CONDITIONS AND CONSTRAINTS RELATED TO COLLABORATIVE MANAGEMENT OF
NATURAL RESOURCES IN PENNSYLVANIA

A Thesis in
Rural Sociology

by
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ABSTRACT

Previous research demonstrates that the traditional, managerial approach to natural resource management has been ineffective in many cases. There is an increasing shift towards more collaborative approaches to natural resource management that is referred to as collaborative governance. The conceptual framework used in this study was the model of collaborative governance developed by Ansell and Gash (2007). The research explores the current conditions and constraints of collaborative natural resource management in Pennsylvania. Eighteen semi-structured interviews were conducted with managers from different sectors, including the nonprofit, government, and private sectors. The data was analyzed by manual coding of the transcripts. This study builds upon the conceptual model by acknowledging that power is embedded in collaboration, local context matters, and the definition of facilitative leadership is broader. The findings also indicate that structures can be designed to bring different sectors together to facilitate collaborative governance as well as the importance of developing relationships, communication, and facilitative leadership to address issues of trust.
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Chapter 1: INTRODUCTION

Environmental conflicts are complex, involving multiple parties, multiple issues, cultural differences, deeply-held values, scientific and traditional knowledge, legal requirements, and conflict (Daniels and Walker 2001). Historically, public administration of environmental conflicts in the United States was driven by the “managerial” model that included a top-down approach where administrators decided and pursued goals (Beierle and Cayford 2002). Moreover, during the 1960s, environmental history factors contributed to the advent of the modern movement to address environmental issues, including the activist culture, Rachel Carson’s *Silent Spring*, scientific knowledge about smog, the Cuyahoga River catching on fire in Cleveland among other factors; concerned citizens organized collectively and spurred the establishment of environmental policies during the 1970s (Dunlap and Mertig 1991). This consisted of the establishment of national standards and regulations around air, water, and land, including the National Environmental Policy Act, the Clean Water Act, and the Clean Air Act (Sharp and Parisi 2003).

Regulations have been most effective at addressing point-source pollution but have had very little success on issues like the protection of endangered species and sustainable timber management (Wondolleck and Yaffee 2000). Budget cuts in the 1980s and 1990s and fewer resources and people in public management agencies also made top-down approaches more challenging (Wondolleck and Yaffee 2000). Over time, there was increasing awareness by public agencies and communities that one-size-fits-all policies were not universally effective.
The problems faced in communities are often more complicated than ones that can be resolved by a regulatory solution. Rittel and Weber (1973) refer to this as a "wicked problem," meaning that there is no immediate fix to a problem or clear solution (161). Often there are many stakeholders who have different interests and define the problems differently. In order to address these "wicked problems," multi-sector solutions are typically needed (Wondolleck and Yaffee 2000). During the last decades of the twentieth century, devolution occurred with shifts among responsibilities at different levels of government, which included a transfer of some control, development, and support of policies to states and local governments (Sharp and Parisi 2003). This shift occurred within natural resource management issues.

Such a shift occurred in part because historically, there has been much conflict and lack of effectiveness in addressing many environmental problems with a top-down approach. Collaborative governance has emerged in response to the failures of and the high costs and politicization of regulations (Wondolleck and Yaffee 2000). It is an alternative to adversarial interest groups pushing positions and failures of top-down governance (Ansell and Gash 2007). The emergence of collaborative governance is occurring across various sectors, including natural resource management. The goal of collaborative governance is to transform adversarial relationships into more cooperative ones and to engage different stakeholders directly in the decision-making process (Ansell and Gash 2007). Furthermore, public participation can help identify competing interests, find unity of interests where they exist, and prevent undesirable, expensive, and potentially irreversible outcomes through shared data and information (Radow 2011). Therefore,
when different sectors are open to collaborative governance, alternative approaches to management (which may have more productive outcomes) may be explored.

**Research Question**

In an attempt to understand collaborative governance in a particular context, this research seeks to explore the current conditions and constraints associated with collaborative natural resource management within Pennsylvania. Documentation of the environmental history in the state is limited (Tarr 1999). A scan of literature databases yields few, if any, studies that explore perceptions of natural resources managers of collaborative governance in the state. Pennsylvania has historically dealt with a range of different natural resources issues, ranging from natural resource extraction to issues of agricultural production. By looking at one state, we can learn more about the barriers and opportunities that can be applied to the overall theory itself. To explore the current situation, these research objectives are explored:

- How do natural resource leaders define and describe collaborative governance?
  - Do they think it needs to exist?
  - What does collaboration mean to different stakeholders?
- What are the ways that Pennsylvania environmental history and past experiences influence collaborative management?
- What are actions that leaders take that facilitate or impede collaboration?
- What are the institutional constraints on collaboration?

The results of this study will shed light on the current practice of collaborative governance in Pennsylvania highlighting both successes and opportunities for improvement. This
study will help extend the literature on collaborative governance framed in natural resource management, particularly how facilitative leadership and power is embedded in collaboration. The findings from this study include that institutions can be designed to bring different sectors together to facilitate collaborative governance by linking funding to partner collaboration. Relationship development, communication, and facilitative leadership are also important to bring sectors together and commit to a collaborative process.

Thesis Overview

The following chapters seek to address the aforementioned research objectives. In chapter two, I review the relevant literature on collaborative governance and collaborative leadership. This chapter outlines the conceptual model used to explore this topic. Chapter three documents the methods used in the study. I conducted 18 semi-structured interviews with key informants involved in different sectors of natural resource management in Pennsylvania. Chapter four presents the results from the interview process. These results are broken down into the four major research objectives in the study. Chapter five offers discussion and conclusions from the research, practical implications, and recommendations for future areas of inquiry.
Chapter 2: LITERATURE AND CONCEPTUAL MODEL

This chapter reviews the relevant literature related to the traditional approach to natural resource management, the shift towards more democratic approaches to governance, and conditions that influence the collaborative governance model used in this study. This chapter seeks to outline the different factors that influence a collaborative process. Specific challenges within collaborative governance in the natural resource sector are also explored.

Traditional Approaches to Natural Resource Management

Historically, natural resource management has been driven by conflict, and the creation of state and federal environmental laws perpetuated these conflicts. This is due primarily to the fact that many environmental decisions are based on legislative action and judicial decision making, which foster win-lose outcomes (Wondolleck and Yaffee 2000). In judicial processes, groups become opponents where the group or individual who makes the strongest case for their own interest is the sole winner. As a result, it is not typically in one’s litigation interest to explore creative, win-win solutions (Wondolleck and Yaffee 2000). Additionally, the culture around legislative behavior has become increasingly adversarial in nature where special interest groups pursue a defined agenda, campaign financing dominates and shapes the legislators’ actions, and media promotes extreme partisan behavior (Wondolleck and Yaffee 2000).

Administrative decision-making is often a top-down, paternalistic process in which agencies listen to public concerns and base decisions on their interpretation of science and public interest (Wondolleck and Yaffee 2000). Consequently, Wondolleck and Yaffee argue
that groups and individuals feel compelled “to accentuate their differences rather than searching for common ground” (52). For example, during the forest planning process, forests typically met the minimum legal requirements for public involvement by using the least confrontational methods they could. This meant that most of the planning process and communication has been written or one-way communication. In other words, interactive public participation typically only occurs when the pending proposal was not controversial, like during issue identification of an environmental impact statement.

Other times planners engage the public when they are forced to do so as a result of public outcry (Blahna and Yonts-Shepard 1989). Furthermore, Blahna and Yonts-Shepard (1989) found that when planners buried controversial issues during the planning process, it often made conflicts worse rather than avoiding or minimizing them, and postponing having to deal with issues until later in the process made the conflicts more intense and harder to mediate.

As a result, one could surmise that this may not result in the best natural resource management outcomes. To illustrate, 34,000 salmon were killed in the Klamath and Trinity Rivers in California due to reduced water flow and concentrated agricultural run-off caused by the 2002 Klamath Irrigation Project; this was due in large part to the fact that environmental agencies did not listen to different stakeholders (Luloff, Bridger, and Brennan 2006). More specifically, the state and federal government promised water to too many interests, and concerns expressed by another state, public, and private groups were ignored. Consequently, the problems associated with this project were linked to a lack of local decision-making and acknowledgment of local concerns (Luloff et al. 2006). This
example demonstrates that not involving the local community and acknowledging different perspectives on the issues they face can result in more problems.

The structure of environmental public agencies can create institutional barriers to collaboration in natural resource management. This can include structural barriers, like procedures, policy constraints, limited resources, as well as different attitudes and perceptions of various stakeholders. On a basic level, policy processes are usually driven by adversarial win-lose conflicts like legislative and judicial decision making, which is counter to collaboration (Wondolleck and Yaffee 2000).

Furthermore, the approach taken by administrative decision-making bodies are top-down, typically involving one-way means of communication. Under the National Environmental Policy Act (NEPA), the public participation process in natural resources consists of notification, issue surfacing, and comments on draft decisions (Daniels and Walker 2001). Public input usually occurs at public hearings where people speak on the record for one to five minutes per person. Often there is unilateral decision-making within environmental agencies and public input does not influence the outcomes, which is described as a “Three-‘I’ Model”: “inform, invite, and ignore” (Daniels and Walker 2001, 9). Consequently, both traditional approaches to policy making and how environmental protection agencies have solicited public input results in very little collaboration.

A collaborative approach is different than the “agency knows best” approach towards natural resources management, which is the typical approach taken by most environmental protection agencies. Agency-employed natural resource managers’ source of legitimacy historically has come from scientific wisdom, and there has been an emphasis
on technical solutions. However, there is increasing movement away from technocratic to more democratic solutions.

**Evolving Approaches to Environmental Governance**

There is a current trend to shift away from a top-down approach to natural resource management to more democratic approaches started in the late 1980s to the early 1990s. With this growing movement, there are different ways people are conceptualizing environmental governance with collaborative governance being a particular approach within environmental governance. Environmental governance is defined as the "interventions aiming at changes in environment-related incentives, knowledge, institutions, decision-making, and behaviors" and is considered different than government by integrating business, NGOs, and communities into regulatory and other processes (Lemos and Agrawal 2006:298). Weber (2003) described a well-known example that took place in a logging town in Quincy, California, where loggers and environmentalists were warring factions that essentially shut down the local timber industry due to lawsuits. In 1992, California's top timber lobbyist and a local environmental attorney helped to initiate a collaborative process to pursue a selective logging plan that community residents could support.

Other communities across the country started to follow suit of pursuing more democratic approaches to management. These communities wanted to stop bickering, as well as being upset by the top-down approach to natural resource management (Weber 2003). This trend towards collaboration is also due to the cost of impasses, reduced budgets, declining trust in the government, reduced civic engagement, and a recognition
that sometimes collaboration is the only way to get things done has also spurred this shift (Yaffee and Wondolleck 2003). Plus, the existing decision-making structure is complex and contradictory and has not resulted in positive outcomes (Kemmis and Mckinney 2011). The aforementioned factors are fueling the movement away from top-down natural resource management and making collaborative approaches better alternatives especially as a means to address reduced civic engagement and declining trust.

Greater citizen engagement in decision-making includes an interactive approach to politics that puts citizens at the center (Boyte 2004). This is based on the idea that greater involvement of people can result in greater creativity, insights, and better decisions (King and Hustedde 2001). When there is greater inclusivity of people and information, more informed decisions can be made, there is increased compliance, and there is more effective implementation; this shift is resulting in better outcomes in environmental management (Scott 2015).

Along the lines of greater inclusivity of people and information, John (2004) describes a four-part typology of environmental governance based on geographic scale (national versus local) and substantive scope (issue versus systemic). More specifically, John (2004) argues that civic environmentalism, which is one of the four approaches, seeks to address local issues systemically and reaches across agency boundaries and leaders in local communities. In other words, this approach is place-specific and driven by grassroots participants, such that no one entity distorts the process by investing more resources. This includes citizens, agencies, and experts where state and federal agencies shift their role to maintain the process. This type of approach is based on moral authority as opposed to legal authority of particular agencies (John and Mlay 1999). This appeals to conservatives
who would like to eliminate governmental regulations yet others view this approach as complementing regulations with greater local citizen involvement. Civic environmentalism seeks to integrate different stakeholders for collaboration. This approach differs from others by integrating different stakeholders into decision making and shifting roles of state and federal agencies. This type of approach is an emergent process that is driven by grassroots-driven effort.

Collaborative processes in governance are also described as a balance between “technical competence and inclusive deliberation” (Daniels and Walker 2001:10). These researchers describe such efforts as collaborative learning, which is a framework and a linear sequence of techniques and steps used in multi-party decision-making that integrates learning, systems-thinking, and conflict management (Daniels and Walker 2001). Public discussions about collaborations can result in learning governance processes leading to informed public decision-making; further, this can create energy and more creative problem solving as opposed to traditional approaches (Blatner et al. 2001). Learning-focused approaches to public participation is necessary because different stakeholders have different areas of expertise (Blatner et al. 2001). Learning in collaborations can lead to trust-building (Mandarano and Paulsen 2011). The resultant learning that happens in collaborations recognizes that conflict is inevitable and it must be addressed effectively; avoidance is not fruitful (Roberts 2010). However, some people try to eliminate conflict by controlling the process. There can be issues when there are people who feel like they need to control the process, which can result in significant conflict.

Another term describing this overall trend towards greater collaboration is called grassroots ecosystem management and is defined as “collaborative governance
arrangement in which inclusive coalitions of the unalike come together in a deliberative format to resolve policy problems affecting the environment, economy, and community (communities) of a particular place” (Weber 2003:3). Collaborative governance transcends geographic and typological scales as described by John (2004). To illustrate, community watershed organizations in Pennsylvania created examples of positive resource mobilization, awareness, and linkages between different stakeholders, including enhancing leadership of rural residents (Stedman et al. 2009). In another study, collaborative watershed groups were found to have improved water quality and in-stream habitat (Scott 2015). Other examples include the EPA’s Chesapeake Bay Program and the Great Lakes Program that resulted in improvements in water quality; however, other efforts have been time-consuming and not resulted in positive results (John 2004). This helps create linkages between different organizations to improve collaborative governance. One of the benefits of decentralized management is that site-specific conditions can be taken into account resulting in more effective management (Blatner et al. 2001). Overall, there have been positive results from engaging in this kind of approach. The impact of this trend is that there is democratic participation, more voices are being heard, and improved natural resource management outcomes.

Collaborative Governance Conceptual Model

For the purpose of this research study, Ansell and Gash’s (2007) model of collaborative governance was selected because this model was developed from the evaluation of numerous case studies and identifies both starting conditions that influence the success of a collaborative effort in addition to key components of the collaborative
process. Collaborative governance is defined as “a governing arrangement where one or more public agencies directly engage non-state stakeholders in a collective decision-making process that is formal, consensus-oriented, and deliberative and that aims to make or implement public policy or manage public programs or assets” (Ansell and Gash 2007, 544). These arrangements alter traditional boundaries between sectors and organizations because various entities are working together, which include citizens and non-governmental interest groups (Page 2010). In other words, this approach acknowledges that community members impacted by policies and programs have important insights about how to address local challenges. Additionally, involving various stakeholders can help cultivate creative solutions that are amenable to all parties. Historically, some community leaders think that they are sole decision-makers due to their election or appointment to office and find that citizen participation reduces efficiency (King and Hustedde 2001). This approach challenges traditional power systems by requiring the inclusion of multiple voices, which could result in potential conflict.

