaptation workshop in Mississippi, where an initial PowerPoint presentation failed to resonate with the audience. At the suggestion of the workshop attendees, the facilitator created short informational pamphlets about "Climate 101" delivered via Facebook. The Facebook group she developed continued to serve as a clearinghouse of climate information for the community long after the workshop. In both cases, the inspiration for novel approaches came from within the community.

Several experts recalled experiences where they scrambled during the workshop to adjust the agenda because the material wasn't resonating with participants.

> *"I know a couple workshops we did some pretty big kind-of pivots about what we had planned vs. what we did in the room together to try to target some of the information they were looking for. It was painful but it works. There was one workshop in particular- we were halfway through day 1 and we were like oh crap we are not hitting this audience at all. Luckily, the group of us were willing to sit at the dinner table for five hours at night to rework the entire agenda for the next two days. At the end instead of people walking away thinking this was a complete waste of time, I think we garnered a lot of respect and partners who were willing to move forward with us as we did different phases of that project…"*

3.4.3 Peer-to-peer learning and cross-sector dialogue

Adaptation workshops serve as a venue for networking and information exchange. Several experts highlighted ways that these interactions can lead to deeper knowledge of vulnerabilities, risks, and adaptation opportunities.

Information sharing during the workshops, whether in formal facilitated exercises or informal conversations, can deepen participants' understanding of the risks their communities face and alert them to opportunities for synergies or creative solutions to ameliorate those risks. For example, one facilitator described an effort to improve freshwater connectivity by increasing the size of culverts. Representatives from an area that had recently experienced culvert failure from extreme weather were able to inform other participants about the costs of repairing their infrastructure. This helped the other group make stronger arguments for taking preventative actions when they returned to their community after the workshop. This peer-to-peer interaction was a critical component of most discussions about

how important learning happened in adaptation workshops, particularly when it happened between people from different sectors.

Cross-sectoral communication often served as the basis for what facilitators agreed were "ah-ha moments." For example, one facilitator told a story about an emergency director and a public works planner from a community where the main population center was located across the river from the hospital. During a conversation about climate-linked increases in extreme weather, the emergency director learned that the bridge was potentially vulnerable to more severe flooding—a possibility the community's emergency plan had failed to consider.

> *"That sharing is the ah-ha moment: 'Wow, this is really big. Lots of change is coming at us.' And, it kind of puts people's own-sector work in a little bit different perspective—in a wider perspective."*

3.4.4 Key principles
- Focus on local impacts to make climate science tangible, relevant, and actionable.
- Consider using past climate events as proxies to aid in planning for future conditions.
- Frame information in a way that is attentive to cultural norms and worldviews.
    - Rely on local partners to understand what is likely to resonate in a community.
    - Be prepared to retool the workshop agenda in response to participants' reactions.
- Present information using context- and culturally-sensitive technologies.
- Enable peer-to-peer dialogue and relationship-building.
- Ensure cross-sectoral dialogue.

3.5 Overcoming constraints to action

This section focuses on several constraints to action after a workshop and recommended strategies and activities to employ during the workshop to overcome these constraints. We first identify four of the most commonly noted constraints and then summarize recommendations for addressing them.

3.5.1 Constraints to action

Feeling overwhelmed or hopeless about implementing adaptation strategies
Facilitators described encountering sentiments from participants like *"how can I do this, I'm not a climate scientist"* or *"this (climate adaptation) is way too big to take on."* Workshop participants can especially become overwhelmed with technical information about climate science or when discussing strategies that may be outside the scope of their role.

Unclear objectives
Some facilitators noted that pre-existing objectives can often be too vague at the outset of their engagement with local groups. They stressed the importance of ensuring that objectives are specific, shared, and obtainable by the group that attends the workshop. Clear, specific objectives can help to bound the scope of the workshop, enabling a focus on realistic and meaningful actions. They can also help to identify who should be invited (i.e. areas of expertise, those who will be impacted). With clear shared objectives, facilitators can frame workshop material to fit the local context.

> *"I think we did something like 30 workshops last year, and time and again, we find that when a group comes in and their objectives to begin with aren't clear, they just*

51

> *vapor lock, because everything seems important and overwhelming, and they don't*
> *know where they want to go anyway. When the objectives are clear, and that's where*
> *you start, you can begin framing everything to that reference."*

Organizational constraints
Delphi experts noted several organizational constraints that may inhibit participants' ability to engage post-workshop, including participants being too busy with existing projects, adaptation work falling outside of the scope of their position, and a lack of authority to implement adaptation actions.

