Strategic Sustainability: Addressing the Community Infrastructure Deficit

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Résumé

Les communautés canadiennes ont réussi à intégrer les concepts de développement durable dans leurs visions et leurs plans, mais éprouvent de la difficulté à passer de ces idées à des stratégies, actions et résultats pratiques. Dans les prochaines années, ces municipalités vont investir d'importantes sommes dans leurs infrastructures, mais comment peuvent-ils faire pour investir stratégiquement et faire avancer le développement durable? Comment faire pour évaluer leurs priorités, identifier leurs ressources et mettre en œuvre des projets d'infrastructures qui serviront de catalyseurs pour un plus grand mouvement vers le développement durable dans leurs communautés? Cet article explore ces questions par le biais d'une étude de cas de développement durable dans des zones urbaines, rurales et des Premières Nations; des initiatives primées, qui avaient pour but d'identifier les stratégies-clés, liant la planification et l'exécution. Nos résultats indiquent que le développement d'infrastructures durable n'est pas un problème technique mais un défi de sensibilisation aux solutions viables, et un défi de la capacité des décideurs d'agir de manière stratégique et de façon plus durable.

Mots clés: développement durable; communautés; planification; décision stratégiques

Abstract

Communities across Canada have succeeded at integrating sustainability into their high-level visions and plans, but have struggled with translating those ideas into practical strategies, actions and outcomes. Municipalities will be making significant investments in community infrastructure in the near future, but how can they be strategic with those investments so they are used to advance sustainability? How can they assess their priorities, identify their resources and implement infrastructure projects that can serve as catalysts for broader movement towards sustainability in their communities? This paper explores these questions through case studies of award winning sustainability initiatives in urban, rural and First Nations contexts to identify key strategies to bridge the planning–implementation gap. Ultimately, our findings indicate that addressing our infrastructure deficit in a sustainable manner is not so much a technical issue as it is a challenge of awareness about viable solutions and our capacities as decision-makers in our communities to make strategic decisions and act.

Key words: sustainability; community; planning; strategic decision-making

Introduction

'Near collapse, crumbling, looming crisis'—from failing bridges and contaminated drinking water to the negative impacts on overall quality of life, Canada's infrastructure deficit is making headlines. While this deficit represents an enormous challenge, it also provides an historic opportunity to replace our existing infrastructure and reshape our communities in a more sustainable manner.

The bulk of existing municipal infrastructure investments in Canada were made, due to the time and context, with little understanding of the impacts that humans can have on the environment (e.g. climate change). In many cases, those investments locked communities and residents into ways of living that we now recognize as being unsustainable (e.g. sprawling suburbs). Added to the challenge of reconciling past approaches to infrastructure development is the current fiscal gap confronting municipalities as they plan for the future. Recent studies by the Federation of Canadian Municipalities (FCM) indicate that Canadian municipalities are facing the dual problem of declining infrastructure investments and aging infrastructure, resulting in an infrastructure funding deficit that is estimated at $123 billion and growing by $2 billon each year (Mirza 2007).

Despite recent attention to stimulus spending, the financial downturn, combined with the cumulative impacts of a twenty-five year trend in economic and political restructuring (that has witnessed less interventionist senior governments and off-loading of responsibilities) places significant pressures on the capacity of

municipalities to make necessary investments. As a result, communities must be very strategic with their infrastructure decisions and investments. Increasingly, communities are recognizing the value of sustainable community development (SCD) as a means of integrating planning priorities, improving public participation, leveraging resources, and generating creative and practical solutions to shared economic, environmental and social problems (Roseland 2005). The integrated and long-term view of SCD provides a strategic framework to assist communities in sorting the many complexities associated with development and corresponding infrastructure needs. However, actual implementation of sustainability initiatives is uneven, as communities struggle to bridge the planning–implementation gap.

The purpose of this paper is to better understand that gap in SCD planning and to offer solutions, or 'bridges,' that will assist communities with overcoming common barriers associated with planning processes. These bridges are organized into a 'community decision-making system,' which highlights the multiple variables and actors involved. Drawing upon a two-year research project that includes detailed case studies with a cross-section of communities, our research is grounded in the realities of municipal conditions through a focus on 'strategic sustainability.' Strategic sustainability is an approach to planning and implementation that allocates limited available resources with the greatest impact for sustainability. By thinking strategically about sustainability and making the connection to community infrastructure, communities will be able to identify the 'quick wins' for sustainability in the short term while retaining and building support for broader and more complex solutions in the medium and long term.

