RESEARCH ARTICLE

A Social Capital Assessment of Canadian Community's Water Management Strategy

S.E. Wolfe

Social capital concepts may help to explain implementation gaps and to make water demand management policies more effective. However, the research is limited along these lines of inquiry. We collected data through multiple semistructured interviews, participant observation, surveys, and literature review to assess the evidence of social capital's influence on municipal water policy. The research approach represents an alternative because it challenges the dominance of a technical conceptualization of water management.

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$\mathbf{M}$ ost water demand management (WDM), or water efficiency, research has focused on questions of technical infrastructure or public responses to regulations and pricing (de Young and Robinson, 1984; Rogers, de Silva, and Bhatia, 2002; Vickers, 2001; Winpenny, 1994). But if water efficiency programs are to be more successful, in more locations, over the longer term, and under a greater range of environmental and economic conditions, a community's social capital must be considered. *Social capital* is understood here as the combination of networked relationships and the information, priorities, and values that are transmitted through those relationships.

This article explores the challenges of implementing and sustaining water efficiency policies at the municipal level. The influence of social capital on water policy outcomes was assessed within the Township of Centre Wellington (TCW), a small, peri-urban area north of Guelph, Ontario, Canada. Using a theoretical framework constructed from the literature on knowledge management, organizational theory, and innovation diffusion, new questions were asked about municipal approaches to water efficiency. The capability (skills and knowledge), capacity (ability to act), collaboration (social networks), and commitment (willingness to act) of the water policy community were examined as four elements of the social capital framework. These elements can contribute to a more nuanced understanding of processes underlying the implementation of WDM policies and programs.

The theoretical framework for this research is described in section 2 of this article, and the methodology is described in section 3. The results are presented and discussed in sections 4 and 5, and conclusions are presented in section 6.

Research Framework

The Concept of Social Capital

Definitions of social capital vary widely across academic disciplines and applied research practices. They usually include elements of the substance of social capital, the sources of social capital, and the influence of the availability of social capital (Adler and Kwon, 2002). The substance of social capital includes the norms, values, knowledge, and expected or anticipated behaviors within a group. Research on the sources of social capital focuses on the relationships within a social network and how these relationships generate a group's social capital, which is understood as an unquantifiable-but-appreciating resource that can be drawn upon over time. Researchers addressing the availability of social capital investigate the costs and benefits associated with generating and maintaining social capital, including the transaction costs of

Affiliation of author: S.E. Wolfe, PhD, Assistant Professor, Department of Environment and Resource Studies, University of Waterloo, Waterloo, Canada.

Address correspondence to: Sarah Wolfe, Assistant Professor, Department of Environment and Resource Studies, University of Waterloo, 200 University Avenue West, Waterloo, ON, N2L 3G1 Canada; (phone) 519-888-4567 ext. 38690; (fax) 519-746-0292; (e-mail) sewolfe@uwaterloo.ca.

sharing information and nurturing relations with other members.

Assessing Social Capital

A social capital assessment includes structural and social elements. A *structural assessment* is an attempt to characterize the nature (or structure) of an evolving set of social interactions among a network's participants. The structural assessment of social capital is important "because structure always affects function . . . [and] affects the spread of information" (Strogatz, 2001, p. 268). Structural assessments must take into account both external and internal variables: studies of external variables are egocentric in perspective and examine the links from one individual to other individuals both inside and outside a network; studies of internal variables reflect an interest in bonding and examine "linkages among individuals or groups within the collectivity and, specifically . . . those features that give the collectivity cohesiveness and thereby facilitate the pursuit of collective goals" (Adler and Kwon, 2002, p. 21).

A *social assessment* considers the interpersonal interactions that give the network structure its essence and objectives. Mark Granovetter's (1973) seminal research on the values, problem perceptions, attitudes, and relationships within a network helped to articulate the social assessment. He studied social ties as a way to understand interpersonal processes that bridged micro (individual level) and macro (society level) activities. For him, it was "through these [interpersonal] networks that small-scale interaction be-

comes translated into large-scale patterns, [which], in turn, feed back into small groups" (p. 1360).

These social and structural assessments are not straightforward: both are subject to an array of constantly changing variables that are open to different interpretations. But they do help to characterize social capital in a way that is useful for water efficiency studies. Unlike studies that focus only on residential or industrial/commercial/institutional (ICI) consumers, social capital assessments raise new questions about a water policy community's contributors: questions, in particular, about the types of knowledge they hold and the types of networks in which they are embedded.

Community-Focused Social Capital Research

Our study explored the availability of social capital by examining the availability of four interdependent elements of social capital, which influence the substance, source, and availability of social capital. We defined these four elements, as follows, for an individual in the water policy community:

These four elements were examined within a social assessment of social capital. They are important because they provide a broad context for the social relations between actors and they help to explain why changes occur—or why changes do not occur—within a network. The specific indicators of capability, capacity, collaboration, and commitment that were studied are listed in Table 1. Examining

Table 1. The elements of a social capital framework

Social elements		
Capability	**Capacity**	**Collaboration and Commitment**
Explicit knowledge, including Education/training/skills		
Tacit knowledge, including	Political process, regulation, and economics	History
Environmental ethic	Setting priorities	Socioeconomic characteristics
Responsibility to the next generation		Social activism
Professional or personal legacy		
Learned knowledge/experience		
Importance of leadership		

Structural elements	
Characteristics	**Strength of links**
Diversity of organizations	Strong
Gender balance	Weak
Age range	Network hub

the network characteristics and the strength of the links completed a structural assessment.

