Designing Collaborative Learning Workshops for Rural Churches and Policy-Makers

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Executive Summary

Rural, coastal communities in the Southeastern United States are already facing a devastating combination of natural hazards from hurricanes to extreme heat with projections showing these hazards worsening throughout the century as climate change disrupts normal weather patterns. Despite the central role rural Christian churches often play in the cultural, social, and physical well-being of rural areas, they have historically been left out of policy deliberations on climate resilience and adaptation. Collaborative learning workshops offer a pathway to build connections and bridge the gap between policy makers, scientists, resilience workers, and churches. In this study we explore how collaborative learning workshops are used to foster deep, lasting connections between communities and decision-makers and how the workshops can be applied within the context of engaging coastal, rural, and Black, indigenous, and other Christian churches of color (BIPOC) in the Southeastern United States on climate resilience. To understand best practices for planning and facilitating collaborative learning workshops, we conducted semi-structured interviews with ten experienced community climate adaptation practitioners and workshop facilitators, analyzing the transcribed interviews to find related themes. We also produced a widespread literature review capturing academic sources, practical guides, and case studies on collaborative learning workshops. Results suggest that initial connections and preparations prior to workshops with communities are crucial, the community should dictate what needs to be addressed during workshops, facilitators need to be intentional about goal setting and conflict resolution, and the process should not be rushed. We used these findings to suggest recommendations for future workshop facilitators and created a workshop guide of best practices tailored to the context of rural, coastal churches.

TABLE OF CONTENTS

Introduction ---5

Research questions ---6

Literature Review ---6

    Public Participation ---7

    Deliberative Democracy ---8

    Social Learning ---9

    The Collaborative Learning Approach --10

    Case Studies --17

Methods ---28

    Zoom Interviews ---29

Results and Observations --32

    Demographic characteristics --32

    Interview findings --32

        Pre-workshop --32

        In-workshop ---39

        Post-workshop ---45

        Challenges ---48

Discussion and Recommendations --52

    Facilitators should be trusted by the parties and impartial ---------------------------------53

    Initial connections and preparations prior to workshops with communities are

    fundamental to success ---55

    Focus on building a collaborative process above all other outcomes ----------------------57

Power differentials must be addressed --59

Try to evaluate the CL process often and holistically --60

Study’s limitations ---62

Suggestions for further research --63

Conclusion --63

References --65

Appendices --68

Appendix A: Assessment ---68

Appendix B: Training --71

Appendix C: Design --73

Appendix D: Implementation/Facilitation ---73

Introduction

Rural, coastal communities in the Southeastern United States are facing a devastating combination of natural hazards from hurricanes to extreme heat. Projections show these hazards worsening throughout the century as climate change disrupts normal weather patterns, stressing infrastructure, social services, and housing in communities with few resources to adapt (Carter et al., 2018). Despite the central role rural churches often play in the cultural, social, and physical well-being of rural areas, they have historically been left out of policy deliberations on climate resilience and adaptation (Nicholson et al., 2020). Recognizing and integrating the assets coastal churches offer, local knowledge, skills, and tradition, into policy making will strengthen the effectiveness and durability of resilience efforts (Hesed et al., 2020). Engaging rural, coastal, and Black, indigenous, and other Christian churches of color (BIPOC) provides policymakers and scientists the opportunity to develop trusted avenues of cooperation and collaboration with communities most affected by climate change.

Often, local faith organizations already have deep experience preparing and responding to coastal disasters. In many places, faith-based organizations are the first to deliver relief after a hazard and the last to leave, filling the gaps left by federal and state disaster recovery programs. As trusted local institutions they are hubs of information, connection, and shelter when a community is threatened by disaster (Bock, 2022). These social, physical, and community assets can be utilized to maximize climate resilience and adaptation if churches, scientists, and decision-makers can find room to collaborate.

Collaborative learning workshops are a means of building these linkages. These workshops are structured as a combination of social learning, conflict resolution, and systems thinking allowing parties both to learn the preferences of others as well as voice their own concerns (Daniels & Walker, 2001). Deliberative forums between churches and decision makers have been shown to increase awareness of available resources, empower communities to play an active role in their future, and expand social networks (Hesed et al., 2020). These outcomes line up closely with NOAA's Environmental Literacy Program's concepts of building environmental literacy through education (Bey et al., 2020), the theory of change for the funding agency of this project.

Research Questions

Our objectives for this project are to take an understanding of the best practices in collaborative, participatory, and deliberative forums and apply them within the context of The Participatory Education in Faith Communities for Climate Resilience project. Through NOAA funding, the project will engage coastal, rural, BIPOC churches on climate resilience in Maryland, Virginia, and North Carolina over a three-year period. In service of this project, we aim to answer the following questions:

- What elements of collaborative learning workshops have been shown to foster deep, lasting connections between communities and decision-makers?
- How can these workshops and elements be structured specifically for building social learning between rural, BIPOC, coastal churches and decision-makers?

Literature Review

The collaborative learning framework exists both within and comes out of a long and varied tradition of public participation, social learning, systems thinking, and conflict resolution techniques (Daniels & Walker, 2001). In turn, each of these traditions have histories and evolutions of their own. Below we will briefly outline some of the important terms and techniques that encompass collaborative learning to provide context on why the collaborative learning framework provides an appropriate foundation for this project.

Public Participation

To begin at the broadest level, public participation is anytime stakeholders can weigh-in, directly or indirectly, on government decision-making (Quick & Bryson, 2016). From city council meetings to public comment periods on federal rulemaking, participation happens through a wide variety of scales, media, and stakeholders. Public participation, to some extent, has been a feature of society at least since the formation of democracies, but until the major environmental legislation of the 1970's in the United States, most notably the National Environmental Policy Act of 1970, there were no formalized frameworks of public participation at the federal level on environmental issues (Senecah, 2004). For the most part, government technocrats made policy decisions that the public had little say on. Since then, the legitimacy and use of public participation in environmental decision-making has grown significantly (Bulkeley & Mol, 2003; Sprain & Reinig, 2018).

Historically, public participation was thought of narrowly as a balance between input from outside stakeholders and knowledge from experts, contrasting public buy-in with technical expertise (Senecah, 2004). Arnstein (1969) expressed this balance of power-sharing through the metaphor of a ladder, with manipulation, informing, and consultation on the lower rungs and partnership, delegated power, and citizen control on the higher rungs. While much policy is still decided through the lower rungs of the ladder, there has been an increase in higher levels of community engagement since Arnstein formulated her ladder (Senecah, 2004). The hard distinction between experts and lay people is being obscured as a wider range of community and local knowledge is recognized in decision-making processes (Sprain & Reinig, 2018). Communities hold deep knowledge of local ecosystems, cultural and social norms, and issues. Pursuing lasting, effective answers to the wicked problem of climate change and environmental degradation means grappling with both technical and local expertise.

Deliberative Democracy

One theory situated within public participation more broadly that addresses the imbalance of expert and lay knowledge is deliberative democracy. According to Sprain and Reinig (2018), “Deliberation provides a forum for reciprocal engagement between citizens and experts through which judgments and preferences are transformed.” As a normative theory, deliberative democracy sees democracy as fully legitimate only when the public is actively consulted on policy through deliberation (Chambers, 2003). This deliberation occurs through forums, which ideally engages a diverse representation of participants in substantive debate and consultation on an issue of policy as a means to both improve the policy itself and strengthen the civic engagement of the participants (Curato et al., 2017; O’Doherty & Davidson, 2010). There are certainly significant barriers to implementation in both recruiting diverse participants and designing effective forums (Ryfe, 2005). Working with a wide range of opinions is challenging and much depends on the context of the discussion, there is no set framework for deliberation (Ryfe, 2005). Yet, proponents say the transformational possibilities to reduce polarization, deepen understanding of issues, and find consensus is worth the cost of implementation (Curato et al., 2017; Sprain & Reinig, 2018). Core to this is a reciprocity of information and relationships between experts and lay people (Sprain & Reinig, 2018).

While deliberative democracy as a theory shares much with the collaborative learning framework, there is no consistent corresponding praxis that underlies it (Sprain & Reinig, 2018). The structure of deliberative forums can vary depending on the practical theory of engagement being utilized (Sprain & Reinig, 2018). In this sense, collaborative learning workshops fall under the umbrella of deliberative democratic theory, but uses a specific set of techniques, methods, and processes to find consensus.

Social Learning

Another theory of stakeholder engagement that influences collaborative learning is social learning (Daniels & Walker, 2001). Social learning theory is hard to boil down to a single definition. This is evident from articles attempting to clarify the meaning of social learning from several prominent social learning scholars more than 20 years after its initial use in the literature (Cundill & Rodela, 2012; Reed, 2010).

Broadly, it is a theory that describes how people learn through community and social interaction (Reed, 2010). The theory argues that people learn differently as a collective than they do as individuals and can potentially be more effective at spurring change than individual focused education (Reed, 2010). In fact, a change in the behavior of a group is foundational to social learning. Reed (2010) says, “for social learning to occur, the ideas and attitudes learned by members of the small group must diffuse to members of the wider social units or communities of practice to which they belong.” This community wide learning happens through “information transmission” and “communicative action” (Reed, 2010). Social learning is borne out not by the individual alone, but through iterative dialogue and action within a group(Cundill & Rodela, 2012; Reed, 2010).

Reed (2010) places a particular importance on a transformational change in understanding when defining social learning. This transformation is described through single, double, and triple loop learning (Reed, 2010). Single-loop learning is understanding the direct consequences of an individual action. Double-loop learning is a level deeper and indicates reflection on drivers of that action. Triple-loop learning is "learning that challenges the values, norms, and higher order thinking processes that underpin assumptions and actions." (Reed, 2010).

According to Cundill and Rodela (2012), the deeper engagement of double and triple-loop learning occurs through group deliberative processes and joint experimental practices. Through a literature review of social learning in the natural resource management, they found that the social learning gained through deliberative processes, "improves decision making by increasing awareness of human-environment interactions, and by building relationships and the problem-solving capacity of stakeholders…" (Cundill & Rodela, 2012).

Similarly to deliberative democratic theory, collaborative learning takes social learning theory and applies it within its framework. Collaborative learning workshops do not just aim for individual learning but change for whole communities of practice (Daniels & Walker, 2001). In this case, those communities of practice are churches in Maryland, Virginia, and North Carolina.

Collaborative Learning Approach

The Collaborative Learning approach (CL) developed by Daniels and Walker in their 2001 book, *Working Through Environmental Conflict: The Collaborative Learning Approach*, is a process, framework, and philosophy for collaborative decision-making (Daniels & Walker, 2001; Walker & Daniels, 2019). The goal of CL is to integrate theories of systems thinking, adult learning, and conflict management into a practical means of addressing conflict in natural resource decision-making (Daniels & Walker, 2001). Originally used as a framework to address conflict in allocating and valuing natural resources, it has been adopted to address a wide range of environmental issues (Feurt, 2008; Johnson et al., 2018).

As a philosophy, CL is centered around a few main tenets: Focusing on improvement and progress over final solutions, emphasizing the interests and concerns of parties rather than static positions, prioritizing learning through effective communication and negotiation, and addressing systemic thinking over linear thinking (Daniels & Walker, 2001).

In addressing complex, multi-party issues, CL focuses on the importance of learning and communication that lead to improving a situation rather than solving a problem (Walker & Daniels, 2019). Solutions, especially for complex, wicked problems, are rarely going to be the outcome of a single workshop (Johnson et al., 2018). By focusing on improvement, defined as "desirable and feasible change or action" (Walker & Daniels, 2019), there can be tangible movement on a difficult issue that creates lasting improvements over time (Johnson et al., 2018).

Emphasizing interests and concerns around conflict instead of position highlights CL prioritization of conflict management over conflict resolution (Walker & Daniels, 2019). By framing conflict as something to manage, rather than resolve, recognizes that for many issues resolution is unlikely or impossible. By asking participants to acknowledge their interests and concerns rather than staking out a position to defend prepares them for a long-term conflict management process rather than a short-term competition for dominance (Daniels & Walker, 2001).

To achieve this long-term process, authentic, active learning in all participants is necessary (Daniels & Walker, 2001). Learning is used a broad term here, including both the technical aspects of a problem, but also include inter-personal learning about the values and context of others interests and concerns (Hesed et al., 2020). This learning is predicated on participants in CL communicating effectively through dialogue and deliberation (Walker & Daniels, 2019).

CL’s focus on systems thinking is perhaps the least intuitive of its main tenets. Systems thinking encourages moving beyond linear thinking (A causes B) to a broader understanding of how relationships, institutions, culture, history, and the physical world dictate and transform outcomes (Daniels & Walker, 2012). Regarding natural resource conflict and systems thinking, Daniels and Walker say, “the overarching motivation for using systems-based inquiry is that natural resource management is increasingly characterized by a high degree of complexity. As the knowledge of natural systems increases, we attempt to craft management strategies that reflect that knowledge; hence they become increasingly complex…The expansive nature of natural resources debates-where everything is connected to everything else—would seem to be a ready-made situation for systems thinking.” (Daniels & Walker, 2001, p.123). This complexity also applies to debates around climate resilience. The goal with systems thinking is to be able to respond to complex conflicts dynamically by including a wide range of parties and point of views into the debate (Walker & Daniels, 2019).

CL In Practice

Building upon these theories, CL converts them into a series of project and process phases (Daniels & Walker, 2001). The project phases outline broad steps to building a CL project from start to finish. They are:

1. Assessment: This initial phase focuses on evaluating the situation and how CL can empower the parties to improve the conflict. Based in the systems thinking model

developed by Wilson and Morren (1990), the object of this stage is to understand the situation from the perspective of each stakeholder without judgement (Daniels & Walker, 2001; Wilson & Morren, 1990). In the social learning literature, Kolb calls this stage reflective observation (Kolb, 1984) because learners are encouraged to reflect on their and others position by asking questions.

There are a wide range of tools to structure the assessment phase. Daniels and Walker frame this phase using The Progress Triangle (see Figure 1), which organizes the assessment into procedural, relational, and substantive dimensions. Each one of these dimensions is accompanied by a set of questions to be answered throughout the phase.