In the following section we provide greater detail into the origins and theory of SCD. We then present our research design and information about our case communities. Finally, we discuss key findings that will assist communities in overcoming the challenges presented by the complexity and investment orientation encompassed in sustainable community planning.

Implementing Sustainable Community Development

Sustainable development is a concept that has achieved widespread recognition, yet at the same time is interpreted in different and often competing ways (Mebratu 1998). Williams and Millington (2004) have characterized the diversity of definitions along a spectrum from weak to strong sustainability based on underlying concepts and worldviews of the relationships between the environment, economy and society. However, thinking of sustainable development in conceptual terms masks the fact that sustainability outcomes will not depend on worldviews or conceptual approaches. Rather, outcomes will be dependent on what people living in communities do about it, through local projects and local conflicts, and how they link their communities to their local environment (Evans 2002).

Our research investigates the concept of SCD in urban, rural and First Nations settings. While context clearly matters to the principles and practices of sustainable development (Bulkeley 2006; Markey, Halseth and Manson 2008), a point of integration is that SCD applies the concept of sustainability to the local level where the challenge is to integrate sustainable development principles, long-term planning processes and specific community priorities (Roseland 2005; Seymoar 2004) Addressing the complexity of integration requires the adoption of intentional strategies, structures and processes that will mobilize and organize citizens and their governments. SCD is grounded in the understanding that mobilizing citizens and their governments through democratic processes serves to coordinate, balance and catalyze the values, visions and activities of various community actors to create change (Mazza and Rydin 1997). Through a culture of community involvement, multi-stakeholder participation and consensus-building, communities identify values, visions and outcomes to make cities and communities more sustainable (Brand 2005; Mercer and Jotkowitz 2000; Parkinson and Roseland 2002; Roseland 2005).

Structural Barriers and Procedural Challenges for SCD Implementation

The literature identifies key factors that are important in moving from sustainable community planning to implementation in diverse contexts. This literature suggests that the planning–implementation gap is not due to a lack of research, knowledge or information about sustainable communities and the associated principles. Rather, the gap is multi-faceted and involves, among other things, a lack of coherent dialogue, congruence between different political levels, political will, and a sustainable development ethos between levels of government and community stakeholders (Dale 2001; Evans 2005). We have identified a variety of structural and procedural issues from the literature that relate specifically to the capacity of communities in urban, rural and First Nations contexts to effectively engage in SCD planning.

From a structural perspective, the implementation of complex and integrated initiatives such as those associated with sustainability often involves changes in relationships between participants and shifts in power. First, there is an inherent conflict between SCD processes and principles that focus on collaborative problem solving and participatory approaches, and local restructuring processes that typically are influenced by economic networks and private sector initiatives (Harvey 1989; Healey et al. 1995; McAllister 2004; Osborne and Gaebler 1993). Second, governance structures often have difficulty integrating formal institutional processes with grassroots initiatives (van Bueren and ten Heuvelhof 2005), presenting challenges for citizen engagement and social capacity development (Dale and Onyx 2005; Rydin and Pennington 2000). A third structural barrier to implementation is formed by the power of dominant economic rationales,

bureaucracy, inertia, and the lack of a sense of crisis that prevent multiple bottom-line decision-making (Adger et al. 2003).

Related to these structural barriers are the procedural challenges associated with effective multi-stakeholder processes (Clapp and Meyer 2000; Conroy and Berke 2004; Gibbs and Jonas 2000; Mercer and Jotkowitz 2000; Parkinson and Roseland 2002; Portney 2003) that are required to navigate the complexity of local sustainability initiatives (Bulkeley 2006; Guy and Marvin 1999; Morrison 2006) and build the capacity of municipal and band council decision-makers to link short-term problems with long-term sustainability solutions (Blair and Evans 2004; Brugmann 1994; Campbell 1996; Evans 2005; Newman and Verpraet 1999; Parkinson and Roseland 2002). Overcoming the planning–implementation gap requires approaches that address the interrelationships between structure and process, as each barrier or challenge cannot be addressed in isolation.

