

**Regional Sustainable Development Strategies:
Variations in Formulation and Content in
Nine Canadian Case Studies and the Implications
for Eco-Procurement**

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For the:
Environment, Economy and Trade Program
Commission for Environmental Cooperation

27 February 2006

This background paper was prepared for the CEC Secretariat. The opinions, views or other information contained herein are those of the author and do not necessarily reflect the views of the CEC or the governments of Canada, Mexico or the United States.

Cite as: Clarke, Amelia. *Regional Sustainable Development Strategies: Variations in Formulation and Content in Nine Canadian Case Studies and the Implications for Eco-Procurement*. Commission for Environmental Cooperation, Montreal. 2006.

Executive Summary

The Parties to the North American Agreement on Environmental Cooperation (NAAEC) attach strong importance to the enhancement of North American markets for green products and services. They are committed to increasing their own eco-procurement and use of such products and services, and to encouraging others, such as municipal governments, to do the same. The Commission for Environmental Cooperation (CEC) Secretariat, in collaboration with the North American Green Purchasing Initiative (NAGPI), developed action plans for fostering institutional purchasing of green cleaning agents, electricity and office supplies/equipment. This report provides background information for the implementation of the action plan for fostering purchasing of green products by municipalities.

This report is based on a study the author conducted in the summer and fall of 2005 using the case regions of Halifax, Montreal, Toronto, Hamilton, Kitchener, Calgary, Edmonton, Vancouver and Whistler. The eight municipalities and one town were chosen based on their available online documentation and their variations in approach. Data was collected from available online documents, including each region's relevant sustainable development strategy and/or plan(s). The study focuses on the content of the plans, the process of the plan formulation, and the links between process and content. While the original purpose of the study was to compare sustainable development strategies, this report emphasizes the eco-procurement content.

In terms of eco-procurement, only three cases (Whistler, Montreal, and Hamilton) have explicit strategies for this area. Other cities, such as Vancouver (not including Richmond), have indirect references in their green building or energy / climate change initiatives. This is in part due to the fact that there is no specific organizational champion for municipal eco-procurement in Canada, though there are a number of organizations that are undertaking related initiatives.

The overall contribution of this study is to provide additional information about regional sustainable development strategies being undertaken in Canada. By identifying the variance between approaches, particularly in the areas of plan types, formulation process, and the implications on content, this study helps display the options available and the implications of some of those options. Specifically, for regional sustainable development strategy, the collective / partnership approach has huge potential to help overcome some of the jurisdictional limitations of cities. Using backcasting helps keep predictions within ecological limits. Having multiple time horizons allows for a different integration of ecological, economic and social considerations; thus, perhaps, ensuring that better decisions be made. It allows for both the visioning and the action planning levels to proceed.

As with anything new, there is not yet one best way for eco-procurement to be included in planning. Ideally, a vision about greening of the local economy should appear in a long-term (100-year) strategy; goals related to materials, food, energy, and water production, consumption, and disposal should be in mid-term (15 – 30-year) strategies; and specific action items on eco-procurement should be in shorter term action plans (2-5 years).

Future research on regional sustainable development strategies and eco-procurement should include a further analysis of a few “best practices”; expanding the study from formulation and content to also include implementation. In-depth cases should be conducted on eco-procurement related initiatives of Montreal, Hamilton, Whistler, and perhaps Vancouver (especially Richmond), Calgary and/or Edmonton. While Montreal and Whistler are in their early phases, Hamilton has years of implementation experience. Also a further exploration of the relationship between green procurement and life-cycle materials management is needed, taking into consideration the municipal context and jurisdiction.