One weakness of Ansell and Gash (2007), they argue that a broader definition of collaborative governance that allows for non-state stakeholders to be able to start the process is needed (Emerson, Nabatchi, and Balogh 2012). Also, Emerson et al.’s (2012) framework acknowledges that the system context influences collaboration throughout the process through political, legal, socioeconomic, environmental, and other. However, Ansell and Gash’s model (2007) allows for better means of analyzing comparable efforts to support the development of effective construction of an effective model. Furthermore, the conceptual model used in this study describes a more nuanced understanding of the
internal collaborative process and acknowledges that power does occur at some point in the process.

After reviewing 137 cases of collaborative governance in various policy sectors, Ansell and Gash (2007) developed a model (as depicted in Figure 1) that highlights different variables that influence the likelihood of success. This tool can be used both by academics and practitioners. The variables that influence outcomes in collaborative governance include the following: starting conditions (prior history of conflict or cooperation, incentives for stakeholder participation, and power and resources imbalances), facilitative leadership, institutional design, and the collaborative process. The first three aforementioned factors are essential contributors or context for the process. The process includes face-to-face dialogue, trust-building, shared understanding, and commitment to the process (Ansell and Gash 2007).

This model can inform how collaborative management of natural resources could work and the essential role facilitative or shared leadership plays in it. Efforts to pursue collaborative governance were often driven by earlier failures with approaches.
Figure 1: Model of Collaborative Governance (Ansell and Gash 2007:550)

Starting Conditions

The starting conditions influence the challenges faced particularly in the beginning stages of the collaborative process. They include the level of trust, conflict, and social capital that serve to influence the challenges and opportunities in the process (Ansell and Gash 2007). If there has been a long history of conflict, for example, stakeholders will often need to invest more time in building trust, learning about people's motivations, and finding common ground through face-to-face dialogue.
Power/Resource/Knowledge Asymmetries

Stakeholders need to have the capacity, organization, status and resources to participate equally with others, otherwise, there will likely be manipulation in the process. Environmental groups are particularly skeptical of collaborative governance because they think industry groups have more advantages (McCloskey 2000). There needs to be strong measures to counterbalance neutral agency leadership (Schuckman 2001). Other challenges include differences in skills and resources, including a lack of knowledge to be able to participate in highly technical problems (Gunton and Day 2003). Daniels and Walker (2001) state that people in a collaborative effort must learn their way to technical sophistication. Some stakeholders have limited capacity to engage in a collaborative process due to financial constraints, skills, and time (Yaffee and Wondolleck 2003).

Incentives to Participate

Another important component of collaborative process is for stakeholders to consider whether or not participation will likely yield positive results. They also likely need to consider if they can achieve their goals unilaterally or through alternative means (Ansell and Gash 2007). In other words, is achievement of their goals dependent on cooperation with others? Imbalances of power and resources influences whether or not there are incentives to participate (Gunton and Day 2003). Perceptions of interdependence have a significant impact on the likelihood of successful collaboration and will ultimately be dependent upon the political and regulatory context (Ansell and Gash 2007).
Prehistory of Antagonism and Cooperation

The history of cooperation or conflict influences the ability of collaborative efforts to occur (Andranovich 1995). Conflicts create issues with mistrust, stereotyping, and suspicion; whereas, a history of success creates social capital and trust (Ansell and Gash 2007). A history of cooperation was shown to facilitate a sense of interdependence (Andranovich 1995). Conflict does not necessarily mean that a collaborative management approach will not be successful if there is an antagonistic history, but conflict can make the collaborative governance process more difficult (Ansell and Gash 2007). Antagonism could help to surface latent issues that need to be addressed in the collaborative process.

Institutional Design

In Ansell and Gash’s (2007) conceptual model, institutional design is defined as the “basic protocols and ground rules for collaboration” (555). This relates to the boundaries and expectations of the collaboration including broad participation by various stakeholders and mutually agreed-upon ground rules that all parties abide by in the collaborative process. This design also includes ensuring a transparent process, in which decisions made by the group have the legitimacy to be implemented.

According to Chrislip and Larson (1994), it is important to bring the right mix of people together to achieve results, including potentially problematic actors. This must include diverse stakeholders to ensure that best solution can be created and the outcomes are considered legitimate by all parties (Chrislip and Larson 1994; Reilly 2001). As this applies to natural resource management, diverse stakeholders would need to include environmental agencies, concerned citizens, industry officials, and others. For example, the
Remedial Action Plan (RAP) process, which is a community-based effort to clean up 43 contaminated rivers and bays in the Great Lakes, demonstrated the importance of different players (Beierle, Thomas C., Konisky 2001). The Severn Sound RAP had support of the relevant municipalities, provincial government, agricultural interests responsible for nutrient loading, and the local community. Stakeholders brought more scientific information and local knowledge to the process. In 9 out of 17 cases with moderate to good data, conflict decreased, and it increased in only 3 cases (Beierle, Thomas C., Konisky 2001).

Process transparency and ground rules are another important aspect of institutional design (Ansell and Gash 2007; Busenberg 1999; Gunton and Day 2003). Design can be structured to reduce people’s suspicions about a manipulated process; this could include reducing the possibility that a participant could do hidden action (Busenberg 1999). The institutional design may also include by-laws, policies, and procedures, which create conditions where people are inclined to participate, communicate, and resolve conflicts (Agbodzakey 2012). Strong procedures and codified practices can also support increased trust between players (Scott 2015). Also, Ansell and Gash (2007) identify that processes should be consensus-oriented due to the fact that there is not a definitive conclusion about whether or not consensus is necessary. Some research demonstrates that consensus was seen as necessary due to various interests represented in collaboration (Agbodzakey 2012). However, sometimes consensus decision-making can result in second-best solutions thereby ignoring conflicts or scientific information (Gunton and Day 2003). Consensus-oriented implies that the objective to strive for consensus, yet it leaves room some flexibility in the process.
Facilitative/Shared Leadership

Arguably, leadership is fundamental to the whole process because leaders bring in and engage different stakeholders in addition to helping to navigate challenges faced in the process. Facilitative or shared leadership is an alternative to the traditional top-down leadership. As defined by Pearce and Conger (2003), shared leadership is “a dynamic, interactive influence process among individuals in groups for which the objective is to lead one another to the achievement of group or organizational goals.” This is different than traditional leadership, which involves a hierarchal imposition of decisions on subordinates (Pearce and Conger 2003).

Leadership is key to bringing people into the decision-making process and steering people through the challenges of the collaborative process (Ansell and Gash 2007). The primary focus of leadership needs to be in the process of people working together, not the content of the problem (Chrislip and Larson 1994). Leadership helps to set and maintain clear ground rules, build trust, facilitate dialogue, and explore mutual gains. These individuals also help to embrace, empower, and involve stakeholders (Ansell and Gash 2007).

Leaders help promote broad and active participation, assure broad-based influence and control, facilitate productive group dynamics, and extend the scope of the process. They need to make people aware of the process and be a resource for participants. These individuals need to see how people perceive the process, establish relationships, and engage new people (Lasker and Weiss 2003). Strong leadership of the process includes keeping people at the table through frustrations and skepticism, celebrating small
successes, negotiating challenges, and enforcing group norms (Chrislip and Larson 1994; Ryan 2001). Leadership impacts who participates and how people are involved in the process and the scope of the process.

Leadership exists differently in collaborations than in top-down, managerial approaches to management. People have a variety of different roles. Leaders, and consequently other participants in a collaboration, need to believe in the capacity of diverse people to work together to identify, understand, and solve community problems (Lasker and Weiss 2003). In the context of collaborative natural resource management, leaders will make sure that diverse perspectives are shared and heard in the process and outcomes.

Environmental issues, in particular, necessitate a range of leadership skills, including transformational behaviors, conflict management and problem-solving skills, and the building of partnerships with various stakeholders (Egri and Herman 2000; Portugal and Yukl 1994). Since people come to environmental conflicts with different perspectives and skepticism, facilitators need to come to the process with patience to help different participants work through these challenges. It is important that active listening is both practiced and fostered (Daniels and Walker 2001). The focus needs to be on getting others to identify interests, clarify and assess improvements, and consider alternatives. Susskind and Cruikshank (1987) describe three different approaches to assisted negotiation with different amounts of intervention, including facilitation, mediation, and nonbinding arbitration (Susskind and Cruikshank 1987).

Governmental officials need to build a wider understanding of their leadership role in the collaborative process. The public agency has a particularly important role in the
process. In a study of the Environmental Protection Agency's (EPA) role in a collaborative process, participants thought the agency should be sharing expertise and analysis, sponsorship, authority, process management, and decision-making. Additionally, they felt that it was important for them to manage the collaborative process, maintain “technical credibility,” and ensure that the collaboration can make credible decisions acceptable to everyone (Ryan 2001, 241). The EPA participants, however, emphasized their technical aspects of the leadership role and not the process aspects because these individuals expressed the concern that they did not possess process-oriented skills (Ryan 2001). This demonstrates that agency employees may not have skills to act as facilitative leaders, thereby needing to open communication regarding the strengths and role that they could contribute to the collaborative effort as one partner in the group. This might also demonstrate the need for skill development.

Collaborative Process

As is evident in the Collaborative Governance Model, the collaborative process consists of different components. These include trust-building, face-to-face dialogue, intermediate outcomes, commitment to process, and shared understanding. The stages of the collaborative process appear to be iterative and evolve over time as well as connecting with each other while remaining distinct concepts (Ansell and Gash 2007; Emerson et al. 2012).
**Trust building**

Due to the frequent mistrust between different stakeholders, an important element of the collaborative governance is trust-building (Huxham 2003). Trust is cited as important component for success of collaborations (Lasker and Weiss 2003). Trust in governance can be defined as “the expectation that actor A will take the interests of actor B into account” (Klijn, Edelenbos, and Steijn 2010:196). Interpersonal trust helps people to recognize and appreciate differences and enables people to share with others (Daniels and Walker 2001). As different parties get to know each other over time, trust development demonstrates that others are reasonable, predictable, and dependable (Fisher and Brown 1989). Therefore, people are more likely inclined to want to work with other stakeholders with whom they trust. Within networks, trust can reduce transaction costs, increase investment of resources, cultivate learning, increase knowledge exchange, and enhance innovation (Klijn et al. 2010). The initial stages of the collaborative process typically emphasize building relationships and building trust.

Trust-building could also be considered the development of social capital, which is often defined as the norms of reciprocity and trust (Coleman 1988). The efforts to build trust in collaborations specifically cultivates bridging social capital that connects diverse groups within the community and outside groups (Flora and Flora 2003). Lasker and Weiss (2003) created a model to evaluate partnership synergy and showed that bridging social capital and social relations have been shown to strengthen community problem solving. Bringing together people with different backgrounds, little experience working
together, skepticism of others’ intentions, and unfamiliarity with sharing power to have productive outcomes in a collaborative process helped to create social capital.

**Face-to-face Dialogue**

Collaborative governance builds on face-to-face dialogue. This appears to be critical for negotiation but also breaking down stereotypes and other barriers that prevent people from seeing where there would be mutual gains (Bentrup 2001). However, some argue that face-to-face dialogue is helpful at the beginning of the process but not always necessary, particularly when conflict is low and shared understanding is easily identified (Emerson et al. 2012). Yet, when there are multiple frames for understanding and diverse players with various levels of expertise, face-to-face dialogue helps people grow deeper awareness of the situation (Dewulf et al. 2011).

Face-to-face dialogue paired with other modes of communication and inclusive decision-making was found to create trust, which was noted above as being very important to the collaborative process (Gilliam et al. 2002). Some approaches to collaboration recognize the importance of deliberation, which could include difficult conversations, self-assertion, challenging questions, and honest disagreements (Emerson et al. 2012). This type of dialogue is most likely to occur in face-to-face conversations versus other modes of communication.

**Commitment to the Process**

Literature suggests that stakeholders’ commitment to collaboration is an important variable in the success of an effort (Ansell and Gash 2007; Gunton and Day 2003). This
means there is a shared investment or ownership that stakeholders are acting collectively (El Ansari 2003). By committing to the process, members are willing to abide by the procedures and embrace challenges that occur during the process with the expectation that there will be mutual gains by being involved (Burger et al. 2001). For example, differing beliefs may surface and have commitment to the process helps overcome resultant challenges. This often involves participants to engage in decision making, follow-through on assigned tasks, participate in community forums, invest resources, and advocate for affected populations (Agbodzakey 2012). Commitment to the process is imperative because the direction of a collaborative effort could go in directions that the stakeholder do not expect and time needs to be invested to understand each stakeholders’ perspectives (Saarikoski 2000). Actions taken when entities commit to the process connects back with issues of trust as well as building a shared understanding.

**Shared Understanding**

Stakeholders need to create a shared understanding of what they are trying to accomplish together. However, Ansell and Gash’s (2007) model does not give a clear definition of this concept but reference different ways the literature describes this concept. For example, Wondolleck and Yaffee (2000) describe this process as finding common ground where there are shared interests or goals that may be above the current conflict or a higher level of abstraction. Others indicated that shared understanding consists of clarifying agreement of the problem (Bentrup 2001). Whereas, others claim that mutual understanding is what is needed and is more focused on understanding and respecting
other stakeholders’ positions and interest even when there is disagreement (Emerson et al. 2012).

This conceptual model contends that shared understanding relates to a set of values and objectives (Ansell and Gash 2007; Huxham 2003). This understanding includes several interpretations of this concept in the literature and broadly helps to guide the process in achieving particular ends. The shared understanding was found to help participants come to consensus on different deliberations by cultivating debate, steering discussions, and applying rules around deliberation (Agbodzakey 2012). Based on this literature, investing time to establish shared understanding of values and objectives could make people more amenable to committing to the collaborative process and work to mitigate obstacles.

**Intermediate Outcomes**

There is research to suggest that short-term progress helps to create the conditions for collaborative governance to occur (Chrislip and Larson 1994). These intermediate outcomes help to build the momentum for successful collaboration (Ansell and Gash 2007). Short-term wins can serve to deepen commitment and trust among stakeholders or participants in the collaborative process (Vangen and Huxham 2003).

**Challenges to Collaborative Governance in Natural Resource Management**

Collaborative governance, specifically related to natural resource management, has been successful in many cases. However, various factors can be challenging. These barriers range from the attitude of government, different goals or interests, policy and
administrative constraints, standard criteria for review, lack of resources and consistency, lack of skills, and trust.