A Systems Perspective on Sustainable Community Planning

Community decision-making is influenced by the processes used to develop policies, plans and initiatives as well as broader structures that govern decision-making and community engagement, including the strategic decision to consider sustainability in the first place. The implementation gap is partly a result of the lack of integration between the systems and processes of planning and implementation, and the failure to monitor results. Often, the only linkage between planning processes and actual implementation is the plan—a document that on its own is insufficient at reconciling long-term planning goals with the reality of short-term economic and political decisions. The challenge for a strategic approach to sustainability that bridges the gap is to identify multiple opportunities for integration beyond the planning process itself.

Recognizing the necessity of integration to address the structural and procedural barriers discussed above, we approached the planning–implementation gap by organizing our analysis into what we have called an 'integrated community decision-making system.' The framework includes community actors, values and visions, governance structures, policy mechanisms and outcomes as five interacting and interdependent elements that together can be thought of as a community decision-making system—a way of strategically bridging planning systems with implementation systems (see Table 1) (Roseland et al. 2006). The advantage of a systems perspective is that it highlights the multiple opportunities that exist to strategically bridge the gap, depending on the context, issues and capacity of a given community. The framework allowed the research team to identify and categorize barriers and bridges in each case study in a consistent and integrated manner.

Table 1: Case Study Framework Elements

Framework Element	Description
Actors	Community actors influence policy development and community outcomes in a variety of ways. Each actor's values inform a vision for its future which it implements through its own set of strategies, tools and activities and through its motivations and mandates for engaging in sustainability initiatives (Minnery 2007).
Values and Visions	Community members interact through formal policy and planning processes, and informally through their everyday interactions. This element represents how values and visions are expressed through formal planning processes (such as Official Community Plans) and informally through action and how these in turn inform decision-making and policy development. The way that the tensions and conflicts are mediated often plays a role in determining implementation activities (Healey 2006).
Governance Structures and Decision-making Processes	This element captures the processes and opportunities for actors to engage in decision-making processes and the structures and principles that govern that engagement.
Policies and Strategies	This element explores the formal policy processes used to guide activities of various community actors towards expressed sustainability outcomes.
Signals, Actions and Outcomes	This element explores the linkages between how sustainability outcomes result from the combination of the other framework elements and how they in turn influence and shape the other elements of the community decision-making system.

Research Design and Summary of Case Study Initiatives

The second phase of our research project included in-depth case study analysis of four award-winning sustainable community planning initiatives. Following Yin (2003) and Stake (1995), case study research represents a useful approach for inquiry into complex and contextual social processes, making it an appropriate method for examining the emergent and diverse components of sustainable community development. We also hoped to address the need for more systematic case study research related to implementing SCD initiatives (Portney 2003).

We selected our four case study communities out of a larger set of examples reviewed in the first phase of our research to identify best practices. The Federation of Canadian Municipalities' Sustainable Community Awards program recognized each of the communities for their award winning sustainability efforts. Further case selection criteria included: extent of project impact on the community, the comprehensiveness of implementation, and the relationship to public infrastructure. We also selected cases that were representative of different regions in the

country and that provided a diversity of community contexts. These criteria resulted in the selection of two urban cases (the Better Building Partnership in Toronto, Ontario and the development of the East Clayton neighbourhood in Surrey, British Columbia), a rural case (the Sustainable Living Project in Craik, Saskatchewan), and a First Nations case (the Comprehensive Community Plan for Rolling River, Manitoba).

The focus of our case research was on the decision-making processes that were involved in moving from sustainable community planning to implementation. By focusing on the processes involved, we were able learn from specific community contexts while also drawing more general cross-case conclusions. The investigation explored each element of the integrated community decision-making system. Data collection consisted of multiple sources, including community profiles, local planning documents and 10-15 semi-structured interviews of 60-90 minutes with key stakeholders in each community (municipal / band council staff, local politicians, and community members). Building on the literature, we used a central proposition to guide our case research: that barriers to implementation are not a result of a lack of knowledge about viable sustainable development options or access to sustainability planning tools; rather, barriers lie elsewhere in the decision-making processes, in the knowledge base and capacity of planners and decision-makers, and in mobilizing the institutional resources of local government and community-based organizations to take action. Research questions to guide the case research were as follows:

- What are the key elements, processes, decision-making tools, actors and roles that facilitate movement from planning to implementation?
- How do communities identify and prioritize activities, policies and programmes to advance sustainability?
- What are the linkages between communities, sustainability and community infrastructure?

In the following section, we present brief summaries of the case studies to provide some context for our findings. For more detailed descriptions of the case study communities, visit the project website at www.sfu.ca/cscd/strategic_sustainability.