Lack of accountability after the workshop
Accountability, or being answerable to others for one's actions, is fundamental to how people decide whether to engage or not within collaborative projects (Romzek et al., 2013). Multiple forms of accountability, including upward accountability (to funders or bosses who control the resources), downward accountability (to one's clients, community, or subordinates), and lateral accountability (to peers or other organizations with a similar level of power), can often compete with developing accountabilities associated with climate adaptation (Tenbensel et al., 2013). Experts indicated that these competing accountabilities pose challenges for maintaining participants' commitments to adaptation after the workshop.

3.5.2 Recommended Workshop Strategies

Building feelings of self- and collective efficacy
Workshop activities can counteract feelings of hopelessness by focusing on enhancing participants' feelings of self-efficacy and collective efficacy. Self-efficacy refers to an individuals' belief that they can undertake an action and that their effort will lead to desired outcomes (Bandura, 1997). Collective efficacy refers to the same beliefs, but in the context of the coordinated actions of a larger group (Bandura, 2000). Steps described for enhancing these beliefs included building feelings of togetherness, highlighting community strengths, and focusing on actions within the control of participants. Ensuring objectives are shared and achievable and that proposed actions align with organizational constraints and pre-existing work commitments (each discussed below under their own headings) can also further enhance self- and collective efficacy.

Enhancing feelings of togetherness and highlighting community strengths
Several experts recommended starting the workshop off with a discussion about what participants value and care about most in their communities to enhance feelings of togetherness and positivity about their community. Focusing on values can also help move participants toward more meaningful and shared objectives. In some cases, especially in conservative areas where climate adaptation lies outside of cultural norms, workshops can connect people who otherwise feel isolated.

> *"People think they are the only one worried about this. A workshop setting… can help*
> *them find each other so that they can realize they aren't alone: They aren't the only one*
> *in local government that is concerned about this, or in a particular field, or in their*
> *natural-resources space."*

Numerous facilitation techniques can support feelings of togetherness or group identity. One facilitator commonly uses word clouds after responses to questions like, ***"How would you describe your community? What do you care about?"***

> *"A lot of the time, we actually keep climate out of that whole discussion, because climate just gets big. People get in the tailspin, and they can't ground themselves in their values, because they are just so confused or overwhelmed about climate. We just ground them in what they care about. Once they identify that, the whole rest of our process is about adaptation once they have identified their objectives."*

During these discussions, shared values or thoughts about the community tend to emerge, which reminds participants that *"they are more alike than different"* and *"there are characteristics that they all care about."* This exercise not only allows participants to think positively about their community before diving into the harder discussions about vulnerabilities but can also be referred back to when developing strategies.

Delphi experts agreed that discussing vulnerabilities to climate change can leave people feeling overwhelmed or negative about what may happen to their community.

> *"The navigating of the psychological response of people is really important, and that's one of the things that we learned definitely the hard way, because we already have faced that ourselves and it's easy to forget that the people in the room, many of them are just coming to this for the first time."*

One expert shared an example activity, during which participants write down how the information they have learned will affect them on sticky notes. Looking at the words on the wall as a group, *"We'll point at them say, 'will somebody speak to this?' And then we'll go through all of them. And it gives people a chance to really . . . hear it from each other. And we don't interject a 'this is the most important' or 'you're wrong' or whatever, this is just purely them speaking to their responses to what they heard about the climate threats."* They then, *"talk about some of the solutions, what the specifics are that they put up on the wall, and we'll refer back to that wall for the rest of the workshop."*

To build feelings of collective efficacy, the language used by the facilitator can make a difference. For example, one facilitator described saying something like:

> *"'The good news is that there are many, many things that communities can do to respond to these changes that are coming, and especially if they get started early, like you all are doing.' Something that kind of lifts them up. They say, 'Oh yeah, we are-- we're taking action; we're that kind of community.'"*

Another expert described a process to highlight community assets to bolster feelings of collective efficacy.

> *"We basically say, 'What does your community have to bring to this challenge? What are your best characteristics to bring to this?' And then what we'll do is, we'll have everybody make paper airplanes, and then they throw them--it's a really common one we use--and then everybody picks up somebody else's plane and reads it. And so, it gets people physical, it gets them focused on doing something with their hands, at a time in the process where they can be a little bit shell-shocky."*

Facilitators noted that these types of exercises are particularly important at points in the workshop where participants are likely to feel overwhelmed – for example, after exploring the full suite of climate vulnerabilities of their areas.

