THE FOUNDATIONS OF COMMUNITY CAPACITY:
AN EXPLORATION OF THE ROLE OF FAIRNESS, TRUST AND LEGITIMACY IN
SUSTAINABLE WATERSHED MANAGEMENT

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Abstract

Water resource managers and policymakers are increasingly turning to a watershed approach using hydrologic rather than political boundaries to address water resource problems. However, transboundary, interjurisdictional water resource management can be especially challenging for local government officials and citizens. This thesis examines community capacity for sustainable watershed management within two southeastern Minnesota mixed land use and multijurisdictional watersheds.

Specific objectives were to describe and compare conditions and capacities that promote or constrain sustainable watershed management from the perspective of water resource professionals, government officials and active community members. Data were gathered though 49 key informant interviews conducted with resource professionals, community decision makers and active residents in 2011and 2012 and analyzed using grounded theory and comparative analysis.

Findings indicate the importance of fairness, trust and legitimacy in relation to community capacity for sustainable watershed management. The emergence of fairness, trust and legitimacy in this study indicate a new aspect of community capacity: foundational conditions. As foundational conditions, they allow previously identified actionable capacities to be leveraged in response to community needs, in this case, sustainable watershed management. Implications for resource managers are discussed.

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Chapter One

Introduction

Minnesota is rich in water resources, with more freshwater than any other state in the contiguous United States. Nearly all water (99%) arrives in the form of rain or snowfall (Water Resources Center, 2011). And yet, despite the abundance of fresh water, healthy water bodies are increasingly difficult to find. At the beginning of 2012, the Minnesota Pollution Control Agency released a draft updated list of impaired waters, adding 500 new lakes, streams and rivers and bringing the total to 3,638 impaired Minnesota water bodies (Minnesota Pollution Control Agency, 2012).

To address water quality concerns, resource managers and policymakers in the state are increasingly turning to a watershed approach, using hydrologic rather than political boundaries to manage water resources. Though simple in concept, implementing a watershed approach is a difficult process. It requires resource managers to engage multiple stakeholders, to think across jurisdictional boundaries and to implement plans at a watershed scale. However, this has proven to be a difficult task. One reason environmental governance, and particular watershed management, can be so challenging is that most land use decisions are made locally, which can have a tremendous impact on ecosystem health (Braden, Brown, Dozier, Gober, Hughes, Maidment,…Werner, 2009; Tarlock, 2003; Tong & Chen, 2001). For example, ecosystem composition, the distribution of organic matter and nutrient cycles are all impacted by decisions of landowners to till, graze, drain or clear their land (Ojima, Galvin & Turner, 1994). Local governments also play a significant role in zoning land uses, lot sizes, growth

management and regulating or monitoring other land management practices (Tarlock, 2003). The cumulative impacts of local land use management decisions spread across landscapes and do not conform to political boundaries. Furthermore, environmental decisions are made and influenced by citizens, local, state and federal governments and non-governmental organizations.

To be effective, in managing at the water across jurisdictional boundaries, human communities must have the capacity to coordinate and act collectively in problem solving at multiple scales. Chaskin (2001) describes community capacity as "the interaction of human capital, organizational resources, and social capital existing within a given community that can be leveraged to solve collective problems and improve or maintain the well-being of that community" (p. 295). The concept of community capacity holds a great deal of promise in watershed planning. Knowing a community's capacities and incapacities or limitations can help natural resource professionals more effectively support local communities by building on their assets and helping to address constraints. Theoretical models of community capacity exist; however, much work remains to develop community capacity models in the context of natural resource sustainability and to test them in applied settings. This thesis focuses on the concepts of fairness, trust and legitimacy which emerged from an assessment of community capacity for sustainable watershed management in two Minnesota watersheds.

The Sand Creek and Vermillion River watersheds are located at the urban-rural interface in the southern Twin Cities metropolitan area. Both watersheds have streams and lakes that have been designated as impaired by the Minnesota Pollution Control

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Agency. Managers from each watershed expressed a need for better understanding of the capacities and constraints their communities face in promoting sustainable water resource management at a watershed scale. The neighboring watersheds serve as a particularly interesting pair to study, because, despite their proximity to one another, they have distinct governance structures and land use characteristics.

The study sought to understand the perspectives of multiple stakeholders around sustainable watershed management. The overarching goal was to identify critical capacities and resources that communities need and strategies they may be able to use to manage water resources sustainably. While the study findings overall support existing models of community capacity for sustainable watershed management (see Davenport & Seekamp, 2013), they also identify cross-cutting themes of fairness, trust and legitimacy that influence and shape a community's capacity to sustainably manage water resources.

This thesis is presented in five chapters. This first chapter provided an overview of watershed management and its associated challenges in Minnesota. The second chapter describes relevant literature on community capacity as well as fairness, trust and legitimacy. The third chapter addresses the study area background and methods used to conduct and analyze the interviews that comprise this research. The fourth chapter presents results related to study participants' descriptions and evaluations of fairness, legitimacy and trust as they relate to community capacity. The fifth and final chapter presents an argument that fairness, trust and legitimacy exist as foundational forms of community capacity and describes management implications based on results presented in Chapter Four.

Chapter Two

Literature Review

Managers of Sand Creek, Vermillion River and other watershed districts throughout the Minnesota are beginning to recognize the importance of understanding the human dimensions of resource management (Minnesota Pollution Control Agency, 2010). This interest is fueling interdisciplinary research that draws upon fields of sociology, political science, public health, geography and other social science disciplines to understand the ways that people and communities manage resources and their reasons for doing so. However, much work remains in integrating lessons learned from disparate fields and applying them to specific resource management contexts. This literature review brings together existing research on the roles of community capacity and fairness, trust and legitimacy within a watershed management context.

Community capacity for sustainable watershed management

A growing body of research is beginning to connect broader theories to empirical findings and to examine more specifically the multiple capacities that communities need in order to engage in effective governance of many critical issues. The concept of community capacity, first developed in the fields of public health and community development, is highly applicable to environmental governance and sustainable watershed management (Davenport and Seekamp, 2013). Community capacities are the tools and capitals communities can mobilize or apply in order to solve problems or improve quality of life (Chaskin, 2001). Capacities may be built and improved, or they may be lost (Chaskin, 2001; Goodman, et al., 1998). Most theorists believe that capacities exist at multiple levels with each level having several indicators (Beckley, Martz, Nadeau, Wall, & Reimer, 2008; Goodman et al., 1998; Foster-Fishman, Berkowitz, Lounsbury, Jacobson, & Allen, 2001; Davenport & Seekamp, 2013). Four of the primary levels that have emerged are individual/member, relational, organizational and programmatic capacities (Foster-Fishman et al., 2001; Goodman et al., 1998).

Individual or member capacities refer to the knowledge, attitudes and abilities of the people who make up the community. They are the "primary asset" of the coalition (Foster-Fishman, 2001). Relational capacities describe the ties that allow the community to function collaboratively. These relationships may be both social and inter-organizational, within and between communities (Goodman et al., 1998: Foster-Fishman et al., 2001). The way a community is organized to engage its members to respond to particular challenges, is reflected at the level of organizational capacity. This includes

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leadership, formal roles and processes, communication systems, sustained engagement and adequate resources. The final level of community capacity identified in the literature is programmatic. This refers to the programs in place or those established as a result of collaborative processes that are designed to address the issues of concern (Foster-Fishman et al., 2001).

Many studies have applied the concepts of community capacity and participatory governance specifically to ecosystem management (Hardy & Koontz, 2010; Fabricius, Folke, Cundill, & Schultz, 2007, Ivey, Smithers, de Loe, & Kreutzwiser, 2004; Measham, 2007; Mendis-Millard & Reed, 2007). The majority of these works are individual case studies that offer insightful glimpses into the capacities communities need to manage their resources sustainably (for examples, see Hardy & Koontz, 2010; Margerum, 2007). Most empirical research focusing on watershed management, however, falls outside of the community capacity literature. Stronger connections must be built between the empirical data and broader theories of community capacity for sustainable watershed management. This may involve incorporating new, emergent levels of capacity or factors that influence existing levels. This article makes the case for one such set of new themes that builds upon current understandings of the critical capacities communities need to manage their water resources sustainably.

Fairness, trust and legitimacy in water resource governance

As the results of this study demonstrate, fairness, trust and legitimacy can have a significant effect on community capacity for sustainable watershed management. Examinations of water management are often linked to issues of environmental governance. Environmental governance has been defined as "the set of regulatory processes, mechanisms and organizations through which political actors influence environmental actions and outcomes... It includes the actions of the state and, in addition, encompasses actors such as communities, businesses, and NGOs [non-governmental organizations]" (Lemos & Agrawal, 2006 p.298). Historically, environmental governance was highly bureaucratic, regulatory, fragmented and contentious, with an emphasis on enforcement of regulations (Durant, Fiorino & O'Leary, 2004). Durant, Fiorino & O'Leary (2004) note that these approaches are beginning to change. More recent efforts have focused on achieving results through collaboration and allowing for flexibility in management approaches (Durant, Fiorino & O'Leary, 2004). However, creating a system of governance that can meet those goals remains a challenge.

Evidence suggests that environmental governance systems are most successful when they are perceived as fair and legitimate. Jordan, Slotterback, Cadieux, Mulla, Pitt, Olabisi and Kim (2011) identified legitimacy as a key barrier to implementing integrated water resource management in agricultural landscapes. They describe legitimate approaches as encompassing aspects of fairness, democracy, and effective governance processes. The emphasis here is on the governance processes used, and the way they are perceived by stakeholders. Fair, inclusive processes that achieve results promote a sense

of legitimacy, particularly when collaboration with multiple stakeholders is required. When governance processes fail to promote a sense of legitimacy, stakeholders may not be able to trust, or have interest in participating in, collaborative governance processes. It is important that stakeholders affected by watershed management perceive the processes that led to the rules, regulations and plans to be fair and legitimate.

While fairness is fundamental to Jordan et al.'s conception of legitimacy, Lockwood, Davidson, Curtis, Stratford, and Griffith (2010) distinguish between these two concepts. They consider legitimacy and fairness to be two of the eight principles of good natural resource governance. These authors offer a three-part definition of legitimacy associated with validity, decision making power, and integrity (p. 991):

- "The validity of an organization's authority to govern that may be (i) conferred by democratic statute; or (ii) earned through the acceptance by stakeholders of an organization's authority to govern;

- that power being devolved to the lowest level at which it can be effectively exercised; and

- the integrity with which this authority is exercised"

The authors later use the concepts of respect, consistent decision making, and distribution of costs and benefits to define fairness in natural resource governance (p. 994):"The respect and attention given to stakeholders' views; consistency and absence of personal bias in decision making; and the consideration given to distribution of costs and benefits of decisions" (p. 994).

While fairness of process was a primary concern for Jordan et al. with regard to legitimacy, Lockwood et al. separate fairness and legitimacy, where legitimacy primarily reflects organizational validity either conferred politically or gained through social acceptance, and fairness is demonstrated through both procedural and distributive justice. This makes the organizations involved, processes used and outcomes that result from any approach to natural resource governance critical to achieving a sense of fairness and legitimacy. As legitimacy is defined by these authors, it is applied primarily to organizations. Though, as the results of this study will indicate, legitimacy applies to individuals as well.