Table of Contents

Table of Tables and Figures.....	5
List of Acronyms	6
1. Introduction.....	7
2. Background.....	9
2.1 Sustainable Cities – An International Perspective.....	9
2.2 Sustainable Cities – A Canadian Perspective	10
3. Methods	11
3.1 Research Design	11
3.2 Theoretical Framework.....	13
4. Results.....	14
4.1 Three Cases of Municipal Sustainable Development Strategies	14
4.1.1 Hamilton, Ontario.....	14
4.1.2 Vancouver, British Columbia.....	16
4.1.3 Whistler, British Columbia	17
4.2 Key Variations Between Nine Case Regions	18
5. Discussion.....	19
5.1 Plan Types	19
5.2 Power – Who are the Champions?.....	20
5.3 Collaboration – Partners versus Participants	21
5.4 Frame – Time Horizon and Predictive Models.....	23
6. Conclusion	24
Appendices.....	27
Appendix I – Selected Canadian Sustainable Cities Programs.....	27
Appendix II – List of Documents Used in the Study.....	28
Appendix III – Concepts and Full List of Related Variables – Matrix.....	31
Appendix IV – Biography of the Author.....	32

Table of Tables and Figures

Table 1: Nine Case Study Regions and their Main Strategies and Plans of Interest.....	12
Table 2: Hamilton’s Vision 2020: Goals that Relate to Eco-Procurement	15
Table 3: Hamilton’s Vision 2020: Local Economy Strategies that Relate to Eco-Procurement.	15
Table 4: Vancouver’s 100-year Strategies for Sustainability	16
Table 5: Whistler’s Sustainability Objectives using TNS.....	17
Table 6: Whistler 2020 - Materials and Solid Waste Strategy – Description of Success	18
Table 7: Nine Canadian Regions and their Variance on Sustainable Development Strategic Management Key Concepts and Related Variables	19
Table 8: Examples of Green Economy Considerations in Regional Sustainable Development Plans	22
Table 9: Examples of Water in Regional Sustainable Development Plans of Different Time Horizons....	23
Table 10: Websites of Selected Canadian Sustainable Cities Programs.....	27
Table 11: Matrix for Data Collection on Regional Sustainable Development Strategic Management	31
Figure 1 Map of Nine Case Study Regions.....	8
Figure 2: Flow Diagram of Regional Sustainable Development Strategic Management Concepts	13
Figure 3: Flow Diagram of Key Concepts in Regional Sustainable Development Strategic Management which is Designed for Realized Strategy	18

List of Acronyms

CEC	Commission for Environmental Cooperation
CIRAIG	Centre interuniversitaire de référence sur l'analyse, l'interprétation et la gestion du cycle de vie des produits, procédés et services.
FCM	Federation of Canadian Municipalities
FSC	Forest Stewardship Council
GRIDS	Growth Related Integrated Development Strategy (City of Hamilton)
GVRD	Greater Vancouver Regional District
ICLEI	International Council for Local Environmental Initiatives
ICSC	International Centre for Sustainable Cities
LEED	Leadership in Energy and Environmental Design (Green Building Rating System)
NAAEC	North American Agreement on Environmental Cooperation
NAGPI	North American Green Purchasing Initiative
NGO	Non-Governmental Organization
NRTEE	National Round Table on Environment Economy
SCP	Sustainable Cities Program
SD	Sustainable Development
SFU	Simon Fraser University
TNS	The Natural Step
UBC	University of British Columbia
UK	United Kingdom
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNCHS	United Nations Conference on Human Settlements
UNEP	United Nations Environment Programme
WPC	World Planners Congress
WSSD	World Summit on Sustainable Development
WUF-3	World Urban Forum III

1. Introduction

By comparing and contrasting the approaches taken by nine different Canadian cities to sustainable development planning, this report highlights the variances in approaches to formulation and content, and highlights the potential of collective strategy, backcasting predictive modeling, and multi-time horizon planning.

Increased urbanization, coupled with increased global human population numbers, has implications on local and global ecosystems, social systems, and economic systems. The concept of a *sustainable city* emerged in the 1990s and is outlined in a series of United Nations agreements including Agenda 21, the Habitat Agenda, and the Johannesburg Plan of Implementation (UNCED, 1992; UNCHS, 1996; WSSD, 2002). A sustainable city's plans range in topic from adequate shelter, natural resource use (including water, air, biodiversity, forests, energy and land), infrastructure (including buildings, fleet, roads, bike paths, water treatment) and waste (including water, sanitation, drainage and solid-waste management), to healthy communities. In 1992, Canadian municipalities began adopting regional sustainable development strategies and/or environmental strategies to complement their provincially mandated official plans. In some cases, these approaches were inter-organizational and based on geographic boundaries; in other cases, they only involved the municipal government's jurisdiction as boundaries, and used stakeholder consultations instead of partnerships. The type of plans developed, their formulation process, and their frame all have impacts on the sustainable development content included and, therefore, on the future of sustainability in the region.