Focusing on actions within the control of workshop participants
Experts also agreed that focusing on actions within the control of workshop participants is critical for promoting feelings of self-efficacy and empowerment. One facilitator shared a story about a workshop where participants kept offering adaptation actions in areas beyond their control:

> *"I'd say, 'Well does anyone in the room have any authority there?' and it was like, 'nope!' … 'Does anyone in the room identify as a natural resource manager?' and no one did. So, I was like, 'Alright, we can't talk about that, so what else could we do?' …They knew what other people should do, but they couldn't think about what they should do. Focusing it on what they controlled made it a lot easier to get somewhere."*

In this case, the participants eventually decided to develop a plan to integrate climate change into an educational event, which they were able to implement successfully.

Defining shared objectives
Experts agreed that objectives need to be specific, achievable, and shared among participants. Even if objectives have been pre-defined prior to the workshop, groups may need to revisit during the workshop if they are too vague or do not directly address climate vulnerabilities. One facilitator described a workshop in which participants had told her that they already had objectives. Participants told her, *"we spent a lot of time on our objectives, so we don't want to talk about that again at this workshop."*

> *"And so I looked at their existing objectives, like OK, and we get in there and a few hours into the meeting, I was like, you know, no one has talked about your existing objectives. Yet, you said you felt good about the process, that you like them, but it sounds like they haven't informed anything you've done as a group. They haven't come up at all in what we're talking about now. What's up with that? And they were like, oh, huh, yeah, I guess the point of objectives should be things you can use for planning and decision-making. And for whatever reason, I think the process they used to come up with these objectives didn't work for who they were . . . I think they as a group, and I think this is what I see in landscape cooperatives, they don't always take time focusing on the problem in a way that they as a group can address – just like 'we need landscape solutions' and move on from there."*

To move from vague to actionable objectives, facilitators can ask participants questions to link objectives to the values of the group and the local realities.

> *"Ask what do you value? And that's when you start digging in. Well, what do you value in this ecosystem? You start pressing them. What could you not do without? What would be a failure if it were to fail? What do your stakeholders value? If you draw an investment, what do people invest in through you? What is funded by your funder? You know, we just ask really specific questions that are value-oriented and then continue in terms of objectives or actions that can help you meet your goals. You know, continue with what actions are they willing to take and what actions align with their values. And*

challenge the stuff that they say- ask them for specifics. Eventually we get to this
reasonable set of objectives that they think can help them get to their goals and these
goals along with their vision and their values."

Addressing organizational constraints
Experts stressed the importance of integrating adaptation actions into existing workloads and pursuing actions that are clearly within the control of workshop participants. Several experts suggested discussing participants' existing workflows and what they believe will be their constraints when they return to their home organization. Facilitators and fellow workshop attendees can then help each other fit climate adaptation work into their organizational realities. One expert described questions to ask participants during the strategic development stage:

> *"What are things that are already in place within their departments that this*
> *information can be easily integrated into? What are the easy gains that they can make*
> *right away, in addition to the longer-term pictures?"*

While some actions might require major shifts within home organizations or the development of broader networks, experts noted that participants often feel more empowered when they don't have to worry about convincing their boss or others to engage in adaptation efforts. One expert focuses discussions on what she calls "actionable outputs." In workshop sessions, participants are encouraged to focus on adaptation actions within the control of the people in the room. This keeps strategy discussions focused on tangible and realistic outcomes, rather than broader, more general ideas.

Enhancing accountability
Delphi experts recommended creating mechanisms during the workshop to foster accountability among participants to push things forward post-workshop. They suggested keeping people accountable by reporting back to the larger group through regular catch-up calls, shared documents or a cooperative/task force with regular scheduled meetings. One expert shared his organization's method of fostering this during the workshop:

> *"At the end of the workshop, one of the last sections is for people to brainstorm on the*
> *question of 'who are the next three people you will talk to about this to get it done, and*
> *what will you say to them?' And we get them to write down those names and their*
> *action associated with those names. And then at the end of the workshop, if they will*
> *let us, we'll take pictures of all their worksheets and of that particular last section. Then,*
> *if we can find the time, we'll come back around in a couple weeks and ask them if they*
> *actually reached out to these people. And try to follow up again if we can, continually,*
> *and eventually a lot of people do, just to shut us up."*

No clear consensus emerged about who should be responsible for keeping others on task. This might involve the external facilitator, local conveners, or other local champions.

3.5.3 Key principles
- Bolster feelings of self- and collective efficacy by building feelings of togetherness, highlighting community strengths, and developing realistic action plans.
  - Design workshop activities to reveal shared values.
  - Find ways for attendees to share what they feel are their community's greatest assets.