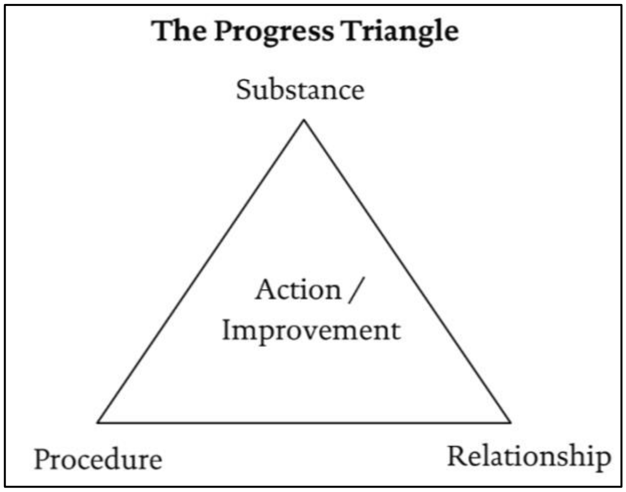


Figure 1: The Process Triangle, an assessment tool balancing the substance, procedure, and relationship aspects of an issue. Source: Daniels and Walker, 2001

Feurt uses a series of listening sessions, situation mapping, and assessment matrix as tool to capture a broad understanding of the problem from the perspective of the stakeholders (Feurt, 2008). See Appendix A for a detailed explanation of these tools.

2. Training: This phase involves teaching key stakeholders the CL process and making sure there is buy-in to the process. This step is particularly important within deliberative democratic theory. Rules that define the expectations and boundaries of deliberation provide stakeholders with structure and guidance for their dialogue (Ryfe, 2005). Ryfe (2005) says, “explicit rules must prop up deliberative initiatives.” The training phase is meant to provide participants with a clear understanding of the process and expectations (Daniels & Walker, 2001). Daniels and Walker provide a two-day training for stakeholders to unpack and discuss the basis of CL. See Appendix B for an example schedule for the training and activities.
3. Design: Using the assessment of problem as a bridge, the workshops can begin to take shape. This phase brings all the underlying theory of systems thinking and social learning to create a series of workshops that promote authentic, effective engagement (Daniels & Walker, 2001). Daniels and Walker use a “journalistic” approach by “asking what, who, when, where, how, and how much?” (Daniels & Walker, 2001). The “what” focuses on understanding the goals of the process (Daniels & Walker, 2001). The “who” refers to who will be designing the process, who the process is for, and who will be involved (Daniels & Walker, 2012). “When, where, how, and how much” are generally logistical questions of planning the workshops themselves (Daniels & Walker, 2001).
4. Implementation and Facilitation: This phase includes the execution of a series of workshops and activities planned in the design phase (Daniels & Walker, 2001). Like the previous phase, implementation and facilitation is rooted in systems thinking, deliberative democracy, and social learning (Daniels & Walker, 2001).

This phase will look different depending on the outcomes of the previous two phases but will always include facilitation through a series of discussions and/or activities. Some common activities are situation mapping (Appendix A), community mapping (Appendix C), ideas to action worksheets (Appendix C) (Daniels & Walker, 2001; Feurt, 2020).

5. Evaluation: Feurt (2020) describes the evaluation phase as, “not an end of pipe activity. It is an iterative process of attending to, documenting, and reflecting on how progress to improve a situation compares to the goals and objectives set for each phase of a collaborative project. During evaluation, there are a variety of opportunities for you and your group to make the course corrections necessary to reach shared goals in an efficient and productive way.” (p.28). The evaluation of a CL process should be multi-faceted and include the perspectives of stakeholders, facilitators, and conveners (Feurt, 2020). This means using a variety of methods, including surveys, interviews, and documentation to evaluate both the process itself and the outcomes (Feurt, 2008). This could mean using surveys with stakeholders before and after a workshop, conducting semi-structured evaluative interviews with facilitators, and hosting a forum amongst conveners to evaluate the collaborative process and outcomes(Weaver, 2019).

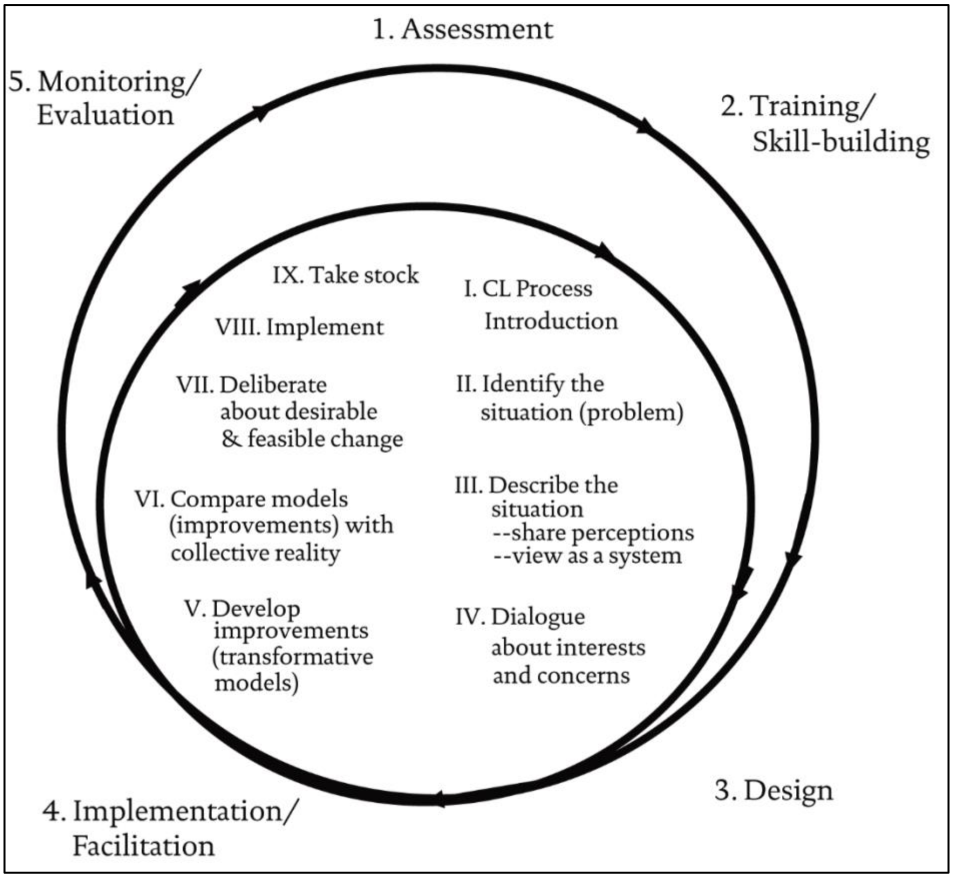

1. Assessment
2. Training/ Skill-building
3. Design
4. Implementation/ Facilitation
5. Monitoring/ Evaluation
I. CL Process Introduction
II. Identify the situation (problem)
III. Describe the situation --share perceptions --view as a system
IV. Dialogue about interests and concerns
V. Develop improvements (transformative models)
VI. Compare models (improvements) with collective reality
VII. Deliberate about desirable & feasible change
VIII. Implement
IX. Take stock

Figure 2: Collaborative Learning project phases and process stages. Source: Daniels and Walker, 2001

The process steps are more detailed and live between the design and facilitation phases above (Daniels & Walker, 2001). These steps dictate how the project phases come together in reality. While the project phases are more rigid, the process phases may change from project to project depending on the scenario and parties involved. Still, Daniels and Walker (2001) outline six principles that should be included in every CL project:

1. Facilitators have a deep understanding of the conflict and the viewpoints of all the participants. They should foster a communicative and collaborative space.
2. There should be a series of workshops that include a wide range of viewpoints on the conflict at hand. A deliberative atmosphere where all parties are on equal footing is imperative.

3. A time to gather the information from the workshops and convert that information to a model of how to transform the conflict.
4. A process to evaluate the options set forth in the model and discussed amongst stakeholders.
5. A process to collectively decide on a path forward out of the options available.
6. Implementation and subsequent evaluation of the decision that is made.

Daniels and Walker (2001) note that the facilitator’s role in these steps is to guide the process, not the outcome. There are a plethora of pathways through both these steps, most of which will be decided by the stakeholders.

Using the CL Approach in Christian Churches – Case Studies

While Daniels and Walker provide us a solid foundation on the conceptual and practical aspects of CL, their experience putting the approach into practice was primarily focused on conflict between federal and state natural resource managers and the communities they interact with. The Participatory Education in Faith Communities for Climate Resilience project is specifically focused on the implementation of the CL approach with coastal, BIPOC Christian churches in Maryland, Virginia, and North Carolina. Although there is much to learn from Daniels and Walker, faith communities can be vastly different from natural resource managers in terms of culture and priorities.

To understand how this approach can be translated to the context of rural, coastal BIPOC churches, we turned to the work of Drs. Christine Miller Hesed, Elizabeth Van Dolah, Katherine Johnson, and Michael Paolisso from the University of Maryland – College Park. These researchers developed a collaborative learning initiative called the Deal Island Peninsula Project (DIPP). DIPP has worked with rural communities on the Eastern shore of the Chesapeake Bay in Maryland to integrate CL into local climate adaptation planning since 2012 (Hesed et al., 2020; Johnson et al., 2018; Paolisso, 2019). While the DIPP focused on bringing together a broad swath of stakeholders, including natural resource managers, elected officials, and church leaders, an associated thesis by Dr. Christine Miller Hesed used CL and ethnography to work with specifically with Black Methodist churches in Maryland on climate resilience (Hesed, 2016). Dr. Hesed's study included churches across the Eastern Shore of Maryland, not just on the Deal Island Peninsula, for a larger sample size of how Black churches use CL to address climate resilience and injustice in their communities. These interconnected case studies provide a rich understanding of how the CL approach can be applied in similar cultural and geographic areas as the Participatory Education in Faith Communities for Climate Resilience project. There are no other case studies, that we are aware of, that provide insight into using the CL approach with rural, Christian communities. Below we provide an overview of both projects and extract lessons learned.

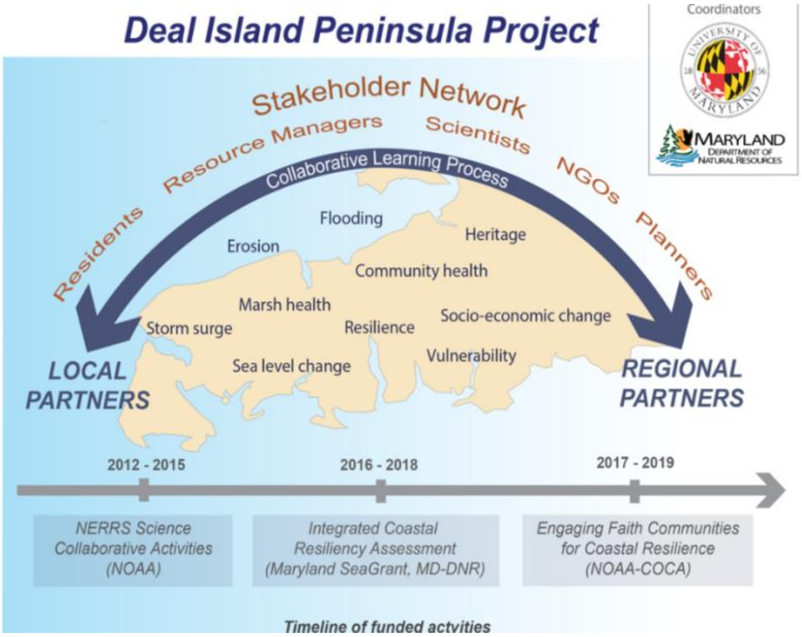

Deal Island Peninsula Project
Coordinators
Maryland Department of Natural Resources
Stakeholder Network
Residents
Resource Managers
Scientists
NGOs
Planners
Collaborative Learning Process
Flooding
Erosion
Heritage
Community health
Marsh health
Storm surge
Resilience
Socio-economic change
Vulnerability
Sea level change
LOCAL PARTNERS
REGIONAL PARTNERS
2012 - 2015
2016 - 2018
2017 - 2019
NERRS Science Collaborative Activities (NOAA)
Integrated Coastal Resiliency Assessment (Maryland SeaGrant, MD-DNR)
Engaging Faith Communities for Coastal Resilience (NOAA-COCA)
Timeline of funded actvities

Figure 3: Deal Island Peninsula Overview.

Source: The Deal Island Peninsula Project

Deal Island Peninsula Project

Beginning in 2012 and continuing through the present, the DIPP brought together academics from University of Maryland, natural resource managers from the Maryland Department of Natural Resources, local elected official, and residents of Deal Island to build capacity for climate adaptation (DIPP, 2018) . The goals of the project were twofold: 1. develop a collaborative science project studying how local marshes are impacted by climate change, and 2. Engage stakeholders in a CL to understand potential pathways to climate resilience (Johnson et al., 2018).

Collaborative science is the “cooperation with a focus on use, conduct, or communication of science.” (Johnson et al., 2018). Often it is a group of professional scientists and community members creating scientific knowledge in collaboration (Johnson et al., 2018). For the collaborative science aspect of the DIPP, stakeholders developed three separate collaborative research projects focusing on flooding, marsh restoration, and community heritage (Johnson et al., 2018). These projects each developed their own research questions, collected data, and gathered local knowledge.

Building on the collaborative science teams, the DIPP held six workshops from 2013-2015 with a third of participants being local residents, a third scientists, and a third NGO or governmental representatives. (Paolisso, 2019) While the workshops included about 30 participants, the DIPP also held community conversations which brought experts from flood insurance to religion into conversation with the larger Deal Island community (DIPP, 2018; Paolisso, 2019). The goal of these activities was to build trust amongst stakeholders and eventually move from a learning phase to a decision-making phase on climate adaption (DIPP, 2018; Johnson et al., 2018).