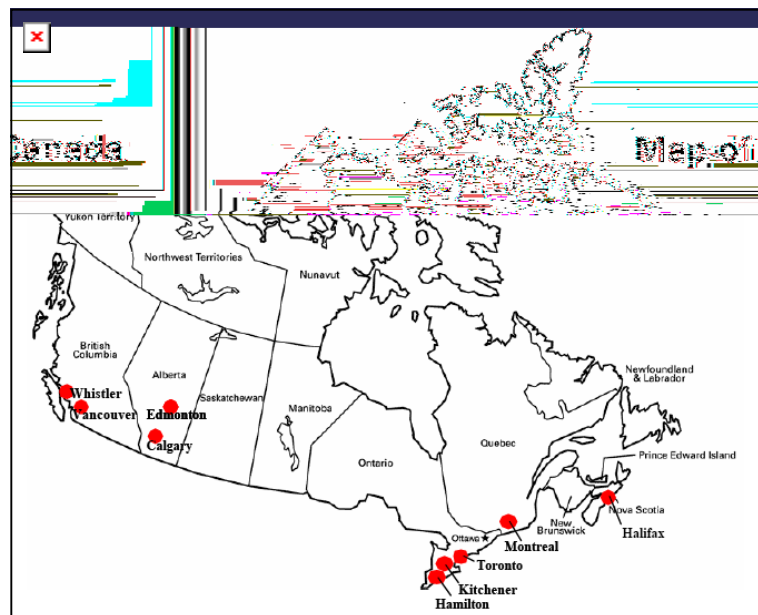
The importance of good governance and planning is well known. According to the United Nation's Sustainable Cities Programme, the problem of environmental deterioration is not necessarily from urban growth, but rather from poor planning (Sustainable Cities Programme, 1999). A key concern includes the lack of planning considering long-term implications on natural environment-development relationships, which is linked to the challenge of cross-cutting issues management. The sustainable development approach (World Commission on Environment and Development, 1987) helps address these challenges by using an intergenerational timeframe and stakeholder involvement, along with the integration of ecological, social and economic systems and ecological limits concepts. Sustainable cities should involve private sector organizations, academic institutions, governments, and non-profits, as they all have roles.

It is difficult to set corporate level (municipal government) goals of sustainability without a larger network of actors involved. One technique which may offer a solution to multi-organizational sustainable development planning is collective strategy (Astley and Fombrun, 1983). Collective strategy involves inter-organizational collaborations, which may or may not be cross-sectoral. In terms of the hierarchy of plans, collective strategy complements corporate strategy (in the city's case the official plan), business level strategy (for individual departments), and function level strategy (for specific topics). Ecological approaches to inter-organizational networking include green supply chain management, green procurement, and collective sustainable development strategies.

The Parties to the North American Agreement on Environmental Cooperation (NAAEC) attach strong importance to the enhancement of North American markets for green products and services. They are committed to increasing their own eco-procurement and use of such products and services, and to encouraging others, such as municipal governments, to do the same. The Commission for Environmental Cooperation (CEC) Secretariat, in collaboration with the North American Green Purchasing Initiative (NAGPI) group, developed action plans for fostering institutional purchasing of green cleaning agents, electricity and office supplies/equipment. This report provides background information for the implementation of the action plan for fostering purchasing of green products by municipalities.

This report is based on a study the author conducted in the summer and fall of 2005. Data collection was based on available online documents including each region's relevant sustainable development strategy and/or plan(s). The study focuses on the content of the plans, the process of the plan formulation, and the links between process and content. The eight municipalities and one town were chosen based on their available online documentation and their variations in approach. The case cities are: Halifax, Montreal, Toronto, Hamilton, Kitchener, Calgary, Edmonton, Vancouver and Whistler. While the original purpose of the study was to compare sustainable development strategies, this report emphasizes the eco-procurement content.