These concerns may be especially important for water resource management. Trachtenberg and Focht (2005) argue that effective policies alone are not adequate to achieve successful watershed management, especially when collaboration with stakeholders is involved. Participants in and observers of collaborative governance processes may raise objections to effective policies on the basis of its moral implications, fairness and the way it was developed. Thus legitimacy is not automatically conveyed through legal status or political power, but requires integrity in governance and social acceptance.

Consistent with Lockwood et al.'s criteria for devolution of power and Jordan et al.'s notion of democracy, Boyte (2004) has argued that decision-making processes must be "deprofessionalized" to allow the voices and meaningful participation of multiple stakeholders. Political systems are increasingly controlled by professionals with expert knowledge of the systems in place who tend to emphasize technical thinking. They rely

on the western scientific knowledge contained in reports and studies. However, this professionalization of politics reduces the roles citizens are able to play. Unless they, too, possess expert professional knowledge, citizens struggle to find a seat at the table for discussion and even if they make it to the table, struggle to be heard. Successful processes create space for the alternative "civic" knowledge possessed by citizens and nonprofessionals. They also seek to distribute important information more equally to all who are interested in participating (Boyte, 2004, Moote, McClaren & Chickering, 1997). This, many theorists argue, will promote a sense of fairness and legitimacy.

However, Mansbridge (1980) suggests that having access and power to influence is not always a priority for groups or communities. In what she calls an adversary democracy, participants lack a perceived common interest and thus feel they need to vie for power and access to decision making. Invested groups or individuals are uncomfortable having less of a voice at the table. In these systems, political equality is extremely important in order to foster a sense of legitimacy in the decision making process. However, groups that do have feelings of common interest, labeled unitary democracies by Mansbridge (1980), create a more trusting environment, where each member feels the others would advocate for decisions that positively suit everyone (Mansbridge, 1980).

While lack of fairness and legitimacy can be barriers to effective natural resource governance, lack of trust serves as a barrier to fairness and legitimacy. Jordan et al. (2011) point out that when stakeholders do not trust one another, or the agencies involved in governance, they are less likely to participate and to view the approach as legitimate.

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Tenbrunsel (1999) argues that an atmosphere of mistrust can prevent organizations from working together and reaching agreement in environmental-economic decision making. This atmosphere develops from a history of events which cause entities to lose trust in one another, perceived clashing values and structural conditions of the negotiation, or governance process, which create uncertainty, power imbalances and other detrimental features. While processes, events and stakeholder values are important, Folke, Hahn, Olsson and Norberg (2005) point as well to the importance of leaders in creating trust within governance systems. In their work exploring the social dimensions of adaptive natural resource governance, they identify trust as a key social capital and one that leaders can do much to promote or diminish.

Interestingly, there are almost as many definitions of trust as there are authors who tout its importance (see Tenbrunsel, 1999 for examples). While no clear, single definition seems to stand above the rest, trust is a positive feature of social relationships, without which it is difficult to achieve collective action. In reviewing the hazards of mistrust (Jordan et al., 2011, Tenbrunsel, 1999) and benefits of trust (Jordan, et al. 2011, Folke et al., 2005), as well as the importance of fairness and legitimacy (Lockwood et al., 2010; Jordan et al, 2011, Trachtenberg & Focht, 2005) in natural resource governance, it becomes clear that concepts overlap, and the lines between them are blurred and at times, self-reinforcing. Trust is a barrier to legitimacy, which can be defined to incorporate fairness (Jordan et al, 2011). A history of unfairness can create an atmosphere of mistrust (Tenbrunsel, 1999). Trust is a necessary social capital that must be brought to bear in natural resource governance and without which governance is unlikely to be effective

(Folke et al, 2005), which would then detract from stakeholder's sense of the legitimacy of the approach (Jordan et al, 2011). These concepts are central to understanding the way people and organizations come together to address natural resource issues of concern.

Numerous empirical studies explore the importance of fairness, trust and legitimacy in natural resource management contexts. Studies of trust are abundant and take many forms. For example, in a survey study on fisheries management, Gray, Shwom and Jordan (2012) found that stakeholder participation in management efforts led to increased agency trust. Interestingly, sharing results from a separate study Smith, Leahy, Anderson and Davenport (2013) suggest that individuals who tend to have higher levels of broad social trust, and believe resource management agencies share their values and morals are less likely to participate in public planning processes. Approaching trust from a different angle, Beierle & Konisky (2000) examined several cases of environmental planning around the Great Lakes and revealed that the relationship between participation and building trust is complex, contingent on multiple contextual factors and affected by the design and management of participatory processes.

Adams, et al. (2005) analyze a single case study of legitimacy in a watershed planning and governance process. Their work reveals several ways in which well-meaning management agencies and a powerful nonprofit organization created a process that appeared democratic on the surface and was intended to create a more effective water management plan. Upon closer review, the process proved to be unrepresentative and the resulting plan ineffective. Drawing lessons from an Illinois watershed, the authors propose creating alternative watershed planning and governance approaches that meet

four conditions to improve legitimacy: (1) operate at large enough scales to address downstream concerns and upstream impacts, (2) base decisions about local land use at the local level, where local governing units have the powers necessary to take action to manage water resources, (3) provide local governing units with access to adequate technical resources, and (4) promote vertical and horizontal information sharing.

While Adams et al. (2005) suggest that creating a new and alternative governance system is necessary to improve the effectiveness and legitimacy of watershed management, other researchers have focused on ways to improve participatory decision-making processes and outcomes within existing management and governance paradigms. Smith and McDonough (2010) offer once such example based on data collected in focus groups with public participants in decision making processes. Their study of perceptions of fairness in natural resource decision making revealed numerous concrete examples of different aspects of planning processes that participants felt detracted from a sense of fairness in the process and outcomes. These factors ranged from a lack of representation in decision making processes resulting from inadequate notification about involvement opportunities or inconveniently scheduled meetings, to concerns about not having meaningful voice or not being given serious consideration when ideas are shared. Smith and McDonough (2010) suggest that agencies would benefit from creating new approaches that make participation feel important and personal, less like a formality that fails to provide space for meaningful public influence.

The common theme weaving these case studies together is the importance of creating positive interactions between the public and resource management agencies.

Whether through trust, legitimacy or fairness, it is hoped these types of positive experiences will help make natural resource management efforts more effective and give people greater confidence in resource managers and their decisions. However, few studies suggest that management agencies have found consistently effective approaches to promote a sense of trust, fairness or legitimacy. Instead, researchers are still uncovering constraints to achieving these positive associations and learning how a lack of perceived fairness, trust or legitimacy can in turn constrain the effectiveness of planning and management approaches.

Chapter Three

Methods

Study Area

The Vermillion River and Sand Creek watersheds include a diverse range of urban and rural land uses and public and private land owners. Resource managers in both watersheds have encouraged the adoption of conservation practices on private lands through easements, cost share and payment programs (Vermillion River Watershed Management Organization, 2012a, Scott County Watershed Management Organization 2012).

Table 1
Watershed area and populations by county

Water-shed	Water-shed area	County	Population (1990)	Population (2010)	Population change (1990-2010)	Population density (per square mile, 2010)
VR[1]	372 sq. miles	Dakota	275,227	398,552	45%	709
VR/SC		Scott	57,846	129,928	125%	172
VR		Goodhue	40,690	46,183	13%	103
SC[2]	271 sq. miles	LeSueur	23,239	27,703	19%	56
SC		Rice	49,183	64,142	30%	180

Sources: Metropolitan Council (2012), United States Census Bureau (2010).
1. Vermillion River Watershed
2. Sand Creek Watershed

The Vermillion River watershed reaches into 3 counties, is home to 10 unincorporated townships and includes all or part of 6 cities and 5 rural towns, (Watershed Management Plan, 2008). Population density is unevenly distributed and

ranges from just over 100 people per square mile in one county to over 700 in another (United States Census Bureau, 2010). Land use within the watershed is primarily agricultural but with significant areas of urban use and undeveloped land as well (University of Minnesota, 2006). The northwestern portion of the watershed is the most heavily urbanized while the center is almost exclusively agricultural.

Several main reaches of the Vermillion River and four lakes within the watershed are impaired with most of these impairments affecting aquatic recreation and consumption. The river has a variety of interactions with ground water; upstream it is fed by groundwater, in its central reaches there is little interaction between ground and surface water and downstream from the city of Hastings, the river feeds into the groundwater system (Watershed Management Plan, 2008).

As the largest stream in Dakota County and a site for recreational trout fishing, the Vermillion River is a prominent feature on the landscape (Minnesota Department of Natural Resources, 2012a). Trout Unlimited considers the Vermillion River to be the only trophy trout stream in a metropolitan area in the country (Vermillion River Watershed Management Organization, 2012b). Approximately 43 miles of the river and its tributaries have been designated as trout streams by the Minnesota Department of Natural Resources (DNR) (Nerbonne & Chapman, 2007). The designation comes with a number of restrictions and regulations, including limitations on the length of the fishing season, number of fishing lines allowed and the use or harvest of bait (Minnesota Administrative Rules, 2011).

The Vermillion River Watershed is managed by the Vermillion River Watershed Joint Powers Organization (VRWJPO). The VRWJPO Board is comprised of the commissioners of Dakota and Scott counties. The VRWJPO was established to create and implement the Vermillion River Watershed Plan, provide oversight of local water management plans and regulate certain land uses within the watershed (Joint Powers Agreement). The VRWJPO is guided by the watershed Plan, Standards and Rules, which were all recently revised and subject to review and comment from the Watershed Planning Commission, a citizen advisory group for the VRWJPO, as well as from the public (Watershed Management Plan, 2008; Standards, 2010; Rules, 2010).

Table 2
Land cover by county

County	Agriculture	Grass/shrub/ wetland	Forest	Water	Urban
Dakota	49.64%	12.74%	11.94%	2.72%	22.97%
Goodhue	59%	11.76%	19.51%	2.50%	7.22%
Scott	45.99%	23.12%	13.80%	3.17%	13.92%
Rice	58.65%	18.85%	10.17%	3.31%	9.01%
Le Sueur	61.85%	18.44%	7.13%	5%	7.58%

Source: land.umn.edu

The Sand Creek Watershed differs significantly from Vermillion River. It is a great deal smaller than the Vermillion at 271 square miles (Scott County Watershed

Management Organization, 2010). The lower half of the watershed is located in the rapidly developing Scott County and the remaining portions of the watershed are included in Rice and Le Sueur counties. Scott County's population increased dramatically in the past 20 years, while Rice and Le Sueur counties have grown more modestly and have much smaller total populations Population density within the Sand Creek Watershed is substantially lower than within the Vermillion River Watershed.

The watershed is located within the larger Lower Minnesota River basin. Water quality in the Minnesota River is heavily impacted by the predominantly agricultural land uses within the basin, including within the Sand Creek Watershed itself. In fact, 62.4% of the land in the watershed is in row crops and 22.5% in pasture. The remainder of the land is mostly wooded (7.6%) and just 0.6% of all land within the watershed is urbanized (BARR, 2007). Scott County and Minnesota Pollution Control Agency (MPCA) are currently working on establishing Total Maximum Daily Load (TMDL) limits for nutrients and sediment within the three major water bodies in the watershed, Sand Creek itself, Cedar Lake and McMahon Lake (Minnesota Pollution Control Agency, 2011). Lands along the creek and its tributary streams are prone to flooding because it is low lying and was historically subject to rapid land development without adequate stormwater management planning. The county is hoping to reduce and prevent flooding by implementing new stormwater management practices (BARR, 2007).