Overview of Toronto's Better Building Partnership

Toronto is Canada's most populated city containing over 2.5 million people (2006). Toronto's Better Buildings Partnership (BBP) provided a practical example of implementation related to the city's CO_2 emission reduction goals (a 20% reduction

in greenhouse gases from 1988 levels). This program aims to decrease greenhouse gas emissions and improve urban air quality through energy-efficiency retrofits to buildings in the industrial-commercial-institutional building sector. The program, launched in 1996, provides comprehensive energy retrofits to private and public buildings through lending schemes that allow building owners to pay back retro-fit costs through efficiency gains. By 2007 BBP had 'survived' 11 years within constitutional constraints of municipal financing and has made improvement to over 600 buildings, resulting in a reduction of 200,500 tonnes of CO_2 annually, as well as $19 million in savings to building owners. As an example, the largest photovoltaic system in the country at Exhibition Place reduces greenhouse gas emissions by 115 tones per year and results in an annual savings of $10,000 in electricity costs.

Figure 1: Solar Roof at Toronto's Exhibition Place

Overview of Surrey's East Clayton Neighbourhood Development

Surrey is British Columbia's second largest city with a population of approximately 394,000 people (2006). The focus of the Surrey case study was the planning and development of a new neighbourhood, through the East Clayton Neighbourhood Concept Plan (NCP). Guided by seven sustainability principles, the main prior-

ities of the East Clayton project were reductions in urban run-off through on-site infiltration techniques, and the application of neo-traditional urban design considerations such as rear lanes, higher densities, work-live zoning, integration of commercial and business zones in the neighbourhood, as well as greenways. The City created the NCP through engagement with local property owners, citizens and city staff in a series of design charrettes with the goal of introducing sustainability measures to the new neighbourhood development through site design.

The East Clayton NCP arose from two sets of conditions: the need to develop new urban areas in response to population growth and the need to develop East Clayton while protecting agricultural land and salmon-bearing habitats. East Clayton is located in an area of Surrey that contains farmland and salmon habitat, and the City of Surrey had already received threats of lawsuits from farmers who contended that urban run-off from developments would cause damage to their lowland farms. These factors combined to provide the motivation to explore sustainable neighbourhood design.

Overview of Craik Sustainable Living Project (CSLP)

In 2000, the Town of Craik, Saskatchewan and the Rural Municipality of Craik joined forces to help establish a community-based sustainability project that would bring attention to the town and provide a model for sustainable living for other rural communities. Craik has a town population of approximately 400 people with an additional 300 people in the surrounding region (2006). There are four components to the project: 1) the Eco-Centre demonstration building, 2) Community outreach and education, 3) Community Action and 4) Eco-village development. Each of these components is community driven and is designed to provide local employment opportunities, demonstrate energy efficiency in buildings, and transform and promote Craik as a sustainable community.

From the time construction began for the Eco-Centre in 2003, it has served as a focal point for outreach, education and community action activities such as a seminar series and local ecological footprint campaigns. The Eco-centre served as the starting point for the town's sustainability efforts in order to demonstrate the viability of energy efficient and alternative approaches to construction (e.g. straw bale construction, alternative energy sources and integrated environmental design). The Centre would then serve as a model for expanding the scale of the project to a full Eco-village development on granted Rural Municipality land.

The motivation for the CSLP was concern regarding the overall viability of the town. Faced with the general decline of rural Saskatchewan, the community of Craik realized that something had to be done that would draw attention to the town in a positive sense and raise its profile relative to other rural communities. Rather than embarking on traditional economic development initiatives in competition with surrounding towns (i.e. free land, town marketing, and highway

oriented development), leaders in the community were convinced that sustainable community development provided the key to long-term stability and rural revitalization by making Craik a desirable place to live and enabling them to promote the community for business and resident attraction. Sustainability was seen as a necessity because neither the Town nor the Rural Municipality could afford to expand services.

Figure 2: Craik Eco-Centre

Overview of Rolling River First Nation Comprehensive Community Plan

Rolling River First Nation is located in southern Manitoba and has a Band population of 336 people (2006). The Rolling River case study focused on the community's comprehensive community plan that was initiated in 1998. The plan is treated as a living document, constantly being modified to reflect changes in the community as new challenges and opportunities are identified. The main priorities of the plan are to promote economic development initiatives designed to create employment within the community, and to generate revenue and reduce the reliance of the community on funding from the Canadian government. Some of the initiatives from the community plan that have been successfully implemented include a new health centre, gas bar, restaurant, video lottery terminal centre and

new farms. Projects that are still underway include a modular home plant, a community sawmill, and a local wind energy project.