One of the greatest challenges identified is the attitude of government (Meadowcroft 2004). Meadowcroft (2004) identifies that the government must act as responsible partners, coordinate the policy response, identify the issue, specify that action is needed, provide the context, and strive to not oversteer the process. Both NGOs and businesses will also be required to modify the approach they take in a deliberative process by either engaging more fully with other stakeholders despite less resources or relinquishing power (Meadowcroft 2004).

Different goals and missions of the stakeholders can make it difficult to find common ground. For example, the South Florida Water Management District is supposed to supply drinking and irrigation water and flood control to public and private interests; whereas, the Florida Department of Environmental Regulation is charged with protecting water quality and wetlands protection. This led to differences in prioritizing water management and caused the conflict about what approach was to best to proceed (Wondolleck and Yaffee 2000). Furthermore, there is a common orientation towards win-lose scenarios in environmental conflicts, like owls versus jobs or fish versus people (Weber 2008).

Policy and administrative constraints are frequent barriers to collaboration, including red tape and burdensome procedures for citizen groups and developers to complete, which can make it difficult to invest additional time (Wondolleck and Yaffee 2000). There can also be a lack of flexibility in agency procedures. Agencies seek "routinization, predictability, and standard operating procedures" in an effort to run
efficiently, save time, and attempt to address problems as quickly as possible (Gunter and Kroll-Smith 2006:87). To illustrate, in a case study about regional waste management, the Environmental Impact Assessment process did not give the opportunity for deliberation on the results, which was attributed to causing the failure of the collaboration (Saarikoski 2000). As a result, agencies may address only a portion of problems or create additional problems (Gunter and Kroll-Smith 2006).

In other cases, participants from public agencies may not have the authority to speak for the group, or may be constrained by elected officials’ priorities; citizens groups may also struggle with similar constraints for their respective groups (Wondolleck and Yaffee 2000). As a result, individuals may not be able to weigh in adequately during deliberations or have to take ideas back to their respective groups, which could backlog the process. Furthermore, managers may be used to a really structured process and not have the skills to engage collaboratively. This was the case for forest planners involved with an ecosystem-scale Negrito project in New Mexico; the project succeeded, but participants struggled with a lack of training and experience (Wondolleck and Yaffee 2000).

Standard criteria for review and evaluation can undervalue the progress that results from collaborative efforts (Wondolleck and Yaffee 2000). Therefore, people may not want to invest in a potential contentious, laborious process. To illustrate, a number of people within the Laguna Atascosa National Wildlife Refuge were very skeptical about the collaborative process being spearheaded by the manager because they had not seen progress in the past but changed their minds after seeing progress (Daniels and Walker 2001).

An additional barrier to collaborative natural resource management relates to a lack
of money or personnel, which were noted as big obstacles for public agencies and local citizens groups alike (Wondolleck and Yaffee 2000). Lack of resources can result in collaborations that have poorly developed plans (Bentrup 2001). Furthermore, the way funding is allocated to public agencies is a way that these challenges can manifest. Line-item budgeting and no clear agency that is responsible for convening the group or underwriting the costs presents a challenge (Wondolleck and Yaffee 2000).

A lack of consistency in stakeholders can be a barrier towards collaboration. There can be an issue of maintaining consistency across changes that may occur in the participants including bringing people up to speed and informing people what they have missed. Citizen groups may not be able to have people participate in all of the meetings. Also, personnel policies of public agencies sometimes encourage people to change positions. According to Wondolleck and Yaffee (2000), 42% of 35 collaborative processes over a 3 to 5 year period changed personnel. Since trust building is such an important part of the collaborative process, this lack of consistency of participants can make this difficult.

As noted above, trust-building is an important part of the collaborative governance process. A lack of trust is often found between the public and the government or between different stakeholders in the local community, like environmentalists and industry. In a Colorado project, for example, a landowner expressed the concern that the government would be seeking to find an endangered species and shut down the operations. There is also a lack of trust between the Forest Service and the public and environmental groups (Wondolleck and Yaffee 2000). Past outcomes of contentious natural resource debates have often resulted in what policymakers describe as “equilibrated dislike,” in a good decision is equated to all parties being equally mad (Daniels and Walker 2001:11). As a
result, mistrust results, which makes it more difficult for individuals to commit to the collaborative process and engage with other stakeholders.

Collaborative governance can lead to successful outcomes in terms of satisfactory management decisions, but given the number of barriers noted here, it can be difficult. Different interests, agency constraints and norms, lack of resources and consistency, and mistrust often needs to be overcome.

**Power and Politics in Collaborative Governance**

Overall, there are different understandings of power, including formal, informal, and situational. Gaventa (1980) describes a three-dimensional approach to understanding power. The first dimensional approach to power as when A has power over B by being able to get B to do something they would not otherwise do. This relates to determining the agenda and deciding which issues are addressed within collaboration. The second-dimension of power is rooted in a set of institutional procedures that benefits certain groups of people; power relates to non-challenging due to concerns about the others’ reaction. Power relates to who is involved or excluded in different sectors, who succeeds in decision-making or what is left out, and that inaction reflects consensus. A third dimension of power influences the desires of another individual and is ultimately an indirect mechanism of power such as distribution of resources. Others would argue that power either leads to domination or overcoming domination (Allen 1999). This may cause some stakeholders to dominate the collaborative process.

Although Ansell and Gash (2007) only highlight issues of power in the starting conditions, power could arguably be incorporated throughout the collaborative governance
As Gaventa (1980) describes, power influences who does and does not participate in an initiative, which could relate to the institutional design of the process. An unwillingness to engage with certain players would be an example of power in collaborations. Sources of power in collaborative processes include issues of turf between agencies and control of resources (Roberts 2010). These are examples where indirect sources of power influence the collaborative process and could arguably relate to the role of incentives for and constraints on participation.

There can be different sources of formal power in collaboration through recognized authority figures which may include any combination of the following: positions and titles; control of resources; use of structure, rules, and regulations; control of decision-making processes; control of knowledge and information; control of boundaries, technology, and structural factors (Roberts 2010). These formal sources of power could influence different entities’ commitment to the process, intermediate project outcomes, and transparency of institutional design. Good-faith negotiations could be out of balance if one entity controls the power. Furthermore, power can also be influenced through the group who convenes the efforts and determines the issue being addressed as opposed to shared understanding developed in a true collaborative model. In other cases, some stakeholders may only engage in a process if they are forced to do so or if they think it is to their advantage. Consequently, those with less power are at a disadvantage due to a lack of control over resources and decision-making and may have to acquiesce to more powerful stakeholders.

Informal power relates to issues of class, race, age, management of meaning, gender relations, personal power and confidence, capacity to create fear in others, ability to communicate, interpersonal alliances, and ability to cope with uncertainty (Roberts 2010).
For example, subtle barriers of race and class can discourage participation because people might have a different understanding of the political process and may not feel welcome (King and Hustedde 2001). Some people will hold or control desirable goods and services and will protect their interests at the expense of others or the entity (Hustedde and Ganowicz 2002). Establishing shared understanding is also embedded with questions of power if dominant entities have a disproportionate influence over decisions. Behaviors that can reflect power in a collaborative include being indirect, name dropping, expressing only one side of the story, using persuasion, using coded language, and padding demands (Roberts 2010). Among possible issues, individuals’ interests may be shaped by a dominant power where people are inclined to defer to positions of authority.

**Conclusions**

This chapter explores the conceptual model of collaborative governance and the various components that influence success. It outlines the traditional approach to natural resource management, the move towards collaborative approaches, and a conceptual model. This includes the importance of starting conditions, institutional design, and facilitative leadership. The model also conceptualizes the collaborative process itself and the importance of trust-building, commitment to process, shared understanding, and face-to-face dialogue.

This model was used to develop a survey instrument to explore the research question about what are the current conditions and constraints to collaborative natural resource management in Pennsylvania. The literature reviewed the history as well as the current understanding of natural resource management and different aspects of collaborative governance. The study could help to increase understanding of intersection
of multiple sectors involved in collaborative management of natural resources.

Pennsylvania was a useful setting for this study because it provided an opportunity to explore the intersection of many different industries that relate to natural resource management, including coal, natural gas, agriculture, and forestry. Given the conflicted history of Pennsylvania regarding natural resource management and the state’s desire to engage in more collaborative governance, this study explored an application of Ansell and Gash’s (2007) model as a means to help describe the practice. Further, this study served to explore if there are aspects missing from the model that could serve as a possible barrier to effective collaborative governance projects.
Chapter 3: DATA AND METHODS

This chapter describes the methods used to collect and analyze the data in this research study. First, I provide some background for the Pennsylvania context of natural resource management. I then describe the research design, including the overarching research question and related research objectives. Next, I outline the selection process for the research participants. I then describe the data collection methods and approach used to analyze the data. Finally, I discuss the ethical considerations in the research and limitations of the research project.

An investigation of Pennsylvania’s natural resources includes a range of different issues, sectors, and management approaches. A representation of each of these aspects needs to be explored to have a more holistic understanding of the research question. Issues related to natural resources in the state include agricultural contamination, the deterioration of the Chesapeake Bay, timber and clear-cutting, oil and gas development, air pollution, floods and related damming of rivers, power generation, and the legacy of coal mining. Although a comprehensive examination of the environmental history of Pennsylvania is beyond the scope of this study, I offer a few representative examples to help demonstrate the breadth of environmental problems that shape the conditions and constraints of collaborative natural resource management in the state.

Environmental history in the state consists of oil and gas booms, including the first oil well. There have also been issues with rapid land use development, an overuse of the public natural resources, and challenges of conservation versus preservation (Tarr 1999). Forests, iron ore, anthracite and bituminous coal enabled Pennsylvania to be a powerhouse during the late 1800s to the mid-1900s (Hardy III 2012). The state’s history of
extraction of natural resources created issues of water and air quality. Among the legacy of coal pollution is acid mine drainage, which has contaminated more than 3,000 miles of streams and the four major Pennsylvania river basins (U.S. Geological Survey n.d.). Pittsburgh became the center of the steel industry and had among the worst air pollution in the country at one point (Hardy III 2012). These industries also likely resulted in a legacy of relationships thereby influencing the potential for collaboration around natural resource management.

Additionally, Pennsylvania’s environmental history consists of the management of public lands. As a notable example, the Chesapeake Bay is the nation’s largest estuary and was designated as critically impaired exceeding total maximum daily loads of pollutants (Langland and Cronin 2003). Executive Order 13508, Chesapeake Bay Protection and Restoration, enabled the federal government to protect the Bay from different nonpoint sources; this requires Pennsylvania watershed implementation plans and allocations for wasteload (Federal Register (0097-6326) 2010). The Chesapeake Bay Program is widely-acknowledged collaborative natural resource management effort in the state. Challenges continue to plague this body of water. The aforementioned examples provide some context of the long history of contentious natural resources in the state that have implications on the prospects for collaborative natural resource management.

**Research Design**

Qualitative research was utilized in this study as a form of contextual research to identify what exists in the social world in an effort to “describe and display phenomena as experienced by the study population” (Ritchie and Ormston 2014:31). This was needed to answer my research question because one must know about the experience of different
natural resource managers in the state to understand the current conditions and constraints on collaborative natural resource management. Qualitative research is the best approach when studying people’s descriptions of experience while firmly entrenched in their specific context (Creswell 2013). The study used semi-structured interviews to explore the current state of collaborative natural resource management in Pennsylvania. The interview protocol was developed based on my conceptual model (see Appendix A).

**Question and Objectives**

The overarching research question in this study explores the current conditions and constraints related to collaborative management of natural resources in Pennsylvania. Additional research objectives examined how natural resource managers think about collaborative governance. Research participants also described the history of collaborative natural resource management in the state in addition to the history of relationships between different stakeholders. Additionally, interviewees also described actions taken by individuals and institutions to facilitate and impede collaboration around natural resource management. The conceptual model of collaborative governance is a guide of how to enact a collaborative process, which has an emphasis on interactive, individual-level actions that can be taken. However, institutions shape what is possible and provides context for the collaborations and is therefore also important to understand. This research differentiates between individual and institutional constraints in an effort to understand what can be addressed and where there are limitations.

In an effort to understand the current conditions and constraints of collaborative natural resource management in the state, it was important to understand whether
research participants thought collaboration was needed and how they understood it. Environmental history and past experiences with collaborations shaped the starting conditions for collaborative efforts. Actions by leaders identified potential opportunities in the state to foster greater collaboration. Institutional constraints created what barriers existed to inform strategies that could be developed to address them. This research also identified how the conceptual model of Ansell and Gash (2007) relates to Pennsylvania and explored modifications needed to deepen and broaden the understanding of power and facilitative leadership that serve to implicate collaborative governance.

**Sample Selection**

I interviewed a diverse mix of individuals engaged in natural resource management across the state. The 18 individuals were engaged in different forms of environmental management including local and state government, non-governmental organizations, foundations, industry, and academia. Interviewees worked on water quality, shale gas development, water pollution in the Chesapeake Bay, sustainability initiatives, wildlife and forest management, and conservation. These individuals have varied years of engagement in natural resource management ranging from 10 to 25 years and included people with different levels of responsibility within their work. I selected interviewees to ensure geographic diversity.

This research contributes to a broader project of the Natural Resources Leadership Institute (NRLI) being conducted by a research team through The Pennsylvania State University’s Agricultural Economics Sociology and Education and the sample for this research relates to that project. The initial list of potential interviewees included almost 100 individuals who were sent email invitations to a planning workshop to establish the
framework for PA NRLI, held in June 2015. Of this list, I asked 20 individuals to initially participate in the study. Purposeful sampling included representation from each natural resource sector (e.g. NGO, academia, industry), their length of experience in the field, their likely willingness to participate, and personal contacts with team members. Five additional interviewees were selected through snowball sampling to expand representation and were suggested by the research participants. No individual actually declined, but three did not respond. It was difficult to schedule a time that worked for the other four. Individuals received multiple emails and a follow-up phone call over the course of a month. Eighteen interviewees included five from the state government, three from local government, four from NGOs, two from foundations, two from academia, and two from industry.

Since the list developed was focused on people who were likely interested in collaboration and leadership development, the respondents are not likely a representative sample. This included people who were part of networks with university faculty and staff. This selection bias means that the voices that were missing may have been individuals who were less inclined to value collaboration or collaborative leadership and/or work with those in research and academia.

Data Collection

The interviews varied in length from 25 minutes to an hour and a half, averaging about 50 minutes. I interviewed each participant once and almost all participants agreed to be revisited if additional information or clarification was needed. I followed-up with two participants at a later date to finish the interview questions originally skipped due to initial time constraints. I conducted interviews in-person or over the phone that were audio-
recorded. The in-person interviews were typically conducted in the individual's offices of employment.