Research Methodology

Approach and Data-Collection Methods

This research emerged from the recognized disconnect between the positive potential of water efficiency policies and the common lack of program sustainability (Wolfe, 2009). A theoretical framework was developed to clarify the challenges of implementing water efficiency policies within a sociopolitical context that includes multiple community stakeholders.

Using a single, in-depth case study (Stake, 1995), the research methods included archival data collection, a literature review, qualitative interviews, a network-mapping exercise to characterize the community's social network, and a workshop discussion with key respondents. These research methods triangulated the data to assess the community's social capital as it related to water efficiency. This research design was reviewed and accepted by the Office of Research Ethics at the author's university. The key respondents identified in this research agreed, through oral and signed consent, to have their views represented throughout this report.

The case described here is not intended to be representative of all social capital in all municipalities in all areas. Instead, instrumental case design, where cases are used to "gain an understanding of something else," according to Robert Stake (1995, p. 171), was used to explore the role of networks and knowledge in a community. Using this design has advantages: notably, there is less of an obligation to defend a case as representative, and no obligation to control for the numerous exogenous and endogenous variables (Stake, 1995).

Archival and literature review

Archival data from past community water surveys, newspaper columns, and council meeting minutes were used to provide historical context for this study of a community, its issues, and its municipal water management priorities, including efficiency. The scholarly literature—with a focus on social capital, innovation, water efficiency, and public administration—was also reviewed.

Interviews and social network mapping

Semistructured interviews were used to collect data from individuals representing a broad spectrum of interests within the TCW's water policy community. These individuals included water policy decision makers and staff members in the municipal government, elected officials, community activists (unaffiliated or affiliated with nongovernmental organization), and representatives from business, environment, sports, and recreation groups.

The data-collection procedure and interview questions were identical for all interviews. Three question sets were used:

1. The individual's professional, educational and WDM training and his/her personal experiences with water scarcity

2. The specific WDM or community responsibilities associated with the individual's current professional affiliation, the successes and challenges of water-related initiatives, and resolution strategies for organizational difficulties

3. Each individual's network: the friends, colleagues, mentors, and challengers with whom s/he exchanged different types of information and knowledge

Each interview concluded with a mapping exercise. Participants were asked to either draw or to dictate their social network. The process was simple—pencil and paper were used, and the mapping process took an average of 5 min—but the participants were quite keen to contribute to this "unusual" research technique (Visser, 2007) and indicated that the process made them think about their community in a new way (Innes, 2007; Smith, 2007). Each participant positioned his or her name in the center of a page, showing other individuals within his or her network and the linkages among them on the remaining parts of the page; and each participant was asked to distinguish (with color coding) between individuals in the network who had interests in environmental issues, individuals who had interests in water issues, individuals who had unclear/unknown priorities, and individuals who were "challengers" (known for interactions characterized by debate and controversy). These social network maps generated additional contacts for future interviews.

Workshop

Once the parameters of the community's water policy network had been established (i.e., few new names were being provided), the 10 individuals most frequently mentioned

were defined as "centers of influence" within the TCW. The 10 individuals were invited to a workshop to explore both visionary and practical aspects of current and future TCW water efficiency policies. Workshop participants were asked to step away from their official roles as they shared their perspectives and expertise and to keep the discussion confidential. This event was designed to build trusting relationships and momentum on a foundation of existing social capital.

The final interview response rate was 46.6%. Sixty participation requests were made; 30 individuals agreed to an interview, and 28 interviews were completed. Thirty requests did not generate a response.

Social Capital Characteristics of the Case

The data were assessed against the framework indicators provided in Table 1. Within the social assessment, the following factors were examined:

1. Capability of individuals, including environmental ethics, responsibility to the next generation, concern for a professional or personal legacy, learned knowledge/experience, and belief in the importance of leadership

2. Capacity (or ability to act) of individuals in the context of political process, regulation, and economics and in the context of setting priorities

3. Collaboration and commitment of individuals as these factors as influenced by the community's history, socioeconomic characteristics, and level of social activism.

The structural assessment examined the network hubs and the strength of links.

Capability

Tacit knowledge consists of deep beliefs and values about the way the world works and what is important. Grounded in practical experience, tacit knowledge is informal, unspoken, and often difficult to articulate (Ambrosini and Bowman, 2001; Polanyi, 1966). People may not even be consciously aware of their tacit knowledge; rather, their deepest beliefs and values operate as an implicit and unquestioned background understanding that shapes how they see the world and act within it. Tacit knowledge influences why people are concerned about water policy, how they act on that concern, and what they say about the issue when they talk to their colleagues or neighbors.