The watershed is governed by the Scott County Board of Commissioners which doubles as the board of the Scott County WMO and is advised in watershed decision making by a citizen advisory committee. Rice and Le Sueur counties are not involved in

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the management of the watershed despite holding critical upstream locations. Like the

Vermillion River, this watershed is also guided by a plan, standards and rules, but as of

the time of this study these documents had not undergone a public review in the last 5

years (Scott County Watershed Management Organization, 2012).

Data Collection and Analysis

Table 3
Participant background information*

		Sand Creek	Vermillion River	Total
Participants		21	27	48
Interviews		20	26	46
Gender	Male	15	15	30
	Female	6	12	18
Race~	White/Caucasian	16	26	43
	African American	1	0	1
	Norwegian	1	0	1
	Very Fast	1	0	1
	No Answer	1	1	2
Ethnicity (Hispanic)	Yes	0	1	1
	No	20	24	44
	No Answer	1	2	3
Age	No Answer	1	1	2
	Mean	47	47	47
	Range	27-70	31-76	27-76
Own Land in Watershed	Yes	8	15	23
	Maybe	0	1	1
	No	11	11	22
	No Answer	2	0	2
Role in watershed†	Resource managers	City		6
		County		13
		Regional		2
		State		4
		Federal		3
		Non-governmental organizations (NGO)		1
	Decision makers	Municipal elected official		4
		Retired municipal elected official		2
		County elected official		2
		Retired county elected official		2
		State elected official		1
	Engaged residents	Agricultural producers		3
		Elected NGO official		4
		Non-elected NGO member		12
		Citizen advisory group/task force members		9
		K-12 educators		4

*In an effort to protect the identity of participants, the participant speaking on behalf of both watersheds has been randomly assigned to one of the watersheds.

~Participants were asked to describe their race, the answers provided here are taken verbatim from participant responses.

†Participants could hold more than one role within the watershed. To protect anonymity, roles are not parsed by watershed.

Data for this study were gathered in 46 semi-structured interviews with 48 water resource stakeholders in the Sand Creek and Vermillion River watersheds (Table 3). A database of more than 1,000 stakeholder roles in the watersheds was compiled and used to select initial participants. The roles represented in the database included those for representatives of federal, state, county and municipal governments and agencies, academic institutions, citizens, business leaders and non-governmental advocacy organizations. A participant could hold multiple stakeholder roles; for instance one individual may work as a municipal water resource manager and also serve as a board member in a conservation oriented non-profit. Participants were described as having any of three possible roles in the watershed: decision maker, resource manager or engaged resident. Decision makers include elected officials and citizen members of advisory or planning committees that have a formal role in decision making processes. Resource managers are professionals, primarily within government agencies, whose role is to manage natural resources with a particular emphasis on water. Engaged residents are those who have a high level of awareness about the watershed and who have been involved in watershed management in roles that are not as formalized as planning commissions or advisory committees. Initial participants were chosen from the database by selecting those who held more than one active stakeholder role including at least one role directly related to the watershed. Directly related roles are those that deal specifically with watershed management; for example, serving on the citizen's advisory committee to the watershed. Indirect roles are those that may at times include interaction with watershed issues, but are not so specifically focused, including township or city council

board members. This basic selection criterion of holding multiple roles was intended to capture those with a high level of civic engagement and familiarity with the watershed. Familiarity with watershed management was important because the interview guide (Appendix F) included specific questions about water resource management, planning and policies.

A snowball sampling approach was used to ask participating stakeholders to identify subsequent participants. Miles and Huberman (1994) define this form of sampling as that which, "identifies cases of interest from people who know people who know what cases are information rich" (p. 28). The snowball sampling method was desirable for this study because it provided a mechanism for finding participants who others recognized as being familiar with management of the watershed. A random sampling of watershed residents would not yield the same results because residents who are not active in organizations participating in watershed management would not have had the necessary background to respond substantively to the interview questions. An advantage of snowball sampling for this project was that it provided an opportunity to seek participants with diverse viewpoints. Participants were specifically asked to suggest individuals whose perspectives and values might differ from their own, as well as those who might share similar sentiments.

Potential participants were contacted via phone or email by members of the research team using a recruitment basic script (Appendix D). They were informed about the goals of the study and asked to participate in a one-on-one interview lasting

approximately one hour. All participants were offered a $20 cash incentive for participation in the interviews. After interviews were scheduled, an email was sent confirming the date, time and location of the interviews. Before conducting the interview, each participant was again provided with background information on the project and informed about the voluntary and confidential nature of the interviews, data security practices and the potential risks and benefits of participation. They were then asked to sign an informed consent form (Appendix E) and indicate whether or not the researchers could record the interview and include quotes anonymously in publications.

Three interviewers, including the project principal investigator (PI) and two research assistants (RAs) conducted the interviews for this project. The PI led the first two interviews and the RAs observed for training and to increase interview technique consistency. The remaining interviews were conducted by the RAs. Interviews were generally facilitated as one-on-one, semi-structured interviews. The format for a semi-structured interview relied on an interview guide (Appendix F) to direct question but allows for interactions between the interviewer and the participant to be more conversational. Participants were able to respond in full to the questions and the interviewer could change the order or wording of questions in the guide to facilitate the conversational flow (Kvale & Brinkmann, 2009). Consistent with the semi-structured nature of the interviews, follow-up and probing questions were used to clarify responses. In two cases, the participants chose to be interviewed with a colleague.

Interview participants answered questions about community land use planning, community effectiveness at protecting water resources, and the roles of community

leaders in engaging members and groups in water resource stewardship. Interview guide

questions were created based on the community capacity levels and indicators developed

by Foster-Fishman et al. (2001) and Goodman et al. (1998), focusing on individual,

relational, organizational and programmatic capacities.

Participants were asked if their interviews could be recorded, 47 of the 48

participants agreed, and those interviews were transcribed verbatim by members of the

research team. Summary notes were taken of the remaining two interviews. The interview

transcripts used for this thesis were analyzed using NVivo software, versions 9 and 10. A

grounded theory approach was used, which Charmaz (2006) defines as, "a method of

conducting qualitative research that focuses on creating conceptual frameworks or

theories through building inductive analysis from the data" (p. 187). It relies on coding

research data into analytic categories which are "grounded" in the data, while continuing

to gather additional data to address gaps that become apparent during the initial analysis

(Charmaz, 2006).

Guided coding methods were used wherein the researchers initially coded the

transcripts for passages relating to the five broad research questions. Consistent with

grounded theory methods, the analytic categories were constructed based directly on the

collected interview data. In their writings on grounded theory, Charmaz (2006) and

Corbin and Strauss (2008) emphasize the need to be "open" to the data in order to allow

these categories to emerge. Before they were coded, the transcripts were closely read;

then coded line-by-line. Following the procedure outlined by Charmaz (2006), each

relevant line or passage was given a simple code or codes to describe and summarize the

ideas it contained. As often as possible, the chosen codes reflected the participant's own language. Lines or passages containing multiple ideas were given a code to reflect each idea. After the data were coded, the codes were exported to an Excel file and grouped into broader categories. These categories "[delineate] concepts to stand for blocks of raw data" (Corbin and Strauss, 2008, p. 198). They are used to construct a theoretical framework that reflects the content of the original data (Charmaz, 2006).

The first 25 interviews were coded and analyzed by this study's author and another researcher. A third researcher carefully read each interview. After these 25 interviews were fully coded, the three researchers met to compare notes and codes and to work out any differences in interpretation to help ensure inter-coder reliability. The research team then identified thin spots in the data to explore further in order to establish a more solid theoretical framework. From here, an additional 23 interviews were conducted to gather "…pertinent data to develop [the] emerging theory. The main purpose of theoretical sampling is to elaborate and define the categories constituting [the] theory" (Charmaz, 2006, p. 97). Theoretical sampling continued until the researchers arrived at a point of "saturation." Charmaz explains, "Categories are 'saturated' when gathering fresh data no longer sparks new theoretical insights, nor reveals new properties of these core theoretical categories" (2006, p. 113). The final interviews were coded only by the author, but also were reviewed by a second RA. Coding was completed using the codes and building off of the analytic categories that emerged from the multiple-coder process. Once coding was complete, the results were again shared and discussed by the research team to ensure that the results were relevant and supported by the data. At this

point, the researcher returned to the data, codes and categories in order to construct a

theoretical framework that addressed the objectives of this study.

Study Limitations

This study relies on data collected through semi-structured interviews and analyzed by the researcher for broader meanings. This qualitative approach has a number of strengths, such as facilitating the collection of rich, contextualized data that reflect the constructed meanings of participants (Seidmann, 2006). However, there are also limitations to qualitative research, such as the potential for bias or inaccuracies in data collection and interpreting the interview findings (Creswell, 1998; Marshall & Rossman, 1999). These limitations must be addressed to produce study findings which are believable and accurate (Creswell, 1998).

One significant limitation of this study is the number and diversity of study participants. Although the researchers attempted to represent a diversity of perspectives, participation in interviews was voluntary. It is possible that some perspectives were not present in the collective group of willing participants. To address this concern, snowball sampling methods were used where interview participants were asked to identify individuals with rich, interesting perspectives, either similar to or different from their own, who may be willing to participate in the study (Miles & Huberman, 1994). As part of the snowball sampling method, the participants were asked if researchers could inform potential participants that the individual recommended we contact them. In this way, researchers were able to identify and make easier contact with potential participants whose perspectives would broaden and enrich the body of collected data.

To support higher rates of participation among contacted individuals, the researchers also informed each individual of the confidential and voluntary nature of the study, and offered a $20 cash incentive for participation. Both the interview invitation

script (Appendix D) and consent form (Appendix E) informed participants about the cash incentive and protection of their identity as participants in the study. The consent form also detailed data protection procedures and participants' rights to withdraw or refuse to answer any question without affecting their relationship with the University of Minnesota.

Another potential limitation to this study is the role of researchers in gathering and interpreting data. Researchers may influence participant responses or bring their own biases to the interpretation of interview data. According to McCaslin (2003), "the researcher is the primary instrument for data collection and analysis" (p. 453). As such, researchers cannot ignore their own values and experiences which can shape the way they conduct and understand their research. Qualitative research is, by nature, somewhat subjective (Morrow, 2005) so understanding the factors that may influence the researcher's interpretation, is important in assessing the trustworthiness of a study (McCaslin, 2003).

To address issues concerning the collection of interview data, several techniques were employed. Participants were asked to suggest the location for the interview, so that the location was one where they felt comfortable speaking openly. To this end, the discussion of interview confidentiality was important as well. A standard interview guide was used to guide each interview in a similar direction, though follow-up questions were naturally determined by the responses of participants. Interviewers were instructed to respond to participants without endorsing or condemning particular perspectives. Interviewers asked for clarification of ideas presented by participants without explanation

to avoid making assumptions about participants' meanings. Cohen, Manion and Morrison (2007) suggest that striving for stability in the way interviews are conducted, particularly in the phrasing of questions and comfort level of participants, can improve the reliability of the data. The two RA interviewers also received training and observed the PI conduct the first two interviews of the study to establish a common approach to interviewing. However, it is still possible that different interviewers would have asked different follow-up questions that may have affected the results.