**Data Analysis**

The interviews were transcribed verbatim by two different transcription services with funding provided through a grant from The Pennsylvania State University's Department of Agricultural Economic Sociology and Education. Profiles of the interviews were developed for each interview for the first phase of the analysis to determine initial themes emerging from the data. These profiles were modeled after a summary form that captured background information about the respondents as well as key themes during the interview (Bloomer and Volpe 2008). Themes were consolidated into codes. All of the transcripts were coded thematically. The codes were identified both from identifying key codes (inductively) and from the model (deductively) (Ritchie et al. 2014).

Analysis of the semi-structured interviews was done through manual coding of paragraphs. The codes were developed through the profiles created during the initial phase of the analysis. All codes were grouped into categories reflective of the overarching research question and objectives. An attribute of interviewee, which was which sector of natural resource management (e.g. industry, state government, local government, academic, NGO, and funder) was maintained in effort to see if patterns emerged among and between the different sectors.

As indicated above the two main levels of analysis are the individual/relational and institutional. Individual-level analysis consists of actions that can be taken by individuals to influence the collaborative process. Institutions are defined as the rules and resources that shape human behaviors (Fleetwood 2008).
Limitations

Although an effort was made to ensure that diverse perspectives and sectors were included in the study, there were some limitations. Only two interviewees came from the industry sector; therefore, their perspectives may not represent the majority of that sector’s perspective. Several other perspectives may be missing due to time constraints, including the Game Commission. Additionally, some natural resource issues may not be adequately represented as most of the participants discussed natural resource issues present in rural communities and none of the research participants addressed issues related to air pollution.

There were some other limitations that became evident during the research process. As I was conducting the interviews, it was evident that people had different perspectives about what collaboration meant. Since people had varied starting places, it was difficult to ask the right questions to encourage people to explore barriers to collaboration and gain an understanding of the situation. Furthermore, it was difficult to engage people in conversations about conflict and mistrust with their partners. Some interviewees withheld specific examples because they were concerned about the impact it might have on future work. It was also difficult to ensure that I was not biasing respondents’ perspectives by using key words from the collaborative governance model as prompts that might otherwise not have come up. Several people expressed opposition initially to the use of the word “mistrust,” but later felt like it categorized some of the dynamics.
Ethical Considerations and Research Reflexivity

Approval from Institutional Review Board for a new research study was completed prior to contacting research participants to participate in the study. An informed consent form was shared with each participant prior to the interviews and reviewed before the start of each interview, including a discussion of confidentiality of each interview. Secure data management was maintained to store original copies of the interview and protect research participants’ identities. Professional transcription services were utilized to maintain confidentiality of research participants and their perspectives. Transcription texts were kept on my personal laptop during coding. No personally-identifying information was attached to the data referenced in the thesis and interview codes were developed to reference quotes identifying which sector of natural resource management interviewees came from (i.e. state government, non-governmental organizations, etc.). Appendix B describes the codes and sectors.

Researcher reflexivity is an essential element of research, particularly in qualitative research. Qualitative research attempts to avoid “obvious, conscious or systematic bias and to be as neutral as possible in the collection, interpretative and presentation of data” (Ritchie et al. 2014:22). As a result, it is important that researchers attempt to be reflexive about how they engage in the research and acknowledge their beliefs about the research topic (Ritchie et al. 2014). Therefore, it is important to share my own position and interests in this research so readers are aware of the lens with which I approached this research project.

Prior to entering graduate school, I worked with a non-governmental organization supporting citizens negatively impacted by natural resource extraction in rural
communities. I am committed to natural resource management that engages all individuals whose communities are affected. I have worked with various governmental agencies and companies that did not engage these communities nor ensure a limited effect of their practices. I am hopeful about the prospects of greater collaboration in natural resource management and recognize the importance of understanding the current state of natural resource management of diverse stakeholders. My work was rooted in what John (2004) describes as a populist model of governance, which is motivated by specific threats and opportunities and is skeptical of federal government and corporations. This orientation might result in biases that might make me more likely to approach interviews as a negotiated space between researcher and participant (Errante 2000). There might have been blind spots related to the perspectives from NGO participants due to my potentially similar perspective. To limit bias, I consulted with my advisor and committee throughout the research process to ensure my analysis and findings were accurate and appropriate. I developed an audit trail through the creation of raw data, data reduction and analysis products, data reconstruction and synthesis products, process notes, and instrument development notes (Lincoln and Guba 1985).

**Conclusion**

In this chapter, I outlined my approach to data collection and analysis in this study. This included a description of my overarching research question and objectives and the selection process of the 18 natural resource managers with whom I conducted semi-structured interviews. The data was transcribed and coded based on the research question and objectives. In the next chapter, I present the results based on the analysis process.
Chapter 4: RESULTS

This chapter presents results from the 18 semi-structured interviews with natural resource managers in different sectors within Pennsylvania. The findings are divided into six sections based on the research objectives. The research objectives are as follows: how do natural resource leaders think about collaborative governance (including do they think it needs to exist and what does it mean); how does Pennsylvania’s environmental history influence collaborative management; what past experiences with collaboration influence collaborative management; what are actions leaders take that facilitate or impede collaboration; and what are the institutional constraints on collaboration?

Current situation

Respondents reflected on the natural resource issues and opportunities and challenges in natural resource management. A state government employee reflected on the current situation in Pennsylvania as follows:

You can look back in history and see these waves of understanding and respect for the resources and then you see these waves of less understanding and more extractive use on our resources. I think we’re kind of in that point right now as far as the state goes. Do we continue to do what we’ve done every hundred years, whether it was through the strip mining process for charcoal and timber or stripping the land for coal or doing various things with natural gas extraction? I think we’re in kind of a cross-roads right now in Pennsylvania to try to figure out
where are we going, where are we going in the future, what ties to natural resources bring to society. (state gov-2)

This perspective reflects the history of natural resource management as well as concerns about the current situation in the state. It reflects the need to invest in natural resource management and the desire to figure out how to move forward in the best possible way. Ansell and Gash (2007) highlight the importance of understanding the prehistory of participating in collaborative endeavor in the starting conditions that influence the collaborative process.

**Meaning of Collaboration**

This section explores the research objective focused on what natural resource managers think about collaborative governance. Embedded within this research objective are two questions regarding what collaboration means and whether or not individuals think it is needed in the state.

Respondents viewed collaboration in broad terms. Many felt that a component of collaboration involved a range of different stakeholders because they had different perspectives and could make different contributions. A local government employee shared, “A lot of it’s about getting everybody at the table together, setting a vision, and getting people around the table and figuring out how they can put their own ingredients into the recipe” (local gov-1). Another key part of the process expressed by respondents was that people’s concerns needed to be addressed. The expectation was not necessarily that people would come away from a collaboration agreeing with each other. An academic described this as follows:
Not that we’re all going to agree – I don’t think that’s the idea. The idea is to help create an awareness so that people understand where people are coming from and we can instead of having quite as much positional bargaining we can talk in terms of how we solve problems or is there a path forward where we can solve the problem.

(acad-1)

It appears that people view collaborative governance as a way to bring together different resources and skills to contribute to better management. With greater awareness of other people’s perspectives as well as their strengths, collaborative governance can help people clarify their interests, identify resources that they can draw from to find solutions that address those interests.

*Inclusion of Stakeholders*

One area of discrepancy within respondents’ perspectives about collaboration relates to who is defined as stakeholders. Some respondents agreed that stakeholders included all parties affected by the natural resource management decisions. An industry respondent reflected a similar sentiment:

I think you need to have not only those who would conserve or preserve... it’s that community, government, industry... If you segment out particular populations or particular groups, you’re automatically creating conflict because you’re saying, well we don’t think you really need this, this is for these folks, and that’s a great way to piss people off right off the bat. (industry-2)

Other respondents did not view industry as likely or consistent partners. A state government employee reflected, “it’s so much an individual person by person thing that a
comprehensive role for them [industry] is a little harder to envision” (state gov-5). This individual felt the willingness of industry to engage in collaborative management was contingent on whether or not there was individual leadership to support these kinds of efforts. Another individual expressed, “I think it can be very polarizing to have industry in the room” (NGO-4). In other words, this alludes to the fact that some stakeholders may have greater power and may yield imbalances in decision-making. With contrasting perspectives about what stakeholders should be present in a collaborative, people’s understanding of collaborative governance is different. This could reflect past negative experiences with industry and how there might be issues of mistrust. Therefore, natural resource manager’s understanding of stakeholders in collaboration is not consistent. This could be a potential barrier to collaborative management if there is inconsistency in who is invited, how that impacts outcomes and information, and ability to enact changes.

**Need for Collaboration**

Many respondents indicated that they feel that collaboration is useful and creates positive outcomes. Respondents shared a variety of benefits from working together in a collaborative approach. Benefits ranged from obtaining better outcomes, reducing long-term conflict, leveraging better expertise, and garnering more resources. A respondent reflected on the benefit of outcomes in this way, “In some places you have very strong working relationships and coalitions and that’s where you’re seeing a lot of things accomplished” (local gov-2). By working in collaboration, individuals can address conflicts before they become a problem. This was evident in this industry respondent’s perspective:
While it's a longer and more drawn out process, the end result is that upfront you don’t end up with all the loggerheads and all the conflict that is kind of the standard American model of resource development. It always ends up hitting square on. Do you do the work upfront or do you do it while you’re on the go and then have delays and other headaches and problems? (industry-2)

By engaging in collaborative management, potential conflicts that are likely to occur in an effort to manage natural resources can be avoided. This respondent went on to say that, “working through consensus and things of that nature can lead you to more positive outcomes rather than fighting things out in court” (industry 2). Another respondent reflected, “Once you do it, it’s better for everybody in the long term and saves money and saves time” (NGO-3). These reflections indicate that people view collaborative governance as having comparably better outcomes.

Furthermore, some respondents felt that more resources are available when there are collaborative management efforts. One individual spoke to the additional financial resources that can result from collaboration. That individual shared:

We’ve pointed that out again and again that there could literally be a million plus every year available for AMD [abandoned mine drainage] projects but because we’re just not getting that support or that seed funding from the DEP on various projects you lose that there. (NGO-3)

Due to a lack of collaboration, this individual reflected that they were not able to access resources for natural resource management projects. However, the lack of collaboration demonstrates a power imbalance because support and seed funding has been withheld by
the DEP. Collaborative governance helps groups to leverage additional financial resources when groups work together.

Another resource that can be leveraged through collaborative governance is technical expertise. A research participant reflected that one sector or entity may not have adequate resources, but combining efforts through collaboration can help create necessary resources as “there’s sometimes much better expertise outside of the DEP” (NGO-3). These examples highlight that several respondents associate collaborative leadership with leveraging more resources to invest in management of natural resources.

However, a few respondents described barriers to the effectiveness of a collaborative process with different stakeholders. When an academic reflected on experiences with this type of effort, this individual concluded that people often come away from an effort not changing their positions. This concern was reflected when she said, “I think these meetings where you bring people together, I don’t see that people change that much” (acad-1). This person expressed the perspective that people often want immediate solutions, which, in the respondent’s view, does not typically occur in this type of situation. If people do not see change occurring in a collaborative, they may be skeptical about whether collaborative governance will result in positive outcomes.

Another person raised the concern that, with a larger set of participants, resolutions become more difficult. They expressed the concern that it may not be worth engaging in this manner. This state government employee shared:

You gotta weigh, always weigh what it means to put 30 people in a room together. Because one of the things that you have to think about is, what are your goals and expectations? What do you hope to get out of that? If all you want to do is let them
talk, then I think that’s kinda more power to you. If you’re trying to come to some sort of resolution, I think...The more people you have talking, the harder it is to come to any sort of resolution about anything. (state gov-4)

This perspective illustrates the challenge of involving a large number of people involved who have different goals and different abilities to influence the process through formal and informal means of power, which can make it difficult to find a shared understanding. Based on their experiences, some respondents viewed the aforementioned barriers as impediments to collaborative governance. This provides a more comprehensive understanding of what respondents think about collaboration.

Many respondents felt that collaboration was helpful and that they felt that more collaboration was needed. After one respondent shared that there were positive examples of collaboration, this individual added:

The magnitude that's required to actually make performance measurable results are, I think, a magnitude beyond what we're doing right now, and it's going to require more collaborative public-private partnerships, meaning that could be non-government, that could be private and any public. (industry-1)

Various individuals shared this perspective. A state government employee described a similar concern by saying, “where the groups work together on something they can work really well, but generally it’s still too fragmented” (state gov-5).

Most respondents felt that collaborative leadership yields positive outcomes and is wise to invest in. These individuals were very receptive to collaboration. As a result, they may be amenable to investing in more collaborative efforts. In fact, several respondents stated that more collaborative governance was needed than is currently occurring in the
state. Respondents indicated that a range of natural resource issues would benefit from greater collaboration, including forest certification work with small-scale forest owners and natural gas extraction. In other words, people have ownership over the value of collaboration, but there are different barriers and difficulties that prevent collaboration from occurring more frequently.

**Pennsylvania's Environmental History Impact on Collaboration**

This research objective explores the ways that Pennsylvania’s environmental history influences collaborative management. The conceptual model used in this study underscores how the history of conflict or cooperation has bearing on the prospects for collaborative management. Since the overarching research question focuses on the current conditions and constraints for collaborative management in the state, examining the environmental history can help to bring understanding to that question.

Pennsylvania has a range of different environmental issues and the related histories have the potential to influence collaborative management. There have been significant challenges related to natural resource extraction, including timber, coal, and natural gas, as well as issues related to nonpoint source water contamination, degradation of the Chesapeake Bay, and agricultural run-off.

A number of respondents expressed the perspective that there used to be greater collaboration in the state. An NGO employee described the change over time,

I feel like in the early days of 2000 and stuff like that, there was just like a lot more freedom and flexibility to chat and collaborate and so on and so forth. It was a little
bit easier like if you ran into a roadblock, let’s say, at the nonprofit to the DEP, to actually take the time and actually talk about it. (NGO-4)

This respondent also shared that limited governmental resources have contributed to a decline in collaboration. Additionally, several respondents stated that the Governor Corbett’s administration invested less in environmental protection in the state. These two factors likely contribute to constraints on collaborative natural resource management since people in positions of governmental power influenced institutional barriers.

Different Sectors

The extent to which there is collaboration in natural resource issues is linked to the history of resource and relationships within the sector. In other words, there is not a universal way to describe the environmental history in the state. It appears to depend a lot on which issue is being discussed and which industry people are referring to. Two sectors in particular, coal and natural gas development, have affected the context for collaboration in natural resource management. When an industry caused problems in communities, people engaged with natural resource management may be less inclined to engage with a particular stakeholder due to issues of mistrust. The resultant mistrust appears to be a constraint on collaborative natural resource management.

Several respondents described the problematic history with coal that left a legacy of pollution, including a large amount of abandoned mine issues. One respondent described this:
You go to historic coal areas; there was a lot of skepticism in areas where there was historic coal because what are they going to leave behind and the whole legacy. (acad-2)

This negative environmental history influences potential collaboration because people may be weary of engaging with a stakeholder that historically abused power and caused problems.