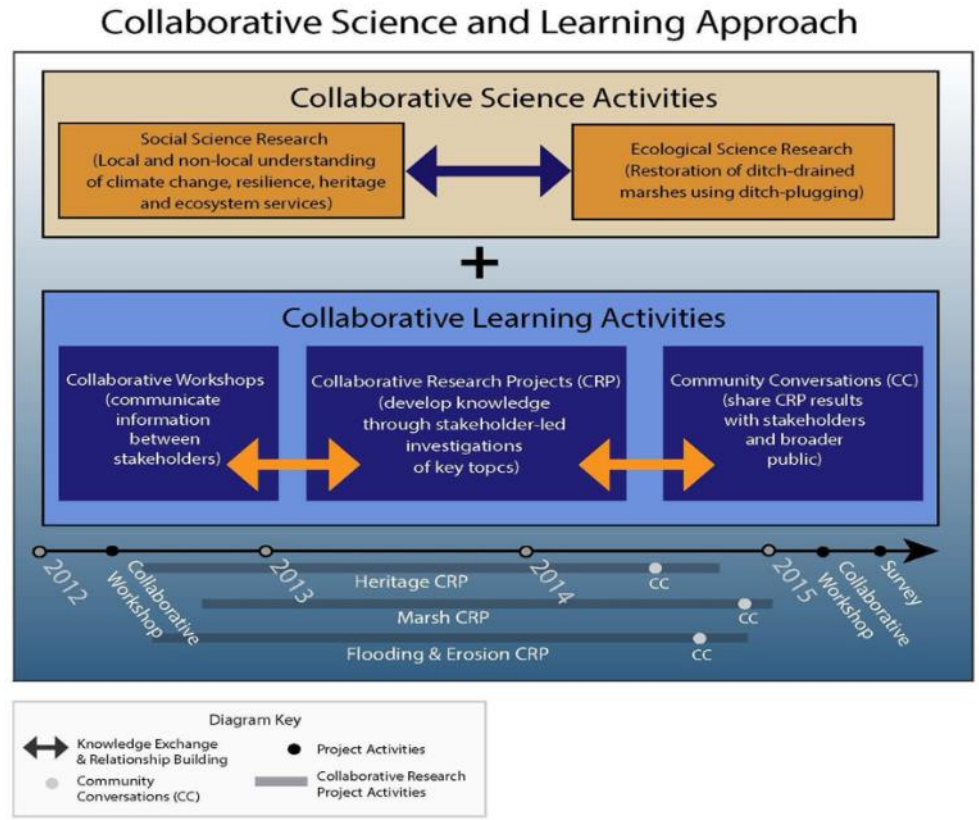
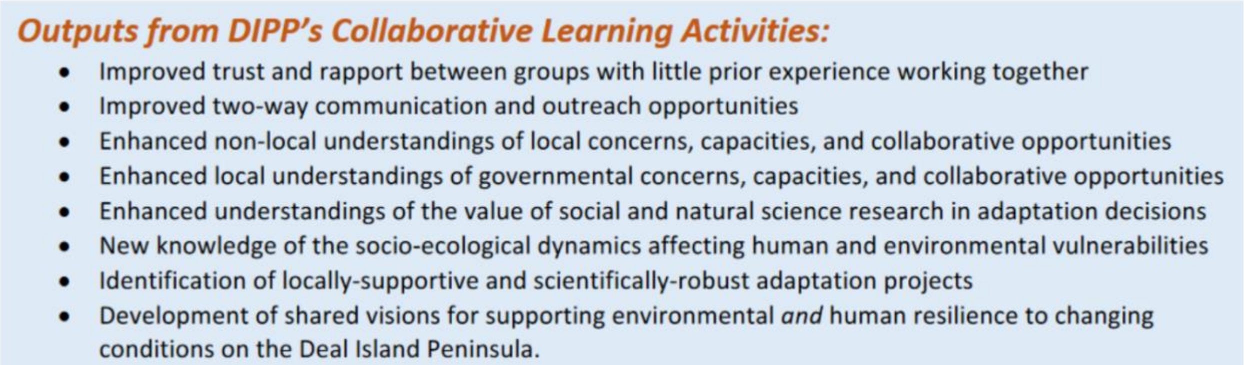

Collaborative Science and Learning Approach
Collaborative Science Activities
Social Science Research (Local and non-local understanding of climate change, resilience, heritage and ecosystem services)
Ecological Science Research (Restoration of ditch-drained marshes using ditch-plugging)
+
Collaborative Learning Activities
Collaborative Workshops (communicate information between stakeholders)
Collaborative Research Projects (CRP) (develop knowledge through stakeholder-led investigations of key topcs)
Community Conversations (CC) (share CRP results with stakeholders and broader public)
2012
Collaborative Workshop
2013
Heritage CRP
2014
CC
Marsh CRP
CC
Flooding & Erosion CRP
CC
2015
Collaborative Workshop
Survey
Diagram Key
Knowledge Exchange & Relationship Building
Project Activities
Community Conversations (CC)
Collaborative Research Project Activities

Figure 4: DIPP Collaborative Science and Learning Approach. Source: Paolisso et al, 2019

Some specific activities used besides facilitated workshops to understand climate impacts on Deal Island were collaborative mapping, key-informant interviews, collaborative field assessments, and photo documentation of flooding and erosion (DIPP, 2018). Ultimately the DIPP was successful in developing two adaptation projects on the peninsula (DIPP, 2018). First, a drainage ditch assessment by Somerset County government was conducted to understand how drainage ditches were contributing to flooding on the peninsula (DIPP, 2018). Second, a $1-million living shoreline project was funded by the state of Maryland to rebuild dunes along the shoreline (DIPP, 2018). These projects were the direct outcome of the collaborative science and learning processes of the DIPP (DIPP, 2018; Johnson et al., 2018).



Outputs from DIPP's Collaborative Learning Activities:

- Improved trust and rapport between groups with little prior experience working together
- Improved two-way communication and outreach opportunities
- Enhanced non-local understandings of local concerns, capacities, and collaborative opportunities
- Enhanced local understandings of governmental concerns, capacities, and collaborative opportunities
- Enhanced understandings of the value of social and natural science research in adaptation decisions
- New knowledge of the socio-ecological dynamics affecting human and environmental vulnerabilities
- Identification of locally-supportive and scientifically-robust adaptation projects
- Development of shared visions for supporting environmental *and* human resilience to changing conditions on the Deal Island Peninsula.

Figure 5: DIPP Collaborative Learning Outcomes. Source: DIPP, 2018

The successes of the DIPP in both funding significant resilience projects and improving dialogue between local residents and decision-makers show the possibilities and benefits of implementing a CL project in rural coastal areas. (DIPP, 2018; Johnson et al., 2018) The project funding became available after six years of building out a stakeholder network, originally funded through the NOAA Science Collaborative, then Maryland Sea Grant. Both projects were funded through the State of Maryland, which had been actively involved in the CL workshops through the Department of Natural Resources (DIPP, 2018; Johnson et al., 2018; Paolisso, 2019).

Overwhelmingly, participants in the workshops agreed that "The project has potential to continue improving resilience in the area in the immediate future." (Johnson et al., 2018).

A challenge that seems to arise from this type of project is a lack of on-going support for collaborative and deliberative processes. Because the CL approach is tied to specific grant funding (DIPP, 2018), it is difficult to continue collaborative work going forward. This is a common challenge in CL, how to support collaborative and deliberative work in communities long-term when funding is temporary. In this case, funding for the DIPP ended in 2019 (DIPP, 2018). The authors of the study highlighted, "this kind of work is a process. There are surprising interruptions and constraints—these efforts are more like designing and executing a long-term research agenda than a short-term research project." (Johnson et al., 2018). Continuing to provide the facilitation and support can be a challenge without institutional backing (Hesed et al., 2020; Van Dolah, 2018).

Evaluation can also be a challenge in the CL approach (Johnson et al., 2018). When the process is driven by the community it is hard to predict beforehand where it will go (Johnson et al., 2018). This makes it difficult to plan evaluation processes ahead of time.

Climate Resilience in Black Communities on the Eastern Shore

An associated, but separate study was conducted by Dr. Christine Miller Hesed on environmental resiliency in three Black churches on the Eastern Shore, "St. Michaels in Talbot County, the small settlements of Smithville, Aireys, Fork Neck, and Liners Road in Dorchester County, and Crisfield in Somerset County." (Hesed, 2016). Through questionnaires, interviews, and community and multi-stakeholder workshops, Dr. Hesed sought to understand how these communities viewed risk to climate hazards, environmental injustice, and employment of adaptation strategies (Hesed, 2016). Her study found frightening vulnerability in all three of the study communities with hazards increasing in severity while adaptive capacity diminished (Hesed, 2016).

To conduct this study, Dr. Hesed began with a series of community workshops to begin the process of bringing forth community knowledge on climate change, discussing ways the community may be vulnerable to sea-level rise, and identifying community resources to adapt (Hesed, 2016). These workshops included three activities designed to elicit learning on climate change, including a presentation on vulnerability and potential climate adaptation strategies followed by a small group activity relating those topics to the communities (Hesed, 2016).

Those workshops were followed up by semi-structured interviews with community members, policy makers, and environmentalists (Hesed, 2016). The interviews dug more deeply into individual perspectives on the local ecosystems, threats to people and the local ecosystems, and the impacts of environmental justice (Hesed, 2016). The six objectives for these interviews were, "1) what the individual views as important for the future of the social-ecological system; 2) what would help maintain important aspects of the present social-ecological system; 3) what threatens the important aspects of the present social-ecological system; 4) whether factors for social-ecological system resilience were present; 5) to what extent distributive justice related to flooding and recovery exists; and 6) to what extent procedural justice related to adaptation to flooding exists." (Hesed, 2016).

Using the responses from the interviews and community workshops, a questionnaire was then sent out more broadly to Black churches, policy makers, and environmentalists probing the same topics as the interviews (Hesed, 2016). The point was to see if there was consensus within and across groups on these topics (Hesed, 2016).

Finally, a multi-stakeholder meeting was held to share the results from the questionnaires and interviews, and create a space for community members, policy makers, and environmentalists to discuss their significance (Hesed, 2016). The workshop attendance was about 50% Black and 50% Caucasian, with representatives from the regional churches, federal and state governments, academics, and environmental non-profits (Hesed, 2016). Through four small group discussions, they identified obstacles and opportunities for adaptation to climate change on the Eastern Shore (Hesed, 2016).

The multi-stakeholder workshop exposed both obstacles to increasing justice and resiliency as well as opportunities in the communities. (Hesed, 2016) Obstacles included lack of resources at the communities' disposal to prepare themselves for sea-level rise, lack of support and transparency from government officials, and a lack of connection and trust with those making decisions on behalf of the community (Hesed, 2016).

In terms of opportunities to improve justice and resiliency, the workshop participants listed out dozens of responses (Hesed, 2016). The responses fell into the categories of education, engagement, financing, and planning (Hesed, 2016). See Figure 5 below for a full list.

From these methods, Dr. Hesed also notes three foundational themes across the Black communities she worked with. First was the importance of church in people's lives (Hesed, 2016). Churches in these communities were spiritual, social, and civic centers that many in the community relied on (Hesed, 2016). In Figure 6 you can see the size of the impact a church closure would have on a community according to questionnaire respondents.

Figure 3.2 Impact of African American Church Closing

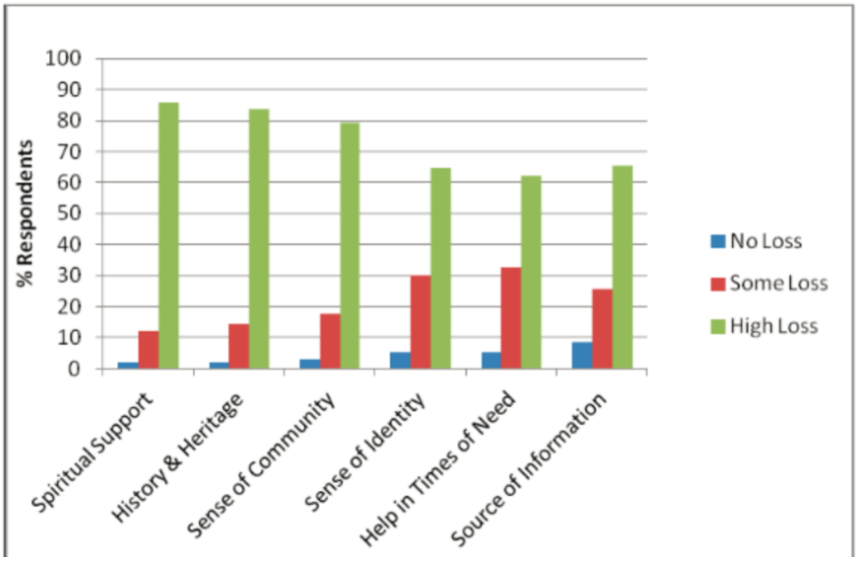


Figure 6: Responses to the impact of hypothetically losing a local church in Black communities. Source: Hesed, 2016

Second, these communities were tightly connected to the landscapes and ecosystems around them (Hesed, 2016). On this connection, Hesed notes, “This attachment to their landscape is partly related to their connection to the local church, but also to the natural environment that has sustained them and to the local history of struggle and achievement.” (Hesed, 2016).

Third, race relations varied across the study communities, but was complicated in each (Hesed, 2016). Some residents felt that racism and injustice was in the past, while others felt it very present (Hesed, 2016). According to interviews conducted by Hesed in three Black communities on Maryland’s Eastern Shore, race relations have been changing quickly in recent years and mostly for the better (Hesed, 2016). Still, she notes that the more southern the community is on the Eastern Shore of the Chesapeake the more residents reported present racism (Hesed, 2016).

Dr. Hesed’s research show the significant burden faced by these coastal, rural, Black churches (Hesed, 2016). Economic factors, political isolation, and natural hazards combine to make these churches extremely vulnerable to shocks (Hesed, 2016). As hazards like flooding worsen with climate change these communities may be forced to relocate, losing much of their community's identity and culture.

Fortunately, as is shown in Figure 7, there are opportunities to reverse these trends. By creating and sustaining collaborative avenues of support and dialogue for rural, coastal churches the trend of increasing vulnerability can stemmed (Hesed, 2016). On opportunities for churches to support resilience in the broader community, Hesed says, "Following articulation of a common goal, opportunities for self-organization toward that goal can be created by including local communities in decision-making, establishing horizontal and vertical linkages to the communities, and ensuring adequate funding and capacity building are available. Local and regional church structures have great potential for facilitating engagement and communication between government and non-governmental agencies and African American communities." (Hesed, 2016).