Identifying and understanding the potential influence of tacit knowledge would be tremendously valuable because more informed policy recommendations would be possible. In this research, the articulation of key values, such as an environmental ethic, the feelings of responsibility for the next generation, the importance of leaving a legacy, and the role of knowledge and community leadership were investigated. These indicators are discussed next.

Environmental ethic

The research participants expressed this indicator only infrequently. When it was raised, it was primarily in the context of the environment's aesthetic (i.e., visual) value and the environment's value as a location for outdoor leisure activities. Susan Forester (2007) mentioned that she enjoys outdoor activities but that the activities should be "in a pleasant atmosphere, which means fresh air, greenery, natural landscapes. I love the natural environment." One of the most divisive and lingering issues of the community[1]—the building of a racetrack and casino—was frequently mentioned as a violation of the community's environmental and cultural aesthetic.

There was also some acknowledgment of the environmental stewardship role held by community members. Deryk Smith (2007), one of the founding members of the Greenlands[2] community group, explained his environmental ethic:

> We're part of the Earth—we have to partner with [it] and have to look after it. For me, the aesthetic of the natural environment is just huge, I think we should be preserving as a sacred piece of land a wetlands . . . we have a connection with the place and we want to see it protected.

But Smith also discussed some of the challenges the Greenlands group encountered. For example, one ongoing issue was how to position and explain their environmental ethic—active stewardship within the community and its governing structures—to the wider community. They were attempting to focus on the quantitative benefits of environmental stewardship, but Smith raised questions of a more intangible nature: for example, does the environmental ethic that they espoused make community members "happier" and does it "make us more comfortable with ourselves?"

Responsibility to the next generation

The connection to, and responsibility for, the next generation through one's children was a frequent response expressed by the citizen participants. There was a sense

that one needed to think beyond the needs and wants of the current generation (Cairns, 2007; Eaton, 2007; O'Neil, 2007; Smith, 2007; Wilton, 2007) to consider the "essence of community" (Wilton 2007). The Greenlands group was an expression of this sentiment. The impetus for community involvement was most often linked to the residential development rate (Hopkins, 2007; Smith, 2007), and some participants were damning in their critique of the governing council's planning perspective. Barry Hopkins (2007) claimed that the decision makers "[lacked] vision and [didn't] understand the mistakes they're making now [are] going to cost the new generation one-hundred-fold." Other participants focused on the motivation for community participation. Ian Rankine (2007) believed that one must be taught the obligation to others in society and that religious institutions can either teach or reinforce that social norm.

Establishing a legacy

Only a few participants expressed the establishment of a professional legacy as a motivating factor in their water policy decisions. Ken Elder (2007), the Director of Public Works, firmly believed that he had the knowledge and long-term planning capability to guide successive councils persuasively in their water-related decisions. Walt Visser, a long-standing council member, mentioned that he found the interaction with people interesting and was pleased to affect them in their daily lives. Simultaneously, he was proud that, at least in his perception, the TCW had accomplished a lot and was "years ahead of many municipalities. When the Clean Water Act came out, it said we had to inventory all of our infrastructure. We've done that. We're there. People haven't started that yet" (Visser, 2007).

The citizens' perception of the TCW's progress—on environmental issues and planning for future climate changes—was somewhat different. For example, Robbie Keith (2007) was wistful when he imagined that

> [i]f [the community] could somehow position itself ahead of all this, in other words, a strategy, a design, and you have people responding to you, you have a much better chance of seeing something come about that you would find helpful, successful. So reacting is a lost game, it's all over at this point.

Whether the council's perspective or the citizens' perspective is ultimately correct was external to this assessment. But the disconnect in perspectives—between the citizens' understanding of what would constitute a livable community versus the municipal administrative perspective on operations and infrastructure—was a theme that was repeated by the participants for the duration of the research.

Experiential learning and knowledge

This indicator was not well represented in the results. Only one participant indicated that they had water efficiency knowledge gained through an unrelated life experience. Forester (2007) described her experiences working in Zambia during her young adulthood and the value that she placed on the availability of a secure water supply.

Importance of leadership

The availability and influence of leadership was considered to be very important by many of the participants who were currently or previously involved in community government. Visser (2007) indicated that part of leadership is whether the person is "passionate"—he felt that the current mayor has this quality—and has an eagerness to "keep up with regulation." Jim Gibbons (2007) suggested that not only are leaders important to directing a community, but they are also required to "come up with the ideas." Russ Spicer (2007), the former mayor of the TCW, offered a more self-reflective assessment of community leadership. He believed that while it was important to recognize differing perspectives, community leaders would "never be able to please everyone. But you have to take a stand on some issues and promote the values that are necessary from a personal point of view and [from] a community point of view." Finally, all of the participants who mentioned the importance of leadership also acknowledged the importance of sufficient financing to support initiatives and implementation.

Capacity

Capacity—the ability of decision makers to act in the context of political process, regulation, and economics and in the context of setting priorities. The capacity of a single community to implement or manage its water policy agenda effectively has been extensively investigated by others (for example, Ivey et al., 2006). The project described here has taken the capacity concept and broken it into the constituent parts of capability and capacity. The *capabilities* (or knowledge) of the individuals involved is separated, and *capacity* is used as a term that focuses on the context in which a decision maker usually works. It is this narrow concept of capacity that is addressed in conventional research on barriers to implementation.