When the Marcellus Shale boom started in 2007, some decisions around initial management of this resource left divisions within communities. Numerous respondents specifically expressed concern about the initial top-down approach to management decisions that resulted in a streamlining of permits through the DEP and the subsequent defunding of that agency. This involved taking away power and responsibilities formerly done by the Conservation Districts. Respondents had different opinions about whether there were long-term implications of some of those initial decisions. An NGO respondent described the implications of those initial actions as follows:

A whole lot of distress happened at that time. I think there are still a lot of relationships that are working on mending and I think there are some relationships that are gonna take a long time to recover from some of the stuff that happened around the regulation of shale gas extraction. (NGO-4)

This history is likely to influence how different stakeholders view the state, how they exercise their power, and resultant levels of trust, which has important bearing on whether or not a group would be inclined to engage in collaboration.

An industry respondent felt that improvements have not been acknowledged, which still influences how people view shale gas development. This person reflected:
In many respects to even today, a lot of groups are still trying to catch up to what is happening and what has happened, and there’s a lot of folks out there who kind of operate that things are still happening the way they were in 2009 and it’s most certainly not the case – things have changed drastically since then. So that still to this day helps to promote a lot of the misgiving and misinformation and lack of clarity on a lot of these topics and issues that prevents a lot of meaningful progress on anything from being made. (industry-2)

As a result, there appears to be a lack of trust between different groups of people within the state around the issues of shale gas development. Because of the initial history of coal and shale gas development, this likely makes it more difficult to build trust and create the potential for collaborative natural resource management. These two sectors demonstrate that the environmental history of Pennsylvania can be a constraint for collaborative governance as it shapes the starting conditions of collaboration.

*Unwillingness to Engage With Certain Stakeholders*

Some argue that industry has been wrongfully left out of efforts for natural resource management. One industry respondent reflected this as follows:

I think private industry is one of the solutions that has been completely overlooked in natural resource management opportunities in Pennsylvania for as long as I’ve been a professional, and I think they have a bad cast upon them as being the bad guy...many companies want to do the right thing if they can still meet their goals, and I believe strongly that that’s one of the missing parts of the recipes that we don’t
have in our toolbox is to incentivize the private sector to spend the dollars to do the right thing as opposed to constantly looking for handouts and grants. (industry-1) This individual indicates that there is suspicion about industry's intentions and a consequent unwillingness on the part of other stakeholders to engage with potential partners. This statement also indicates a contingency where industry would participate if they can meet their goals, which implies they have the power to choose if there are incentives to participate in collaboration. As stated above, the environmental history of a sector influences whether or not people are willing to trust different stakeholders, but certain groups are actually being excluded. However, there are some entities that are difficult to engage in collaboration. A state employee reflected that “when entities go in and they're proposing a project and they're arrogant or cocky or not interested in having conversation, I think those are the kind of things that breed that mistrust” (state gov-4). A history of willful exclusion and arrogant attitudes can serve as a constraint in collaborative management. Arrogance is consistent with

Some respondents indicated particular companies are unwilling to change practices to better protect natural resources. This was reflected in this comment about how the coal industry continues to play a problematic role in the state. A state government employee described this:

They feel like they're under fire all the time, and every time we go to upgrade a trout stream or declare a wild trout stream, they get upset because they think it may affect their ability to do business somewhere down the road. Coal spends lots of money on lobbyists. Coal is kind of disagreeable, in general. (state gov-1)
People perceive that the coal industry tends to abuse power and object to any efforts to improve natural resource management. Respondents believe that this industry is firmly engrained in their positions and seem unlikely to engage in a dialogue about their interests and potential for collaboration or shared goals, which could influence to what extent people are willing to engagement with this industry.

There has also been evidence that industry is skeptical of the NGO sector. One respondent described, “some folks that wouldn't even talk to us just because we work for [X organization]. It's more on the personal side I think than anything” (state gov-2). One NGO respondent indicated, “[p]eople are very suspicious about agendas and, “What’s this group really about? What’s its underlying agenda? Are you a bunch of antis? Is this another anti-fracking movement in sheep’s clothing? What is this thing?” (NGO-2). There are likely different reasons, including what appears to be preconceived notions or stereotypes about various groups, why those involved with natural resources would be unwilling to engage with other sectors and vice versa. This seems to relate to power differentials and suspicions about intentions or competing agendas that serve to constrain successful collaborative governance.

**Different Goals**

When people have very different end goals, it can make it difficult to find common ground to be able to collaborate. According to some respondents, Pennsylvania has a history of conflicting goals. Focusing on positions, as opposed to interests, as described by Fisher and Ury (2011) could negatively impact the willingness of individuals to collaborate. Positions are how people define a solution whereas interests relate to underlying
objectives individuals want to protect (Fisher and Ury 2011). One respondent described the problem as follows, “When that happens then those disconnected and divergent goals and objectives that either industry or agencies or individuals have short circuits that whole thing” (local gov-3). This is also influenced by who has more formal and informal power to pursue their agenda and bring to fruition their personal goals and interests.

Several specific examples were cited that could be categorized as environmental protection-oriented goals versus business or private protection-oriented goals. To illustrate, a local government respondent reflected how the drive in economics is counter to the issue of natural resource protection, “The capitalist model that we’ve developed is not only couched in that paradigm of scarcity and the fact that if you approach natural resources from the perspective that there’s not enough to go around then automatically greed kicks in” (local gov-3). When companies are only driven by desire for profit, there is little regard for the impact they have on communities and the surrounding environment. On the flip side, governmental agencies or communities might assume that the only motivation driving a company is profit, and therefore they might be hesitant to engage with industry as a stakeholder. According to one academic, the overarching concern was “the polarization between the economy and natural resource protection. Instead of thinking that our economy is really benefitting from having healthy natural resources, I think there are going to be some conflicts” (acad-1).

However, respondents indicated companies have different orientations to natural resource management based on their intended goal. A state government employee described:
Some of those companies it’s absolutely, let’s do it. Then everybody is smiling at the check signing and handshakes all around. Other companies take a different approach – they’re going to squeeze you for every penny. They’ll be pennywise and pound-foolish, and so it depends on the company. (state gov-1)

With such disparate experiences or divergent industry goals, natural resource management stakeholders may be hesitant to engage in collaboration without knowing the real intention of the specific company. Due to past experiences, open collaborative process between stakeholders could be subject to barriers.

Furthermore, respondents also described differences between goals of conservation versus preservation within the environmental sector. This conflict was present in the issue of shale gas development. One respondent described the two perspectives:

So you would have part of the group, part of the ENGO [environmental nongovernmental organization] community that would say it’s going to happen, we want to see it regulated strongly, we want to see it be transparent, we want firm oversight and start proposing regulations and a variety. Then there would be another group that would suggest that you should never, ever, ever drill another hole in the earth, ever, and so we should stop this and not ever do this. (acad-2)

This demonstrates a historical divide within the NGO sector that could compromise the ability to find a shared goal, thereby weakening their ability for collaborative governance.

Additionally, respondents described the divide between endangered species protection and property rights and deer management. An example was described by one respondent, “You could say someone who wants to hunt deer and their goal is, I want to
have as many deer as I can, and this one wants as few as you can” (acad-1). In this example, people have different goals about how land should be managed.

In each of these examples, different groups of people are viewed as being rooted in their positions as opposed to their interests. This could make for unwillingness of people with different position-driven perspectives to engage with others coming from a differing opinions, especially if the groups have unequal balance of power. Several respondents specifically stated positional bargaining as a challenge to collaborative governance.

This research objective served to explore the different ways Pennsylvania’s environmental history influences collaborative management. Major factors regarding this objective relate to the legacy of pollution and the consequent impact on trust between stakeholders, an unwillingness to engage with different stakeholders on the part of both industry and NGOs, and the impact of different goals and associated positional bargaining. These different factors relate to power differentials grounded in a history of conflict. Pennsylvania’s environmental history influences the current conditions and constraints of collaborative management in the state.

**Past Experiences with Collaboration Influencing Collaborative Management**

This research objective explores what ways past experiences with collaboration influence collaborative management. The past history of successful collaborations and a legacy of negative relationships influences the current situation of collaborative governance in natural resources in the state.
History of Success

As evident in the literature, past efforts of collaboration tends to increase collaborative potential by creating trust between stakeholders, social capital, and a sense of interdependence (Andranovich 1995; Ansell and Gash 2007). In other words, past history of collaborative efforts has tended to create a culture of collaboration. An example that was described in depth by one respondent explored the process involved to develop a large-scale mapping project. This person described the process as “an excellent example of great collaboration among universities, citizens, NGOs, and agencies” (acad-1). Different groups came together to collect data across the state, and it helped to create a tool in the development of a management plan. The respondent went on to describe:

I think in the (X) community, there's been really valuable data and it's been seen what you can do with it. People have collected data using volunteers, and it's produced some really good results and a long history of it. And close involvement, I mean again, the (X) community everybody knows each other, everybody is closely involved with each other, so I think it's got all of those aspects to it, and then if you can have some money and some people who can provide leadership to it, then you can get things done. (acad-1)

Several respondents emphasized the importance of working together and producing positive outcomes. This has also been the case in local communities. An individual involved with local government described a history of success in this way:

In some areas where people have learned to live together and work together they remember that and so at some places those relationships remain and so some things
get accomplished that way when you have some success over a number of issues rather than just a single issue. (local gov-2)

When groups establish a history of successful collaboration, it creates the potential for additional collaborative efforts to develop.

One of the other benefits of past successful experiences with collaboration is that it helps establish relationships between different people who may not have otherwise been engaged with each other. The development of relationships through past successes support and sustain connections that can enable people to address other challenges. A state government employee described this situation:

Where it works well together is somebody like myself and others like me who have come up through the ranks and we started in the field the same time biologist Joe Smith, at DEP, started in the field, and if I’ve moved up, Joe Smith has moved up. So when a problem happens, Joe Smith calls me or I call Joe, and we can work it out. (state gov-1)

These relationships persist over time and enable people to work with each other at future junctures through establishing trusting relationships with one another.

*Legacy of Negative Relationships*

In other cases, failed efforts to collaborate have created divisions within groups in the state. Sometimes groups do not feel like adequate progress has been made when engaging in a collaborative effort, and they consequently tried to concentrate decision-making power. One state government employee described a situation:
There are some folks that think we haven't made enough progress and therefore we have to change the game plan and go out more out-front. Right now I see a lot of conflict between our agency and the heads of other agencies and the staff of other agencies because of our approach. I'm not comfortable with the approach, I don't think it's collaborative, I think it's more of we're going to push you into this approach (state gov-1).

When entities are impatient with a collaborative process, it can result in agencies concentrating power and unilateral decisions to protect their interests than about about what is best for the project. This can create mistrust and unwillingness to work with certain groups of people at a future date due to reduced voice in the process. It seems that past efforts to work with other groups have sometimes resulted in unwillingness for some stakeholders to engage with others.

In conclusion, Pennsylvania's history with collaboration indicates successful efforts have resulted in positive management outcomes and development of relationships or social networks. These outcomes are grounded in inclusion and trust-building that tends to increase the potential for future collaboration. Conversely, negative experiences with collaboration can create mistrust between different individuals and organizations.

**Ways Leaders Facilitate Or Impede Collaboration**

As evident in Ansell and Gash (2007)'s model of Collaborative Governance, facilitative leadership is an important component of successful collaboration. Throughout the interviews, individuals shared their insights about what types of behaviors and skills people did to either facilitate or impede collaboration within natural resource management
in Pennsylvania. A local government employee shared the important role leaders play in collaboration as follows:

You can have the worst programs, the worst agencies in the world, but if you’ve got good people that are dedicated to seeing something happen, it happens; and the opposite is true, you can have the best programs, the best agencies in the world, and if people aren’t cooperating or working together it’s going to inevitably fail and have a problem. (local gov-2)

This reflection demonstrates individual leaders play an important role in positioning the collaborative project for success or failure. Therefore, understanding facilitative leadership is a critical piece of identifying the current conditions and constraints around collaborative natural resource management in the state.

This section explores those behaviors and skills that respondents identified in Pennsylvania that facilitate or impede collaboration. Respondents shared that this includes vision, courage, and commitment, conveners, building relationships, facilitation, common values/biases, communication, and leveling the knowledge gap.

Vision

The leadership characteristic mentioned by the largest portion of respondents was the importance of vision. People gave specific examples of successful efforts and the vision of individual leaders involved with the effort. This perspective is described by a NGO representative who said, "To me, it was a very powerful example of leadership and vision. Here’s a guy that has this great vision, and when he got around, he had the leadership to get it done" (NGO-1).
Several aspects of visionary leadership mentioned by interview respondents focused on "big picture thinking" in addition to addressing the root of the problems as opposed to the symptoms. A local government employee described this as, "being able to peel back the onion to get to the root cause is something that could definitely be a benefit to a lot of people" (local gov-3). Numerous people expressed the concern that too much time in natural resource management is spent on addressing crises. Respondents felt like a different orientation to problems is needed with a particular focus on the larger context. A NGO employee reflected, "Leaders were not seeing the bigger picture" (NGO-1). One person explained that "thinking ahead rather than in thinking in the now, I think is another thing leaders lack in this process" (industry-2). Having leaders with a vision and attention to addressing the root cause of problems seems to provide a foundation for people to collaborate.

**Courage and Commitment**

Shifting the dominant approach of natural resource management towards greater collaboration requires courage and commitment according to numerous respondents. An industry employee shared:

It’s not comfortable and it’s not convenient to change a process that’s already in place, and I think that is the bottom line as process changing and process management requires effort, time, and it basically takes a career, rank-and-file person and basically saying, ‘hey, we’re going to try to do something different than you’ve been doing the last 15 or 20 years’ and that usually doesn’t go over too well. (industry-1)
This can include challenging the status quo and the power structure to maintain convenience and comfort regardless of striving for collaborative efforts. Building on aforementioned importance of vision, leaders can play an instrumental role in cultivating a different approach to natural resource management. An additional respondent indicated that there needs to be a shift in Pennsylvania’s approach, “Agencies are trying to manage natural resources the right way, but sometimes it’s tough to be a leader to make change, to do the right thing” (funder-1). A state government employee stated, “I find that that is my biggest frustration is that a lot of the time we know what the right thing is but if there’s any opposition to it, we don’t do the right thing” (state gov-3). This individual went on to say that courage is an important element needed for people to be able to stand up to opposition, including sometimes the status quo at the risk of personal comfort. In order to shift towards greater collaborative management in the state, leaders need courage to enable a vision of change to come to fruition.

Facilitative leadership also requires follow-through and implementation. One respondent described this, “Beyond having the people with the willpower and the insight to be like, ‘Yeah, this needs to happen,’ and they actually devote time and energy to making it happen” (NGO-4). Courage and commitment are important behaviors to meet and adapt to issues in a collaborative process.