Figure 1 Map of Nine Case Study Regions



The report begins by introducing sustainable cities and regional sustainable development planning, followed by a brief overview of the research design and theoretical framework used to collect and analyze the data. The results compare the formulation process, framing and content of the regional sustainable development strategies from the nine case regions. The variations in the strategic approaches by these municipalities, specifically in terms of plan types, lead organizations, time horizon framing, predictive modeling and collaboration within the formulation process, are explored by highlighting examples and discussing implications on the sustainable development content.

This study goes beyond previous research in interesting ways. It looks at the master plan, sustainable development plan and/or ecological plan of the city, depending on what exists. It focuses on the linkages between formulation process and content and includes time horizon as a frame question, and collaboration as a process question. By comparing and contrasting the approaches taken by nine different Canadian cities to sustainable development planning, this report highlights the variances in approaches to formulation and content, and highlights the potential of collective strategy, backcasting predictive modeling, and multi-time horizon planning.

2. Background

“In industrialized countries, the consumption patterns of cities are severely stressing the global ecosystem, while settlements in the developing world need more raw material, energy, and economic development simply to overcome basic economic and social problems....”

(Chapter 7.1, Agenda 21, UNCED, 1992)

2.1 Sustainable Cities – An International Perspective

The above quotation from the United Nations Conference on Environment and Development’s Agenda 21 is an example of international attention on the need for sustainable cities. There are also relevant paragraphs and chapters in the World Summit on Sustainable Development - Plan of Implementation (WSSD, 2002), the UN Conference on Human Settlements – Habitat Agenda (UNCHS, 1996), and various other UN meeting documents and programs.

The Sustainable Cities Program (SCP) is a program of the UN–Habitat and the United Nations Environment Programme (UNEP). They work on building capacity in cities for urban environmental (as in ecological) planning and sustainable development management, thus contributing to the implementation of relevant paragraphs in Agenda 21, the Habitat Agenda, and the Johannesburg Plan of Implementation. This program works to create attitudinal change, behavioral change, organizational change and structural change in order to institutionalize sustainable development planning. The SCP states that environmental deterioration in and by cities is essentially caused by poor planning, and it recognizes the importance of long-term planning (Sustainable Cities Programme, 1999).

...The SCP does not view environmental deterioration as a necessary or inevitable consequence of rapid urban growth; equally, the SCP does not consider financial resource constraints to be the primary cause of environmental problems. Instead, the SCP considers environmental deterioration to be primarily caused by: 1) inappropriate urban development policies and policy implementation; 2) poorly planned and managed urban growth which does not adequately consider the constraints (and opportunities) of the natural environment; 3) inadequate and inappropriate urban infrastructure, both in terms of investment and especially in terms of operations, maintenance and management; and 4) lack of coordination and cooperation among key institutions and groups.

... The SCP also emphasizes understanding the long-term implications of the environment-development relationships. Often, severe and lasting (perhaps even permanent) damage is done to the environment simply because the long-term consequences are not properly appreciated and are not properly incorporated into the planning and decision-making processes.

(pp 76-77, Sustainable Cities Programme, 1999)

The Sustainable Cities Programme emphasizes the importance of having deliberate plans, recognizing ecological limits, ensuring cooperation between organizations, integrating traditionally separate issues, and considering the long-term implications. This study examines variances in approaches by Canadian cities to incorporate some of these important principles.

2.2 Sustainable Cities – A Canadian Perspective

In terms of the Canadian context, there are a number of programs and organizations that focus on supporting cities to become more sustainable. Appendix I details a selected list of these organizations, their programs, and their web sites as of January 2006, and includes the relevant internet references used in this sub-section. Each organization has its own approach, which partly explains the wide variance of approaches taken by the nine Canadian case study regions.

There are some Canadian-based organizations that work both domestically and internationally. For example, the United Nations Human Settlements Programme established a partnership with the Toronto-based International Council for Local Environmental Initiatives (ICLEI) in 1996. Currently, there are over 475 towns, cities and their associations involved in ICLEI from around the world. Also, following a report from the National Round Table on Environment and Economy on Sustainable Cities (NRTEE, 1999), of the above, Industry Canada created an international program called the Sustainable Cities Initiative, which is now supporting initiatives in 17 developing countries' cities. The Vancouver-based International Centre for Sustainable Cities (ICSC) is developing a network of currently 18, but targeting 30 cities from around the world that are doing long-term sustainable development plans. Both ICLEI and ICSC work with Canadian cities, with the former promoting Local Agenda 21 and Triple Bottom Line measurement tools and the latter promoting 100-year planning.