To address issues concerning the analysis and interpretation of the data, additional steps were taken. First, as the lead researcher, I took the time to identify and describe the values, experiences and possible biases that I might bring as a researcher. McCaslin (2003) and Morrow (2005) both discuss the importance of making explicit the various perspectives that a researcher brings to the data because those factors may explain why the researcher identifies more strongly with a particular interpretation of a multilayered reality. In the case of this study, I have a bias in favor of collaborative processes, and also toward management of water resources based more on ecological health than management driven by economic concerns. Standardizing the coding process so that all interviews were coded at the same level of detail, and using multiple researchers to conduct the coding process, helped ensure that my biases did not distort my interpretation of the results.

To provide evidence that anchors the study findings to the data, direct quotes have been included. In addition, the interpretation of the results, from initial coding to the development of broader themes and categories, were confirmed with other researchers.

These two steps support the credibility of the study, described by Marshal and Rossman (1999) as "whether the findings of the study could be confirmed by another" (p. 194).

The consultation of multiple investigators which contributes to credibility, also serves as a form of triangulation (Cohen, Manion & Morrison, 2007; Creswell, 1998; Marshall & Rossman, 1999). Triangulation is the act of bringing multiple methods, data sources, investigators and theories together in the analysis and interpretation of the data (Cohen, Manion & Morrison, 2007; Creswell, 1998; Marshall & Rossman, 1999). Marshal and Rossman (1999) identify triangulation as a strategy that can "greatly strengthen the study's usefulness for other settings," (p. 194) also referred to as transferability. The concept of transferability is important for the results of the study to have meaning beyond the boundaries of the study watersheds and to contribute to theoretical understandings of community capacity for sustainable watershed management. For this reason, I also include a detailed description of the theoretical framework for this study as well as the study parameters so that readers may determine the applicability of the study findings to other watersheds (Marshall & Rossman, 1999). In this study, transferability may be limited because the two study watersheds are located in the same geographic area and represent a blend of urban and rural land uses not present in all watersheds. However, by employing triangulation and referencing the original theoretical framework which informs the research, transferability of this study is enhanced (Marshall and Rossman, 1999).

Chapter Four

Results

Consistent with previous 4-dimensional models of community capacity, interview data (see Table 4 for select questions, or Appendix F for the full interview guide) converged around individual, relational, organizational and programmatic levels of capacity. However, a fifth cross-cutting aspect community capacity emerged and encompassed ideas associated with fairness, trust and legitimacy. The codes that eventually contributed to this fifth aspect were initially "left overs" from the process of sorting codes into themes relevant to community capacity as described in the literature. They were the codes that did not relate solely to individual, relational, organizational or programmatic capacities. They were left overs in the sense that they had no clear home in the kind of community capacity model that was expected based on literature review. These left over codes, however, were all related and were numerous and detailed enough to provide sufficient evidence for a new form or level of community capacity. This level and its sub themes are the focus of the findings presented here.

Unlike the other levels of capacity, there was no single word that seemed adequate to capture the ideas fairness, trust and legitimacy. **Fairness** here refers to the sense that all interested or involved parties are treated equitably. **Trust** is used here to connote the idea of individuals or entities having faith in the words, intentions and actions of others. **Legitimacy** implies a sense that there is reason to respect the authority of an individual, entity, program or idea.

Table 4

Select interview questions: Questions that frequently yielded responses relevant to fairness, trust and legitimacy

How effective are community leaders in local government and non governmental organizations in this [community/area] at…
a. Promoting water resource stewardship among individual property owners? What makes them effective/ineffective?
b. Supporting community groups or citizen-based organizations? What makes them effective/ineffective?
c. Engaging citizens in community decision-making? What makes them effective/ineffective?
How effective are water resource professionals in this [community/area] at…
a. Promoting water resource stewardship among individual property owners? What makes them effective/ineffective?
b. Supporting community groups or citizen-based organizations? What makes them effective/ineffective?
c. Engaging citizens in community decision-making? What makes them effective/ineffective?
Who do you believe should be responsible for sustainable watershed management in the [Vermillion River/Sand Creek] watershed?
When you think about current government programs associated with sustainable watershed management across this watershed (e.g., regulations, cost share programs and education initiatives)…
a. Which programs do you think are most effective at promoting sustainable watershed management? What makes them the most effective?
b. Which programs do you think are least effective at promoting sustainable watershed management? What makes them the least effective?
If you were in charge, what would you do to improve the role of government in sustainable watershed management?

The data were initially analyzed by watershed and stakeholder role to allow for comparative analysis. While differences in community capacity do exist between the watersheds, it was notable that with regard to fairness, trust and legitimacy, the differences appeared to be minimal. Appendix G provides the initial detailed fairness, trust and legitimacy theme tables, broken out by watershed and stakeholder role. As analysis proceeded, it became clear that the differences between the watersheds and

stakeholder roles were not significant enough to warrant in depth analysis at this time.

For this reason, results are not presented by watershed or stakeholder role, but rather by

relevant theme.

Fairness

It was important to many participants that the burdens and benefits of water

resource decision making be shared across potentially affected parties, and that interested

individuals and entities should have equal access to decision making processes. When

discussing these issues of fairness, participant responses converged along two primary

themes: **fair participation in resource management,** and **fair implementation and**

enforcement of rules. Each of these themes can be broken down into sub-themes (Table

5) and discussed in more detail.

Table 5
Fairness themes and sub-themes

Themes	Sub-themes
Fair participation in resource management	Equal access to influence
	Equitable share of burdens and benefits
Fair implementation and enforcement of rules	Consistent enforcement
	Connections between management actions and impacts
	Fair distribution of funding

Fair participation in resource management

Participants stressed the importance of fair participation in water resource

decision making processes. This involves ensuring that interested parties have equal

access to power and influence during decision making, and that no interest is allowed to

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dominate the process at the expense of another. Equal access applies at multiple levels from individuals to entire units of government. One participant spoke of fair representation of different regions within the same county at county board meetings; "you wouldn't want one particular part of the county having any more power than another", and later stressed the need to "balance power, balance concerns about how issues affected different parts of the county." One engaged resident vented frustration that "[t]here is no voice in county government for the farmers except through their commissioners." However, reliance on commissioners was unsatisfying because "[The commissioners] are deaf. And that comes from not necessarily faults of the politicians, but they go where the money is, that's the safest, that's how they get reelected…" For this participant, those with enough money to influence political campaigns held more clout than other citizens in decision making processes. This aspect of fairness has additional implications for legitimacy, as discussed later in this paper.

While equal access to power and influence is important, fairness also encompasses equitable distribution of burdens for and benefits of water resource management. The distribution of the burdens, or responsibilities, are especially noticeable in watershed management where water flows across municipal boundaries. In these cases, an upstream neighbor who fails to adhere to water management expectations creates a greater burden of management for those living downstream. One resource manager described a situation where a neighboring city was discharging water within another city's borders and creating management challenges,

There's a couple times I organized some meetings with the [neighboring

city] because they were de-watering on their side of the line and

discharging on our side of the line and flooding a nursery and creating

access problems for a farmer,   flooding hay bales and a field.

Other participants focused more on the distribution of benefits associated with

watershed management. One resource manager was frustrated at the perceived

concentration of project funding in the metro area, "A lot of times our, you know,

as you get south specifically from the metro we kind of feel like we're left out a

little bit." This same resource manager later wondered why agencies that fund

projects don't do more to "spread the wealth." Unfairness captures the general

descriptions of participants who felt that their municipality was charged with too

much responsibility, or allocated insufficient funds compared to their neighbors.

Fair implementation and enforcement of rules

Fair implementation and enforcement of rules was most heavily emphasized

within the cities and townships where consistent enforcement was an important concern.

In part, this was because resource managers and decision makers at the local level

described feeling the most pressure from landowners wanting exemptions. Township

officials in particular acknowledged struggling to enforce rules against their friends and

neighbors, people with whom they wanted to maintain good relationships. One former

township board member explained, "…one of the downsides…is sometimes you elect

people who would rather take care of their friends than take care of the laws, it's really

hard for them to say no, so sometimes things have gone wanting…" And another described an observed tendency among fellow board members to "cave in to an angry landowner" rather than enforce rules that other township residents had accepted and chose to abide. Other participants expressed a desire to see "consistent" enforcement of rules against individuals as well a government entities.

Another aspect of rules that affected whether or not participants perceived them as fair, was the way management actions connected to watershed impacts. Several participants expressed concern about rules or regulations that were burdensome on residents and did not appear to be having a clear impact on water quality improvement. One engaged resident suggested that only regulations based on "sound science" should be enforced, then proceeded to express concerns about the science used to determine current rules and regulations. In some cases, this may be because people don't recognize water quality problems to begin with. According to one decision maker, "…most people don't think the water is not clean and they don't see why their personal...why there should be personal restrictions applied to them because they don't see a problem with the water quality in the first place." In some cases, the perception of unfairness was frustrating for resource managers and decision makers. One township official described a situation in which a farme's property was bisected by a river,

> His main complaint is that the way the crossing of the [river] was
> constructed it was meant to allow the roadway to be flooded instead of
> retaining the water back through a culvert. His roadway is periodically
> flooded. That's intentional. That was the design. It's to deal with flooding

up and downstream. But that's a real inconvenient thing for him to have to

truck his vegetables out in a different direction to get to the market and

add miles.

In this case, removing a structure that feels unfair to one resident could threaten

properties up and downstream, as well as place an additional management burden on the

local township. In such cases, whether something is perceived as fair or not depends on

one's perspective.

The borders between the categories of fairness are not always clear. One

particular story illustrates the importance of a wide spectrum of fairness concerns in

intergovernmental relationships. A similar story was told by multiple participants within

the Vermillion River watershed. Here, it is relayed by a decision maker,

"[the community of] Elko-New Market developed quite rapidly; violated

their discharge permit to the Vermillion…They were dumping their

sewage waste right into the river because they violated the amount they

were allowed to grow and the amount they were allowed to discharge.

That really annoyed our township members…Elko-New Market wasn't

punished for that and wasn't told to stop. [Eureka Township officials]

didn't understand how they could send their waste flowing through Eureka

Township and they really felt let down by those in charge, the PCA or

whoever it was, they really didn't understand how this was allowed. Then,

the next thing that happened was, not only did Elko-New Market violate

that and not get slapped, they also got a sewer interceptor built across our

township…So it's this incredible expense this huge pipe that's taking their

waste. And it disrupted a lot of residences and traffic for over a year."

Other participants expanded on this story to describe what they felt was an initial

reluctance by the county to enforce discharge rules even though downstream

Eureka Township was concerned about the effects the discharges might have on

their community. Elko-New Market's violations without punishment were

described as unfair, as was the impact of the new sewage line which benefitted the

offending town while simultaneously disrupting life in the community that had

not been the cause of the problem. This story contains references to fairness as it

relates to equitable share of burdens and benefits, and implementation and

enforcement of rules in intergovernmental relationships.

Trust

  Trust was a frequently discussed subject in many interviews. Participants shared thoughts on the types of behaviors and events that build or damage trust and emphasized the importance of trust in achieving successful sustainable watershed management. Three broad themes relating to trust emerged from the interview analysis; **trust in information, trust in authority,** and **trust based on history** (Table 6).