Convening Groups and Building Relationships

Another piece of facilitative leadership needed for collaborative governance mentioned by numerous respondents was the importance of convening others. Having individuals and organizations who are willing to invest the time to convene different
stakeholders is clearly important to assure the group is assembled. A local government
employee reflected:

There's again who is that brought them together? Is there a sparkplug someplace?
Is there an organization or an individual or somebody that’s willing to put the effort
into bringing parties together and provide that bridge or at least that venue or
opportunity? (local gov-2)
This demonstrates that leadership to convene collaborative natural resource management
is an important element of collaborative governance. This was evident in an NGO
employee's reflection on why collaboration is not more common. He said, "I think there’s a
lack of collaboration because there is a lack of convening. There are some natural
conveners out there" (NGO-1). For example, to demonstrate the importance of convening,
a state government employee shared how some people were planning to deal with a
statewide task force that they felt was not likely to be effective because of the volume and
mix of players involved:

We talked about some approaches and I think we’re going to do that [convene a
small group] rather than wait for it to go through this long bureaucratic process,
we’re the guys that are reviewing permits, we’re the ones that are out in the fields
more concerned about immediate impacts. (state gov-1)
In other words, this individual took the initiative to convene a group of people outside of
the normal bureaucratic process in an effort to get more things accomplished through
collaboration.

Once a group convenes, leaders are tasked with helping to support the development
of relationships. Numerous respondents talked about the importance of the developing
and cultivating relationships to assist in collaborative management efforts. When reflecting on the importance of this piece, one respondent shared that “these people-to-people skills and the building of personal networks is one of the things that helps collaborations take shape” (local gov-1). Another local government employee described that one of their county commissioners emphasizes the importance of leaders having interpersonal skills. In terms of specific actions leaders can take to help support that development, one shared:

I guess relationship management, personal relationship development and how to culture that and keep them alive. I think that simple stuff like getting people together on an issue or regularly on the greater issues of natural resource management and conservation I think would be extremely helpful. (state gov-2)

Some of the actions described that leaders cultivate relationships are consistent with the aforementioned importance of convening people for collaboration. This appears important both in the initial phases and long-term maintenance of collaborative efforts.

Facilitation

Numerous people identified that good facilitation is important for effective collaborations; however, many of the people who mentioned this indicated people in Pennsylvania need to improve their skills around this. One individual stated that the development of facilitators was more important than tackling any environmental or economic issue.

An aspect of the problem is that some people do not feel comfortable working with people they do not know. One respondent reflected, “There is such a challenge of people
trying to get outside their comfort zone and working with their neighbors, working with a
group of other people that they don’t know” (NGO-2). This could be influenced by
marginalization and stereotypes that some individuals might feel on the basis of race, class,
or gender; thus leading to a constraint on collaboration. Therefore, a leader can play an
important role engaging a diverse audience in a way that helps to cultivate the
development of relationships.

According to the respondents, good facilitation also involves creating a space to
work through conflict and address power dynamics that might be present within the group.
One person described the challenge as follows:

Perhaps some controversy, and it just breaks down. It’s a screaming match or it’s
not productive dialogue. People don’t know how to facilitate so that everybody gets
a chance to share and work out a solution, come to some agreement. (NGO-2)

Some issues related to natural resources can create significant conflict, especially in the
presence of diverse stakeholders. Therefore, as another person reflected, “having someone
who can facilitate and not let just one voice dominate and making sure that you have
representative voices at the table and making sure that there’s the space for those voices to
be heard” becomes important (NGO-4). In other words, it is important that power
differences are recognized and efforts are made to enable everyone to have a voice in the
process.

Therefore, having leaders versed in facilitation skills in addressing difficult topics
helps a diverse group of people deal with conflict, power issues, unfamiliar people, and
empowered process to strive towards better outcomes and greater collaborative
management.
Common Values

Another behavior taken by leaders to help facilitate collaborative natural resource management involves identifying common values within a group. Several respondents talked about the importance of different stakeholders coming together to be able to better understand each other’s perspectives. The importance of finding common ground was described, “Having those open communication challenges and seeing where co-benefits and self-interest, aligned self-interest exists, that’s when you see things happen” (local gov-1). One creative way this was done when one respondent was involved with forming watershed groups is described as follows:

What is it that you value about this watershed? So people all of a sudden realized that they have common values. Once they get past that, they could start to talk to each other where before they might not have talked about each other about the same issues. (local gov-2)

When leaders create the space for dialogue about the values that have shaped their positions, it can help people move past some barriers to collaboration. The establishment of common values is consistent with the model that helps lead to a shared understanding.

How To Communicate

Respondents indicated that there are certain approaches to communication that need to be fostered. In other words, it is not just a matter of if dialogue happens, but how it happens. One such issue with communication relates to dealing with contentious issues. An academic described the challenge as follows:
It could be homeowner suspects some things going wrong on the well pad and is very upset about it and so you’ve got hostility from that, you could be talking to an industry person about a major violation and a big fine, so you’ve got that kind of communication. You could just be talking about potential regulations as they’re being developed and evolving. People are very passionate about those things so there’s just a variety of potential issues that they need to deal with and to communicate. (acad-2)

Others described some of the conversation being adversarial in nature and being very divisive. A state government employee indicated that people within their agency need to talk to the concerned citizens “without being defensive... when I listen to my own people in meetings, they don’t know what to do when someone suggests that, well, that reg’s [regulations is] wrong, or you applied that incorrectly” (state gov-4). In such situations, sometimes active listening is needed to enable someone to talk and feel heard as opposed to engaging them in a debate. This idea is further elaborated:

Sometimes the issues become incredibly divisive and nobody will listen to anything, do you know what I mean, everybody shuts down...I think a lot of these would be nice to be able to have an open, honest conversation about some of the issues rather than positional bargaining that occurs at times. (acad-2)

When individuals are able to move past their positions and speak to their interests, it can create the space for shared understanding. This ties back to the aforementioned need for leaders to be able to effectively facilitate.
Leveling the Knowledge Gap

One of the challenges with natural resource management consists of ensuring that all stakeholders have adequate knowledge. Leaders can play a role in addressing this challenge. One respondent reflected this perspective by saying:

"It is fairly difficult to have a meaningful conversation about options and about management when not everybody is on the same page and using the same terminology and really has about the same basic understanding of what it is they’re talking about." (industry-2)

This is perhaps even more important in efforts to incorporate a collaborative governance approach to management issues. Several interviewees talked about the importance of giving people involved with natural resource management information in a way that is easy to understand and allowing for adequate time for people to learn the information. Access to information is a means to balance power between different stakeholders such that collaboration can be initiated. One person described the importance of this by saying:

"From my 35 years of working with local government, really providing the tools in an understandable way and the knowledge and background to those decision makers – those local governments to make good natural resource management decisions – has been the challenge." (local gov-2)

Leaders can assist all stakeholders involved in natural resource management by providing necessary information in an easily-understood way. This could help to address issues related to knowledge and power asymmetry.

This section highlights the various behaviors and skills identified by respondents that leaders can take to facilitate and impede collaborative governance. This includes a
vision, courage and commitment, convening groups and building relationships, facilitation, common values, how to communicate, and leveling the knowledge gap. Interviewees identified that more attention appears to be needed in Pennsylvania with regards to big picture thinking, convening, facilitation skills, effective communication, and knowledge building and sharing that serves to support and sustain people in collaborative process.

Institutional Impacts on Collaboration

In an effort to understand the current conditions and constraints of collaborative natural resource management in Pennsylvania, examining how institutions can help to facilitate or impede collaboration is important. Respondents shared their perspectives and examples of both effective natural resource management as well as related barriers. This section explores how fragmented decision-making, bureaucratic processes within governmental agencies and local municipalities, funding and capacity issues, administrative priorities, and orientation to the process are examined as potential barriers to collaborative management.

Institutions Facilitating Collaboration

Numerous individuals talked about the importance of having an institution to facilitate collective action and develop relationships. This took different forms depending on the specifics of the situation. In some cases, there was a funding mechanism that enabled people to come together. The most commonly cited example of funding projects that helped support collaboration was the Growing Greener, which started in December 1999 and provided resources for various projects, including watershed-based conservation.
projects, farmland preservation projects, state park renovations and improvements and water and sewer system upgrades. Growing Greener is the largest investment, $1.3 billion through 2012, in state funds in environmental projects (PA.Gov n.d.). With the absence of this type of institution, collaboration can tend to wane. “That has lost a lot of steam with some of the Growing Greener dollars dissipating in that whole network of watershed groups that got started” (local gov-2). These funds enabled communities to come together, develop plans, and implement successful projects. As another example, “The William Penn Foundation has brought together folks that they are funding for conservation and natural resource in environmental issues to share information and actually have within their grants that reward collaboration with other grantees” (state gov-2). Ultimately, funding streams can be structured in a way that enables groups of people to collaborate in ways that they would not have done so otherwise. With the absence of this type of institution, collaboration tends to decline in Pennsylvania.

Another type of institution that promotes collaboration has been task forces where people work on a collective project. Participating on a statewide task force spurred one person to reflect:

When we are either assigned or thrown together for a project and the project is fairly intense, and it requires cooperation to work, I think you almost by default cement a lot of those relationships in order to get things done. (state gov-1).

This type of institution has also been effective at facilitating collaboration at the local level. When Marcellus shale development initially started in 2007, numerous communities and counties across the state brought together different stakeholders involved with this issue. An individual participated in this effort reflected that “where those task forces were not co-
opted as a political agenda and they could actually have conversations. I think they brought all the players together in the same room, which I think is really valuable" (acad-2). When a task force is convened in a way that explicitly attempts to engage diverse stakeholders and does not allow one perspective to dominate, it can create the space for engaged dialogue and collaboration. As evidenced by this quote, it is important that a particular agenda is not being pushed through the process.

Institutions can help facilitate collaboration even when that is not their initial objective. This is evident when these structures enable people to develop relationships. When talking about a training program, an academic shared, “That was a side effect of the [X] training program that we didn’t plan for and a benefit that we stumbled upon...it was probably one of the biggest benefits of the whole program, for everybody” (acad-2). In each of these examples, the structure of the effort enabled people to build relationships and work together.

*Fragmented Decision-Making Bodies*

The structure of agencies and decision-making bodies can be an impediment to collaboration, resulting in inadequate communication and turf fights. According to two state government interviewees, Pennsylvania has comparably more types of agencies than many states. There are separate agencies for Game Commission, Fish and Boat Commission, Department of Agriculture, Department of Conservation and Natural Resources (DCNR), and Department of Environmental Protection (DEP). A state government employee described the challenge of such a large number of different agencies as follows, “It can cause some problems with all of us getting on the same page, and I think
moving forward and agreeing that certain things should be managed over the other” (state gov-3). While it was stated that these separations can enable agencies to focus their attention, it can also present challenges, particularly if there are imbalances in power, in terms of engaging people in the process and being able to make decisions.

A consequent problem in collaboration is the lack of adequate communication. A local government respondent described the importance of a lack of communication, "Whenever we’ve done great things here, it’s because there’s been cooperation, and whenever things have not gotten done, it’s because there’s a lack of communication" (local gov-1). Moreover, a state government employee added, “Because we immediately silo ourselves, I don’t think that there’s good mechanisms out there to support natural resource collaboration. I think siloing creates—that’s a major barrier to good conversation” (state gov-4). Furthermore, numerous interviewees felt that there was a lack of adequate communication between different parties. For example, “The groups within DEP rarely communicate. I mean, and that goes all the way up through EPA” (NGO-2). When there are silos and fragmentation, the resultant lack of communication results in a disruption to integrated thinking, which could be a constraint on collaboration. Communication across the different agencies does not necessarily occur, and mechanisms have not been adequately cultivated that address those challenges. Without communication, collaboration is not likely to occur.

Besides a lack of communication, there can be competition between the different agencies. As one state government employee shared (5), “I think the fractured management leads to kind of a turf consciousness; it plays out in really weird ways when there’s not leadership trying to knit it together.” As a result, some entities become territorial about
what their responsibilities are in addition to not having access to needed expertise and resources. When people become worried about maintaining their turf and vying for a voice in the collaborative process, it becomes difficult to build trust and have shared understanding of the problem and mission. As mentioned above, leadership can help groups get past competition to be able to work in collaboration.

Furthermore, these agencies do not necessarily have consistent standards around natural resource management. A local government official reflected on these inconsistencies by saying, “They all have their own specific standards, their own specific approaches to water resources. They’re often not compatible” (local gov-3). If target goals are different, developing statewide plans and collaboration within communities becomes difficult. Entities might define the problem differently or have divergent ideas about management approaches if they are working with different goals.

Even within the same agencies, there are not consistent standards. Respondents shared that both state and federal agencies take a more regional approach to management on some of their issues. For example, Army Corps Districts, which are responsible for some aspects of water management, have different standards within their different districts:

They’re run by separate colonels, and they’re not run the same way. Some are stricter, some are more relaxed, some have different rules for their lakes that don’t exist in any other district. So I think some of this regionalization can make it very difficult to have good coordination in a state. (state gov-1)

If different parts of the state have different standards, then it becomes difficult for people to work on plans together. Furthermore, statewide projects are likely hindered because different stakeholders would want to pursue different goals. Regardless of whether the
difference in standards is evident between agencies or in different regions of the same agencies, integration of other stakeholders and collaboration in Pennsylvania is likely impaired by a lack of consistency in regulations.

Local decision-making

Another aspect of the fragmented decision-making processes that was mentioned by numerous research participants is the vast number of municipalities in Pennsylvania and the state's orientation towards local decision-making. There are over 2,500 municipalities within the commonwealth. One respondent shared how this affects decision-making by saying, "Inherent government structure in Pennsylvania is gonna have a lot of decisions at the local level" (NGO-1). This presents a challenge because natural resource issues are not confined to one jurisdictional boundary. Often, engagement in natural resource issues involves multiple municipalities and individual landowners. As described by an industry representative:

The resources have to be managed on a larger scale, which would be on line with a watershed level or a regional level beyond the municipal boundaries and that from an administrative perspective and a programmatic perspective is very challenging for anything in Pennsylvania. (industry-1)

Also, investments in larger-scale management have not occurred because of the orientation towards local decisions. A NGO employee reflected that there was an effort in the early 2000s to take a watershed-based approach, but that effort is no longer occurring. Since efforts to manage water resources at larger-level have not been sustained, natural resource managers have not been able to overcome the barrier of numerous local municipalities.
One of the challenges with local decision-making is that there is not necessarily equal capacity in the different local municipalities. This presents a problem in terms of natural resource management and the prospects of collaborative governance because these efforts take a lot of time. When one region is divided into numerous municipalities and there are not adequate people to engage in natural resource management, plans and implementation will not necessarily occur. One respondent described this situation:

I look at my own watershed, like [X] watershed, and there’s 38 municipalities in that, all varying size, all varying tax bases, which means not every municipality is created equal when it comes to having paid staff at a table to talk about these things. (NGO-4)

Several people noted that this is more often a challenge in more rural communities in which sometimes people are not even running for office. In the cases where elected officials are present, there might not be adequate resources to fund positions as community planners or in other roles that relate to natural resource management. If there is no local capacity to engage in different roles related to management, making the additional time required for collaborative governance may be less likely to happen.