- Focus on actions that are within the control of attendees.
- Develop objectives that are specific, shared, and obtainable by the group that attends the workshop.
  - Ask questions about what stakeholders value, what is meant by broad ill-defined terms, and what workshop participants can actually do.
  - Be wary of assuming pre-existing objectives are sufficient for promoting post-workshop actions.
- Address organizational constraints.
  - Bring perceived constraints into the open through discussion to enable brainstorming among participants to find ways to overcome barriers.
  - Align adaptation work with pre-existing job responsibilities, organizational goals, or other projects.
- Enhance accountability.
  - Encourage attendees to make clear commitments during the workshop.
  - Designate an entity to follow up on next steps post-workshop, whether that be the external facilitator, local partner or local champion in the room.

3.6 Post-workshop support from external facilitators

To enhance success post-workshop, experts agreed that external facilitators should continue to provide support if the community wants their help. This support may be especially important in communities that didn't have a pre-existing plan/project in mind before the workshop, lack a plan for moving forward by the end of the workshop, lack local climate experts, or need additional buy-in from stakeholders post-workshop to push things forward.

> *"I will say that really early on when we started, and we were having to prove ourselves a lot. I had a forest supervisor who was deciding if the Forest Service was going to engage with us. He asked me in front of his whole leadership team and the climate champions from the Forest Service in an introductory meeting with us. He looked at me and asked if I was just another one of these researchers who are just going to drop in and stir the pot and go away once you have what you need. Or are you going to stick with us and see this through? That was ground shaking for me . . . So I think there's a role for both just doing a workshop, but at this point we very explicitly say to any organization that is in one of our workshops we will stick with you throughout this process if you want us to. And that makes a really big difference for a lot of them."*

External facilitators can provide support post-workshop by: (1) answering questions/providing technical input; (2) providing a platform for ongoing conversations/climate information; and (3) holding participants accountable for their commitments (see **3.4 Overcoming constraints to action**).

3.6.1 Answering questions/provide technical input

Communities are often unable to obtain the specific information necessary to develop effective strategies post-workshop or to translate existing climate science into application for their community. External facilitators can fill this role. One facilitator's organization created a position that focuses solely on climate science outreach post-workshop, being available to answer any questions communities have

about climate science and help them access the information they need. Another expert agreed with this solution but felt that facilitation organizations need more than one or two people who focus solely on this area to effectively reach out to all the communities that need support post-workshop.

3.6.2 Providing a platform for ongoing conversations/climate information

External facilitators can also create and maintain an online space for ongoing conversations, sharing climate information, and reporting to the larger group. Effective online platforms require careful consultation with local partners to understand the best way to communicate/engage with the community post-workshop. Suggested formats for ongoing support included websites, shared documents, regularly scheduled video meetings, or other online forums. These platforms can provide needed information and also help people maintain social contact after the workshop is over. One expert described her strategy to ensure the community understood Climate 101 post-workshop:

> *"What really worked well were little flyers. Climate 101 flyers that they started sharing with folks. Weirdly, and I hadn't really thought about this, they were like, 'oh, we communicate via Facebook." So we started sharing a lot of information via Facebook. So over the course of two years, they finally get it and finally understand it . . . It is still live, and people are adding to it, which is really neat. It is growing, which is also good. Our work was in a tiny town . . . Now the county wants to get involved and create their own action plan. As part of the Facebook page, we also have a website for them which we house with all the resources and worksheets and the science."*

3.6.3 Key Principles
- Planning ahead to provide ongoing support can enhance longer-term collaboration and adaptation.
- The format, modes of delivery, and content of ongoing support may vary from context to context. Discussion with local partners before, during, and after the workshop can enhance effectiveness.

4. CONCLUSION AND NEXT STEPS
This study examined the ideas and beliefs of 24 climate adaptation workshop facilitators (22 Delphi participants and two additional workshop participants) who practice their craft in the United States. The study suffers from two primary limitations. The first involves the small sample of experts involved. We attempted to engage as diverse and experienced a sample of workshop facilitators as possible. We thus consider this effort to provide a reasonable, though incomplete, representation of the broader field of facilitators of these specific types of workshops in the U.S. The second major limitation is that the study solely captures the viewpoints of facilitators and not participants in these workshops. To address this shortcoming, the next phase of this research involves surveying participants in multi-stakeholder, place-based climate adaptation workshops that have taken place over the past three years in the U.S. This phase will uncover participants' beliefs about best practices in these workshops and also provide insights into the outcomes the workshops can actually achieve. With this broader understanding, the final phase of the research involves drawing upon our learning from the first phases of the study to design and implement a series of eight climate adaptation workshops in diverse contexts. Using both qualitative and quantitative methods, we will further explore how to make the most of these types of workshops to contribute to the successful implementation of climate adaptation actions across the U.S. The study is tentatively scheduled to be completed by December 2023.