Table 6
Trust themes and sub-themes

Themes	Sub-themes
Trust in information	Credible sources
	Information shared in a timely manner
	Information is accessible
Trust in authority	Decision makers are community members
	Acting in the community's interest
	Honesty
	Treating people with respect
Trust based on history	Past interactions affect current levels of trust

Trust in information

  Several participants described the important role of information in building and maintaining, or occasionally losing, trust. Many resource managers recognized the importance of using trusted sources to convey information. In both watersheds, the Soil and Water Conservation District (SWCD) staff were generally considered to have the trust of landowners, so for one resource manager, "the thing that's really important is trust with the landowners…and that's one reason to use [SWCD staff]," to convey important messages or approach landowners with project proposals. In other cases, resource managers were trusted not because of their SWCD affiliation, but because of the

way they presented information and interacted with decision makers. One official

described a trusted contact, "[h]e's friendly, he provides us maps, he addresses the board

effectively. He doesn't take too much time. I think he's becoming, more and more, a

trusted resource… He's really good about knowing he's in it for the long term and it's not

a short battle." The resource manager described here has, according to the participant

describing him, taken the time to earn the trust of local officials and in the process has

become a trusted source of information. One participant also suggested that people don't

trust information unless they can "verify" it for themselves.

The way and the timeliness with which information is shared was also described

as affecting trust. One resource manager expressed a belief in the importance of

responding to requests and providing information promptly, "…you have to be

responsive… We get a lot of phone calls…and you have to take it respectfully and get

back to people within 24 hours." Such prompt responses were understood to be "huge for

that trust factor."

Related to the timely dissemination of information, a few participants described

the importance of making sure information is accessible to those who want access to it.

For one participant, this meant translating difficult to understand "technical jargon" into

more easily understood terms.

Trust in authority

The importance of trustworthy resource managers and decision makers was

expressed by many participants. For some, one aspect of trustworthiness is being local

and representing local interests. In part this is because local elected officials, with their community focused gaze, often held positions that were described as being in closer alignment with local residents than decision makes at the county, state or federal level. One decision maker described,

> I think what I'm seeing right now is the people in town, a lot of them seem
> to recognize these issues [of local threats to water quality from private
> industry]. But when you get to the county and to the state level, and even
> to the federal level, they don't want to see it. That's where the politics gets
> in the way of making good decisions.

Other residents and resource managers felt that "trust is lost" when decision makers don't live in the community that has to deal with the ramifications of their decisions. The role of politics and the conflicting interests perceived in non-local decision makers reduced local residents' trust in their decisions.

Trust in authority also reflects the degree to which decisions are perceived to reflect the local community's best interest. One local decision maker described this concern in regard to valuable gravel deposits located in the community, "what I see right now is the community recognizes the assets, but [the county] and the state see our assets as something that they need and want. So I see a huge issue with us trying to preserve what we have and the county and the state want to take those away from us." For this individual, a decision that removes the gravel for non-local use is acting against the best interest of the community, and thus makes it difficult to trust those authority figures.

Trust can be earned or lost more locally as well. Honesty and interpersonal communication styles can affect how trustworthy people consider decision makers and resource managers. One resource manager described the role of honesty in improving municipal relationships, "I think our relationship with [the neighboring city] has improved immensely because of our upfront honesty with them as to what we expect from them." Treating people with "kindness," "respect" and a "customer service attitude" was described as helping to build or maintain trust. But false kindness or misleading statements reduce trust. One engaged resident described encounters with a local elected official, "I've talked to him maybe once or twice, and he's as political as everybody else. They give you the fake smile and the fake nods and not do anything about it…" This perceived dishonesty was later described as a reason not to trust decision makers.

Trust based on history

Historical events, like the incident involving Elko-New Market's waste water disposal, certainly contribute to either a positive or negative sense of trust. Often when individuals described personal or community trust or mistrust of individuals or entities responsible for sustainable watershed management, it was described as stemming from past experience. In the case of the township affected by the Elko-New Market incident, the experience was so memorable, that several participants from that township cite it as a reason not to trust the county. When the county engaged in its most recent round of updates to watershed management plans, standards and rules, they struggled to gain support within the township. One resident found it "ironic" that the community got no

help from the county when there was an "obvious pollution problem," affecting them, and now the county wants them to adopt new standards to protect water quality. Interestingly, theirs was the only township to reject the county's updated watershed standards and regulations rather than voluntarily adopt them. Trust was lost with the neighboring community as a result of that event as well. One engaged resident described the strained relationship between the township and its municipal neighbors, "currently, we feel like they see us as something they can steal from or dump on." The lack of trust affected the ability to build positive relationships with neighboring communities. However, positive experiences can also be powerful. Resource managers often described the impact that positive experiences can have on resident. One resource manager took pride in creating those experiences, "I like being able to help someone that did not know about us and that who is ever so grateful, you know, and appreciate the fact that… we're here and they'll remember that. They'll remember that. So to me that's a success story." Experiences like this help resource managers build positive and trusting relationships with landowners.

Legitimacy

Legitimacy refers to the respectability of people, organizations and ideas.

Issues of legitimacy discussed by participants converged along two main themes,

legitimate decision making processes, and **demonstrating legitimate authority**

(Table 7).

Table 7
Legitimacy themes and sub-themes

Themes	Sub-themes
Legitimate decision making processes	Transparent process
	Use of sound science
	Allowing and incorporating public feedback, including dissent
Demonstrating legitimate authority	Enforcing rules
	Justifying decisions

Legitimate decision making processes

Transparency was described as contributing to the legitimacy of decision making

processes. One local decision maker indicated that staff and decision makers in Scott

County were doing a good job, "I like that they have their commissions televised so you

can see them on TV. And I actually watch them and there's some good stuff that comes

out of that where people bring up questions and they try to answer them." Being able to

see the decision making process, then, can lend some legitimacy to the final decisions.

However, several participants expressed suspicion of meetings that take place behind

closed doors and questioned whether decisions made away from the public gaze deserved

to be enacted. One participant expressed concern that "legislators tend to abdicate their

responsibility to unelected bureaucrats," and since those bureaucrats are "rulemakers that are not accountable to the citizens," their decisions were immediately rendered suspect. For this participant, and others who expressed similar concerns about transparency, not being able to witness the full decision making process was reason to question whether the decisions made were worthy of respect.

Similarly, many participants expressed a desire to see the way public feedback was incorporated into decision making processes and management plans. In cases where decision makers or resource managers were able to effectively do this, it was described as enhancing public perceptions of legitimacy. For instance, when asked to describe what made a particular resource manager effective, one participant described how the resource manager incorporated public feedback, "…and he meets with individual landowners, too. Some of these property-rights activists to understand their objections and then he goes and changes the way they're approaching the whole watershed in response to some of the criticism he's getting..." And one resource manager, in describing his own county's approach to revising the watershed standards, praised the way public feedback was solicited and incorporated,

> Oh yeah. They did a very good job. They had consultants, they had
> county staff, elected officials, as best as you're going to do, you know.
> I've been through a lot of various programs like, similar, and they did a
> good job listening to the people, answering their questions and coming up
> with a plan at the end which seems to have support of the majority of
> people.

In describing this same standards revision process, however, one engaged resident described being upset at the way public input was solicited. This resident described the process as relying on "leading questions" and then wondered whether public feedback made any difference in the final draft of the plan. And another engaged resident described a perceived attitude among decision makers and resource managers that, "they don't want to hear what they don't have in their plans," and therefore did not incorporate dissenting public feedback. Participants who expressed concern or frustration about the way public feedback was incorporated also described having limited, if any, respect for decision making authorities and their decisions.

The perception of the legitimacy in water resource decision making processes was also affected by the use of science to aid in those decisions. A few participants described the importance of knowing that the science and information used to develop plans and regulations was "sound." For one decision maker incorporating sound science is a way to counteract political game-playing,

So, I mean it's a tough game and it really boils down to politics again

where politicians are making decisions and I look at this going, this is

really, we gotta get the politics out of it and do real sound, you know,

scientific based planning when we start looking at our water resources.

Other participants described the importance of understanding the science of ground water flows in order to make responsible decisions about how to manage water resources,

So, how do you make a decision that you can support when you really

don't know what the cumulative effect is going to be. I mean, you have an

aquifer here at this level, you've got another one 200 feet down, how does

the one above it feed the one below it? Or does it? Are they 2 separate

aquifers?

For this participant, understanding the science is an important part of making sound,

legitimate decisions. Access to and use of sound science was especially important for

township board members according to one engaged resident, "People don't understand

the relationship of the surface water to aquifers and that, and at a minimum, the township

board people should know that" In this case, the participant expressed concern that since

township board members don't have to have any formal education or training, they may

not even be aware when their decisions about local land use threaten water resources.

Demonstrating legitimate authority

Legitimacy isn't earned, created or maintained based on decision making

processes alone. It also depends on demonstrating authority through enforcement of rules

and justification of decisions. Once again, the story of Elko-New Market's discharge

violations is relevant. The county in this case was described as failing to enforce water

quality regulations against the polluting community, which detracted from participants'

perception of the legitimacy of county government. Participants who shared parts of this

story did not recount any explanations from the county as to why they responded to the

sewage discharge issue they way they did. The justification of actions and management

decisions also played an important role in the way regulations affecting private property

were perceived. One resident described the reasons some landowners in Vermillion River watershed had trouble accepting the legitimacy of the revised watershed standards,

> They said if you sell any of your land, like if you subdivide your land in any way…you have to designate this much space along any creek or watershed area you've got. You have to pay to have it graded, pay to have it set up…And there was never any mention of money, mention of getting help. An unfunded mandate. You can't do that to private citizens, they own that property unless they don't. We know property rights are limited…but it's not fair, I mean, even I spoke out at a meeting because…if you're going to take away a right, you pay for that right.

Those involved in the revision of watershed standards had not provided a justification for the impacts of the new rules on private property, according to this participant, and that made it hard to view the new standards as legitimate.

Connecting fairness, trust and legitimacy

Though each of these concepts can be separately defined, participants often spoke of them as interrelated issues. Perceived fairness in decision making creates trust and a sense that governing agencies are reaching legitimate decisions, or vice versa. Returning to the story of illegal discharges from Elko-New Market, the unfairness that local residents perceived about the act, and county and WMO responses to it, contributed to a lack of trust between township residents and the county. This in turn made it difficult for the WMO to convince local landowners and officials that their approach to the Standards

revision was legitimate. One participant even described it as "ironic" that after the incident, the watershed tried to convince township residents that it was acting in the best interest of the water resources. Fairness, trust and legitimacy reinforce one another to such a degree that it can be difficult to tell where one leaves off and the next begins. This quote, also referenced above, provides an example from a Sand Creek resident speaking about a local decision maker, "No. I've talked to him maybe once or twice, and he's as political as everybody else. They give you the fake smile and the fake nods and not do anything about it…" There are clear implications here for both trust and legitimacy. Later in the same conversation, this resident discussed the hesitation of lakeshore owners to support a county plan to clear invasive species from a lake frequented by visitors,

> …they're paying double, maybe even triple the taxes on that lake and now
>
> all of a sudden the county wants them to spend more money on controlling
>
> the weeds in the lake that they had nothing to do with, you know, they
>
> didn't put the weeds there…Somebody else brought this problem to the
>
> lake and maybe the County should step up a little more and take care of it.