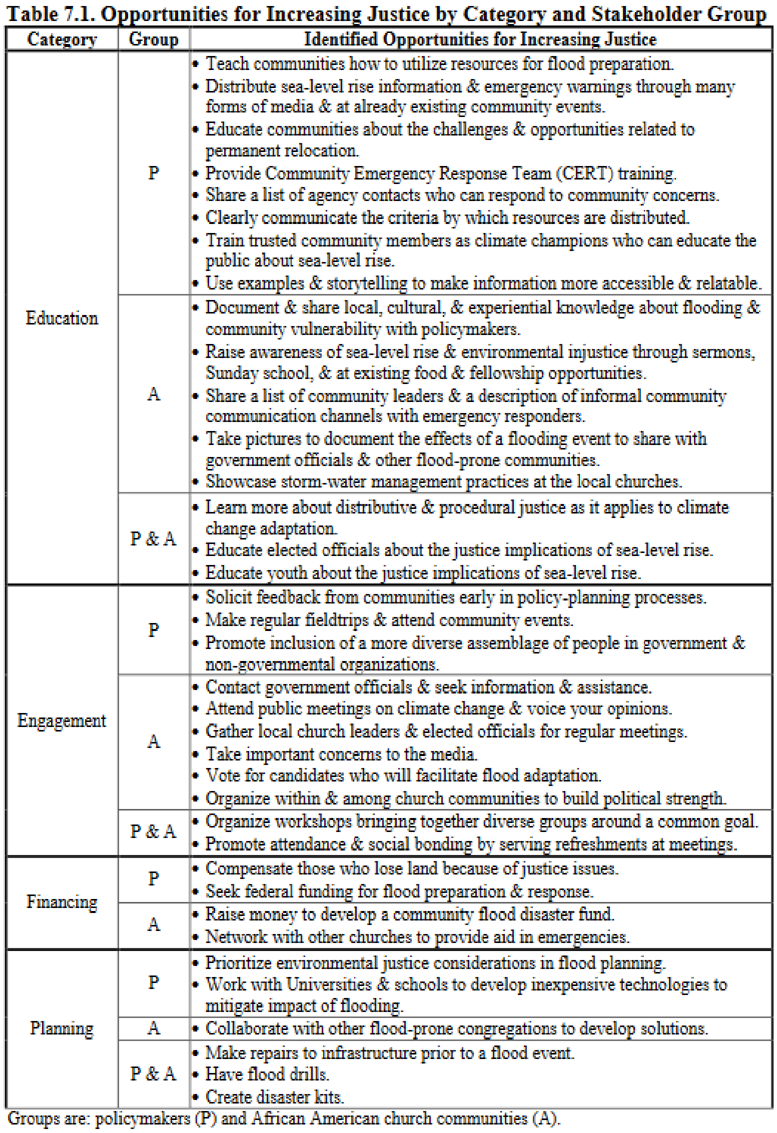


Table 7.1. Opportunities for Increasing Justice by Category and Stakeholder Group

Category	Group	Identified Opportunities for Increasing Justice
Education	P	• Teach communities how to utilize resources for flood preparation. • Distribute sea-level rise information & emergency warnings through many forms of media & at already existing community events. • Educate communities about the challenges & opportunities related to permanent relocation. • Provide Community Emergency Response Team (CERT) training. • Share a list of agency contacts who can respond to community concerns. • Clearly communicate the criteria by which resources are distributed. • Train trusted community members as climate champions who can educate the public about sea-level rise. • Use examples & storytelling to make information more accessible & relatable.
	A	• Document & share local, cultural, & experiential knowledge about flooding & community vulnerability with policymakers. • Raise awareness of sea-level rise & environmental injustice through sermons, Sunday school, & at existing food & fellowship opportunities. • Share a list of community leaders & a description of informal community communication channels with emergency responders. • Take pictures to document the effects of a flooding event to share with government officials & other flood-prone communities. • Showcase storm-water management practices at the local churches.
	P & A	• Learn more about distributive & procedural justice as it applies to climate change adaptation. • Educate elected officials about the justice implications of sea-level rise. • Educate youth about the justice implications of sea-level rise.
Engagement	P	• Solicit feedback from communities early in policy-planning processes. • Make regular fieldtrips & attend community events. • Promote inclusion of a more diverse assemblage of people in government & non-governmental organizations.
	A	• Contact government officials & seek information & assistance. • Attend public meetings on climate change & voice your opinions. • Gather local church leaders & elected officials for regular meetings. • Take important concerns to the media. • Vote for candidates who will facilitate flood adaptation. • Organize within & among church communities to build political strength.
	P & A	• Organize workshops bringing together diverse groups around a common goal. • Promote attendance & social bonding by serving refreshments at meetings.
Financing	P	• Compensate those who lose land because of justice issues. • Seek federal funding for flood preparation & response.
	A	• Raise money to develop a community flood disaster fund. • Network with other churches to provide aid in emergencies.
Planning	P	• Prioritize environmental justice considerations in flood planning. • Work with Universities & schools to develop inexpensive technologies to mitigate impact of flooding.
	A	• Collaborate with other flood-prone congregations to develop solutions.
	P & A	• Make repairs to infrastructure prior to a flood event. • Have flood drills. • Create disaster kits.

Groups are: policymakers (P) and African American church communities (A).

Figure 7: Opportunities to increase justice and adapt to climate change on Maryland's Eastern Shore. Source: Hesed, 2016.

Overall, Dr. Hesed found significant challenges between policymakers and Black communities when addressing climate resilience(Hesed, 2016). These challenges can and should be learned from when implementing the Participatory Education in Faith Communities for

Climate Resilience project. One major difference between policymakers and Black churches was the timescale of their strategies(Hesed, 2016). Policymakers were mostly focused on long-term resilience strategies while community members wanted to solve their problem in a shorter-term(Hesed, 2016). On this point, Hesed (2016) says, “Policymakers are trained to think about overall strategies and how policies will interact with climate projections to affect the region in the long-term. In contrast, African American community members are dealing with a very real and near threat of flooding.”

Community members were also more concerned about their vulnerability in the broader sense, including housing and economic vulnerability(Hesed, 2016). Policymakers were more narrowly focused on climate vulnerability alone(Hesed, 2016). This difference in focus included a strong environmental conservation focus from policymakers while the Black churches sometimes felt the environment was prioritized over their community(Hesed, 2016). As Hesed (2016) says, “African American community members expressed that they also deeply care about their environment, but did not understand why seemingly more effort was being put forth to facilitate adaptation of migratory birds than their communities.”

It is likely that the Participatory Education in Faith Communities for Climate Resilience project will face many of these same incongruences between policymakers and churches. By understanding the differences between stakeholders early in the CL process and addressing them clearly, stakeholders may be able to find a middle ground to take action on climate resilience.

Methods

Data for this evaluation project was gathered through 2-on-1 Zoom interviews. Given the study’s involvement of human subjects, our proposed research was certified by the Duke Institutional Review Board (IRB). A total of ten interviews were conducted and we have kept all names and identifiers anonymous.

Zoom Interviews

In order to generate a more nuanced understanding of how the CL approach could be applied to rural, coastal, churches and best practices for doing so, we interviewed ten collaborative learning practitioners. Our client from Creation Justice Ministries referred us to our first interview contact. This contact was suggested because they had experience creating, implementing, and leading collaborative learning workshops with these types of communities. We then used the snowball sampling recruitment technique to ask participants to assist us in identifying other potential contacts. The individuals were recruited by email and asked if they would be interested in participating in an interview. The identities of the ten practitioners interviewed were kept anonymous from all audiences except our research team (see Table 1). All interviewees had experience within the collaborative workshop realm surrounding the topics of climate change or resiliency in some way. The interviewees had a range of geographic areas of practice, sectors of employment, differing goals in which their workshops sought to address.

All of the Zoom interviews were held 2-on-1 with both researchers and one practitioner. The Zoom interviews were recorded using the Zoom video conferencing platform, and later were transcribed, only to be used internally by both researchers. Interviewee names were excluded from all interview transcription documents and analysis in NVivo in order to maintain anonymity. Once transcribed, Zoom recordings were entirely deleted. When needed for internal analyses use, the interviewed practitioners were referred to by the order in which they were interviewed (interview #1, #2, #3 etc.) The Zoom interviews were semi-structured (see interview guide in Appendix A). We decided on a semi-structured interview method because we wanted to collect qualitative open-ended data and explore the practitioner's thoughts, insight, and experiences regarding collaborative l learning workshops. The Zoom interviews were transcribed with Zoom's audio transcription capabilities. The interviews were then reviewed by the researchers to edit any mistakes made by the transcription service.

The transcribed interview text was then coded and analyzed in NVivo 12 software. The key interview themes were based on the study's research questions (see Table 2). However, given the semi-structured format of the interviews, some themes and sub-themes were not pre-determined and emerged from interview data. The interview text was iteratively coded into the following primary themes: Background; Workshop Focus & Goals; Pre-Workshop; In-Workshop; Post Workshop; and Challenges.

The full list of themes and sub-themes used in the interview analyses are included in table 2. However, for the purposes of this project we will only be discussing the topics within this table that are relevant to our study.

Table 1: General background descriptors for interview subjects.

Interview #	**Type of Employment**	**Type of Workshop Facilitated**	**Geographic Area of Workshop**
Interview #1	University Researcher	Collaborative learning with churches on climate resiliency	Rural, east coast
Interview #2	University Researcher	Collaborative learning with churches on climate resiliency	Rural, east coast
Interview #3	University Researcher	Collaborative learning with churches on climate resiliency	Rural, east coast
Interview #4	Government Agency	Collaborative learning with natural resource managers and decision-makers	East coast

Interview #5	Private Industry Consultant	Public comment hearings for federal agencies and companies on climate resiliency	East coast
Interview #6	Non-profit	Collaborative learning, coastal resilience workshops	Rural, gulf coast
Interview #7	Private Industry Consultant	Climate resilience	East coast
Interview #8	Faith-based organization	Collaborative learning, faith-based climate work	Various locations
Interview #9	Government	Collaborative learning, coastal resilience	Rural, east coast
Interview #10	University	Watershed restoration	Rural, east coast

Table 2. Coding themes for the practitioner Zoom interviews, used for qualitative analyses in NVivo.

Theme	**Subtheme**
Background	Demographics
Workshop Focus & Goals	Facilitation type Goals
Pre-Workshop	Resources & materials used Interviews & pre-Meetings Building trust Tips, insight, things to avoid
In-Workshop	Confidentiality Facilitators Participants Activities ● Community conversations ● Field trips ● Food ● Prayer ● Other Activities

	Things to Avoid Conflict resolution
Post Workshop	Evaluation Concrete outcomes
Challenges	Community involvement Differing beliefs & priorities Challenges with funding and limited time Imbalances of knowledge

Results and Observations

The following section includes observations from the themes coded in NVivo (see Table 2). This section begins with demographic characteristics and then discusses each theme and subtheme in order of what is listed in the table.

Demographic Characteristics

The Zoom interviews data analyzed captured the experiences of ten collaborative learning practitioners across primarily the southeast (see Table 1). Out of the interviewees, four worked in academia, two worked in government, two worked in non-profit, and two worked in the private sector as consultants.

Interview Findings

Pre-Workshop

A theme that emerged from our research was the importance of the process that practitioners and facilitators used in preparation for the workshops. Analyses from the ten interviews revealed three common themes that interviewees discussed in regards to pre-workshop preparation:

- Interviews & pre-meetings

- Building trust
- Tips, insight, things to avoid

Interviews & pre-meetings

Each individual that was interviewed discussed the importance of having a process to get to know community members, the culture of the community, and the issues they believe are most pressing, prior to conducting collaborative learning workshops. Practitioners either held interviews with individuals who would later participate in the workshops or spoke with them in group meetings. Interviewees said that workshops ran smoother when they had an understanding of topics that may come up in the workshop and they could be prepared for the outcomes. They also said that speaking to community members before workshops allowed them to better tailor the workshops to their interests. A number of interviewees discussed how important interviews were in preparation for the workshop, illustrated in the following quotations:

> *"It's a really important part of the process, just slowly getting people acclimated to the conversation before having larger group conversations where people might feel less comfortable, less safe working out opinions."*

> *"I would do interviews beforehand with a handful of people from each group that would be there and that was very helpful because then you're starting to build trust with these different groups and you start to get a feel for what some of the key issues are and the rapport. Then you and the interviewee can bring that into that meeting and help foster this environment of trust which is really important."*

Several interviewees said that “pre-interviews” or “listening phases” are crucial because they help facilitators later connect workshop topics to the interests, concerns, and goals of community members. Practitioners discussed the various ways that these “pre meetings” can be conducted. Small group sessions are useful because they allow the workshop facilitator to meet a larger amount of people prior to the workshops while small group sessions may allow the facilitator to have more intimate and sensitive discussions involving topics like community power dynamics and current issues. While the specifics of the pre meetings might change depending on project context, they are a crucial step. If facilitators do not understand the needs and wants of community members and do not discuss these topics, participants are likely to be uninterested and unengaged in workshop objectives. Many interviewees stated that it also is extremely difficult to get community members to participate if they cannot personally relate to the topic at hand. One experienced workshop facilitator highlighted the importance of listening phases by saying:

> *“Many of the community members don’t have a lot of spare time, and that's the same with any human. If we can't connect the topic of a workshop with someone’s job, or to something they really care about, then they're going to ask why they are in the room. During the needs assessment or listening phase of collaborative learning, you'll have the opportunity to hear the things that people care about. Then when they come to the room for the workshop, you can lead with something like: "We've been talking to you folks for X amount of time and here's what we've heard and today, we're going to take the next step from what we've heard.”*

Not only do pre-interviews allow facilitators to gauge the interests and concerns of community members, they allow the facilitators to better understand community dynamics and relationships. One interviewee shared with us the importance of understanding these relationships before bringing different groups of people together for a workshop:

> *"I think a big takeaway from the process for me was the importance of the initial groundwork to understand people's motivation for participating in the process. The interviews not only allow you to understand your participants better and what their goals are, but they can help you avoid pitfalls during the actual workshop. For example, I had thought that it would be great to invite county commissioners to the collaborative learning workshop because they're local elected officials. However, after discussing this with some different county staff we realized that because the county commissioners are their employers. They may feel less comfortable being open and discussing certain topics at the workshop. So we ended up realizing that in order to allow people to feel comfortable and be able to speak candidly, inviting elected officials to the workshop may not be the best idea."*

Building Trust

Each practitioner discussed the importance of building trust with workshop participants prior to conducting collaborative learning workshops. Eight out of the ten interviewees stated that the single most important factor in determining the success and effectiveness of a workshop is the trust that is built with the participants. In order to make individuals comfortable enough to speak and share their beliefs at workshops, they needed to have a trusting relationship with facilitators. Interviewees said it was critical that community members form a trusting relationship with the facilitators and that they trusted the purpose of the workshop in order for them to volunteer their time to participate. One interviewee shared the importance of trust building and that it needs to be a main priority in any collaborative learning setting. They said:

> *"For something like this, where it seems like the objective is not just really about this process, but kind of long term trust building. I would tend to prioritize that almost over anything else in the early phases. So if in a first meeting of all these groups all they did was introduce themselves and have a meal together and maybe visit some places in the community together. I think that would be highly productive because before you get into the technical stuff you have some shared experience of humanization. You know? Talk about your favorite sports teams. That kind of stuff."*

Several practitioners discussed the limitations of building deep relationships with each individual community member. Relationship building takes an immense amount of time and not every project will have that much preparatory time for this. That is why it is so important that facilitators seek out community leaders or trustworthy individuals or groups in the community to work with. Even if the facilitators do not have the ability to build relationships with each participant that will be attending the workshop, it is important that they create community rapport and that people are not doubtful of their motives. One interviewee discussed this by saying:

> *"I never did an interview with every single person that was coming to the workshop, but I would do interviews beforehand with a handful of people from each group that would be there and that was very helpful because then you're starting to build trust with these different groups and you start to get a feel for what some of the key issues are and the rapport. Then you and the interviewee can bring that into that meeting and help foster this environment of trust which is really important."*

Tips, insight, things to avoid

This subcategory was used as a miscellaneous category for any tips or insight that practitioners gave us that did not fit into another category. Although this was more of a miscellaneous category, many themes arose that were relevant to informing our broader research questions.