*Bureaucratic Processes Can Impede Collaboration*

One aspect of natural resource management within Pennsylvania is obtaining permits. One participant talked about how the process has become more cumbersome during the last several decades and requires more technical expertise. Obstacles to easily securing the necessary permits were described:
A permit to get in to do something that's beneficial in a stream 30 years ago, took two pages and you could fill out, and now it's 25 pages and you need to hire an environmental engineer to be able to do the same project ... We did that and it added more and more pieces to it. Now it becomes cumbersome for everybody and we've lost sight of what was the original intent here, and so it makes it difficult. (local gov-2)

This process can impede collaboration because companies or individuals may be less willing to invest additional time in seeking collaboration because the permitting process already takes a lot of time. This was evident in this perspective expressed by a person from industry when reflecting on why some companies might resist a collaborative approach:

It's like what we need to get these done, we don’t have time to sit around and wait for people to sing Kumbaya and figure out what problems are out there and the main problem is with the landowner and the leaseholders, everybody else is secondary. (industry-2).

When the sentiment of industry is merely just move through the process, a lack of commitment would be a barrier towards collaboration. The regulatory framework and cumbersome permitting process may make it less likely for industry to invest in additional efforts.

Also, a common approach to addressing problems does not necessarily engage individuals most likely to implement an effort. A state government employee described the recent efforts to create a statewide task force, “We have a representative there, and there might be 40 or 50 members and that’s kind of classic government where we want everybody included so we make a big thing ... To get real work done, you need a smaller
core group to do things” (state gov-1). This indicates that it can be challenging to balance representation with productivity, but both are important to sustain long-term collaborative efforts.

Limits Within Regulations

One concern raised on how regulations can limit creative, collaborative approaches. Regulators may view that their role as confined to restriction of the regulations as opposed to considering wider opportunities that might address larger concerns about the natural resource issue. To illustrate, from the state government perspective, there are limitations in terms of what issues can be tackled within a permitting process:

People don’t understand that we work within a certain kind of box. This is what we’re allowed to look at. For instance, on a lot of water issues, hauling water, people will raise this concept of, well, that’s gonna increase truck traffic. Well, that’s probably accurate, but it doesn’t fit into the regulation. It’s not a term or a condition of that regulation. (state gov-4).

This perspective illustrates that some people within government agencies do not see it as part of their role to help to facilitate greater collaboration between different stakeholders. Their engagement with natural resource issues is confined to the language of the regulatory framework. This type of orientation may cause groups to miss opportunities for collaboration.

Some individuals expressed concern that regulations limit the prospects for better solutions. This was a concern raised by a person working in industry:
The creative solution that could then look at what the natural resource management needs are for a community, for a watershed, for a county, or for a state and potentially provide a solution that not only meets their needs, but also meets the needs of the larger picture outside of the site context and that’s where flexibility and leadership’s needed at the state level to allow not only permit that to happen, allow it, encourage it and incentivize it. (industry-1)

In other words, the industry person’s commentary about flexibility to meet the wider goals of natural resource management differs from the state government employee’s orientation to the state enforcement agency’s role. It demonstrates that it is particularly difficult in collaboration to find the balance between limits and opportunities.

*Lack of Resources and Capacity*

One of the challenges repeated by almost all research participants relates to funding and capacity. There seems to be a general awareness that collaboration can have positive outcomes, but entities do not necessarily have the time to invest up front in the collaborative process. This reflection was shared on this topic, “I think most folks at the agency level and the programmatic level understand that, but we don’t have the time or luxury to do that” (local gov-2). Therefore, the structure does not provide support to engage in collaboration because it is beyond the minimum expectation for management practices. Having capacity and support appears to be necessary to engage in collaboration. This respondent went on to describe:

There aren’t enough people and there aren’t enough resources and there aren’t enough time so the tendency is that everyone is overloaded so the process of
affecting community or cultural change or better decision making based on natural processes, et cetera, and all those different things that go into good natural resource management often get skimped. (local gov-2)

This seems to indicate that they do not have support from the people in leadership within an agency to facilitate collaboration. Therefore, people in positions influence or greatly implicate whether or not collaboration happens.

Most people said that fewer resources resulted in less collaboration; however, one respondent thought it could push different stakeholders to work more effectively together. “I guess the lack of resources sometimes helps bring people together, too. If you can’t get everything done, you need to reach out to other partners that might have some resources or expertise to lend to the issue” (state gov-2). Depending on how a person views the challenge, it could help to facilitate greater collaboration. However, more often than not, people expressed that limited resources results in individuals not investing the time to engage a wider audience, work towards building trust, and take part in a collaborative process.

Having fewer resources impacts agencies and NGOs, preventing them from being able to invest in their employees to help build their skills and human capital. A government employee described the problem as follows, “You don’t have enough money, you don’t have enough staff, not enough training. If you don’t have enough staff, you can’t send them to training. It spirals down the way it could spiral up” (state gov-1). This involves not paying for trainings and not allowing staff the time off to participate in trainings. There is a particular skill set that is needed for collaboration, which typically requires training. An industry interviewee reflected, “Facilitators aren’t cheap and education to become a
facilitator isn’t cheap, and so that’s definitely a major barrier” (industry-2). As a result, people are not learning the skills needed to engage in collaborative management, particularly the entities that struggle financially.

Protection of Organizational Interests

Another challenge related to funding and resources relates to the orientation of funding mechanisms. Respondents indicated that Pennsylvania’s history related to access for resources for both governmental agencies and NGOs could negatively influence collaboration. An NGO employee described this, stating, "I know that there’s just a plethora of environmental groups and they’re all going after the same pots of money. Just a lot of competitive issues there, and, quite frankly, an unwillingness to share and collaborate” (NGO-2). There are limited resources both within government and in NGOs, and these entities are often fighting with each other to get access to those resources. This challenge was described as follows:

That’s inside government and outside government where you’re all incensed, fighting for the same slice of the pie. Particularly in state government, the pie’s not getting any bigger... It’s the same thing in the non-profit world, there’s only so much funding out there, particularly foundation funding, so you might be working collaboratively with another non-profit, but you know that at the end of the day you’re both kind of dueling it out. (state gov-2)

Competition for limited resources creates a contentious culture where entities are trying to take the lead and demonstrate to funders that they are worth investing in. In both sectors, entities are competing with each other and vying for resource allocation that provides the
power to protect their organizational interests. This type of concern has historically caused groups to engage less with organizations and stakeholders.

*Administrative Priorities*

Individuals in leadership and with positionality within a government agency leverages power influencing the approach the agency takes with prioritization of resources and important decisions. Leadership can influence the culture of an organization and, as one respondent put it, “drives relationships between agencies” (NGO-4). This was reflected in this comment, “I think a director that they had a number of years ago who kind of changed the thinking of many of those working underneath him in that we’re not working with the other nonprofits” (NGO-3). When a person in power opposes collaboration, it has implications throughout the rest of the organization. Several respondents talked about how power struggles with leadership in governmental agencies can create barriers towards engagement with collaboration. One respondent described how this influences the ability of governmental officials to engage with others:

> In other cases, we have secretaries and directors who don’t get along with each other, and the staff are down here trying to do their jobs, working well, and the secretaries and directors are having public spats, and we’re not allowed to talk to so and so, or they’re not allowed to talk to us. (state gov-1)

These dynamics can prevent different stakeholders from even being allowed to engage with collaboration. Several respondents also shared that there seems to be less collaboration the higher up one goes in leadership within an agency. This was reflected in comments by people in various levels of management. As a result, an institutional
constraint on collaboration can relate to leadership’s direction with other agencies and entities as disregarding other voices that might have solid collaborative advice.

Often when there is a change in governor’s office, changes occur with administrative secretaries and leadership within governmental agencies. These changes in power can cause shifts in collaborative investment. This was a concern raised by several respondents, including those in different levels of government and NGOs. As one person stated:

It seems to sometimes change with administrations...going back to my start back in 1999 I see some years where there seems to be a lot of collaboration, a lot of seeking stakeholder inputs and really engaging with the right stakeholders and listening to them and supporting collaborators and stakeholders to help with the efforts but then I’ve seen in many years that kind of seems to be the case for the last I’m gonna say—I don’t know number of years. (NGO-3)

Shifts in collaboration investment over time indicate that those in leadership positions influence institutions and either help to bolster or impede the prospects of collaborative management. However, one state government employee felt that people perceived a larger shift in agency focus than what actually occurred. Yet, numerous respondents expressed the frustration about administrative changes and the implications it had for collaboration.

Lack of an Empowered Process

An empowered process is fundamental to collaborative natural resource management. Numerous respondents indicated efforts around collaboration do not necessarily translate to an empowered process where all contributions are valued. One person indicated that the organizational efforts towards collaboration were disregarded:
We don’t necessarily have trouble meeting sometimes, but then when it comes to implementation of whatever the group decides...to be honest with you, sometimes a little bit of ego comes into that. ‘Well, our agency wants to do it this way and we think that’s the best way, and our goals are a little bit different so we’re going to do it this way.’ (state gov-3)

In other words, time is sometimes spent trying to collaborate between different stakeholders, but the decisions are not being honored where some entities have power to include or exclude those who they fit.

There are other examples where different stakeholders’ input is not integrated into a natural resource management process. This ranges from symbolic participation and scientific expertise. For example, a funder expressed a concern in terms of advisory councils as “some of them you go to listen to what the agencies doing and that to me is not necessarily advisory” (funder-1). Some advisory councils are more symbolic, giving the appearance of engagement when decisions have already been made. In other cases, scientific expertise needed for collaboration was ignored. “A lot of the agencies don’t really believe in research or science or their biologists, you know, it’s become much more, it’s politics” (acad-1). Institutional design within the collaborative governance model outlines that participatory inclusiveness needs to occur in light of the role they played in the process of identifying solutions. In both cases, decisions have been made without the consideration of including participants’ projected role.

In other circumstances, decision-making power was deliberately centralized with natural resource management issues with at times being unilateral in its practice. This can have ripple effects in the communities across the state. To illustrate, one participant
described “a lot of the top-down, black-and-white decisions that were made in Harrisburg created a lot of problems for relationships with communities and DEP, nonprofits and DEP” (NGO-4). Several people specifically mentioned when the last administration took away the County Conservation District’s role in erosion and sedimentation control related to shale gas development as being problematic. When decision-making becomes centralized, it creates a barrier towards collaborative natural resource management.

Some structures within Pennsylvania have helped to cultivate collaborative natural resource management in the state whereas others have been barriers. Fragmented and local decision-making creates barriers to communication and development of shared goals that are important to the collaborative process. Bureaucratic process, regulations, lack of resources and capacity, protection of organizational interests, administrative priorities, and a lack of empowered process can also serve as institutional constraints for the collaborative process.
The purpose of this study was to explore perspectives related to collaborative natural resource management in Pennsylvania. I sought to answer this central research question: *What are the current conditions and constraints related to collaborative management of natural resources in Pennsylvania?* There is a move towards more participatory approaches to natural resource management (Ansell and Gash 2007; Daniels, Lawrence, and Alig 1996; John 2004; Wondolleck and Yaffee 2000). There is also recognition that barriers to collaborative governance exist and range from, but not limited to, conflicting goals, lack of incentives, inflexible procedures, mistrust (Wondolleck and Yaffee 2000). The research objectives for this study were to explore how natural resource managers think about collaborative governance, what are the ways that the environmental history and past experiences with collaboration influence collaborative management, what are actions leaders can take to facilitate or impede collaboration, and what are the institutional constraints on collaboration. This research indicates that leaders in the state perceive similar kinds of barriers found in previous work with some caveats, suggesting areas for work if collaboration is going to move forward.

The conceptual model utilized in this study defined collaborative governance as state and non-state stakeholders engaging in consensus-oriented and deliberative ways to obtain project and policy outcomes (Ansell and Gash 2007). The conceptual model indicated that there is a shift towards collaborative governance due to the potential for better outcomes (Wondolleck and Yaffee 2000). Overall, respondents from all sectors agree that collaboration leads to better outcomes and more collaborative efforts are
necessary to encourage more effective management of natural resources in the state. Respondents described various benefits to engaging in collaboration including addressing conflict upfront and leveraging additional resources.

Respondents’ views of collaboration were generally consistent with the conceptual model. Respondents also felt that more collaboration was necessary. However, respondents’ perspectives did not identify that a collaborative process needed to be initiated by the state, which is not consistent with the Ansell and Gash model. Hence, this model is found to be inadequate such that it does not acknowledge collaborative governance can be initiated by other entities. However, a broader understanding of who can initiate a collaborative effort is more consistent with Emerson et al.’s (2012) framework for collaborative governance. Therefore, Ansell and Gash (2007) should be expanded to include instances collaborative governance efforts initiated by different sectors.

Furthermore, respondents had different perspectives on who should be considered stakeholders in the state, specifically related to industry; therefore not all respondents viewed stakeholders as consistent with the model. Not viewing all stakeholders as part of collaborative governance means that resultant efforts in Pennsylvania may not be as comprehensive of an approach as if all parties were included.

The conceptual model indicates that the prehistory of conflict and cooperation has bearing on the prospects of collaborative governance (Andranovich 1995; Ansell and Gash 2007). Pennsylvania respondents expressed concern in reference to the history of some problematic natural resource issues in the state, specifically coal and natural gas development. Mistrust of shale gas industry and government agencies appears to be high
for various reasons including exemption from major federal environmental laws, perceived industry's influence over regulatory agencies, and secrecy related to leases, health impacts, and fracturing fluids (North et al. 2014). There was also evidence of an unwillingness of some sectors to work with each other, including from both the industry and NGO sector. There was a history of different goals within the state and orientation towards specific positions on those goals. Conflicted history and different goals precipitated issues of mistrust in these different examples. Mistrust is indicated as an important challenge in collaborative efforts in the literature (Daniels and Walker 2001; Lasker and Weiss 2003).

Cultivating open dialogue and disclosing upfront biases can position groups to move beyond the mistrust resulting from history. As a result, addressing impasses and increasing civic engagement could strengthen Pennsylvania's efforts around collaborative natural resource management.

Recent successful cooperation, like the Task Forces and Growing Greener grants, served as mechanisms to bring people together to work effectively; these efforts helped individuals build relationships with each other that were leveraged for additional subsequent collaborative efforts. The presence of collaborative organizations helps to create forums for collective decision-making and repeated interactions (Imperial 2005). The commitment to the process as described by Ansell and Gash (2007) could involve pooling organizational resources, which might include informal sharing of equipment, allocating staff time to support another agency’s efforts, or jointly-applying for project grants (Imperial 2005). In accordance with shared understanding in Ansell and Gash’s model (2007), more specifically a clear mission, arrangements become channels of information exchange and people benefit from development of shared policies (Imperial
2005). Informed by Ansell and Gash (2007), the organizations would benefit from a design with inclusive participation that establishes ground rules and a transparent process. Therefore, developing a deeper understanding of the collaborative governance model of Ansell and Gash (2007) can inform more collaborative structures to help bolster collaborative natural management in the state.