In this example, fairness and legitimacy are difficult to untangle. For this reason, the three concepts have been grouped together as a single level of community capacity. This interdependent relationship is illustrated in Figure 1, where fairness, trust and legitimacy are shown, with their associated themes, supporting each other.

Chapter 5 will explore how "fairness, trust and legitimacy serve as necessary conditions that must be met in order to effectively mobilize different levels of capacity.

Figure 1
The interdependent relationship between fairness, trust and legitimacy
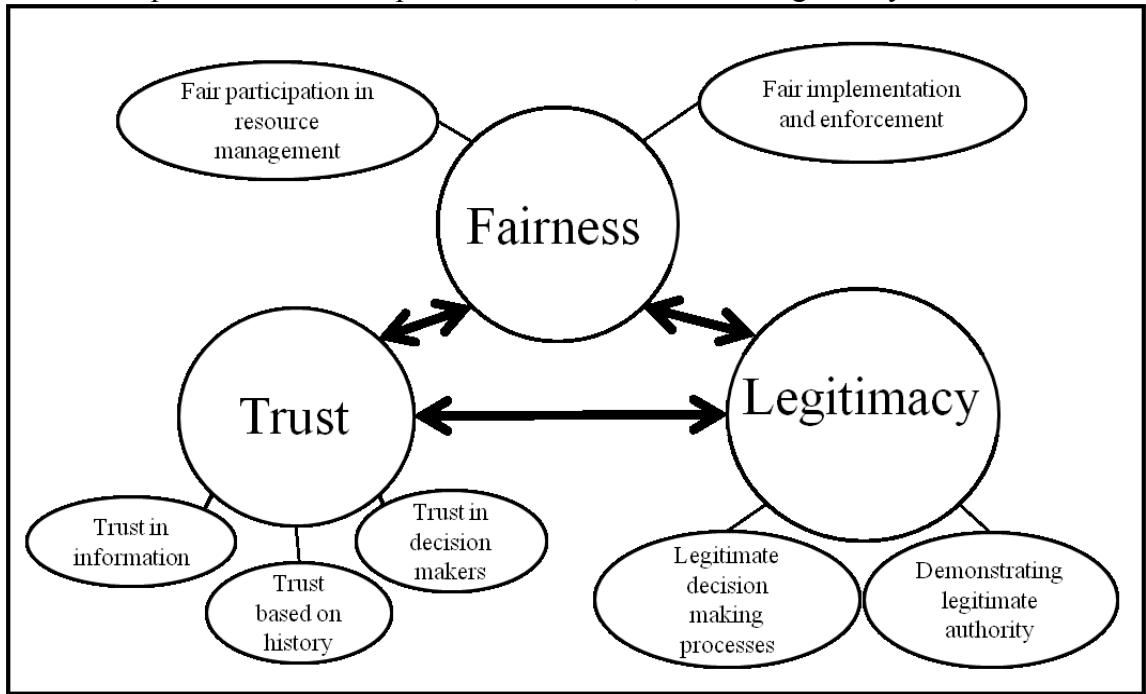
Chapter Five

Discussion, Conclusion and Recommendations

The results show that for many respondents, concerns about fairness, trust and legitimacy are paramount. Brought together in a single category, they thus emerge as a separate and distinct form of capacity that is not captured within current community capacity frameworks. However, just as the previously identified levels of capacity interact with one another, so too do fairness, trust and legitimacy interact with capacities at the individual, relational, organizational and programmatic levels.

Individual capacities may be affected by loss or development of trust and a sense of legitimacy of the leaders and organizations individuals are asked to work with. This is supported by Folke et al's (2005) identification of trust as a key social capital which can be promoted and developed by key leaders. Their work, and that of Tenbrunsel (1999), also lends support to the idea that relational capacity depends on two-way trust and sense of fairness.

Organizational capacity does not mean much if the organization is not trusted to act fairly, or seen as a legitimate decision making entity. Lockwood et al's (2010) conception of legitimacy is informative here in exploring the importance of organizational validity. Without it, legitimacy cannot be achieved, and natural resource governance is unlikely to be effective. Similarly, Jordan et al (2011) provide a broader lens for understanding the importance of process, legitimacy and fairness. Programmatic capacity does not mean much if would-be participants keep their distance, because they

do not trust the processes used to establish, or individuals asked to carry out new regulations, voluntary management strategies or other efforts. So these ideas are not indicators to be added to Davenport and Seekamp's (2013) existing model of capacity levels. They are conditions which are necessarily present in order to give meaning and functionality to the actionable levels of capacity.

Keeping them separate from individual, relational, organizational and programmatic capacity might initially seems to imply that perhaps fairness, trust and legitimacy are their own discrete level. However, the relationship between these concepts may not be so straight forward. Returning to Chaskin's (2001) description of community capacity, fairness, trust and legitimacy certainly fits as a form of capital that can be built or lost. Numerous participants discussed the ways in which trust, or a sense of fairness and legitimacy was gained or lost for them personally or for their community as a whole. However, these study results do not suggest that the concepts represent tools or capitals that can themselves be mobilized in order to address issues of concern.

Instead, results suggest that fairness, trust and legitimacy serve as necessary conditions that must be met in order to effectively mobilize different levels of capacity. In this sense, fairness, trust and legitimacy serve as foundational conditions that, if not present, can undermine capacities at all levels of community capacity. When they are present, however, they allow community capacities at the individual, relational, organizational and programmatic levels to be leveraged in order to address issues of concern. The previously identified levels of capacity (Davenport and Seekamp, 2013; Foster-Fishman

et al., 2001; Goodman et al., 1998) then become actionable capacities, in reference to their ability to be mobilized toward useful ends.

Figure 2 helps illustrate the difference between these two important aspects of community capacity. Without the foundational conditions, identified in this paper as including fairness, trust and legitimacy, the actionable capacities cannot be effectively leveraged or mobilized in response to issues of community concern. However, without those actionable capacities, the foundational conditions will be of limited benefit in responding to community problems.

Figure 2
An illustration of the two aspects of community capacity
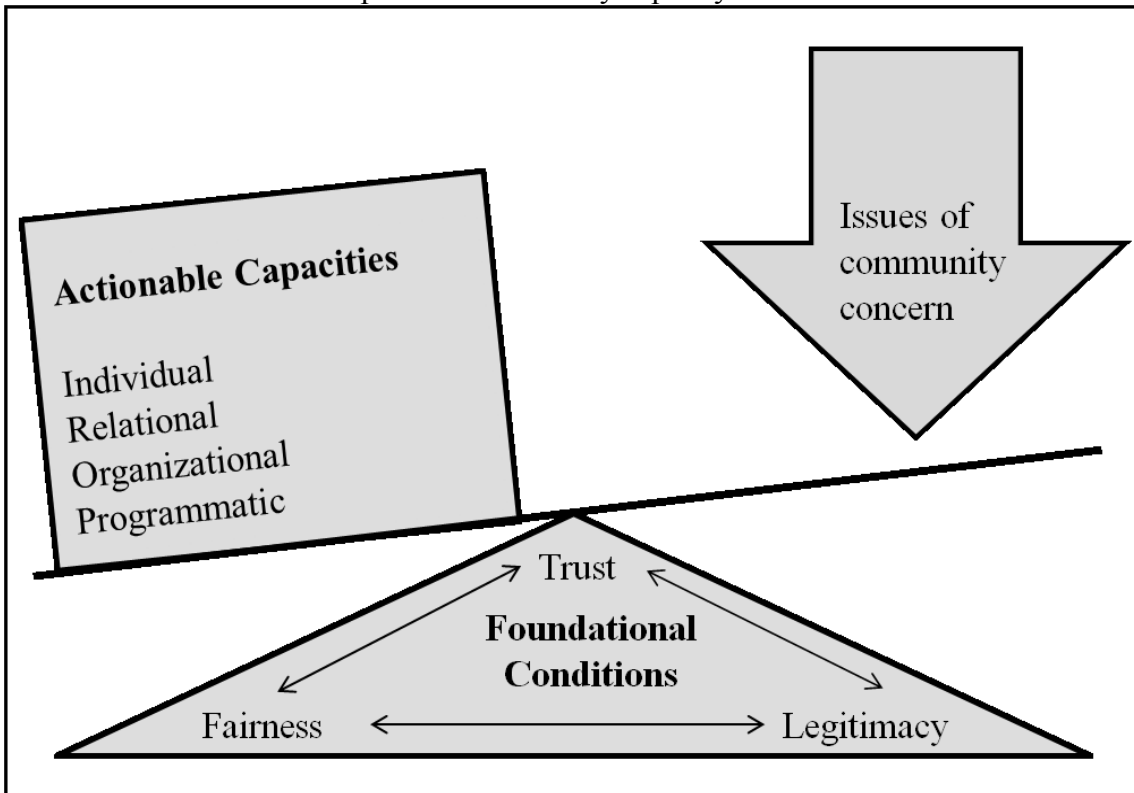
This idea supports the work of others who have observed the importance of fairness, trust, legitimacy and related concepts. The work produced by Jordan et al. (2011), Tenbrunsel, (1999), Folke et al. (2005), Adams et al. (2005), Smith and McDonough (2010), Beierle & Konisky (2000) and others show that the reason fairness, trust and legitimacy are important is that they help create an environment in which resource managers and agencies can work more effectively with individuals and communities to promote sound resource management. Those findings along with the results of this study then suggest that these forms of capital might be better understood as foundational capacities that allow communities and resource managers to leverage more actionable capacities at the individual, relational, organization and programmatic levels.

Conclusion and management implications

The results of this study indicate that sustainable watershed management requires more than just individual awareness, healthy relationships, well-structured organizations and effective programs. Fairness, trust and legitimacy play significant roles in shaping the capacity of communities to manage their natural resources. In fact, they serve as foundational conditions which can be built or lost, and the degree to which they are present in a community (or between resource managers and the public) influences the ability of that community to mobilize different forms of capital at each of the levels of capacity.

As a foundational condition for community capacity, fairness, trust and legitimacy certainly require further definition. Perhaps there is a single term that could accommodate all three broad concepts. Or perhaps one or two of these ideas can be elaborated with future studies that seek to confirm (or disconfirm) the relevance of these concepts to community capacity in different communities and contexts. However it is ultimately defined, incorporating these foundational conditions into understandings of community capacity may provide a key insight into overcoming constraints and building capacity. Enhancing individual knowledge and decision making, relational exchanges, organizational structures and processes and programmatic efforts and implementation will continue to be important aspects of building community capacity. But without consideration for fairness, trust and legitimacy within and between each of these existing levels, that capacity will be incomplete.

With this in mind, resource managers should be attuned to the way their behavior and decisions are perceived by residents and stakeholders. As Smith and McDonough (2010) point out, promoting a sense of fairness is difficult when efforts to engage interested members of the public feel like a perfunctory formality. Results from this study suggest that the same could be said for promoting a sense of legitimacy and trust.

Being recognized as a legitimate authority requires more than having the right answer or adequate data to back up a claim. It requires cultivating a sense of trust and developing a history of fair treatment. It also requires operating transparently, allowing people to fully understand the processes used to reach decisions, and to see the ways in which their involvement shaped the end results.