When practitioners were asked for any tips they had in preparation for facilitating collaborative learning workshops, five out of ten of them discussed the importance of treating every participant as an expert. The workshops that interviewees facilitated included a wide range of people like community members, scientists, elected officials, academics, and church staff. When describing how to create an effective workshop that values all voices, these interviewees said that treating everyone as an expert was of the utmost importance. Although scientists and community members may have different skill sets and knowledge, each individual in the workshops has something valuable to offer. Additionally, having local knowledge from community members with lived experience is an important perspective to have and this needs to be valued. It is important to incorporate local knowledge because people that have lived in the community for years may notice different weather or climate patterns than an outsider. They also may be able to provide helpful insight into the culture of the community and solutions that could be enacted that would be supported by community members. One practitioner highlights the importance of this by saying:

> *"We had experts at the table who could tell you all you needed to know about the habitat. We had experts at the table who could tell you everything you needed to know about the way things are changing because of these climate models. We have experts in the room who can tell you about these communities and the history of it, and that's really important in building socio-ecological resilience. You can't have just one side. You need local expertise. We also made sure that we were very strategic in labeling everybody as an expert and making sure that they had time during each of these workshops to share their expertise as part of the conversation."*

When we asked the practitioners if they had any tips on what should be avoided when preparing for workshops, four out of ten of them said rushing. In order to build effective workshops, the foundation and groundwork laid needs to be solid and extensive. The interviewees said that it can take a long time to develop authentic relationships and trust in order for the workshops to be meaningful and effective. They said it was crucial to really take the time to understand the culture of the community, the history, the hierarchy of power, the different establishments, and stakeholders. One of the practitioners we interviewed stated:

> *"The major thing to avoid is rushing. Like I said, have phases of goals. If you came out of three years of pre-workshop meetings and all you had was really good trust and*

> *communication that would be amazing. And yes, you might get into some technical decision making and you might come out with a list of projects that people are excited about. But if the goal is a really long term collaboration, then the baseline goal is relationship building. So don't rush it and don't try to get results too quickly."*

In-Workshop

The practitioners we interviewed have experience in facilitating a wide range of workshops. However, most of the workshops that they facilitated surrounded the issue of climate change and how to create community solutions and resiliency. Although the structure of the workshops we spoke about varied, many of the workshops consisted of a few similar themes or activities. The main topics that were discussed within the "In-Workshop" theme include:

- Community conversations
- Field trips
- Other activities
- Conflict resolution
- Things to avoid

Community Conversations

Each practitioner interviewed said that they included plenty of time in their workshops for open conversations between participants. The conversations were structured as intentional time blocks that participants could share their thoughts, beliefs, ideas, and experiences in a safe space. Some workshop facilitators guided these conversations with questions like: "What do you believe is the most pressing issue facing your community?" Other workshop facilitators said they left time open for participants to share whatever they wanted to. Practitioners discussed how much the participants valued this time because it made them feel like their voices were heard and that they had the chance to learn from other's perspectives. Interviewees explained that leaving time for conversations was important to relationship building and for bridging the gap between different groups of people. It allowed for groups of people that may have differing goals to learn and understand the perspective of others. One of the faith-based practitioner's we interviewed said she was very intentional about making sure there was space for people to have conversations with individuals that had different backgrounds than them. She said:

> *"During our workshops we sat people at tables with all different people. For example, we had a table with one scientist, one policy maker, and one church member to just share their perspectives or things. The goal of that was to allow everyone to see through someone else's eyes right from the beginning."*

Another practitioner shared that after every educational lesson or guest speaker that spoke at the workshops, they would allow time for conversations after to see how others in the room felt about topics. They would introduce a topic by allowing participants to share their thoughts. The interviewee said:

> *"We would throw up a topic/idea/ or question up on a slide and then ask the participants questions like: What do you all think about these responses to this question? What resonates with you? What do you disagree with? And we would make sure they knew there's no right or wrong answers and that we really just wanted to hear their thoughts*

> *and perspectives. After the first question, there were crickets in the room. It was like pulling teeth to get people to share their thoughts. But we pushed people a bit and eventually people started opening up and with each slide the conversation got easier and people were more willing to share their thoughts and ideas and reactions. There were a lot of comments about how they disagreed with points of view."*

Many interviewers stated that it seemed to be very effective having all kinds of perspectives in a room. She shared an example:

> *"I remember during one of the workshops I facilitated- there was a woman who at the very beginning of the workshop was quite defensive in her answers. However, by the end of the meeting she was like "I guess I hadn't really thought about all of this in this way", and she was starting to be a little more open and flexible in her thinking on the topic of climate change."*

Other Activities

During the interviews we conducted we asked practitioners if there were any activities that they found to be engaging during workshops. One practitioner spoke of the "three question approach" and how this was an effective activity to begin the workshop:

> *"We used this approach called the three question approach and you can apply the three questions to any topic. So we did water for example, but you might do resilience.*
>
> *The first question is asking people to share why something they care about is important.*

> *For example, why their community or church is important. Then we have them write those things on a sticky note, and we have a giant piece of paper on the wall, and we ask people to put their stickies of the things that are important in the very center of the paper, like at the heart of the paper. Then we ask them to think about what they perceive is threatening the things they care about. The threats go in a different color sticky, usually red. Usually we use green or blue for the center stickies, but the threats are red and we asked them to put the threats around the perimeter of the big page. You can also have people do this individually to think about first and then go big with the entire room. Then the third thing you ask is what can we do to protect the things we care about from the threats? And they physically stand up and put the things for protection around the values and between the threats, so they're thinking cognitively about the threats coming in and what they can do to protect their values."*

The practitioner said that through this activity the workshop participants started to feel like they had a lot in common with the other participants and a foundation of shared beliefs to build upon during the workshop.

Field trips

One of the types of activities that several practitioners said was very effective were field trips. Several of the practitioners we interviewed led workshops that had to do with local impacts of climate change. Practitioners discussed how this topic was uncomfortable for some participants and how there were differing levels of knowledge regarding the subject. An effective way to show community members the impacts of climate change was taking them to actual sites within their community that have been affected by climate change. Field trips seemed to be effective in helping participants connect the ideas they learned about climate change in the workshops to real examples in their own community. One workshop facilitator said that many of the participants did not realize that what they were noticing happening in their community were attributes of climate change until they went on field trips. She said:

> *"We did a series of workshops that were actually more like field trips and we would go out into the community and look at a ditch or look at a place that had erosion. And really turn our conversations about climate change into something that was real. We had several participants say how much they better understood the topic after seeing it like that."*

Conflict resolution

Several of the collaborative learning practitioners that we interviewed discussed how important it was to have a plan for conflict resolution during the workshops. When bringing a group of people together with differing backgrounds to discuss hot topic issues like climate change, conflict can be inevitable. That is why workshop facilitators need to not only be trained in conflict resolution, but need to be prepared for what kinds of conflicts may arise during workshops. Through our interviews, we learned that one way facilitators can mitigate any issues that may come up is by conducting pre-workshop interviews or conversations as was mentioned earlier in this paper. By doing background work and having conversations with individuals prior to the workshop, the facilitator can be better knowledgeable about the kinds of issues that may arise. Another way to ensure conflicts don't get out of hand is by having an open and honest conversation at the beginning of the workshop about conflict. Several of the practitioners we interviewed said that facilitators should openly tell the participants at the beginning of the workshops that due to differing perspectives surrounding the subjects that will be discussed, there may be disagreements. Disagreements are okay and individuals should feel welcome to share their beliefs and opinions on subjects. However, facilitators need to make sure the room stays calm and that conversations are happening respectfully.

> *"You want to make sure if there's that one person who showed up in a bad mood, you know how to deal with it in a way that doesn't make them feel shut out. So it really goes back to facilitation training of knowing how to divert, knowing how to make sure people feel heard but are not dominating. If you have a really hot topic question where you can foresee that type of situation happening, maybe write that down anonymously instead of having a verbal conversation about it. You need to be able to anticipate those things."*

Things to avoid

During the interviews, practitioners were asked for insight on what should be avoided during collaborative learning workshops. A theme that came up in several interviews was the importance of being very intentional about promises that are made during workshops. Promising concrete outcomes can be tempting, and it can be difficult recruiting workshop participants when there is no guarantee of an end result. Although practitioners may have goals and outcomes they wish to see come from workshops, it is important not to overpromise. Two practitioners said the following statements regarding this concern:

> *"What I naively wanted was an on the ground solution and I would caution anyone from promising that sort of outcome. I think that I avoided promising that, however, I think I also was really excited for the possibility of reaching our goals and should have been a little more guarded in how I talked about it. I had hoped we'd totally solved some local problem and I hope that that's not what I led other people to expect too."*

> *"Don't over promise. expectation setting is really important for everyone. It's easy to get into enticing people into a process by saying, this is going to happen if you do this process. Just be careful not to overstate that."*

Post Workshop

During the post-workshop segment of our interviews, we asked practitioners if they had an evaluation plan in place in order to analyze the program's effectiveness. We also asked them to share any concrete outcomes they believe came from the workshops.

Evaluation Plans

Out of the ten interviews conducted, only three practitioners reported that they had a formal evaluation plan for their workshop, and the other three interviewers said they either had no evaluation plan or an informal evaluation plan. The three individuals that had evaluation plans for their workshops said that they distributed surveys at the end of the workshops that had questions about their experience. One interviewer said the survey they distributed had a section where they would rank topics like how much they thought they learned, what was a good use of time, and how enjoyable the experience was. The practitioner also said that she included open-ended questions to receive any additional feedback. The three interviewees who had formal evaluation plans reported that having quantitative data can be very important. Many funders like to see this kind of data and it can help improve workshops in the future. However, they also mentioned the many challenges that come with retrieving quantitative data after workshops:

> *"Unfortunately, we have to use numbers to prove our worth. Sometimes I feel like the stories that were told in the workshop are more impactful than numbers, but with this kind of project and getting funders that usually doesn't cut it. At the end of the day, it really helps to have those hard numbers."*

The three practitioners that did not have formal evaluation plans discussed the challenges of evaluation of a workshop when some of the primary goals are relationship and trust building. The goal of the workshop may be laying the groundwork of a project that is happening much further in the future, and it can be hard to evaluate how effective the workshop was in moving the needle closer to that goal. One interviewee discussed the challenge in the following passage:

> *" I honestly haven't done evaluations a lot. When I have it's mostly about trying to understand how the first workshop felt and what that might mean for how we design the next one. So kind of getting feedback from people on whether they thought it was a worthwhile use their time. Did they feel like they got a chance to share what they wanted to share? Those kind of questions. It's challenging for this type of process because people like to see metrics of success, but a lot of the metrics that I look at are trust building and if there was conflict. If people felt comfortable sharing honestly with each other. That is*

> *success. I mean, it's not success if people are storming out and never want to talk to each other again, but if you're getting to a point of realness in the conversation, that's a metric of success."*

When asked whether or not the practitioner thinks they should have implemented an evaluation plan, they responded:

> *"I think if I were going to try to design an evaluation for a process like this, it would be to ask people at the beginning what they hope to get out of this process. And then ask them at the end if they got those things. Because I think if you got a lot of people saying they got what they wanted out of the process it would be a pretty resounding success."*

Concrete Outcomes

Similar to the challenges discussed surrounding evaluation plans, practitioners discussed the difficulties of achieving concrete outcomes like community climate resiliency projects in such a short period of time. However, due to the nature of collaborative learning workshops, the main concrete outcomes and goals involve connecting community members together and allowing them to discuss experiences and problems that may be occurring within a community. Although each practitioner we interviewed had different outcomes due to the differences in their programs and goals, each interviewee stated that one of the most valuable comcrete outcomes or takeaways were the relationships formed during the workshops.

> *"It would be nice if [the workshops] ended and everything ends in a nice shiny project, but a lot of these are long term conversations. And I think concrete outcomes are difficult*

> *to communicate. Because I think that the most important outcomes are kind of non tangible outcomes. Now the local community has a much stronger relationship with the county government, and if there's a problem this person knows to call that person and they can get something done and beforehand they couldn't, or they didn't."*

Challenges

Each practitioner was asked to identify the greatest challenges they experienced while either preparing for collaborative learning workshops or facilitating them. The key challenges that practitioners had were:

1) Challenges with community involvement
2) Challenges with funding and limited time
3) Imbalances of knowledge

Challenges with Community Involvement

When asked about challenges surrounding workshop engagement, five out of ten practitioners discussed the challenges of getting community members involved. Each of the five practitioners mentioned that workshops are time consuming and huge sacrifices of time for participants. Facilitators need to be very intentional about the date, time, and length of workshops in order to be respectful of people's valuable time. Two workshop facilitators highlighted this by stating:

> *"Areas [we worked in] where people already have such limited capacity that giving up an evening or a Saturday to participate in these workshops is a lot to ask and they don't*

> *have a lot of time or energy to be able to give beyond. All the time and energy they're giving to their community as it is. We were really hoping from the beginning of this effort to identify some community leaders who could kind of carry the torch beyond [my facilitation team] but there's nobody there to carry the torch because they're just so limited in terms of capacity, they are stretched beyond thin."*

> *"A lot of our workshops would be on a Saturday because most of the people in that community were not in employment where you could just take a day off. They didn't have jobs where you had vacation days."*

Interviewees said that possible solutions to challenges surrounding community involvement could be to offer stipends to participants so they feel as though their time is being valued and to cover the financial costs of participation or lost wages. Another solution to scheduling issues is to make sure the time of the workshop is accessible and not during typical work hours and to offer childcare if possible.

Challenges with funding and limited time

Each of the ten collaborative learning practitioners discussed the challenges of conducting workshops and carrying out community work with a finite and limited funding. Several interviewees said that it could be difficult at times to build trust in a community and attempt to build long lasting relationships when the project and funding would inevitably end. Trust building and relationship building can take a very long time, and oftentimes projects have a short and specific time period that is funded. Interviewees discussed the importance of figuring out ways that community members or other stakeholders could carry out the work once the workshop facilitators were gone, however, this is difficult to do since community members themselves are very busy. We noticed that the interviewees did not seem to have many concrete solutions to this challenge and that it was something they all had to struggle and grapple with. Some of the comments and concerns with funding are highlighted from interviews below.