The challenge for the community is to identify what type of economic development initiatives to engage in and how to link existing capacity for economic development with the opportunities presented with the acquisition of new reserve status land. The overall long-term goals of the community are to achieve 95% employment through economic development initiatives that reflect the community's values to protect cultural and ecological integrity and involve community review and approval. The goal of the economic development plan and the capacity assessment is to meet the basic needs of community members through local self-reliance that links traditional culture and holistic ways of thinking to the realities of the modern world.

Bridging the Implementation Gap

A systems approach to understanding the structural and procedural barriers to implementing sustainability suggests that there is no single strategy that is effective at overcoming specific barriers. Rather, there is a series of inter-dependent strategies that can be effective. Regardless of the specific context, scale or focus of the individual case studies, there were considerable similarities across the cases in terms of barriers to implementing sustainability and approaches to addressing them. This finding is particularly important given the reliance on best practices as a form of cross-community learning. The utility of using the community decision-making system as a framework for case analysis is that it identified and organized prominent cross-case strategies for overcoming the planning–implementation gap (see Table 1). In the following section, we present these planning themes specifically as bridges over the common barriers that are impeding progress from planning to implementation in sustainable community development. It is our hope that these bridges will be useful for other communities in addressing the planning–implementation gap (see Table 2).

Community Actors

We identified the following as key bridges for engaging a variety of motivated actors committed to SCD to strategically address the planning–implementation gap:

- Presence of influential community leaders that were able to place sustainability on the agenda and motivate others to become engaged;
- Proactive approach to public engagement by actively seeking out partners and stakeholders;
- Use of catalyzing issues for which there is broad support;
- Management of engagement cycles and understanding that the

Table 2: Key Factors in Bridging the Planning - Implementation Gap

Community Decision-making System	Key Strategies for Bridging the Planning – Implementation Gap				
	Community Leadership	Proactive Approach to Public Engagement	Use of Catalyzing Issue	Management of Engagement Cycles	Use of External Actors
Community Actors	Overcome Economic Primacy	Values and Vision Inclusive, not Ideological	Focus on Quality of Life	Grounded in Existing Capacity	Culture of Empowerment
Community Values and Vision	Project-based Demonstration Projects	Risk Assessment/ Management	Cross Departmental / Stakeholder Engagement	Capacity and Raise Awareness	Non-technical; 'Pretty Good' Solution
Governance and Decision-Making	Information, Best Practices and Learning from Others	Complexity and Innovation	Back of Envelope Planning	Institutionalize Projects	Performance-based Strategies
Policy Design – Strategies, Actors and Instruments	SCD as Investment rather than Cost	Integration of Demonstration Projects	Adaptable / flexible	Institutionalize Outcomes	Use Incremental Results as Leverage
Community Signals, Actions and Outcomes					

participation of individual actors ebbs and flows based on perceived importance, ability to take tangible action or access to resources; and

- Use of external actors as neutral 3rd party or to supplement existing knowledge base and awareness or to increase capacity to take action.

Each case study relied on a key leadership figure or a core group that was able to drive the process and engage political leaders and other community actors to participate. Despite the variability of approaches among the case studies, leadership figures emerged that recognized the importance of engagement and worked to build partnerships based on a clear understanding of the motivations, mandates and incentives of stakeholders to become engaged. For example, local government restructuring provided the opportunity for establishing the BBP by broadening the opportunities to address SCD:

> It was important to develop non-traditional partnerships to really build the capacity of community. Originally, people questioned why the municipality was engaging in something that the business community was responsible for. Why the focus on job creation activities when that is what the province and federal governments were for? We had to get the support of Bay St. and the trade unions and it really demonstrated and generated a growing acceptance and internal capacity that municipal responsibilities were beyond infrastructure and service provision. (BBP staff member)

In each community, a key catalyzing issue was identified out of a myriad of possible issues that served to motivate and engage the broadest possible support and for which there was a sense of crisis. For example, in Craik there was concern about the viability of the town, while in Surrey, they were able to capitalize on storm water management as a 'make or break issue' for development that enabled broader engagement around doing development differently. While these motivating issues served to galvanize community support for SCD initiatives, it was also important to manage the ebbs and flows of community support.