5. REFERENCES

Bandura, A. (2000). Exercise of human agency through collective efficacy. *Current Directions in Psychological Science*, *9*(3), 75-78.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. W. H. Freeman, New York.

Elbakidze, M., Angelstam, P. K., Sandström, C., & Axelsson, R. (2010). Multi-stakeholder collaboration in Russian and Swedish model forest initiatives: adaptive governance toward sustainable forest management? *Ecology and Society*, 15(2): 14 [online].

Kania, J., & Kramer, M. (2011). Collective impact. *Stanford Social Innovation Review,* 9(1): 36-41.

Kirchner, J. E., Parker, L. E., Bonner, L. M., Fickel, J. J., Yano, E. M., & Ritchie, M. J. (2012). Roles of managers, frontline staff and local champions, in implementing quality improvement: stakeholders' perspectives. *Journal of Evaluation in Clinical Practice*, 18(1): 63-69.

Kirshen, P., Ballestero, T., Douglas, E., Miller Hesed, C.D., Ruth, M., Paolisso, M., Watson, C., Giffee, P., Vermeer, K. and Bosma, K. (2018). Engaging vulnerable populations in multi-level stakeholder collaborative urban adaptation planning for extreme events and climate risks—a case study of East Boston USA. *Journal of Extreme Events*, 5(2): 1-15.

Martins, R. D. A., & Ferreira, L. D. C. (2011). Opportunities and constraints for local and subnational climate change policy in urban areas: insights from diverse contexts. *International Journal of Global Environmental Issues*, *11*(1): 37-53.

Ravindra, M. M. (2004). A road to tomorrow: Local organizing for a biosphere reserve. *Environments: A Journal of Interdisciplinary Studies*, *32*(3): 43-59.

Romzek, B., K. LeRoux, J. Johnston, R. J. Kempf, and J.S. Piatak. (2013). Informal accountability in multisector service delivery collaborations*. Journal of Public Administration Research and Theory* 24(4): 813-842.

Stern, M.J. (2018). *Social science theory for environmental sustainability: A practical guide.* Oxford University Press, Oxford, UK.

Tenbensel, T., J. Dwyer, and J. Lavoie. (2014). How not to kill the golden goose: Reconceptualizing accountability environments of third-sector organizations. *Public Management Review* 16(7): 925-944.

U.S. Global Change Research Program (USGCRP). Crimmins, A., J. Balbus, J.L. Gamble, C.B. Beard, J.E. Bell, D. Dodgen, R.J. Eisen, N. Fann, M.D. Hawkins, S.C. Herring, L. Jantarasami, D.M. Mills, S. Saha, M.C. Sarofim, J. Trtanj, and L. Ziska (Eds.). (2016). *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment.* U.S. Global Change Research Program, Washington, DC, 312 pp.

Williams-Rajee, D. and Evans, T. (2016). *Climate Action through Equity*. City of Portland and Multnomah County, OR.

6. STUDY PARTICIPANTS

Delphi participants (* indicates participation at the March workshop)

Nikki Cooley	Institute for Tribal Environmental Professionals Tribes & Climate Change Program
Molly Cross*	Wildlife Conservation Society
Ned Gardiner*	NOAA Climate Program Office (contractor via Collabralink Technologies)
Nancy Gilliam*	Model Forest Policy Program, Climate Solutions University
Tonya Graham*	Geos Institute
Rachel Gregg*	EcoAdapt
Kim Hall*	The Nature Conservancy
Karen Hevel-Mingo*	National Parks Conservation Association
Jennie Hoffman*	Adaptation/Insight
Sara Hutto*	Greater Farallones Association
Jessi Kershner*	EcoAdapt
Lizzie McLeod	The Nature Conservancy
Lisa Micheli	Pepperwood Preserve
Eric Mielbrecht*	EcoAdapt
Koren Nydick*	U.S. National Park Service
Britt Parker*	University of Colorado-Boulder/NOAA Cooperative Institute for Research in Environmental Sciences
Alex Score*	EcoAdapt
Erin Seekamp	North Carolina State University
Chris Swanston*	U.S. Forest Service
Sam Veloz*	Point Blue Conservation Science
Jordan West*	U.S. Environmental Protection Agency
Lara Whitely Binder	King County, WA Climate Action Team

Additional participants at the March Workshop

Sascha Petersen	Adaptation International
Bruce Stein	National Wildlife Federation