Domestically, Natural Resources Canada up until recently ran a sustainable communities program for Canadian towns. Infrastructure Canada has a new program called *The New Deal for Cities* in which Canadian municipalities can access money for water and transportation infrastructure development once they have developed a 25-year integrated community sustainability plan. The Natural Step (TNS), an international organization with a Canadian branch, also works with municipalities. And some cities are using the International Organization of Standardization's ISO 14000 series to do Environmental Management Systems. The Federation of Canadian Municipalities (FCM) also offers a sustainable communities program, InfraGuide and an international-partnership program. Finally a number of academic institutions focus their research on sustainable regional initiatives including University of British Columbia, Dalhousie University, Mount Allison University, University of Calgary, Université Laval, University of Winnipeg, York University, and Simon Fraser University (SFU). SFU's Centre for Sustainable Community Development, is headed by Mark Roseland, a Canadian academic who wrote a book on the topic (Roseland, 1998).

Canada was host to the first United Nations Conference on Human Settlements in 1976, which was also called Habitat I. In June 2006, the UN-Habitat will return to Vancouver for the World Urban Forum III (WUF-3), which is also being called Habitat + 30. They are expecting about 6000 people from around the world and the theme is *Our Future: Sustainable Cities – Turning Ideas into Action*. Piggy-backed on this event are the World Planners Congress (WPC) and a number of smaller events. In terms of green procurement, the Sheltair Group, The Natural Step, and the Montreal-based CIRAIG interuniversity research center are just a few of the organizations working with Canadian cities to help determine the life cycle impacts on products and their policy implications. ICLEI and FCM also promote tools for sustainable or eco-procurement.

3. Methods

This is a pilot study on regional sustainable development strategies that was conducted in the summer and fall of 2005, using the case cities of: Halifax, Montreal, Toronto, Hamilton, Kitchener, Calgary, Edmonton, Vancouver and Whistler.

3.1 Research Design

This research was done as a pilot study for a PhD thesis. The process used helped scope my final research question. While this pilot focuses on the linkages between plan formulation process and content, the final thesis will also look at implementation process. Essentially, the final study will look at what formulation, content and implementation variables influence effective implementation. The purpose of this pilot study was to find variations between the approaches taken by Canadian case cities in regional sustainable development strategies and, through that, identify which concepts and variables are of interest.

Choosing Regions:

The two main criteria for choosing regions were that they each have a population larger than 300,000, and that they have accessible online sustainable development documentation. From this, a list of 16 cities was generated. As the purpose was to study variation and, potentially, implementation, cities with longer histories were retained, while cities with plans that seemed to have been modeled after another of similar size were eliminated. Attention was particularly given to ensure the final selection has a variation in the time horizon of the plan, variation in formulation process, and variation in population size. Also, regions that have a history of being a “best practice” were kept (Whistler was added for this reason). The final list of municipalities and towns studied were: Halifax, Montreal, Toronto, Hamilton, Kitchener, Calgary, Edmonton, Vancouver and Whistler.

Data Collection:

Documentation of their sustainable development strategies might be found in their master plans, their sustainable development plans, their ecological sustainability plans, or a combination of all

three. Depending on when the city adopted its first sustainable development plan, there may also have been implementation reports or updated documents to consider.

Once the short-list of nine cities was generated, available municipal plans, sustainable development strategies, and/or environmental plans and information about the content and formation process were collected from their websites. Table 1 outlines the nine cities and the plans, strategies or approaches used. Appendix II details all the documents reviewed in this study and the websites from which they were retrieved. As this was a pilot study, no effort was made to verify with city officials that this list is comprehensive, but the online information was sufficient to identify variations.