Politics, regulation, and economics

The political, regulatory, and economic forces shaping a small community's directions are no less powerful than those operating in large cities or even nations. Politically, elected officials make strategic decisions on which proposals—such as long-standing, residential metering plans—they will support (Elder, 2007). Council members can also be subject to constraints and limits on their time, so they rely heavily on the advice of their long-standing professional staff. The influence of these staff members was one issue that was raised by TCW citizen participants. Rankine (2007), for example, expressed this concern:

> The key decision makers are not the councillors, [but their] staff. The decisions are made at the staff level because the councillors just can't keep up, so they take the advice of [others]. . . . It's not that their hearts are not in the right place, but they get all of their advice from the professional staff.

The perception was that the political power dynamic between the elected council and the township employees was very strong. It was proposed that this interaction influenced the council's overall receptivity to new ideas, their willingness to assume risks on new initiatives and, as a result, the setting of the political priorities and agenda. One participant went so far—off the record—as to call the director of Public Works a "hatchet" to any new ideas. The citizen participants unanimously expressed frustration with the slow pace of change in the community. Smith (2007) said, "We have all these examples in the rest of the world as to how you can do things differently, and we seem to not have the ability to look beyond our own experience, which is very dull and boring, and see what can be done elsewhere."

Observations of the workshop's political dynamic supplemented the interview data. Throughout the event, the public and political participants spoke past each other. On one side, the public wanted to set an example of innovative community policy; on the other side, the political participants argued for caution because of legal and financial risks (Hendriks, 2007). Yet, simultaneously, every participant deferred to the expertise of the single, senior staff member in attendance. Later in the evening, Elder (2007) expressed his disdain for the process, arguing that the citizen participants who had been so vocal during the workshop would never take the time to come and speak to him in his official capacity.

The regulation requirements from higher levels of government (i.e., provincial) were also quite powerful. Rankine (2007) rejected the idea of the TCW having a council with intrinsic environmental motivations or a larger vision. Instead, he focused on the TCW's mandatory compliance to provincial water quality standards and fines.

The focus on regulation and use of economic incentives also directs the nature of the community's water efficiency program. In the TCW, there has been a coherent effort to establish strong watering bylaws and appropriate pricing structures (Visser, 2007). But while there is recognition of the financial constraints on the community, Mayor Joanne Ross-Zuj (2007) explained how economics could play on a community's creative social capital:

> [The community] has recognized that we have the financial burden but by no way do I want to put that financial burden on them because it really stifles the creativity . . . of these groups. If everyone comes to the table and says, "Well there is no money." What a downer! Nothing is going to happen [in the community].

So while the creativity and social capital obviously exist and are recognized by the municipal government, it is the capacity context (perceived and real) that dominates the priorities set in the TCW.

Setting priorities

Multiple factors influence the priorities pursued by the municipal government. A worldview that says "the world is built for trucks" (Visser, 2007) will undoubtedly sway decisions about infrastructure and development. External political initiatives, such as the Ontario government's Places to Grow policy is stipulating that the township pursue an urban intensification rate of 40%, which is something that "for many, many years we've been fighting against," according to Ross-Zuj (2007). Simultaneously, development pressures from a well-financed and persistent private sector—both internal and external to the governing body (Rankine, 2007)—can be divisive to a council and undermine the best of environmental intentions (Forester, 2007).

The result of these two forces—public and private sectors—has been a reactive, "underseige" mentality and coping strategies. The mayor, for example, explained that "the expectations that they have for us are enormous. In fact, they are beyond anything we could possibly sustain in our community" (Ross-Zuj, 2007). In response, Ross-Zuj outlined her mandate for leading council: "The focus of this new council and my direction is taking care of our own house. We've got to clean up an enormous mess and support the people that live here now."

There are legitimate infrastructure concerns that need to be addressed within the community. The provincial downloading of responsibilities in the 1990s, and subsequent amalgamation of small municipalities, left the TCW with 104 bridges, and approximately 40% of those structures are currently in need of some sort of repair (Morris, 2007). These new infrastructure responsibilities did not come with the necessary financial resources, so the governing council is scrambling to cover their anticipated shortfall without raising taxes. According to the former mayor, "for someone to think taxes are going to go down, they're living in a world [where] they are not fully aware [of environmental problems and municipal affairs]" (Spicer, 2007). Ross-Zuj (2007) recognized the disconnect for citizens—what they want to see happening in the community versus their household budgets and tax rates—and used the Greenlands group as an example. While not wanting to undermine their efforts, she still argued that:

> [i]t becomes really difficult . . . you get a group like the Greenlands Organization . . . there are so many ideas that can come to the table, but when you're talking about a political agenda, . . . you're talking dollars, dollars, dollars.