> And it's easy to forget about the people that are not involved, because you know what's going on and two thirds of the community knows what's going on, but the other third don't know. And they're the ones that are doing all the talking...We had a couple of disgruntled people that thought they didn't know what was going on, and so petitioned for a public meeting… And the town had a public meeting and really what it did was

the best thing that could have happened. Because when people left, they were just really happy, it was a real vote of confidence. They said: "I like what you're doing, I'm happy you're doing it, I'm glad we had the meeting because I understand it better." (Craik Sustainable Living Project member)

Community Values and Vision

Community values and vision were expressed formally in planning documents and also informally through the day-to-day interactions between community members. The strategic bridges used to identify and develop a shared vision for the community and the values that motivate action towards sustainability were as follows:

- Community values were able to overcome economic primacy and were cross-sectoral and motivated out of concern for and recognition of the linkages between issues;

- Values and visions were inclusive and supported across the ideological spectrum, allowing initiatives to survive beyond election cycles;

- Focus was on improvement of local quality of life and on making things better in each community;

- Visions for the future were grounded in existing capacity, resources and understanding of the degree of change the community was willing to accept; and

- A shared culture of empowerment and community initiative existed within the process.

In each of the case study communities, preserving or improving the economic status quo was a key component to any activity, yet communities expressed values in a holistic manner that exceeded a narrow interpretation of economic primacy. For example, in Rolling River, conflicting values between economic development and traditional approaches to community-building were resolved based on values that expressed the need for both:

Well yeah it is because when we look at economic development we look at well, what's the cultural impact. Is it negative or positive and we try to make it positive. Like, yeah, we're going to make money but we're going to be putting that into language classes, hiring an elder in the evening to come in and sit with the youth or anybody that wants it. (Rolling River member)

Visions for the future were explicitly integrative and were motivated out of concern for and recognition of the linkages between the economy, the environment and society. In Toronto, for example, the vision for 'smog free days' and the reality of an economic recession provided the rationale for a building retrofit program that contributed to a reduction in emissions and created jobs. Surrey used a set of high-level principles focused on improving the quality of life to generate a sense of inclusivity in the charrette process:

> The first conversation we had we said "OK, here are six principles. Does anybody in this group think that any of these principles are problematic?" Basically people said no they're all OK. And the second question was "OK, well as a group do we think that we can collectively achieve all of these things at the highest level?" Of course it was a little bit too easy for them to say "Yah, sure" because at the end of it, we didn't. But, you know, the, the second part of the question was to set the bar high. (East Clayton charrette participant)

In each case, there was broad support that stretched across ideological lines and allowed for initiatives to survive beyond election cycles. While the motivations and associated values for taking action reflected a need for change in the community, in each case study visions were grounded to existing resources, capacity and understanding of the degree of change the community was willing to accept. Rolling River undertook a broad visioning exercise, yet also identified specific priorities for action from that process based on an evaluation of their capacity to implement over the short term.

The culture of empowerment and community initiative that enabled either the local government or the community to take the action in implementing sustainability in response to local issues beyond their normal mandates was also important. For example, the established culture of volunteerism and community initiative in Craik and the willingness of the City of Toronto to step beyond the normal role of government and become directly involved in energy retrofits enabled both communities to bridge the planning–implementation gap.

Governance and Decision-making

Integration of decision-making processes is commonly referenced as a goal for sustainability (Adger et al. 2003). However, there are real challenges in breaking down the 'silos' and 'stovepipes' between city departments or between various community actors as noted in the barriers above. A strategic approach to governance and decision-making contributed to the success of the case communities in bridging the planning–implementation gap. The key cross-case bridges we identified were:

- Project-based demonstration projects transformed the concept of sustainability into tangible actions that provided support to decision-makers;

- Decision-making processes and structures acknowledged the risks —both perceived and actual—associated with doing things differently, yet addressed those risks in an open and transparent manner;

- Engagement of multiple departments and multiple stakeholders in the decision-making processes established linkages and ownership of sustainability initiatives;

- Decision-making processes were used to raise awareness and build capacity to address complex sustainability issues and as a problem solving exercise that broadened the local knowledge base; and

- Decision-making did not get bogged down with the need for technical knowledge; rather it relied on a 'pretty good' rather than a perfect solution.