Table 1: Nine Case Study Regions and their Main Strategies and Plans of Interest

Region	Population ¹	Plans of Interest	Timeframe
Calgary	993,200	<ul style="list-style-type: none"> • 100-Year Imagine Calgary • The Calgary Plan (master plan) • ISO 14001 (enviro management system) • Enviro Policy (2001) • Triple Bottom Line Policy Framework (2004) • Climate Change Plan and Report 	2006? – 2106 (~100 years) 1995 – 2024 (~30 years)
Edmonton	967,200	<ul style="list-style-type: none"> • Urban Sustainability Action Plan (2004) • Plan Edmonton (1998) • Edmonton's Second Century: Sustaining the Vision - Corporate Business Plan • Environmental Strategic Plan (1999) 	2004 - ? (~5 years?) 1998 – 2008 (~10 years) 2005 – 2007 (~2 years) 1999 – 2019 (mostly short term goals)
Halifax	363,200	<ul style="list-style-type: none"> • No SD plan, but Economic Strategy • Regional Plan (being developed) • TNS Report and Issue based strategies (2004) 	Under development 2005 – 2030 (~25 years)
Hamilton	686,900	<ul style="list-style-type: none"> • Vision 2020 • New Official Plan • GRIDS 	1992 - 2020 (~28 years)
Kitchener	438,000	<ul style="list-style-type: none"> • Environmental Strategic Plan (1992) • Master Plan (being developed) 	1992 - ... Updated yearly
Montreal	3,548,800	<ul style="list-style-type: none"> • Sustainable Development Strategy • Master Plan 	2005 – 2009 (~5 years) and 2004 – 2014 (~10 years)
Toronto	5,0289,900	<ul style="list-style-type: none"> • Toronto Master Plan • Ecological Plan 	2002 – 2032 (~30 years) 2000 – 2025 (~25 years)
Vancouver	2,122,700	<ul style="list-style-type: none"> • Long-term Plan for Greater Vancouver • Livable City Plan 	2003 – 2103 (~100 years) 1996 - 2020 (~25 years)
Whistler	10,000 – 40,000 (including tourists)	<ul style="list-style-type: none"> • Whistler 2020 – Sustainability Plan (2004) • Whistler Environmental Strategy (not official) • Official Community Plan (1993) • Integrated Energy, Air Quality & Greenhouse Gas Management Plan (2004) 	2004 – 2020 and 2060 (~16 years and ~56 years)

Choosing Variables:

Based on the urban sustainable development and management literature, a draft theoretical flow chart and a list of criteria on which to compare the cases were developed (Yin, 2003). Through the pilot study, additional variables emerged that allowed the further development of the matrix of concepts and variables (see Appendix III), and the theoretical framework (see section 3.2).

¹ Based on Statistics from Jan 13, 2003

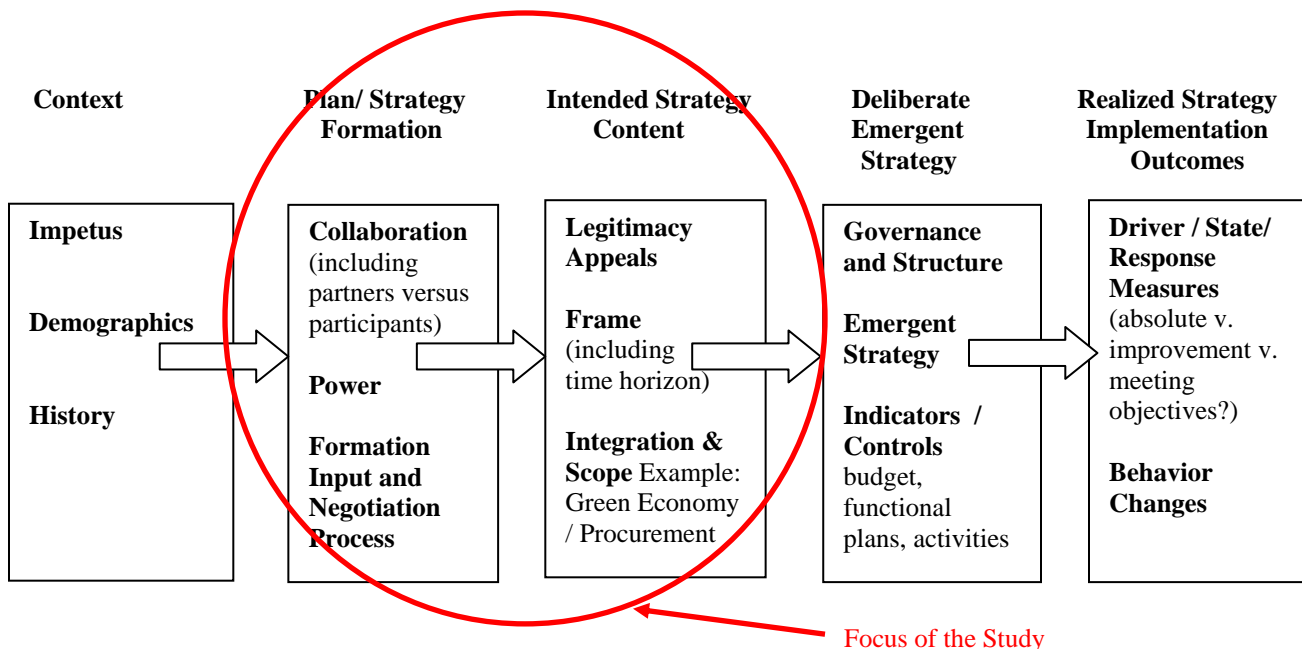
Data Analysis:

Data analysis was done by comparing cases from eight different regional municipalities and one town (Patton, 2002). For each case, the matrix found in Appendix III was filled out about the master plan (or equivalent), the sustainable development strategy or plan (where available), and the ecological strategy or plan (where available), using the information from the online websites and reports. Then this was compiled into one large matrix, with a column per city that identified where there were significant variations in approach. A flow chart of variables and proposed weighting of their significance was then developed. This report highlights a sample of the main findings in the results section, and the variation on three variables is further detailed in the discussion section. The cases in the results section are based on documentation only, and have not been reviewed by anyone from the region.

3.2 Theoretical Framework

In strategic management, the stages of strategy development include assessing the context (both internal to the organization and external), formulating the plan into an intended strategy, then implementing that deliberate strategy and incorporating emergent strategy into what will become the realized strategy (Mintzberg, 1978;Mintzberg, 1994). While these stages sometimes overlap (Andrews, 1987), this is the basic outline of the flow diagram framework used in the study. Within each of the five stages, specific concepts of potential variation were identified and are displayed in Figure 2. The matrix found in Appendix III, which was used for data analysis, is formatted around these categories. This particular pilot study focuses on the two boxes circled in Figure 2; these are Plan/ Strategy Formation and Intended Strategy Content.

Figure 2: Flow Diagram of Regional Sustainable Development Strategic Management Concepts



4. Results

There were significant variations in plan types, and sustainable development strategy formulation and content between the nine cases. Particularly the champion, the collaboration approaches, the time horizons, and the content scope differed.

4.1 Three Cases of Municipal Sustainable Development Strategies

In most provinces, cities are required by provincial law to make a master plan or official plan. While for some regions, such as Halifax, they are undergoing their first plan now, in other regions, such as Hamilton, they have had an official plan since 1980. As municipalities are responsible for land zoning, transportation, water, sewage, and their own buildings, their master plans automatically cover some discussion of sustainable development. Some regions, such as Hamilton, went beyond the official plan and created a sustainability plan, in their case called Vision 2020. While Hamilton started this in 1990, for most regions this is a more recent concept, while in others it has not yet been undertaken. Some regions, such as Toronto, undertook environmental strategies instead, or as well. Besides the types of plans, there were numerous other variations between the plan formulation processes and content. Each case region had their own approach, and this section provides a brief introduction to the formulation and content of the main sustainable development strategy of Hamilton, Vancouver and Whistler. An introduction to the variation between approaches is discussed in sections 4.2 and 5. Unless noted, all references for this section are in Appendix II.

4.1.1 Hamilton, Ontario

The City of Hamilton is in southern Ontario, with a population of about 700,000 people in 2003. It is a part of the Hamilton-Wentworth Regional Municipality. The province approved their first official plan in 1980. VISION 2020 is Hamilton's long-term (approx. 30-year) vision of a vibrant, healthy, sustainable future shared by local government, citizens, business groups, and organizations. The process began in 1989 when the Hamilton-Wentworth Regional Municipality launched a sustainable community initiative called the *Regional Chairman's Task Force on Sustainable Development*. Over two and a half years, with over 1000 people's participation, they developed a vision which contains over 400 recommendations for various actors within the community (Devuyst and Hens, 2000). Vision 2020 was officially adopted in 1992, following which goals and indicators were developed as signposts along what are now 14 themes of the document. Specific to eco-procurement, there are four related goals which are outlined in Table 2. They fall under the themes of local economy, agriculture, solid waste and transportation.