When water-specific priorities were questioned during the interviews and workshop, there was no definitive vision. General awareness of water issues was considered to be low by both citizen participants and those individuals working in the municipal government. When asked about their perceptions of community awareness of water efficiency, Keith (2007) argued that there was little to no understanding of demand management:

> Most people are worried about protection of source. So they're interested in wetlands, infiltration zones, hydrogeology, [and] extraction if it means somebody is going to make money and run away with our water. We did not get the sense that there is the same kind of interest focused on the individual household, commercial or residential site, as there is in other municipalities.

Elder (2007) discussed his efforts to push the water efficiency agenda by installing a TCW metering program. He considered metering to be "the first line of defense" against the significant growth and development pressures that the municipality is anticipating. Visser (2007) also recounted why he had supported the effort to put a metering program in place: "I thought that was important. We owned the public utilities and we did it. The other thing we did was we had a program for low flow toilets and shower heads." According to Ross-Zuj (2007), the governing council sees water efficiency as a way "[to] save and make money. It's going to extend infrastructure . . . [which will] be good for the community. [The question is] whether or not we can encourage or force the developers to come on board with that."

So while the fundamental pieces of a water efficiency program are in place—the meters, changes in pricing, bylaws, and a small education program that visits primary schools—there are still challenges to raising overall community and council awareness (Spicer, 2007). Ross-Zuj (2007) questioned whether the community could be brought on board to support water efficiency if they saw it as a way to save money and delay infrastructure expansion costs. Elder (2007) also explained that in the small communities like the TCW, "it's harder to make an economic argument to implement subsidy programs like low-flush toilets; that's why there is such a focus on targeting and educating children." Speaking off the record, some municipal employees also mentioned the historical political resistance they faced with council when trying to implement their metering program; the reason they cited for this resistance was the issue of the politician's concerns about "electability" and "blowback" from their constituents.

Collaboration and Commitment

The remaining two interdependent elements of social capital examined here are collaboration and commitment. A community's history, socioeconomic diversity, and level of social activism will all influence the degree to which efforts within a network are collaborative. In turn, collaboration both creates and reinforces the commitment of individuals to not only a particular initiative or venture but also the community's well-being overall. In the TCW, collaboration and commitment were influential in defining participants' perspectives on the community, as well as their visions for what was possible in the future. In other words, collaboration and commitment were influenced by the optimism about the change potential and willingness to risk.

There is a recognized, and openly discussed, *cultural split* between the *Elora People* and the *Fergus People* within the TCW. The data suggest that this split reaches very deeply into the community and that people will self-identify according to where one "fits" and according to other stereotypes. Often the overt designation is geographic (i.e., where do you live?), but the underlying assumptions seem to be embedded in class, politics, and social issues. For example, participants frequently self-identified according to their involvement in the artistic community, junior sports such as hockey, or environmental advocacy/planning efforts. Whether one is a "Toronto person" or a "newbie," regard-

less of how long one has lived in the community, was also a major designator (Smith, 2007).

History

Of the interview participants, 80%—from both Fergus and Elora—mentioned a mysterious *hatchet* that persisted between the communities. The hatchet was described in various ways, ranging from "sporting competition" (Spicer, 2007) to a "historic animosity" (Morris, 2007) between the two small towns. The mayor, with her family history traced to the 1800s in Elora, diplomatically explained the hatchet as a response to geographic affinities: "[T]here will always be people who have their affinities to certain spots because that's just where they've grown up" (Ross-Zuj, 2007).

What was intriguing about this ever-present hatchet discussion was the emphasis on how history continues to influence the communities' perceived identities. For example, whereas Elora was at one time the "poor cousin" to working-class, but prosperous, Fergus, the Elora village has since reinvented itself as a cultural destination. Hosting a famous annual music festival, a summer art show, an organic farmers market, and the new Arts Centre, and with its quaint downtown shops and quaint residential housing, Elora has become an "upper-middle-class liberal's dream community" (Anonymous, 2007). In contrast, Fergus has maintained its pragmatic, working-class roots—it has the manufacturing and industrial park, the grocery stores, the hospital, dentists' offices, and the high-school (Visser, 2007). There was no consensus on whether this hatchet still exists—particularly after the political amalgamation in 1999. Some believed that the "hatchet will never really be buried" (Elder, 2007; Morris, 2007), whereas others believed that the amalgamation was a first step in bridging the historic disconnect between these two communities (Spicer, 2007).

This history is interesting and relevant to the research on community social capital and water policies because it suggests a worldview on what values are important and what initiatives should be prioritized. And this history continues to play itself out: for example, at the workshop of community leaders, the participants from the community groups all lived in Elora, whereas those from the governing council lived in Fergus. The only exception to this was the mayor—who is from Elora—but her election was explained by some using a sociogeographic explanation: the last mayor had been from Fergus, so it was Elora's turn! In another example, Visser (2007) noted that members of the Greenlands group—with their participatory visioning exercise on the nature of community and envi-

ronmental health—were "about 98% from Elora," while as a resident of Fergus, he was "tolerate[d]" at the meetings. Although we cannot conclude that one's residential location will directly determine one's values and priorities, the differing worldviews were very much in evidence throughout the research.