Pennsylvania’s history has been a double-edged sword where some past history maintains barriers of mistrust that need to be overcome, whereas some key mechanisms have provided opportunities for successful collaboration. Trust-building becomes a necessary part of the collaborative process to address the aforementioned barrier (Ansell and Gash 2007; Imperial 2005). Furthermore, the development of relationships through supportive structures seems to be another key aspect that should be added to the conceptual model in addition to seeking to cultivate structures supportive of collaboration in the state.

The conceptual model indicates that facilitative leadership is important in the collaborative process (Ansell and Gash 2007; Chrislip and Larson 1994). This includes involving and empowering participants in a collaborative process (Vangen and Huxham 2003). Pennsylvania respondents indicated that facilitative leadership is necessary for collaborative governance. Respondents identified a range of different skills needed to support collaborative governance, including having a vision, enlisting courage and commitment, convening and facilitating groups of people, building relationships, uncovering common values, identifying biases, cultivating communication, and leveling knowledge gaps. Chrislip and Larson (1994) found that collaborative leadership helps to convene processes, facilitate people to work together, create a shared vision, and help build
relationships. Skills to communicate and create mechanisms for communication are also key in collaboration (Vangen and Huxham 2003). Therefore key areas that were in agreement with the model related to the importance of shared vision, building relationships, facilitation, and effective communication. Behaviors and skills that were missing from the model were leveling the knowledge gap and courage and commitment.

In the spirit of Vangen and Huxham’s research (2003), this adds to deeper insights into behaviors in facilitative leadership roles in collaborative governance. Furthermore, there seems to be greater emphasis in the research findings with regards to important role relationship building and the creation of social capital plays in collaborative governance. Relationship building is considered one of the most challenging aspects of creating partnerships but essential to their functioning (Lasker, Weiss, and Miller 2001). Furthermore, a network of “think horizontal” relationships across different issue lines helps facilitate “everyday politics” (Boyte 2004:37).

In Pennsylvania, the skills identified as big picture thinking, courage and commitment, convening, facilitation around contentious issues, effective communication, and knowledge building are areas for improvement. This is not to say that these skills and behaviors are lacking in all leaders in the state; however, it does collectively speak to the need to for skill and professional development.

The conceptual model does not speak to issues of institutional constraints; however, in accordance with the findings this appears to be relevant in shaping the current conditions and constraints for collaborative governance. Some institutions within Pennsylvania have helped to cultivate collaborative natural resource management in the state whereas others resulted in barriers. For example, some entities, like task forces,
brought together groups of people, solidified relationships, and accomplished goals for successful project collaboration. Fragmented decision-making related to numerous state and local governmental agencies and the plethora of local municipalities were cited as institutional barriers to collaboration. Although these challenges were not highlighted in the conceptual model, examples of collaborative natural resource management in different parts of the United States demonstrates that this has been a problem elsewhere (Yaffee and Wondolleck 2003). This fragmentation resulted in a lack of adequate communication in Pennsylvania. Communication was found to be an important factor in collaborative governance (Ansell and Gash 2007). As a result, it would be wise to invest in cross-sector communication. Additionally, other frameworks for collaborative governance do acknowledge the importance of the system context, like the political, legal, and others, in shaping the potential for collaboration (Emerson et al. 2012). Therefore, the Ansell and Gash (2007) model should be expanded to include the institutional context.

Bureaucratic processes and limits within regulation were also evident in Pennsylvania and found to be challenges in case studies on collaborative natural resource management (Yaffee and Wondolleck 2003). Financial resources and human capacity were frequently cited as obstacles to collaborative management in the state. Long-term access to resources, in addition to the distribution of resources, has been demonstrated as important for collaboration (Imperial 2005). One of the challenges, particularly in rural communities in Pennsylvania, is that there are a limited number of people who are willing to engage on issues and serve on boards and committees. Additionally, competition for resources and protection of organizational interests creates conditions where people do not want to collaborate in Pennsylvania. However, as found in this study, Ansell and Gash's (2007)
model highlights the importance of trust-building and commitment to the process that can reduce the competition for resources and identify common values that each participant can agree on and proceed. Investing in the development of facilitative leadership could also be a means to address some of the institutional barriers in the state.

Respondents also described numerous examples where an empowered process was lacking. This is consistent with Ansell and Gash’s (2007) model that describes the importance of institutional design, particularly related to process transparency and that the process is “real” (557). For example, part of institutional design is participatory inclusiveness, which is an institutional, or external, issue that has implications on an internal collaborative process. Another structural barrier described by numerous respondents was a shift in administrative priorities, particularly with changes in administrations. Yaffee and Wondolleck (2003) highlight that a lack of support by agency leaders can create challenges to collaborative management. When people in leadership positions oppose collaboration, agency employees are discouraged from working with others.

These barriers do not necessarily prohibit collaborative governance from occurring; however, they need to be addressed if the state is to move in the direction of more collaborative management. With greater focus on communication and cross-agency efforts and multi-community initiatives, collaboration can still occur if this approach to natural resource management is valued and prioritized. In other cases, shifts could occur to help encourage greater collaboration like through incentivizing collaboration within funding structures.
Ansell’s and Gash’s (2007) collaborative governance model describes the situation in Pennsylvania related to collaborative natural resource management, but there are aspects of this state’s situation that are divergent to the model. These divergences relate primarily to lack of acknowledgement that power dynamics and institutional constraints influence and affect collaborative governance, particularly related to fragmented decision-making and competition for resources. Therefore, when applying the conceptual model to specific settings, it is important to note that local context matters, and it would be beneficial to understand the institutional constructs specific to that locality. Power asymmetries influence all aspects of the starting conditions, including whether stakeholders are inclined to participate as well as prehistory of cooperation and conflict. Process transparency, participatory inclusiveness, and ground rules are all likely influenced by power relations. Furthermore, facilitative leadership can both be aware of power asymmetries and seek to resolve them. The different aspects of the collaborative process are also likely influenced by the interplay of power between different stakeholders.

In applying collaborative governance, the model implies that the process is static, which not likely the case since power is embedded throughout the process.

Furthermore, it was evident that factors related to individual leaders and institutions that help to facilitate or impede collaborative natural resource management are consistent with the conceptual model. Cultivating facilitative leadership skills among various stakeholders could potentially aid in the expansion of collaborative governance by helping groups come together and work to address problems. However, developing ownership among administrative leadership is necessary to create organizational cultures of collaboration. Furthermore, structural barriers, like a lack of capacity and competition
for resources, could be incorporated into the funding structure of governmental and private foundation grants by requiring that groups work together. The establishment of collaborative organizations, or convening entities, could also assist in establishing greater collaborative management.

**Future Areas of Research**

This study was structured to get a broad overview of the current conditions and constraints related to collaborative natural resource management in Pennsylvania. By not examining in greater depth specific examples of collaborative management in Pennsylvania with various players involved, the conclusions that can be drawn are limited. There would be value in taking a case study approach to explore concrete examples of collaborative management to understand from different perspectives, including community residents, and multiple sources of data about factors that contribute to success or failure.

Furthermore, it could be helpful to explore a wider range of perspectives within industry because the number of respondents in this area was fairly limited, and they were already invested in a collaborative management approach. Respondents had different perceptions of what was meant by collaborative management, which was evident as people responded to different questions on the interview protocol. However, respondents did not specifically clarify how they define collaborative management. With a lack of clarity about what is meant by collaborative governance, it would be difficult to make strong conclusions about conditions and constraints. Therefore, further research should explore how different sectors understand collaborative governance, thus allowing all stakeholders to proceed from the same starting place.
Additional research should seek to explore how power issues influence collaborative governance since differential power was evident in the data but is not adequately addressed within the model of Ansell and Gash (2007). Specific projects could explore power dynamics within the five elements of the collaborative process as well as the starting conditions. In light of the findings of this study, this might include exploring how each sector perceives power dynamics and its implication for trust-building in the collaborative process. Furthermore, exploring how power dynamics influence the perceptions of common values in the development of a shared understanding as part of the collaborative process.

**Key Conclusions**

This research study adds to the Ansell’s and Gash’s (2007) conceptual model in several areas. It deepens the understanding of the importance of developing relationships and facilitative leadership and also acknowledges that local context and power dynamics matter when applying this model. Local institutions and associated embedded power differentials shape what is possible in terms of collaborative governance and must be factored into understanding and addressing a local situation.

In light of the context in Pennsylvania, several key areas could be addressed to bolster collaborative natural resource management in the state. Investment in structures that help to facilitate collaboration would be wise. The Growing Greener initiative could be used as a model to create structures that bring together different stakeholders to build relationships and address issues of competition for financial resources. Recognizing that experiences and history have implications on trust, facilitating relationship development
can help to address that barrier as well. Efforts to support greater communication can aid in this process by helping to cultivate relationships and develop shared goals. Furthermore, bolstering facilitative leadership capacity could strengthen the ability of entities to initiate and engage in collaborative governance.
Appendix A: Survey Instrument

PA-NRLI Survey Instrument

Interview Script

Introduction

Hello, I'm __________. I am a graduate student at Penn State seeking to gather your input about collaborative natural resource management in Pennsylvania and the potential of creating a natural resource leadership program here.

As you know, a Penn State team is conducting background research in preparation for the leadership program. This interview is part of my thesis research, which will help the group understand the opportunities and challenges for collaborative natural resource management in Pennsylvania.

We have a form that describes your rights as a research participant. I’ll let you read it more closely, but there are few things I’ll highlight. First, you may choose not to answer any specific questions, and you may end your participation at any time. I would like to audio-record our conversation, so that I have an accurate record of what you said. I will keep your information confidential; no information that would identify you will be used in the documents produced. If you agree to participate, please sign the form (and send it back, if by phone).

1. Tell me a little bit about yourself and what you do at (organization)?

Current State of Management

2. From your perspective, or from the perspective of your organization, what are the biggest natural resource issues in Pennsylvania?

3. Now thinking about how the state’s natural resources are managed....
   o Are there ways in which Pennsylvania is doing well managing natural resources?
   o What do you see as the biggest challenges for managing natural resources in Pennsylvania?

History
4. How would you describe the history of relationships between some of the organizations and entities that are involved in managing natural resources in the state?
   
   ○ Probe: where have you seen... conflict, mistrust, and/or cooperation?

5. How would you describe the extent to which organizations work across different sectors or types of organizations? For example, federal agencies working with nonprofits, or nonprofits working with industry? Industry trying to collaborate around effective management.
   
   ○ Trends in the type of natural resource issues (ie. hot-button issues, ag, shale, addressing abandoned mine waste)

**Barriers to Collaboration**

6. What are some of the barriers your organization faces when collaborating with other organizations?
   
   ○ Probe: do you have challenges with resources/capacity, skills, and/or organizational support to participate in collaboration?
   
   ○ Probe: to what extent could the history around some natural resource management issues present a barrier or opportunity for greater collaboration?
   
   ○ Probe: technical knowledge about the problems? Power imbalances?

7. What are some steps that you or others have taken to address these barriers?

**Facilitative Leadership**

8. What set of skills is most lacking?
   
   ○ What skills are missing related to collaboration and/or facilitative leadership? Towards effective natural resources management?

**Existing Training**

9. Are there leadership or public engagement programs that your organization currently uses that teach some of these skills? What skills do they emphasize?

10. On the flip side, what are the biggest gaps in current training options available in the state?

**NRLI**
11. To what extent do you think a Pennsylvania-based leadership program would help to improve natural resource management? Why or why not?

12. What are potential roadblocks to creating a NRLI in Pennsylvania?

Other

13. Do you have suggestions for people that I could talk to better understand natural resource management in Pennsylvania?

14. Is there anything you’d like to add with regard to what we’ve talked about, or any issues that we didn’t discuss that relate?

   Thank you so much for your time and thoughts.

   How will the information be captured (transcribing, analysis) and shared with others (thesis, paper, for advisory team and others interested in NRLI).
Appendix B: Informed Consent Form

Informed Consent Form for Social Science Research
The Pennsylvania State University
Penn State College of Agricultural Sciences
Department of Agricultural Economics, Sociology and Education

Title of Project: Pennsylvania Natural Resources Leadership Institute-PA Feasibility Assessment

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Other Investigators:
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Purpose of the Study: The purpose of this research is to investigate the feasibility of developing a leadership program for professionals, elected officials, and citizens engaged in managing natural resources in Pennsylvania. The intent of the program would be to enhance communication, negotiation, and leadership skills and increase the likelihood of cooperative management of Pennsylvania’s resources. The primary audience will be those individuals engaged in governmental, nonprofit, community-based, and private organizations that seek to regulate, manage, preserve, and monitor the state’s forests, waterways, air, soil, land and wildlife. Interviews will be conducted either face to face or over the telephone. There will be approximately 30 individual interviews in the study.

Procedures to be Followed: You will be asked about your experiences and views related to the current state of collaborative management of natural resources in Pennsylvania and skills needed for greater and more effective practices, procedures, and process. The research will seek to gather input from diverse stakeholders across Pennsylvania about their perspective on the current state of collaborative natural resource management and if an educational leadership program would be helpful. Interviews will be audio-recorded with your permission. All information that could identify you will be removed from the written transcripts. The tape recordings will be stored in a locked drawer in the office of the project director, Kathryn Brasier. Only the investigators listed above will have access to these recordings. The audio recordings will be destroyed 3 years after the project has ended (August, 2015).

Duration: These interviews will last between 30 to 45 minutes.

Statement of Confidentiality: The information you provide will be kept confidential; only the project team members listed above will know your identity. Reports of this research will not include your name or any other information that might identify you.
**Right to Ask Questions:** Participants have the right to ask questions and have those questions. Please contact Colleen Unroe or Kathy Brasier at 814-865-732 with any questions, complaints or concerns about this research. You can also call this number if you feel this study has harmed you. Questions about your rights as a research participant may be directed to Penn State University’s Office for Research Protections at (814) 865-1775.

**Voluntary Participation:** Your decision to be in this research is voluntary and if you participate there is no compensation. You do not have to answer any questions you do not want to answer. You may stop at any time.

You must be 18 years of age or older to take part in this research study. If you agree to take part in this research study, please sign your name and indicate the date below.

You will be given a copy of this form for your records.

_______________________________________  __________________________
Participant Signature                               Date

______________________________________________  __________________________
Person Obtaining Consent                           Date
Appendix C: Interviewee Codes

Sectors

Acad = academic respondent
State Gov = state government respondent
Local Gov = local government respondent
Industry = industry respondent
NGO = non-government organizational respondent
Bibliography


Dewulf, Art, Monica Mancero, German Cardenas, and Dolores Sucozhany. 2011.