> *“When this project ends, how do you sustain the work and how do you keep it going and grow it in a new way? That's tricky because all of this takes money and people's time and energy, and especially when working in communities where people already have such limited capacity.”*

> *“How do we continue the good work of collaborative learning in a way that is sustainable when we have these institutional limitations? It’s tricky.”*

> *“But it took seven meetings to get to that point of trust and collaboration, and so that's the other thing which is hard. Because with funding and grants, they want deliverables at certain times, but really it does take time to get to these points.”*

> *“You really build trust with the community when they see that you’re there to stay and that you aren't just leaving as soon as you conduct the workshop and accomplish your task. However, humans move on, they start a new job or they move somewhere, funding runs out, and that is how it is. So that is hard.”*

Imbalances of knowledge

Several practitioners discussed the challenges of trying to bridge the gap between technical and scientific knowledge with community knowledge and lived experiences. Many of the interviewees have experience working in collaborative workshop settings where there are both scientists and academics in the room and community members. They said it can be tricky at times making both audiences feel like their ideas and beliefs are equally valued. One of the practitioners we spoke to said that the way to manage this is to be cognizant of the different strengths, knowledge, and experiences in the room and by giving everyone space to share their story. One way to do this is by collecting background information of participants prior to conducting the workshops so facilitators know things like how long the participant has been in the community, what they do for work, what their hobbies include, and what kinds of groups and organizations they are involved in etc. This way the facilitators will know what skills and strengths may be present in the workshop. The practitioner also said it was extremely important to make sure community members knew that their lived experiences and community knowledge was valued.

> *"Yeah, I think the community power imbalance between scientific and cultural knowledge is a really important thing to be cognizant of. It's quite frankly why there's such a division within some of these communities about who's even willing to come to the table. It's because scientists and others come in and tell people what they need to do and that they are doing it all wrong and that they don't know anything. So we were really strategic about making sure that everybody who came into these workshops understands that everybody there was an expert in their own right."*

Another practitioner said that although it is important to establish that everyone in the room is equally valued and is an expert, it can be just as important not to shy away from technical topics, because many people are at the workshops to learn. Effective workshops are all about balancing the technical topics with community experience and expertise. The interviewee said:

> *"There's also potentially some value in offering an opportunity for people who are less familiar with some of the technical information to get into that and ask questions in a low stake setting so that they feel like they're not intimidated by the technical stuff and feel comfortable asking questions. They can feel more empowered and knowledgeable leaving the workshops if this is done in the right way."*

Discussion & Recommendations

Several main themes arose through our interviews, analysis of case studies, field guides, and literature. These common themes offer broad suggestions for anyone implementing CL workshops. They also suggest several concrete recommendations for the Participatory Education in Faith Communities for Climate Resilience project in particular. The common themes we found were:

- Facilitators should be trusted by the parties and impartial.
- Initial connections and preparations prior to workshops with communities are fundamental to success.
- Focus on building a collaborative process above all other outcomes.
- Power differentials must be addressed.

- Try to evaluate the CL process holistically.

Facilitators should be trusted by workshop participants and impartial

Just about every resource on workshops we collected or read highlighted the importance of the facilitator in the CL process(Daniels & Walker, 2001; Feurt, 2008, 2008; Weaver et al., 2017). They play a critical role in mediating conflict and learning for the participants. Their primary job is to shepherd participants through the process of CL, staying away from moderating content as much as possible(Daniels & Walker, 2001). If a facilitator begins to side with a certain idea, it can restrict the flow of ideas as people may see their position as less legitimate. At the very least, if facilitators feel the need to weigh in on the content of discussion they should be clear that they are speaking as a participant in that moment, not a facilitator(Feurt, 2020). All the parties involved need to trust that the facilitator respects them and their point of view.

A good facilitator also needs to juggle a complex understanding of the issues at hand, the process, and the stakeholders involved. Due to this complexity and depending on the size of the workshop, it is best for the facilitators to work as a team to support each other during the workshops and provide feedback afterward(Daniels & Walker, 2001). If the process falters or a stakeholder becomes disruptive, facilitators can work together to get the process back on track(Daniels & Walker, 2001). Some activities may be best supported by multiple facilitators as well.

Daniel and Walker’s general guidelines for facilitators are:

1. Be a part of the assessment phase of the CL process: By participating early in the process facilitators gain a deeper understanding of the situation. It provides context so

they better understand the positions and background of the participants while facilitating.

2. Make the space physically comfortable for participants: The physical meeting space should be a space all participants feel comfortable being in and meets the needs of the activities being facilitated.
3. Plan for contingencies and be flexible with the process: As with any event, things will likely not go exactly as planned. A participant my derail a conversation or the group may want to spend more time on an activity than anticipated. Build flexibility into the schedule and allow spontaneous dialogue to occur.
4. If possible, work as a facilitation team: Teams can better plan for and address the complexity of CL. This is especially recommended for larger workshops.

Recommendations

- Provide training for facilitators unless they are already facilitation professionals. NOAA's facilitation training program may be possible through Dr. Christine Feurt, but if not find another training program that fits this project. It is important that the facilitators have the foundational skills to guide the workshops effectively.
- Facilitation is hard. Make sure there is a process for facilitators to reflect on their own performance as well as any insights they have on how to modify the process being used in workshops. Evaluation of facilitators could come both from the facilitators themselves and from the participants in the workshop. As part of the surveys for participants after a workshop be sure to have them respond to the facilitators with feedback. Also conduct 1-on-1 interviews with facilitators where they can rate their own facilitation and any co-

facilitators they worked with. Evaluators at Duke's Social Science Research Institute should be able to provide more exact means to capture evaluation of facilitation as well.

- For this project, we think it best that the facilitators be active in the project starting from the listening phase. This could either be a community member or someone from the IPL groups. Any benefit gained from hiring an outside facilitator is offset by their lack of knowledge of the community. For a long-term project such as this, having a facilitator that understands the goals of the project and the stakeholders is paramount.

Initial connections and preparations prior to workshops with communities are fundamental to success

One of the primary responses received through interviews with community workshop facilitators was the foundational importance of building a strong connection with the community. This engagement builds trust, both in the facilitators and the collaborative learning process as a whole. The project team members need to be present in the community they are conducting workshops in as long as possible before the workshops in order to build trust and relationships within the community. While we understand that capacity limitations and strict grant timelines make it difficult to spend long periods of time in communities before the project, facilitators and other team members should be present in the community as early as they are capable of. Once project teams and facilitators are present in the community, it is important that they collaborate with leaders in the community (a trusted church employee, a well-known community advocate, a respected businessperson etc.) in order to start identifying stakeholders and community members that could be participants in the workshops.

Facilitators or any other people that will actively be involved in the guiding and facilitation of workshops should participate in pre-workshop relationship building sessions. Listening sessions should be held prior to conducting workshops. We spoke with practitioners who did this in both small groups and large groups to listen to concerns, thoughts, ideas, and feedback of community members. These sessions are important in identifying what should be discussed in workshops, what the community's goals are, and what could be unforeseen challenges or problems that may arise in the workshops.

Recommendations

- Find ways to be present in the communities consistently and well before the CL workshop. A recommendation from a interviewee was to table at local events so people can stop by and ask questions in a low pressure situation. Being accessible may open up avenues for collaboration that would otherwise be closed.
- Have a way that community members can read about the project or contact you if necessary. Other projects have had a website or newsletter that kept communities informed of the process and how they could get involved.
- Listening sessions are important for understanding the diversity of perspectives in a community and helping to craft the format and substance of the workshops. One on one sessions allow stakeholders to share their perspectives on the issue at hand in a safe and non-judgmental space. Group listening sessions allow community members to share collective memories and perspectives but can also lead to disagreement or domination by certain ideas. We recommend using both in preparation for multi-stakeholder workshops. Just to note, listening sessions are not the only way to engage the community. Informal

conversations are important as well and can help build relationships before engaging in more formal listening sessions.

Below is the approach that Hesed (2016) uses to prepare churches for CL workshops using both one on one and group sessions:

- **a.** Meet/conduct listening sessions with key stakeholders to introduce the program and hear their perspectives. This could be faith leaders, elected officials, or just well-connected community members.
- **b.** Host a small workshop with just the church community to dig into the vulnerabilities, knowledge, and resources they hold. In Hesed's workshops at this stage, she does three primary activities:
  - **i.** A pile-sorting exercise where participants sort climate change terms into by which they feel are most similar to each other.
  - **ii.** A presentation on climate vulnerability and adaptation.
  - **iii.** Small group discussions on vulnerability and available resources facilitated by premade worksheets.
- **c.** Using the information from the workshops, begin conducting semi-structured interviews to understand the perspectives more deeply throughout the community.
- **d.** Once semi-structured interviews are complete, then the multi-stakeholder workshop should take place.

Focus on building a collaborative process above all other outcomes

At its core, collaborative learning is a process consisting of assessment, training, design, implementation/facilitation, and evaluation. Each of these stages are flexible and are meant to provide a framework communities can use to make decisions collaboratively. They do not necessarily provide a concrete outcome in a specific timeframe. As Dr. Christine Feurt puts it, “The surprising goal of Collaborative Learning is not consensus but group-generated strategies for improving a situation” (Feurt, 2008). The outcome, in her experience, was not consensus on a single action to take, but strategies for continued improvement of a situation. We heard this echoed in many of the interviews we conducted with community workshop facilitators. When they anticipated a specific outcome, they were often disappointed when it wasn’t reached by the end of the workshops. They recommended seeing the collaborative approach as an ongoing process that builds relational connections and social learning. Goals are important to the functioning of the collaborative learning approach but focusing explicitly on outcomes can distort participant expectations and dissuade collective deliberation. By building an inclusive, engaged collaborative learning environment communities will be better able to find strategies for improving a situation.

Facilitators can build a collaborative process by allowing community members to speak openly and be the decision makers throughout the entire process. In the listening sessions community members and stakeholders should define the goals of the workshop and be involved in building the framework. The goals of the workshop should include networking, long term relationship building, and collaborative problem solving rather than completing a specific project like building a sea wall for example. During the workshop participants should be given ample opportunity to share their voice, give ideas, concerns, and feedback. Building a collaborative process and relationship building should be the foundation of any other projects to come.

Recommendations:

- For this project focusing on the CL process means being flexible with the outcomes defined in the grant and the planning teams expectations. Objectives set forth in the grant documents are to engage communities, hold a series of workshops, and guide congregations through a resilience implementation and education project. These objectives are sufficiently broad to allow communities to control the pace of the project while still meeting the requirements of the grant. The more difficult part may be tempering the expectations of the grant team and facilitators. A good reminder from Daniels and Walker is that the primary goal of CL is improvement of a situation not finding a solution. By creating a foundation of trust, relationship building, and problem solving, community members are able to work together to solve a variety of problems. Small improvements should still be seen as a success, especially if the community sees it that way.
- Be intentional about access to the process. Make sure that people are not excluded for lack of childcare or socioeconomic reasons. Providing food and stipends where possible can help on this front.

Power differentials must be addressed

Collaborative learning workshops involve bringing together individuals with many different backgrounds. Workshops could include policy makers, scientists, businesspeople, teachers, community members etc. Due to the range of backgrounds, power imbalances exist. Interviewed practitioners said that power differentials should be addressed openly at the beginning of the workshop. Facilitators should explain to the participants that all experiences, skills, and knowledge will be equally valued and that everyone will have an opportunity to be involved and share their ideas and opinions.

Recommendations:

- A recommendation from several sources, in both the literature and interviews, was to open the workshops with a prayer. This makes it very clear to all that traditions of faith are meaningful and important in the space. The type of prayer that is spoken will have to be geared towards the audience at hand.
- Make sure that scientists, decision-makers, and community members all have ample opportunity to share their expertise.
- Some exercises that can help to create common ground are:
    - Lay clear ground rules that all parties agree to and emphasize the legitimacy of each participants view. Sample ground rules from Daniels and Walker are:
        a. Listen openly and actively
        b. Ask questions for understanding before responding
        c. Look for ways to achieve mutual gain
        d. Value disagreement and constructive argument
        e. Examine future improvement rather than dwelling on the past
- Organizing field excursions can allow community members to show their expertise when it comes to impacts on their community.

Try to evaluate the CL process often and holistically

Creating an evaluation strategy for a long-term, multi-faceted process that is likely to change over time is not easy. It does not help that, by design, CL addresses issues where tangible, measurable change is hard to come by. The difficulty of evaluating CL processes is noted in the literature (Johnson et al., 2018) and in multiple interviews. Most often, workshops are evaluated through pre and post workshop surveys(Daniels & Walker, 2001). Participants answer questions gauging their satisfaction with the process and potentially the outcomes, if there are any. But Dr. Christine Feurt's Resilience Dialogues training workbook offers a more comprehensive and holistic view of evaluation.

She describes evaluation as, "not an end of pipe activity. It is an iterative process of attending to, documenting, and reflecting on how progress to improve a situation compares to the goals and objectives set for each phase of a collaborative project. During evaluation, there are a variety of opportunities for you and your group to make the course corrections necessary to reach shared goals in an efficient and productive way." (Feurt, 2020). Her approach does not discount surveys by any means, but includes a much broader sense of what counts as evaluations. Regular interviews with the project team, number of attendees at an event, and final documents from workshops can all be included in the evaluation strategy. These means of evaluation should focus both on the process and content of the workshops.

Recommendations:

- In Dr. Feurt's Collaborative Learning Guide for Ecosystem Management, she sets out three elements of evaluation that are applicable to this project:
    - Tracking improvement towards goals: For each goal of the project, assemble a series of action items. Regularly check if those action items are being met in the timeline expected.

    - Document learning, conflict, and ideas: Dr. Feurt recommends doing this through the meeting minutes, but we believe this can be expanded beyond just minutes. Having regular check-ins or surveys for those designing and planning the workshops can help document changes over time.
    - Receive feedback from participants through surveys and interviews: Check in regularly with participants either through one-on-one interviews or a questionnaire to get feedback on both the process, content, and outcomes of the CL approach. This can be formal or informal.

Limitations

The findings and recommendations listed above should be tempered with an understanding of the limitations of this study. There were limitations both to the process used to obtain the data used and the focus of the study itself.

This study was focused on understanding the elements of the CL Approach and its implementation for workshops in churches in order to support the specific needs of the Participatory Education in Faith Communities for Climate Resilience Project. The CL Approach is by no means the only framework for addressing conflict or collaboration in communities, but this project narrowed its scope to that framework specifically.

Focusing on churches specifically also limits the scope this study's findings and recommendations. Although many findings are applicable in a wide range of settings, some may only apply when churches are implementing the CL Approach.