In addition to the historic and sociogeographic basis for collaboration, participants also indicated that one's status as either a "local" or a "newbie" could be influential. One participant—who has lived in the area for over 31 years—identified himself as a newbie. When the researcher pointed out that 31 years is a long time to be new to an area, he laughed and admitted that "breaking into the [social] community [i.e., old families] can be difficult" (Smith, 2007). Other participants disagreed with this assessment and insisted that, instead, it was one's involvement in the community that determined whether one is a local (Morris, 2007). That aside, Morris admitted with some wry humor that, for some locals, "[even] if you were born and bred here—even if your ancestors settled here from the Mayflower—you're not a local."

Socioeconomic issues

While historic cultural geography and years in the community do appear to influence collaboration within the social network, socioeconomic issues also play a role. Forester (2007) explained that there was an underlying "resentment towards the newbies. . . . I have heard from other individuals that their cleaning ladies will say things like, 'Well, it's people like you who are making it unaffordable for my kids to go to school here.'" Smith (2007) went further and argued that, in Elora, there are the "Elora-ites [i.e., locals] and the people who came here because it's a nice place to be—and so the antagonism there is that 'these people, who just came here, 35 years ago, have the gall to tell us how we should organize our streetscape—we've been here forever.'" In his assessment, the socioeconomic split within the communities—rather than the historic differences between Fergus and Elora—was ultimately much more corrosive.

However, even with these sometimes-divisive elements of history and socioeconomics, there is significant evidence of social capital put to good effect within the community. In a single year, over $800,000 was raised to purchase a hospital CAT scan. Similarly, the community rallied support for local families affected by a tornado; both Fergus and Elora residents made substantial contributions—of labor and money—to rebuilding efforts. Explanations for these

efforts include the presence of an older demographic in the community[3] with "traditional values" that are the "foundation of a farming community" (Spicer, 2007). There is a great deal of concern about the anticipated high rate of residential development due to the Places to Grow initiative and whether these traditional values will be sustained (Ross-Zuj, 2007; Spicer, 2007). This research questioned whether these values (i.e., social capital) could be acknowledged and better harnessed to achieve objectives that would benefit the entire community.

Activism

There is a high level of social capital available in the community. This resource extends well beyond the official government structures (i.e., elected township or county councils), and it is manifested in volunteer activities. Activities related to environmental priorities include municipal planning (e.g., the Greenlands group) (Rankine, 2007), water management (e.g., the Water Committee's efforts to block a proposed bottling company) (Forester, 2007; Wilton, 2007), and the siting of gravel pits (e.g., the Pilkington East Ratepayers' Association is a community group attempting to block an aggregate operation in Inverhaugh) (Ironside, 2007).

One explanation for the social capital availability is the involvement of a large number of former "Toronto people" (Innes, 2007). Rankine (2007) proposed that these individuals are highly motivated toward social activism. Their presence becomes a positive feedback loop, where they move in and then "they tell their friends, and there is a tremendous activism that has been here for 30 years." These people—often retired from their formal professional work—have extensive skills and experiences.

But there have been mixed results from the high level of available social capital. Sarah McGoldrick's (2007) assessment, for example, was expressed often in various ways by different participants. She explained that, in Elora, "if [the citizens] want something they just go out and do it—they don't care if council is for it or against it—groups form over there all the time because someone has an idea and they just go do it." While this level of commitment and citizen engagement is a strong indicator of a robust social capital, there have been problems. She added that the community activism efforts "can be very fragmented—everyone wants to be in charge over there—and it's a shame because a lot of things don't get done because . . . they don't like outside influence." Forester (2007) also expressed concern that those who are involved in environment-related issues

are going to be "pulled in many directions" and not necessarily available to mount a sustained campaign to address water issues.

These community activists also appear to want to sustain the "nature of the community" and the "aesthetic" that they bought into when they moved from highly urban Toronto to the more rural and "idyllic" Fergus or Elora communities (Innes, 2007; Rankine, 2007). The priorities to preserve and conserve are strong motivators to many in the community (Keith, 2007) and often catalyze their active involvement in community issues. With only a few exceptions, however, these individuals tend to apply their skills outside of the formal government structures; they do not run for elected office.

The council's recognition of and reaction to social activism has been mixed. On one hand, there was the extraordinarily divisive "Slots" debate (see note 4), which remains an unpleasant memory for many citizens. One councillor argued that the public's awareness of municipal issues and the obligations of the municipality was limited to issues of taxes, potholes, or the aesthetics of household tap water (Morris, 2007). On the other hand, there has been recognition of the need to address environmental concerns in light of the rapid growth rate. Referring specifically to the efforts of the Greenlands group, Ross-Zuj (2007) expressed her appreciation of the community's efforts: "We're just so blessed to have them wanting to be a part of the community." In addition, the mayor initiated the creation of a citizens' Environmental Advisory committee within council[4] (Ross-Zuj, 2007), with the specific mandate to focus on water issues.