Luckily, managers interested in fostering such relationships with the public have multiple tools at their disposal. Technology, while no substitute for positive face-to-face interactions, can help managers promote openness and transparency in decision making. Rather than simply posting drafts of management plans following public comment periods, managers could use "sticky note," or similar functions to indicate places in updated documents where public comments were incorporated. While holding public meetings, incorporating live surveys using audience clickers to gage interest or preferences for management approaches, and sharing results immediately with participants along with commentary on how the results might be used could be another way to help participants feel heard and to situate their perspectives in the broader community context. Meetings should be widely publicized and held at times and locations that are convenient for and can accommodate many members of the public.

Of course, non-technological approaches are important too. Taking pains to treat individuals and communities fairly and equitably is crucial to promoting a sense of fairness and trust. Managers would do well to remember that while they might have perfectly good reasons for treating people or groups differently; those reasons may not be so evident or self-explanatory to members of the public. In addition, creating processes that allow groups of interested stakeholders to learn together and share their knowledge and perspectives in a two-way flow of information can serve multiple purposes. Such processes may help build relationships among diverse participants, enhance public knowledge of resource management, improve resource managers' and decision makers' awareness of citizen concerns, and critically, signal to participants that their perspectives are valued and important. Finally, managers must be diligent about responding promptly, honestly and respectfully to all stakeholders who express concerns or ask questions. Responsiveness can serve the dual purpose of building trust and promoting transparency, which in turn supports legitimacy and, if done well, a sense of fairness.

The concept of foundational conditions for community capacity also deserves further exploration. While fairness, trust and legitimacy were the focus here, there may be other foundational conditions that affect the ability of a community to leverage its actionable capacities. Future studies might also consider including different or more diverse stakeholder groups. This research was heavily biased toward resource managers and decision makers. A study with stronger focus on farmers, for example, may yield new insights about the role of fairness, trust and legitimacy. Additional research will be required to clarify the role of foundational conditions and identify possible additions.

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    http://www.vermillionriverwatershed.org/index.php?option=com_content&view=
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    watershed.* Retrieved 01/27, 2012, from http://www.vermillionriverwatershed.org

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Location of the two study watersheds in Minnesota

Minnesota

St. Paul

Vermillion River Watershed

Sand Creek Watershed

Data from US Census Bureau and
Minnesota Department of Natural
Resources Data Deli

0   15   30   60   90   120
                                          Miles

N

Image created by Amit Pradhananga
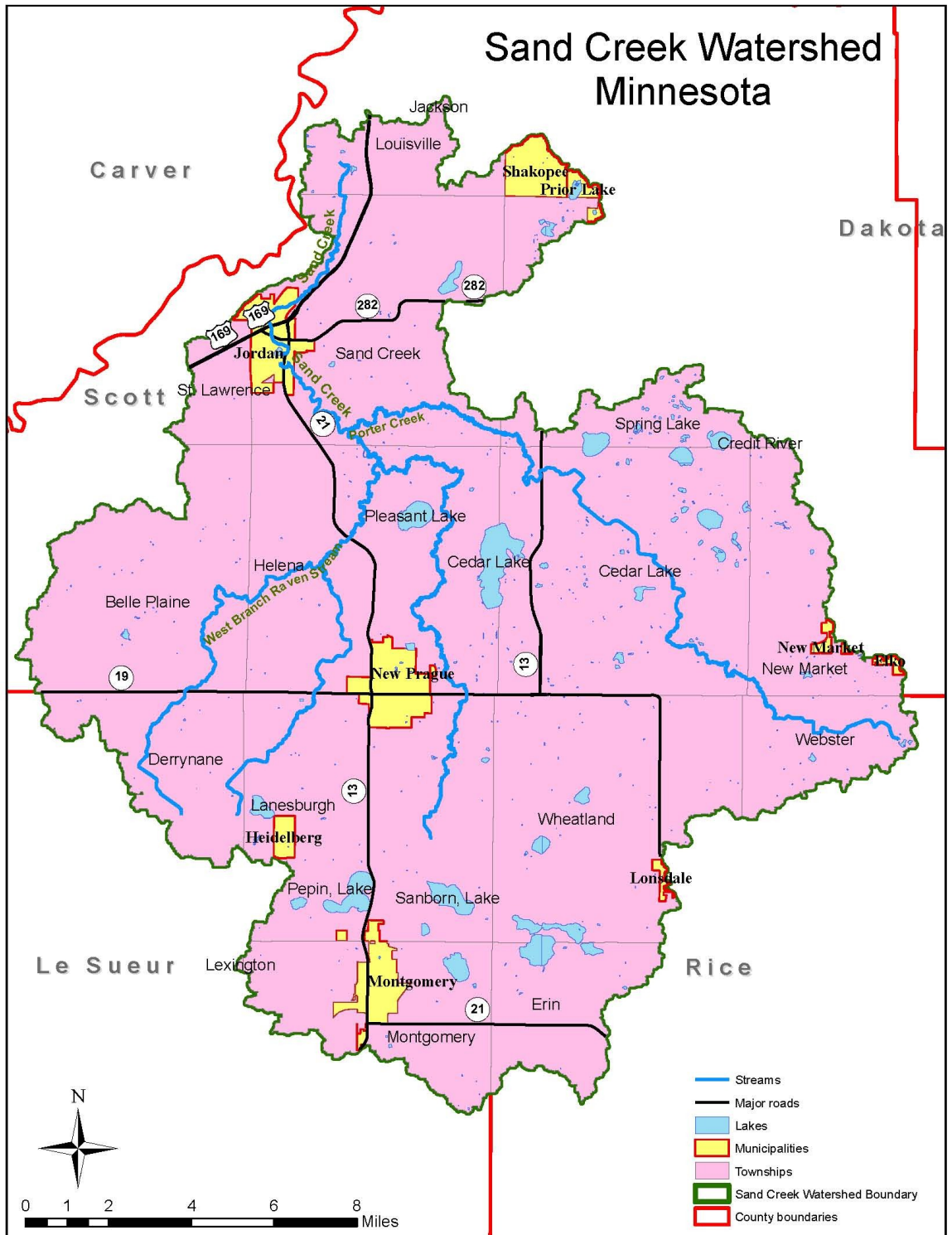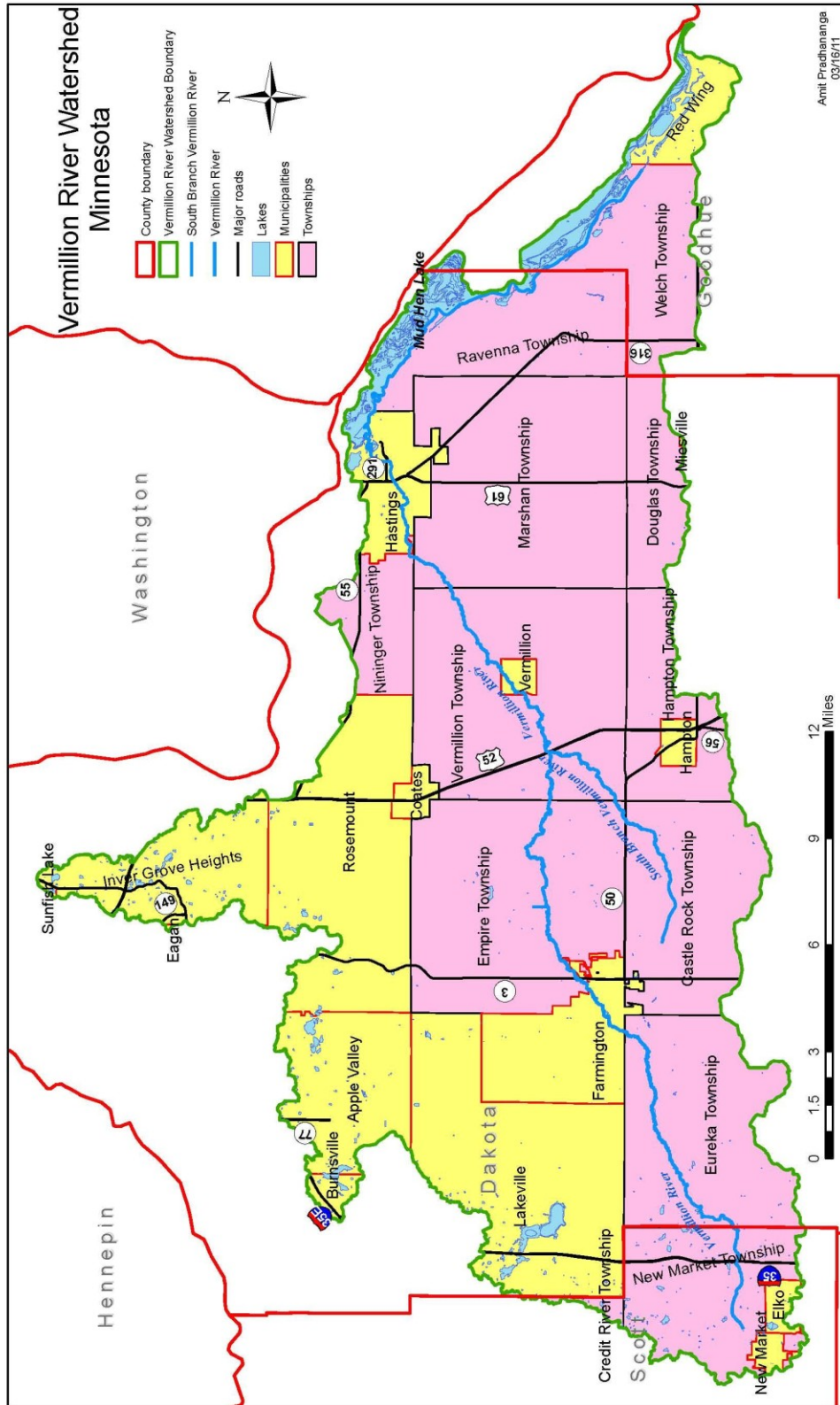
Appendix B: Map of Sand Creek Watershed

Image created by Amit Pradhananga

Appendix C: Map of Vermillion River Watershed

Appendix D: Participant contact script

Drivers of Watershed Management at the Urban-Rural Interface

Script for Initial Contact

"Hello, my name is _____. I am a graduate student conducting research on watershed management for Mae Davenport, Assistant Professor in the Department of Forest Resources at the University of Minnesota. This study involves watershed and community stakeholders in the Sand Creek Watershed and Vermillion River Watershed. One goal of this study is to identify different resources communities need and strategies they can use to enhance their ability to manage their watershed sustainably. To do this, I have been conducting interviews with people in both Watersheds about their perspectives. I am hoping you would be able to assist me by participating in the study and sharing your perspectives with me. We are offering an optional $20 gift for your participation. The interview takes about one hour. Would you be willing to participate?"

If yes: "Thank you. I am available on _____ (days of week, times, have alternates ready) is there a time that would work best for you? [Set date, time, location (get directions)].   I would like to send you a confirmation email with date, time and location information. The email will include all of my contact information, in case you have any questions or concerns. Do you have an email address I can send the confirmation to?

    a. **If yes**, take it down or confirm we have the correct email address for them.