The keys to governance and decision-making processes were integration, engagement and involvement of a cross-section of actors. The key bridges between planning and implementation were information, knowledge and awareness. Regardless of whether an initiative was project-based or had its origins in a planning process, in each case, communities were able to use knowledge and information generated externally or through internal demonstration projects to give sustainability initiatives tangible meaning. Information and awareness were also important in managing the risks associated with doing things differently. Decision-makers identified the importance of risk, both perceived and actual, and the ability to account for it as being critical in the decision-making process. For example the Craik Sustainable Living Project had to deal with three types of risk. First there was the financial risk of using Town reserves to finance a community project. Second, there were personal risks associated with being associated with a 'wing-nut' scheme in a small community. The last risk was of volunteer burn-out. One way that risk was managed effectively across the cases was through cross-departmental involvement or multi-stakeholder engagement in the decision-making process. This engagement had the effect of creating a sense of joint ownership over sustainability initiatives and reduced the risks to any one department, group or individual. It also raised awareness and built capacity to address complex SCD projects. For example, Chief and Council in Rolling River engaged the community through roundtables that were designed to both engage community members and to increase the collective capacity to solve community problems.

> Go ahead, here is your chance, come sit at the round table. We had 33 members that eventually sat on the round table, and for a while it was used as a bitch session… you're not doing this you're not doing that. Well now you have a chance to participate. And this table will be deemed as our consultation table, they get to report back to their families and bring it back to the table. (member of Chief and Council, Rolling River)

Finally, decision-makers did not get bogged down with the complexity of sustainability, the technical details or gathering all the required information. Instead, in each case projects were able to proceed based on a pretty good, rather than perfect solution. In the Surrey charrette process, participants recognized that they could not think of everything at the planning stage and built in some flexibility into the charrette plan to accommodate experimentation, innovation and improvement. They decided it was better to move forward on a particular issue based on a pretty good solution rather than to gather all the required information for perfection and certainty.

> You had all the key people together, all of them hearing the pressures, the constraints, the challenges of the other, so that they were able to collaborate, they were able to work together, and ultimately, everybody gets together everybody contributes to this experiment. (Surrey councillor)

Policy Design

The key bridges in terms of policy design for strategically overcoming the planning–implementation gap were as follows:

- Information, best practices and learning from others;
- Complexity management and innovation;
- Back of envelope plan to deal with complexity;
- Institutionalize best practices into regular way of doing things; and
- Performance based strategies.

There were no specific policies, strategies or instruments that were effective across all case study communities. Particularly for Craik and Rolling River, capacity and resources within local government or band administration limited the degree to which specific policies were considered. However, each community looked to best practices from elsewhere as a means to learn and transfer knowledge to their respective communities. For example, the Better Building Partner-

ship in Toronto started out with some questions like 'what should this look like?' and looking at the experience of other municipalities, particularly in the US and the Canadian Federal Buildings Initiative to learn from and improve on their experiences. Consultation with other cities engaged in energy conservation also proved effective, and the proponents actually invited people to come to Toronto to share their experiences.

This information transfer was essential in managing complexity associated with policy innovation and a key aspect of learning was not the technical aspects of how initiatives were implemented in other communities, but rather the processes involved to manage the complexity. Related to findings on decision-making above, non-technical approaches to strategy design such as simple 'back of envelope' calculations provided enough rationale to support decision-makers. For the EcoVillage development in Craik, the community relied on a simple set of criteria to evaluate proposals from proponents. Craik does not have access to a planner on staff, so a committee of volunteers assesses proposals based on established guidelines that off-load the technical capacity and decision-making to the proponents.

A key challenge across all case studies was institutionalizing best practices and demonstration projects into the regular day-to-day operations of the local government or Band. In both Surrey and Toronto, there was a shift towards performance-based standards based on outcomes as a way to spur innovation in implementing sustainability initiatives.

> If you accept the principle that roundtable conversations with stakeholders are the way to bust out of the present paradigm constraints, lead to a new world with different collaborative and performance based-activities. That would lead you to say you have to institutionalize the charrette always. (Surrey charrette participant)

Community Actions, Signals and Outcomes

A key challenge for our case study communities in terms of community actions, signals and outcomes was maintaining consistency and commitment towards sustainability within the context of complex, interdependent and conflicting policy signals externally (from other levels of government) and internally (policies and action within the community). The following bridges were relevant for all our case studies:

- Costing—viewing SCD as an investment rather than a cost;
- Integration of demonstration projects with other activities;
- Keeping the process adaptable / flexible;

- Institutionalizing outcomes into formal decision-making structures; and
- Accepting some pushback but using results to leverage further changes.