The process used to investigate the CL Approach also introduced limitations into the findings. Workshop facilitators and community resilience practitioners to interview were mostly identified through the snowball method. One interviewee would suggest another and put us in touch. It is highly likely that this method introduced some amount of bias in who was interviewed since most interviews came from the same professional network.

Due to time constraints, ten interviews were conducted throughout this study, not enough to constitute a representative sample. The results should not be taken as the general consensus of workshop facilitators, climate resilience professionals, or community engagement practitioners. Instead, the results are data points that the authors heard repeated throughout the interviews conducted and literature review. We welcome feedback from other professionals in the field who disagree with the findings from this study.

Further Research

This study focused on collecting data on CL workshops through interviews with professionals, academic literature, and practical guides. While this provided a wealth of information on best-practices and workshop design, few sources provided the viewpoint of workshop participants. An interesting follow up study would be to interview past CL workshop participants and see how the reflect on their experiences. Has it changed their outlook on any issues? Have the connections they made during the workshop endured? Answering these questions would provide needed insight into the effectiveness and impact of CL workshops.

Conclusion

As climate impacts continue to worsen in the Southeastern U.S., with sea-levels and temperatures rising, rural churches will face more than just physical risk(Carter et al., 2018). They will be exposed to economic challenges, ecological change, and social pressures, some driven by climate change and some not. These challenges are not new, but climate change will compound the under-investment, discrimination, and political isolation low-income, rural, and BIPOC communities have faced for generations(Hesed et al., 2020). The problems these communities face are multi-faceted and any sufficient response to them must recognize that complexity at its core.

Collaborative learning integrates the complexity of the real world into a framework to support community deliberation(Walker & Daniels, 2019). It provides a pathway any community can use to discuss what transformational resilience looks like rather than the status quo. Most importantly, the Collaborative Learning process recognizes that there is no silver bullet to the challenges communities face. Its basis in iterative social learning focuses on experimentation and good-faith amongst participants over time to find common ground and eventually common action (Walker & Daniels, 2019). This flexibility allows communities to mold the process for their purpose and culture.

Churches are an especially good fit for the Collaborative Learning process (Hesed et al., 2020). Churches in rural communities are practiced in bringing together their congregants around challenging, existential issues (Hesed, 2016). They are often deeply rooted in their communities and have experience responding to natural disasters(Bock, 2022). Collaborative Learning workshops provide the structure to blend that specific knowledge of place with scientific and policy expertise to develop holistic paths towards resilience (Hesed et al., 2020).

Although there is much left to learn about the potential of Collaborative Learning as new communities take up the framework and experiment with it, there is also a lineage of communities, practitioners, and academics that provide a deeper understanding of Collaborative Learning. A rich catalog of resources on facilitation, engagement, assessment, and implementation supports communities as they find their own way through the process. We hope this report and the accompanying workshop guide translate that catalog of best practices into a stable foundation for communities as they strive for transformational climate resilience.

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Appendices

Appendix A: Assessment

Assessment is the first step in the CL process (Daniels & Walker, 2001; Feurt, 2008). It is essential for laying the foundation for the rest of the process. It entails learning about the community, the stakeholders, and the issues at hand(Daniels & Walker, 2001; Feurt, 2008). Below are some assessment techniques used by Daniels and Walker, and Feurt in their CL work.

Daniels and Walker(2001)

Using the Process Triangle, Daniels and Walker break the assessment phase down into three dimensions: relationship, procedure, and substance. Here are the questions they attempt to answer in each of those dimensions.

Relationship

1. Who are the parties/stakeholders?
    a) Who are the primary parties?
    b) Who are the secondary parties?
    c) Is there media interest?
2. Do any parties have unique status of any kind?
3. What are the parties':
    a) Stated positions?
    b) Interests (concerns, fears, goals)
    c) Worldviews and values?
4. What are the parties relational histories?
5. What are the parties' incentives:
    a) To collaborate?
    b) To compete?

        c) To learn?
6. Is trust sufficient? Can it be built?
7. Can representatives/individuals work together?
    a) Are the representatives available for the long-term or likely to change?
    b) Are representatives restricted by constituents?
8. Do the players have adequate knowledge and skills:
    a) To process information and think systematically?
    b) To communicate constructively and work through disagreements?
    c) To interact with acknowledgement and respect?

Procedure

1. At what stage is the conflict?
    a. Does the situation seem ripe for constructive action?
    b. Is de-escalation needed first?
2. What are the legal constraints?
3. Who has jurisdiction?
4. What management approaches have been used in the past (procedural history)?
5. Is mutual learning desired?
6. What is the decision space?
    a. How much can be shared with other parties?
    b. Are key supervisors supportive?
7. Are resources sufficient (time, money, staff)?
8. What are the procedural alternatives?
    a. How accessible are they?
    b. How inclusive?
    c. Are there needs for design and facilitation by an impartial party?

Substance

2. What are the issues?
    a. What are the tangible issues?
    b. What are the symbolic issues?
3. What are the sources of tension over these issues?
4. Are the issues complex? Technical?
5. Is information needed? Is it available?
6. Are meanings, interpretations, and understandings varied?
7. Are learning opportunities available?
8. What are the mutual gain options?

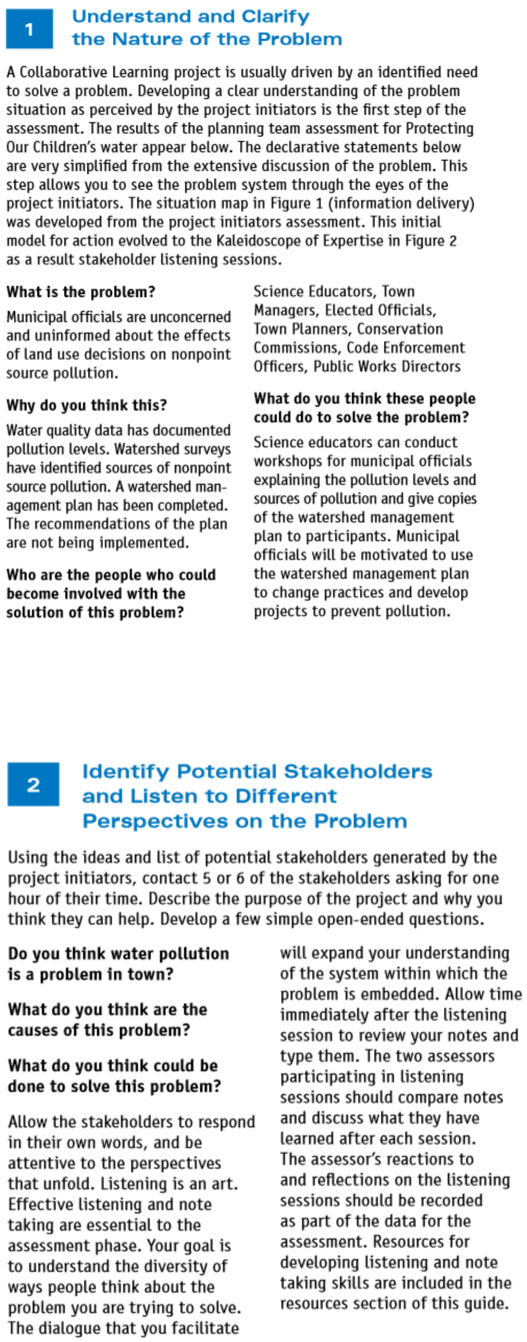
Feurt(2008)

Feurt's four steps for the assessment phase of collaborative learning are:

1. Understand and Clarify the nature of the Problem
2. Identify Potential stakeholders and listen to Different Perspectives on the Problem

3. Create and synthesize situation maps that capture the diversity of perspectives.
4. Complete the assessment matrix to organize knowledge about the system within which the collaborative learning project will occur

See examples of each below:



1 Understand and Clarify the Nature of the Problem

A Collaborative Learning project is usually driven by an identified need to solve a problem. Developing a clear understanding of the problem situation as perceived by the project initiators is the first step of the assessment. The results of the planning team assessment for Protecting Our Children's water appear below. The declarative statements below are very simplified from the extensive discussion of the problem. This step allows you to see the problem system through the eyes of the project initiators. The situation map in Figure 1 (information delivery) was developed from the project initiators assessment. This initial model for action evolved to the Kaleidoscope of Expertise in Figure 2 as a result stakeholder listening sessions.

What is the problem?

Municipal officials are unconcerned and uninformed about the effects of land use decisions on nonpoint source pollution.

Why do you think this?

Water quality data has documented pollution levels. Watershed surveys have identified sources of nonpoint source pollution. A watershed management plan has been completed. The recommendations of the plan are not being implemented.

Who are the people who could become involved with the solution of this problem?

Science Educators, Town Managers, Elected Officials, Town Planners, Conservation Commissions, Code Enforcement Officers, Public Works Directors

What do you think these people could do to solve the problem?

Science educators can conduct workshops for municipal officials explaining the pollution levels and sources of pollution and give copies of the watershed management plan to participants. Municipal officials will be motivated to use the watershed management plan to change practices and develop projects to prevent pollution.

2 Identify Potential Stakeholders and Listen to Different Perspectives on the Problem

Using the ideas and list of potential stakeholders generated by the project initiators, contact 5 or 6 of the stakeholders asking for one hour of their time. Describe the purpose of the project and why you think they can help. Develop a few simple open-ended questions.

Do you think water pollution is a problem in town?

What do you think are the causes of this problem?

What do you think could be done to solve this problem?

Allow the stakeholders to respond in their own words, and be attentive to the perspectives that unfold. Listening is an art. Effective listening and note taking are essential to the assessment phase. Your goal is to understand the diversity of ways people think about the problem you are trying to solve. The dialogue that you facilitate will expand your understanding of the system within which the problem is embedded. Allow time immediately after the listening session to review your notes and type them. The two assessors participating in listening sessions should compare notes and discuss what they have learned after each session. The assessor's reactions to and reflections on the listening sessions should be recorded as part of the data for the assessment. Resources for developing listening and note taking skills are included in the resources section of this guide.

Figure 7. A Situation Map About Threats to Water at Goose Rocks Beach, Kennebunkport, Maine

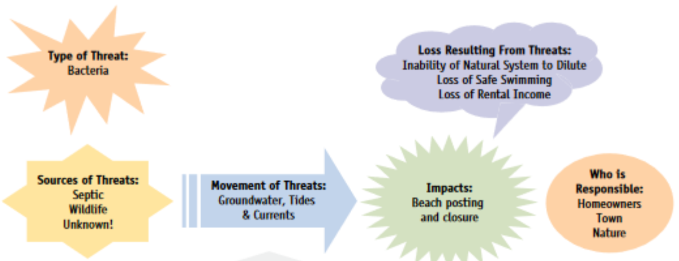
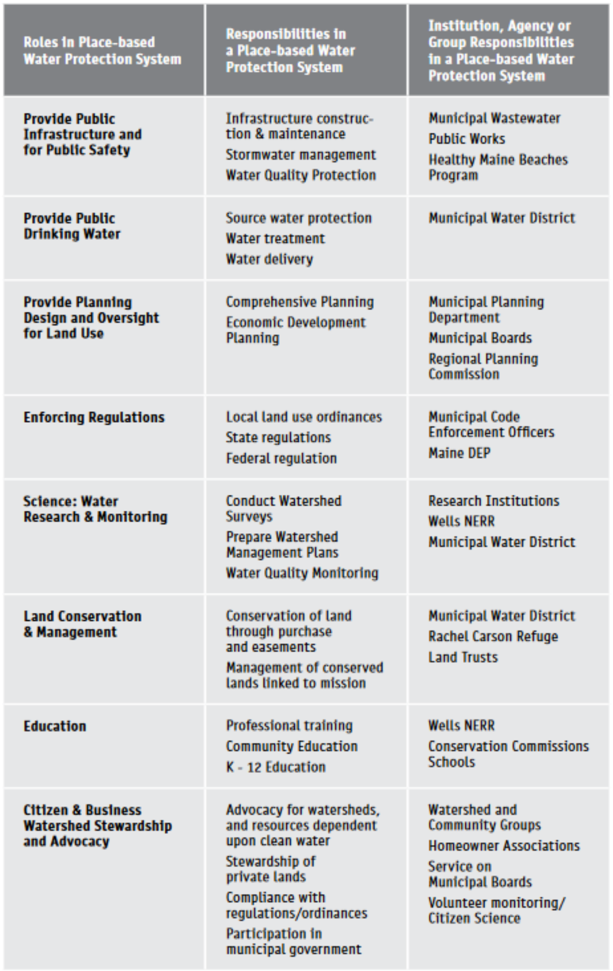


Table 2. Sample Assessment Matrix: The System for Protecting Water in Southern Maine



Roles in Place-based Water Protection System	Responsibilities in a Place-based Water Protection System	Institution, Agency or Group Responsibilities in a Place-based Water Protection System
Provide Public Infrastructure and for Public Safety	Infrastructure construction & maintenance Stormwater management Water Quality Protection	Municipal Wastewater Public Works Healthy Maine Beaches Program
Provide Public Drinking Water	Source water protection Water treatment Water delivery	Municipal Water District
Provide Planning Design and Oversight for Land Use	Comprehensive Planning Economic Development Planning	Municipal Planning Department Municipal Boards Regional Planning Commission
Enforcing Regulations	Local land use ordinances State regulations Federal regulation	Municipal Code Enforcement Officers Maine DEP
Science: Water Research & Monitoring	Conduct Watershed Surveys Prepare Watershed Management Plans Water Quality Monitoring	Research Institutions Wells NERR Municipal Water District
Land Conservation & Management	Conservation of land through purchase and easements Management of conserved lands linked to mission	Municipal Water District Rachel Carson Refuge Land Trusts
Education	Professional training Community Education K - 12 Education	Wells NERR Conservation Commissions Schools
Citizen & Business Watershed Stewardship and Advocacy	Advocacy for watersheds, and resources dependent upon clean water Stewardship of private lands Compliance with regulations/ordinances Participation in municipal government	Watershed and Community Groups Homeowner Associations Service on Municipal Boards Volunteer monitoring/ Citizen Science

(Adapted from Feurt, 2007)

Appendix B: Training

The training phase is about introducing the CL process to the stakeholders (Daniels & Walker, 2001). It allows people to understand how the process works and how it can be used to facilitate dialogue (Daniels & Walker, 2001). This stage is important for getting buy-in from stakeholders and making sure they understand the limits of the process (Daniels & Walker, 2001).