        "Thank you. I look forward to meeting with you on ___(agreed upon date)___."

    b. **If no**, "Is __(phone # you contact them with)___ the best way for me to get a hold of you? In case you need to get a hold of me with questions or concerns, my phone number is _____." I look forward to meeting with you on ___(agreed upon date)___.

If no: "Ok, thank you for your time. Good bye."

If they seem unsure: "Just to be clear, participation is completely voluntary and if you decide to participate you can withdraw at any time. Your identity will remain confidential and we won't include any information that would make it possible to identify you in the final report. We're only talking to a limited number of key representatives, so capturing your perspective is important. Can I ask what you concerns about participating are?" [Try to address their concerns]

If they want to know why they are being asked to participate: "We're interviewing a variety of community members to try to get diverse perspectives and a range of experiences. I've been conducting background research and see that you are a [position in organization] *OR* [Name of person] recommended I contact you. Since we are only able to conduct a limited number of interviews, capturing your perspective is important."

If they want to know how the information will be used: "We are trying to understand the opportunities and constraints to improving watershed management in the community. We'll be putting together a final report that identifies those opportunities and constraints to share with community leaders, educators and water resource professionals. You information will be kept confidential and there will not be any identifying information in the report."

If they want to know what the study is for: "This project is aimed at understanding the critical capacities communities need to sustainably manage their watersheds. We're collecting social data to assess the needs and opportunities in your community and identify strategies that could be used to sustainably management the watershed. This will lead to an improved understanding of the drivers and constraints to sustainable watershed planning and management at the landowner, community and watershed levels."

If they want to know who is supervising the research: "Mae Davenport is the supervisor for this study. She is an assistant professor in the Department of Forest Resources at the U of M. If you would like to contact her directly I can give you her phone number [612-624-2721] or email address [mdaven@umn.edu]."

If they ask about IRB: The research project has been approved by the IRB/Human Subjects Committee.

Drivers of Watershed Management at the Urban-Rural Interface
Consent Form

You are invited to participate in a research study of community capacity for watershed management at the urban-rural interface. You were selected as a possible participant because of your association with or participation in projects with the watershed. We ask that you read this form and ask any questions you may have before agreeing to be in the study. This study is being conducted by: Mae Davenport, Assistant Professor at Department of Forest Resources, University of Minnesota.

Background Information
The purpose of this study is to better understand the critical capacities communities need to sustainably manage their watersheds and to identify strategies for enhancing sustainable management.

Procedures:
If you agree to be in this study, we would ask you to do the following things: Participate in an interview, lasting approximately 60 minutes. The interview will be audio recorded and transcribed.

Risks and Benefits of being in the Study
Risks associated with this study are minimal, responses are confidential and names will not be linked to any information in any publications. Benefits of participation include increased awareness of watershed and community issues. Study results will be made available to the public and all participants will have access to them.

Compensation:
A gift or cash, valued at $20, will be offered for participation in an interview and/or focus group.

Confidentiality:
The records of this study will be kept private. In any sort of report we might publish, we will not include any information that will make it possible to identify a subject. Research records will be stored securely and only researchers will have access to the records. Your responses to the interview questions will be audio recorded, transcribed and kept for three years in a locked office. Afterward, these tapes will be destroyed. Only those directly involved with the project will have access to the audio tape of the interview notes.

Voluntary Nature of the Study:
Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University of Minnesota. If you decide

to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

Contacts and Questions:
The researcher conducting this study is: Mae Davenport. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact her at address: 115 Green Hall 1530 Cleveland Ave. North, St. Paul, MN 55108-6112, phone: 612-624-2721, email: mdaven@umn.edu.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Research Subjects' Advocate Line, D528 Mayo, 420 Delaware St. Southeast, Minneapolis, Minnesota 55455; (612) 625-1650.
You will be given a copy of this information to keep for your records.

Statement of Consent:
I have read the above information. I have asked questions and have received answers. I consent to participate in the study.

"I agree_____ I disagree_____ to have my responses recorded on audio tape"

"I agree_____ I disagree_____ that Mae Davenport may quote me anonymously in her papers"

Signature:_____Date: _____

Signature of Investigator:_____Date: _____

Appendix F: Interview guide

Drivers of Watershed Management at the Urban-Rural Interface
Key Stakeholder Interview
Updated 11/15/10

First, I have some general questions about you and your work in this area. The area outlined here represents the [Vermillion River/Sand Creek] Watershed. This boundary represents the geographical area that drains to the [Vermillion River/Sand Creek].

1. How would you describe your connection to this area [show watershed map and point to the area within the watershed boundaries]?
2. What has been your role as [position/water resource professional] here?
3. What would you say are the best things about working in this area (i.e., watershed)?
4. What have been some of the most challenging things about working in this area?

Next, I have some general questions about the communities in this area.

5. **Are there particular geographic areas or communities that you are most familiar with through your work in this watershed?**
    a. If so, which one or ones?
6. What would you say are the biggest assets of the [community/area referenced in #6]?
    a. What makes these assets important?
7. How effective is the [community/area] at preserving or building upon these assets?
    a. What makes it effective/ineffective?
    b. Can you provide examples?
8. **What do you believe are the most pressing problems facing the [community/area]?**
    a. **What makes these problems significant?**
9. **How effective is the [community/area] at responding to or managing these problems?**
    a. **What makes it effective/ineffective?**
    b. **Can you provide examples?**

Now, I have some specific questions about community planning and water resource management.

10. Is the [community/area] actively engaged in land use planning?

a. What success have they had? Please explain.

b. What challenges or setbacks have they experienced? Please explain.

11. **Is the [community/area] actively planning for protection and conservation of water resources?**

    a. **What success have they had? Please explain.**

    b. **What challenges or setbacks have they experienced? Please explain.**

12. **If the [community/area] was going to be more effective at protecting and conserving water resources in this area…**

    a. **What would it need to do? What would this look like?**

    b. **What resources would be needed to accomplish this?**

    c. **What constraints would it need to overcome?**

13. How effective are community leaders in local government and non governmental organizations in this [community/area] at…

    a. Promoting water resource stewardship among individual property owners? What makes them effective/ineffective?

    b. Supporting community groups or citizen-based organizations? What makes them effective/ineffective?

    c. Engaging citizens in community decision-making? What makes them effective/ineffective?

14. How effective are water resource professionals in this [community/area] at…

    a. Promoting water resource stewardship among individual property owners? What makes them effective/ineffective?

    b. Supporting community groups or citizen-based organizations? What makes them effective/ineffective?

    c. Engaging citizens in water resource decision-making? What makes them effective/ineffective?

Now I have a few questions about management of water resources across communities within this entire watershed area. Many people refer to this broadly as "watershed management."

15. **First, how would you define sustainable watershed management?**

16. **Who do you believe should be responsible for sustainable watershed management in the [Vermillion River/Sand Creek] watershed?**

17. If the [community/area] were going to improve their coordination with other communities in the watershed to protect and conserve water resources *at a watershed scale*,

    a. What would need to happen? What would this look like?

b. What resources would be needed to accomplish this?

c. What constraints would need to be overcome?

18. **When you think about current government programs associated with sustainable watershed management across this watershed (e.g., regulations, cost share programs and education initiatives)…**

    a. **Which programs do you think are most effective at promoting sustainable watershed management? What makes them the most effective?**

    b. **Which programs do you think are least effective at promoting sustainable watershed management? What makes them the least effective?**

19. **If you were in charge, what would you do to improve the role of government in sustainable watershed management?**

    a. **What resources would you need?**

    b. **What constraints would you need to overcome?**

Finally, I would like to get some recommendations from you as we proceed with this

   project.

20. What other representatives (e.g., from government, organizations or interest groups) could give us an important perspective on watershed management in this area? (Those with similar or very different perspectives than you.)

    a. What makes them a key representative (organizations they are involved in, how are they involved in watershed management in this area)?

    b. May we tell them you recommended them?

21. We would like to identify representatives willing to provide input, receive information and serve as community liaisons for the duration of this project. That might involve having a chance to review the survey instrument, the summary report of findings, publicizing community meetings and receiving a final copy of the report. Would you be interested?

Is there anything else you would like to share with me about the community or water

resources?

Appendix G: Fairness, trust and legitimacy theme table, indicating results by watershed and stakeholder role

Fairness code comparison by watershed and stakeholder role				Vermillion			Sand		
Theme	Sub-theme	Sub-sub-theme	Code	D*	R*	E*	D*	R*	E*
Fairness	Fair participation in resource management	Equal access to influence	Unequal power to influence decisions	x	x		x	x	x
			County hijacks collaborative processes				x		
		Equitable share of responsibility	One community isn't pulling its weight	x	x		x		
	Fair implementation and enforcement of rules	Consistent enforcement	Enforce consistent standards		x			x	x
			Suffering and rewards are not connected to adherence to regulations	x					x
		Connections between management actions and impacts	Actions are perceived as unfair	x	x	x	x	x	
			Upstream actions have downstream impacts		x			x	x
	Government relationships demonstrate fair treatment	Local units of government are treated with respect	County and SWCD treat local governments with respect	x		x	x		
			Communities within the watershed being respectful of one another	x					

*D=Decision maker, R=Resource manager, E=Engaged resident

Trust code comparison by watershed and stakeholder role				Vermillion			Sand		
Theme	Sub-theme	Sub-sub-theme	Code	D*	R*	E*	D*	R*	E*
Trust	Trust in information	Credible sources	Present information through familiar individuals	x					
			Blame and accusations create controversy					x	
			Relay information through trusted organizations	x	x	x		x	
		Verifyable information	People don't trust information without verifying it			x	x		
		Information shared in a timely manner	Respond promptly to questions and expressed concerns		x		x	x	
		Information is accessible	Communicate information in an accessible way		x		x	x	
	Trust in decision makers	Decision makers are community members	Trust is lost when people making decisions don't live in the community that will deal with ramifications		x	x			
		Acting in the community's interest	Residents don't trust decision makers to act in their best interest	x	x			x	
			Lack of trust in decision makers to act in community's best interest			x	x		
		Honesty	Upfront honesty about expectations			x	x		
		Treat people with respect	Talking down to people damages trust			x			
			Treat people with kindness and respect	x		x		x	
	Trust based on history	Past interactions affect current levels of trust	History of unfair treatment reduced trust between communities	x	x				
			People remember interactions with staff		x			x	

*D=Decision maker, R=Resource manager, E=Engaged resident

Legitimacy code comparison by watershed and stakeholder role				Vermillion			Sand		
Theme	Sub-theme	Sub-sub-theme	Code	D*	R*	E*	D*	R*	E*
Legitimacy	Legitimate decision making processes	Transparent process	Ensure transparency in decision making	x			x		
		Use non-controversial science	Science is not agreed upon by all	x			x		
		Allowing and incorporating public feedback	Not listening to and incorporating public feedback	x		x	x	x	
			Recognize the value of citizens' ideas		x	x			x
			Pay attention to public concerns and perspectives	x	x		x	x	
			Understand landowners' rights and interests	x				x	
		Allowing dissent	Allow dissenting voices		x				
			Allow people to question government			x	x		
	Demonstrating legitimate authority	Enforcing rules	Upstream community was allowed to violate discharge permits, causing problems downstream	x		x			
			Citizens suing state over failure to do an EAW				x		
		Justifying decisions	Failure to provide acceptable justification for decisions		x	x	x		

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