Structural Assessment

The structural assessment is an attempt to characterize the nature (or structure) of an evolving set of social interactions among a network's participants. The TCW network that emerged during this research had multiple characteristics. The network assessment identified a predominantly male, highly educated, affluent, and narrow (or exclusive) membership. The names compiled during the entire mapping exercise were heavily skewed toward men (117) compared to women (40), and the names that were mentioned repeatedly (i.e., central individuals or "centers of influence") were predominantly male (O'Neil, 2007). The majority of these individuals have a minimum of a bachelor's degree, with many holding advanced degrees (e.g., doctorates) or a professional designation (e.g., lawyer or medical doctor). Many of the participants have retired to the area

from careers in Toronto and live in the "nice" houses (Hopkins, 2007; McGoldrick, 2007). The network structure also appears to be quite narrow.

The named participants have a high proportion of overlap (i.e., the same names come up repeatedly). It is not clear whether the small population of the community explains this narrowness or whether it is representative of a closed membership structure that is difficult to access (McGoldrick, 2007; Morris, 2007). Participants were not required to disclose their ages; a rough estimate would place the majority of the interview participants (approximately 25 of the 28 people) above 40 years old.

Hubs and the strength of links

If the TCW's water management is to be changed—whether it be the development of a comprehensive water efficiency program, participation in research collaboration, or a decision on infrastructure—the director of Public Works will make the decision. He may not make the official decision, but he holds the information, experience, and status within the community to influence others. Throughout the network portion of this research, Elder's name was mentioned repeatedly, and he was identified as the single most critical individual (or "hub," in the social network jargon) to get on the side of any initiative.

The identification of a community's hub can be hugely beneficial: it focuses the efforts of any intervention attempting to change policy. But a single hub can also be a significant barrier to policy innovation. Regardless of the level of social capital available, a reluctant hub, or one with a set professional agenda, will continuously act as a drag on community change. In any attempt to push community social innovation, it remains essential not only to identify the requisite champions but also to identify just as accurately the reluctant hubs.

When assessing the TCW's link strength, it is useful to revisit Granovetter's definition of strong links. He proposed that *strong links* were those that existed among individuals who are in close proximity and who are socially similar in that they have shared values, attitudes, and perceptions about the community and the world. Strong ties lead eventually to isolated communities characterized by homogeneous ideas and limited information exchange with external communities (Borgatti and Foster, 2003; Granovetter, 1973).

This assessment found that the links in TCW were relatively strong. From the participant interviews, a process analysis of the workshop, and the network-mapping exercise, two very distinct subnetworks emerged with seemingly little overlap and comparatively fixed positions. Within these subnetworks, members expressed shared values, attitudes, and perceptions about their community and what they prioritized. Yet there was little indication of an appreciation of the other subnetwork's perspective or an appreciation of the relevant challenges. As Elder (2007) said, when referring to the community activists' approach, they "didn't understand Municipal Time" and the reality of that governing process.

Although on-the-record evidence of tolerance was abundant, few attempts were made to reconcile fundamentally different worldviews. This reconciliation—essentially the creation of weak links across subnetworks—can be hugely important to the community and its efforts. A community's weak ties can be more valuable than strong ties because its weak ties determine information transmission and idea diversity. The community's future will be established by the access to information and its ability to transform diverse ideas into new opportunities.

Results Assessment

The evidence suggested that social capital was available within the test community, but it encompassed a much broader range of issues than just the development and implementation of a water efficiency policy. In the assessment of social capital availability, the four elements ranked low, moderate, or high.

The availability of *capability*—the explicit and tacit knowledge held by individuals within the network—was considered to be relatively high. Individuals named within the network were generally well educated (both formally and experientially), knowledgeable, and often curious about new ideas. There were anomalies, some of which were individuals holding influential positions within the network, but overall there was sufficient evidence that the existing knowledge base and awareness of issues would contribute positively to policy development within the community. However, the strength of ties—discussed further in the collaboration assessment that follows—was high, and this could be detrimental to the importation of new ideas from outside the existing network and its membership.

Table 2. Availability of social capital in the Township of Centre Wellington (TCW), Ontario, Canada

	Social capital elements			
Availability in TCW	Capability	Capacity	Collaboration	Commitment
High	✔			✔
Medium		✔		
Low			✔	

The availability of *capacity*—for social innovation and new policy development—was ranked as moderate. There appeared to be a sympathetic governing structure in terms of awareness of and expressed support for community groups' initiatives. But the context is complicated by the usual barriers to implementation: disconnect between rural and urban priorities; the pressure of pending infrastructure expansion and repairs (pipes and bridges); the ongoing influence of and momentum behind residential developers keen to build in the community; and the daunting expenses associated with a community on the cusp of rapid growth.

What is interesting about the capacity assessment is that it applies to much more than the area of water policy development. In rapidly evolving environmental, economic, and political conditions, the TCW appears to be teetering on a decision point: the community can either continue to be reactive and attempt to sustain the old trajectory and characteristics, or it can act aggressively to redefine its nature, its priorities, and its objectives. Either direction will be immensely difficult—because of entrenched interests and organizational inertia—but the results will be significant. It appears that there is available capability and capacity in the community. Whether the collaboration and commitment elements of social capital can be harnessed is not clear.