Daniels and Walker (2001)

Sample two-day collaborative learning training program:

Day 1

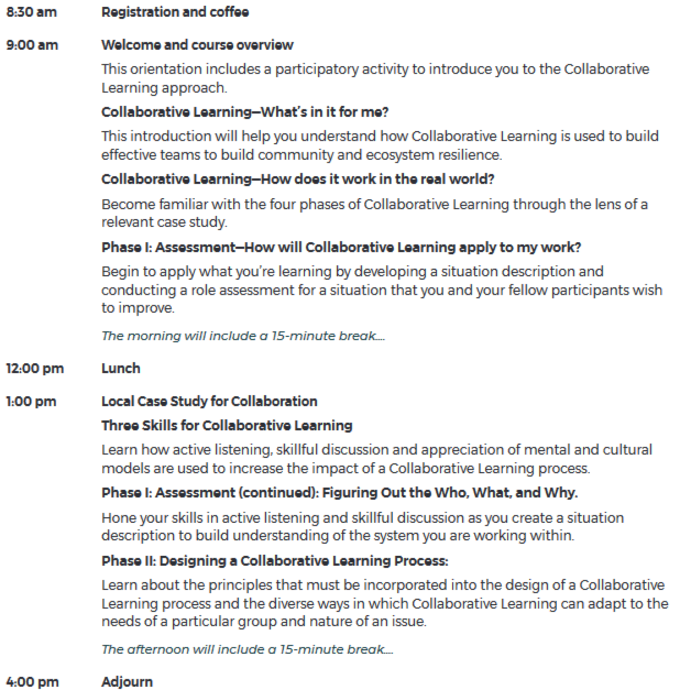
1. Instructor introductions and workshop logistics
2. Best and worst planning experiences
3. Why consider a collaborative learning approach?
   a. Overview of traditional public involvement and collaboration
   b. Collaborative public participation
4. The nature of collaborative learning
5. Systems and systems thinking
6. An exercise in systems thinking
7. Group reports and systems thinking
8. Applications in planning situations: Assessing collaborative potential
9. First day wrap-up

Day 2

1. Assessing collaborative potential continued
   a. Application of CL to natural resource management scenarios
   b. Internal situations
   c. External situations
2. Group reports and discussion
3. A CL approach to public involvement: design issues
4. A CL approach to collaborative stewardship

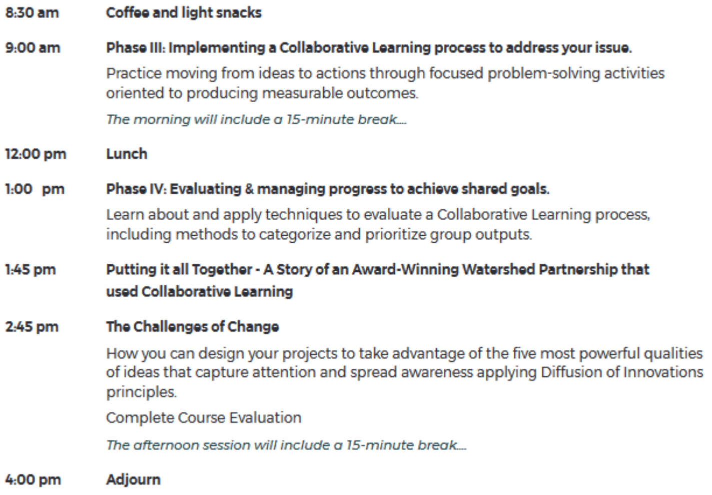
Feurt (2020)

Day 1



8:30 am	**Registration and coffee**
9:00 am	**Welcome and course overview** This orientation includes a participatory activity to introduce you to the Collaborative Learning approach. **Collaborative Learning—What's in it for me?** This introduction will help you understand how Collaborative Learning is used to build effective teams to build community and ecosystem resilience. **Collaborative Learning—How does it work in the real world?** Become familiar with the four phases of Collaborative Learning through the lens of a relevant case study. **Phase I: Assessment—How will Collaborative Learning apply to my work?** Begin to apply what you're learning by developing a situation description and conducting a role assessment for a situation that you and your fellow participants wish to improve. *The morning will include a 15-minute break....*
12:00 pm	**Lunch**
1:00 pm	**Local Case Study for Collaboration** **Three Skills for Collaborative Learning** Learn how active listening, skillful discussion and appreciation of mental and cultural models are used to increase the impact of a Collaborative Learning process. **Phase I: Assessment (continued): Figuring Out the Who, What, and Why.** Hone your skills in active listening and skillful discussion as you create a situation description to build understanding of the system you are working within. **Phase II: Designing a Collaborative Learning Process:** Learn about the principles that must be incorporated into the design of a Collaborative Learning process and the diverse ways in which Collaborative Learning can adapt to the needs of a particular group and nature of an issue. *The afternoon will include a 15-minute break....*
4:00 pm	**Adjourn**

Day 2



8:30 am	**Coffee and light snacks**
9:00 am	**Phase III: Implementing a Collaborative Learning process to address your issue.** Practice moving from ideas to actions through focused problem-solving activities oriented to producing measurable outcomes. *The morning will include a 15-minute break....*
12:00 pm	**Lunch**
1:00 pm	**Phase IV: Evaluating & managing progress to achieve shared goals.** Learn about and apply techniques to evaluate a Collaborative Learning process, including methods to categorize and prioritize group outputs.
1:45 pm	**Putting it all Together - A Story of an Award-Winning Watershed Partnership that used Collaborative Learning**
2:45 pm	**The Challenges of Change** How you can design your projects to take advantage of the five most powerful qualities of ideas that capture attention and spread awareness applying Diffusion of Innovations principles. Complete Course Evaluation *The afternoon session will include a 15-minute break....*
4:00 pm	**Adjourn**

Appendix C: Design

The design phase is about constructing the actual nuts and bolts of the CL workshops(Feurt, 2008). Based on the assessment phase, stakeholders design workshops, activities, and goals that address the issues they are facing(Daniels & Walker, 2001). All parties participating in the workshops should also be a part of the design phase so the process is clear to all(Daniels & Walker, 2001).

Feurt (2008)

Three steps to the design phase:

1. Confirm the problem statement and purpose of the process in the invitation to participate.
    a. "A clear statement of the problem and purpose for the process helps stakeholders determine if they want to participate. The problem and purpose should be clearly linked to the responsibilities and expertise of the stakeholders invited to attend. The outcome of a Collaborative Learning process is an action strategy developed by people who have the power to implement the actions. A stakeholder evaluating a commitment to participate will decide if the proposed event is aligned with their responsibilities for the issue, and if the activity is oriented to taking action to move forward to solve a problem."
2. Design to engage the kaleidoscope of expertise.
    a. Tap the knowledge and expertise of participants to support systems thinking.
    b. Engage participants in reflection about their work and provide them with ways to discuss ideas that improve their ability to work with the issue.
    c. Document and track the work of Collaborative Learning.
    d. Connect the Collaborative Learning process to existing community goals.
3. Develop facilitation and knowledge management skills

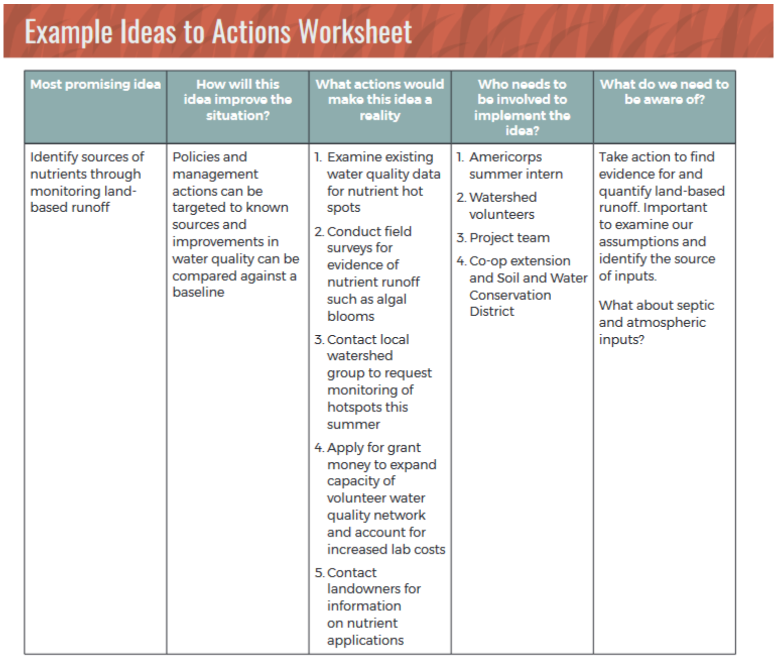
Appendix D: Facilitation/Implementation

The facilitation and implementation phase puts into practice the plan from the design phase(Feurt, 2020). This includes convening the parties and facilitating the activities and dialogue to improve the issue at hand(Feurt, 2008). While the blueprint for this phase was created in the design phase, there will always be some improvisation and experimentation once stakeholders get into the room(Feurt, 2008).

Feurt (2020)

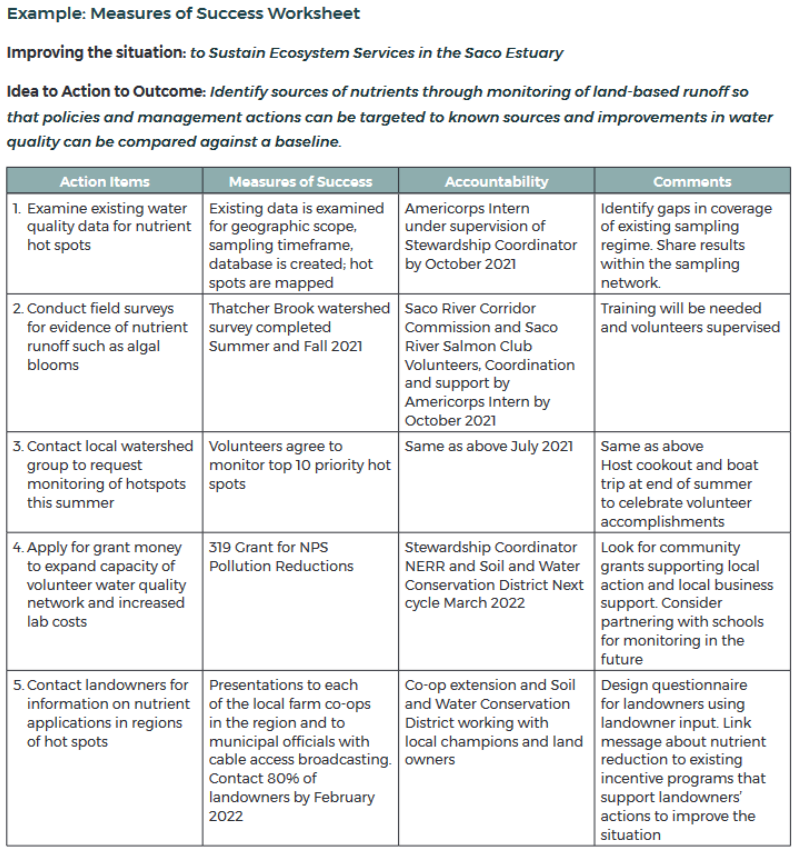
1. Setting the Stage for Action Directly Connected to Participants’ Expertise
    a. Begin the event by providing orientation to its purpose, process, outcomes
    b. Establish relevance to the work of participating stakeholders
    c. Connect the event to participating stakeholder values
2. Build Shared Understanding
    a. Build shared understanding by creating and synthesizing situation maps that capture the diversity of perspectives and reveal shared goals
3. Moving from Individual Reflection to Group Brainstorm Ideas for Improvement
    a. Generate your ideas for improving the situation
    b. Include a listening session for most promising ideas
    c. Discuss and evaluate individual ideas in small group brainstorm. Identify most promising ideas using criteria agreed upon by the group
4. Develop Action Strategies with a Path to Outcomes
    a. Move from Ideas to Action – complete group Worksheet
    b. Visualize the Path from Action to Outcomes
    c. Develop Measures of Success and accountability to evaluate progress and guide adaptive management for long term projects – complete group Worksheet

Worksheets



Example Ideas to Actions Worksheet

Most promising idea	How will this idea improve the situation?	What actions would make this idea a reality	Who needs to be involved to implement the idea?	What do we need to be aware of?
Identify sources of nutrients through monitoring land-based runoff	Policies and management actions can be targeted to known sources and improvements in water quality can be compared against a baseline	1. Examine existing water quality data for nutrient hot spots 2. Conduct field surveys for evidence of nutrient runoff such as algal blooms 3. Contact local watershed group to request monitoring of hotspots this summer 4. Apply for grant money to expand capacity of volunteer water quality network and account for increased lab costs 5. Contact landowners for information on nutrient applications	1. Americorps summer intern 2. Watershed volunteers 3. Project team 4. Co-op extension and Soil and Water Conservation District	Take action to find evidence for and quantify land-based runoff. Important to examine our assumptions and identify the source of inputs. What about septic and atmospheric inputs?



Example: Measures of Success Worksheet

Improving the situation: *to Sustain Ecosystem Services in the Saco Estuary*

Idea to Action to Outcome: *Identify sources of nutrients through monitoring of land-based runoff so that policies and management actions can be targeted to known sources and improvements in water quality can be compared against a baseline.*

Action Items	Measures of Success	Accountability	Comments
1. Examine existing water quality data for nutrient hot spots	Existing data is examined for geographic scope, sampling timeframe, database is created; hot spots are mapped	Americorps Intern under supervision of Stewardship Coordinator by October 2021	Identify gaps in coverage of existing sampling regime. Share results within the sampling network.
2. Conduct field surveys for evidence of nutrient runoff such as algal blooms	Thatcher Brook watershed survey completed Summer and Fall 2021	Saco River Corridor Commission and Saco River Salmon Club Volunteers, Coordination and support by Americorps Intern by October 2021	Training will be needed and volunteers supervised
3. Contact local watershed group to request monitoring of hotspots this summer	Volunteers agree to monitor top 10 priority hot spots	Same as above July 2021	Same as above Host cookout and boat trip at end of summer to celebrate volunteer accomplishments
4. Apply for grant money to expand capacity of volunteer water quality network and increased lab costs	319 Grant for NPS Pollution Reductions	Stewardship Coordinator NERR and Soil and Water Conservation District Next cycle March 2022	Look for community grants supporting local action and local business support. Consider partnering with schools for monitoring in the future
5. Contact landowners for information on nutrient applications in regions of hot spots	Presentations to each of the local farm co-ops in the region and to municipal officials with cable access broadcasting. Contact 80% of landowners by February 2022	Co-op extension and Soil and Water Conservation District working with local champions and land owners	Design questionnaire for landowners using landowner input. Link message about nutrient reduction to existing incentive programs that support landowners' actions to improve the situation