Thinking of SCD as an investment rather than a cost was instrumental in overcoming this challenge. It allowed our case communities to leverage change in one aspect of their community and to link it to other activities and with other issues. Surrey, for example, used concern over storm water management to not only leverage investment in innovative green infrastructure for East Clayton, but also provided the opportunity to address the form and function of an entire new neighbourhood. Each community used demonstration projects to spur other activities, to raise awareness of SCD and to maintain momentum and interest among broader stakeholders.

> What we needed is a physical demonstration of sustainability. I didn't think that most people in Southern Saskatchewan could get it if you just wrote out a plan, if you just wrote out a vision. If they just read it, it wouldn't make any sense. If they could come in and see it, it would make sense. And our idea initially was to have a demonstration building, it would be the initial stage. And the second stage was to have an Eco Village, where instead of having a commercial building, which is the Eco Centre, it would be actual people living in houses and obtaining at least some of their income off the land based there. And, you know, they bought into everything. (Craik Sustainable Living Project member)

The case study communities were all able to implement incremental changes to their communities through their planning and implementation activities, but struggled to institutionalize the outcomes. In part, this was a pragmatic response to sustainability, based on the assumption that a series of incremental changes will continue to raise the bar and leverage further change, but it does not address the more revolutionary reform to local government that some are calling for.

> That's what we mean by incubation. We look for opportunities of things that could be replicated and scaled up. If we can show that it works, and build people's confidence, and working with lead partners. Because Tridel's [development corporation] a big company, it's very reputable, you know, they're not doing crazy, greening things for nothing. They are making money. (Toronto Atmospheric Fund staff member)

Lessons and Implications for Strategic Sustainability

Our findings indicate that communities are shouldering much of the burden of structural change associated with shifting economic and political priorities. While senior governments played critical roles in developing community infrastructure in the past, cities and communities must now organize themselves to construct visions and plans for the renewal of critical social and physical infrastructure. From the perspective of SCD, the cases illustrate the benefits—in terms of realizing planning objectives and finding appropriate local solutions—associated with localizing these systems.

The structural success of community planning is entirely dependent upon the importance of process—shifts in the ways things are done and how the options are evaluated, and in the engagement with and expansion of decision-makers. The research stresses the importance of linking institutional and community-based processes in order to bridge the gap between planning and implementation. The key to strategic sustainability is to think holistically about planning and implementation and to identify the key opportunities, actors and strategies needed to advance sustainability in a given context. The best practices exhibited by the case communities display innovative and resourceful procedural efforts to navigate the complexity and capacity demands of sustainability planning.

Our four case studies are award-winning examples of communities that have been successful in their sustainability initiatives, and the good news is that there are more like them across Canada. Our study has largely confirmed our proposition: there is adequate information available about sustainability planning, and there are enough communities implementing sustainability initiatives to serve as examples for a range of community contexts. The barriers to implementation are not a result of technical issues, or a lack of tangible projects or proven alternatives to business as usual. Rather, the barriers and solutions are based in social processes of decision-making and in the mobilization of institutional resources of local government and community-based organizations to take action.

The cross-sectoral linkages identified in the research provide a shared vision and commitment to 'doing things differently.' Recognition of sustainability as a key amenity for communities must overcome perceived financial barriers. It is counterproductive to continue to think of sustainability purely as a cost; rather, sustainable community infrastructure is a critical investment. SCD provides the opportunity for guiding those investments in a manner that will be of benefit to communities for generations. Planning for sustainability needs to be linked directly to planning for infrastructure investments; otherwise we risk re-creating unsustainable practices.

Municipalities and First Nations communities across the country are recognizing the infrastructure crisis. Governments at all levels have recognized the reality

of the infrastructure deficit. In addition, the current financial crisis has prioritized infrastructure spending as part of an overall stimulus package for the national economy. The pressure to pour funding into regional and provincial economies through 'shovel ready' projects makes the consideration of strategic sustainability particularly relevant and urgent for infrastructure investments. At the community scale, many communities are addressing their infrastructure deficit through a SCD lens and are either investing in green infrastructure or establishing innovative projects designed to reduce demand on existing infrastructure. These examples provide tangible examples for other communities and real learning opportunities of how to change the status quo towards SCD.

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