The findings with regard to the *collaboration* element of social capital were the most surprising. The collaboration element of social capacity was initially—and perhaps optimistically—defined as the work carried out by an individual within a social network, involving active collaboration with colleagues and peers, reliance on colleagues and peers as intellectual or professional resources, and support for research initiatives that generate new information. While the assumption was correct that in a relatively small community individuals would be familiar with one another, the lack of collaboration was surprising. The collaboration indicators of geographic structure, demographic characteristics, strength of ties, and expressed affiliations all seemed to work against any initiative that would seek to unite the community behind a common goal or vision for the future. While there is some evidence of community collaboration, the overall degree of collaboration is low. Most striking was the disconnect between the creative potential exhibited by the TCW's community groups and the risk-adverse governing structure and leadership.

In the final network assessment, the TCW's narrow social network had three influential functions:

1. To strengthen existing social capital (i.e., people know if one is effective or influential)

2. As a means to establish one's social standing or position (i.e., who's on the outside or inside) within the community (Martin, 2007)

3. To reinforce of the sociocultural split within the community (Innes, 2007)

From an economic-geography perspective, the TCW is extremely well placed to take advantage of the overflow of intellectual capital and knowledge workers from the neighboring university and cities, yet the unspoken focus remains on the old arguments rather than on new visions.

The level of *commitment*—willingness to act under both negative and positive conditions—is high in the TCW. The network members expressed impressive levels of dedication to their professions and to the betterment of their community, whether that was defined in economic, environmental, or cultural terms. The stories of how the citizens have rallied to help others during events like the tornado, to raise hospital funds, to challenge the political decisions of the casino and the proposed gravel pit, and to dedicate themselves to the tasks of serving in public office and managing the day-to-day operations of a healthy municipality were remarkable. Without exception, the network members interviewed expressed a commitment to service and their communities beyond what was anticipated.

However, the caveat is in the term *their communities*. The fracturing of the broader community into different subgroups was strongly evident in the network-mapping exercise and in the interviews. There was no indication of a common vision for the community, little receptivity to radical ideas (even as a basis for preliminary discussion and debate), and limited engagement of the population beyond the narrow network membership (e.g., new residents living in the suburban areas south of Fergus and mostly commuting to the urban centers for employment). This observation applies not only to the governing body but also to the environmental organizations within the community. The high levels of commitment, therefore, sustained strong links within the network but also limited membership (who's out/in) and reinforced existing norms, values, and priorities within each subgroup.

Conclusions

An understanding of individuals' and a community's social capital may help to explain implementation gaps and to make water resource policies more effective. However, the research is limited along these lines of inquiry. Based on a theoretical framework constructed from the knowledge management, organizational theory, water policy, and innovation diffusion literatures, new questions were asked about the capability (skills and knowledge), capacity (ability to act), collaboration (social networks), and commitment (willingness to act) among community members. The four elements of social capital are important considerations for the TCW. They were used as a framework to investigate issues related to the development of a water efficiency program. This angle represented a means to consider the role of social capital within a community. Social capital was found to be a critical component affecting a community's receptivity to innovation and social change (including new policies related to water management). Anomalies will always exist in the form of charismatic leaders or one-off events indicating potential for subgroup collaboration. But it is the assessment of the entire social capital spectrum that provides the most insight and reveals potential intervention points that can be used to generate change.

For water management policies specifically, social capital research is important to the baseline assumptions in policy development, implementation, and ongoing applications. For example, in early policy development, the capacity of the individuals involved—including their unstated assumptions and values—are an essential part of the decision-

making process. To provide a community or a decision maker with just a technical template or set of formulae—no matter how comprehensive or viable—is only one part of the equation.

Consideration of the personalities involved (i.e., the network's structure and composition) is critical. Acquiring information on social capital requires an often long and arduous process—one that extends beyond just identifying the standard barriers to implementation and a possible champion to lead the policy process. In water management policy development and implementation, we need to be much more strategic, more political, and have a longer view of the process itself. The research approach represents an alternative because it challenges the dominance of a technical conceptualization of water management while simultaneously exposing WDM to new literatures and revealing new problems to be investigated.

Notes

1. TCW's citizens were polarized during a debate about whether casino gambling ("Slots") should be built in the village of Elora. For those organized against the development, the core issue was the lack of legitimate opportunity to provide input to the decision-making process. Although a citizens group argued vigorously at council meetings, through the Ontario Municipal Board (OMB), and then later through a court appeal against the OMB decision, they lost all verdicts. The citizens' group was then required to pay the council's court costs, even though they themselves were taxpayers. According to one former member, the "process significantly undermined citizens' belief that they can be involved in local, political decision-making in any meaningful way" (Martin, 2008). For more information and a chronology of events according to the Centre Wellington Citizens Coalition, see the Historical Record of CWCC, http://cwcc.info/history/index.html.

2. According to their Web site (http://www.greenlandscw.org/vision.shtml), the Greenlands Centre Wellington is a "citizens' organization dedicated to the development and implementation of a Greenlands Strategy for the Municipality of The Township of Centre Wellington, Ontario."

3. While this explanation of social capital availability is sound, the overall impact may be less positive: the older demographic predominates because the young people have left because of a lack of economic opportunities.

4. Disclosure: The author was a member of this committee for approximately 11 months. Attendance was limited by time and family constraints.

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