By 1994, the Regional Council mandated the staff to implement the guide for revising policies and programs to fit Vision 2020. By 1996, this was expanded to grant applications, candidate selection, purchasing policies, and internal auditing procedures. They also began an annual community day, and annual children's sustainability fair, which later expanded to a month in order to update the community on the implementation progress. It involves about 4000

Table 2: Hamilton's Vision 2020: Goals that Relate to Eco-Procurement

- To increase the number of businesses and organizations that are non-polluting and those that actually produce quality of life products and services that control, reduce and prevent pollution.
- To ensure The City of Hamilton is a community of people educated with regards to agriculture and healthy, sustainable food production and consumption patterns.
- To reduce the amount of waste generated by residents, businesses and government in the City.
- To develop an integrated sustainable transportation system for people, goods and services which is environmentally friendly, affordable, efficient, convenient, safe and accessible.

(Vision 2020 Progress Team, 1998)

participants each year. The first annual report card was released in 1996, and has been done every year since. Every five years, the implementation is reviewed; the first was in 1998, and the most recent in 2003. In 1998, updated strategies were adopted for each theme. Table 3 details some of the strategies developed for the local economy theme that relate to eco-procurement.

Table 3: Hamilton's Vision 2020: Local Economy Strategies that Relate to Eco-Procurement.

4. Support local economic activity in the pollution control and prevention sector.
5. Encourage sustainable individual enterprise and initiative and locally owned and controlled businesses.
6. Stimulate the adoption of new and leading edge technology by local business.
7. Encourage businesses and organizations that have a broad positive impact on quality of life.
8. Raise awareness of business opportunities in the environmental field.
9. Assist and encourage local commercial/retail businesses to respond to the sustainability concerns of local consumers.
10. Encourage large regional businesses and organizations to implement Environmental Management Systems and small businesses to adopt similar environmental management approaches.
11. Develop a voluntary, public, annual reporting system on the use of resources and emissions by local businesses and organizations in collaboration with local business associations.
13. Work with local learning institutions to ensure a better match between education and learning opportunities and the needs of business and organizations.
17. Encourage fair-trade by providing information to individual businesses and organizations about fair trade practices and opportunities.

(Vision 2020 Progress Team, 1998)

By 1998, the city began to explore the idea of forming a new non-profit, which would take over the management of Vision 2020. In 1999, the Action 2020 was formed, but later disbanded. Slowly, Vision 2020 has become fully integrated into the city's overall planning. There has been a significant effort to ensure integration between annual budgets and planning, functional plans, 5- year reviews, and longer term plans and strategy. For example, in 2002, Vision 2020 was used in the 30-year *Growth Related Integrated Development Strategy* (GRIDS), integrating transportation, land use and economic development planning and to guide the New Official Plan (a consolidation of the seven former regional plans before amalgamation), called *Towards a Sustainable Region: Hamilton-Wentworth Official Plan*. In 2004, the city launched a City Initiatives Inventory that is now available online. More recently, Hamilton has been working with ICLEI to develop a triple-bottom line tool for analysis of growth options. For more information about Vision 2020 see their website at <http://www.vision2020.hamilton.ca/> .

4.1.2 Vancouver, British Columbia

The City of Vancouver is part of the Greater Vancouver Regional District (GVRD), which had a population of about 2.1 million in 2003, and is located in the lower mainland of British Columbia. The GVRD official plan is called *Livable Region Strategic Plan* and was adopted in 1996. The GVRD sustainable development strategy, called *A Sustainable Urban System: The Long-term Plan for Greater Vancouver*, won an international competition for 100-year sustainable urban system designs (Cities Plus, 2003). The plan document itself is a 52-page summary of the process and results accompanied by hundreds of pages of additional background information and documents. Overall, this plan covers 21 municipalities in the greater Vancouver region. The lead agencies included the GVRD, University of British Columbia, Sheltair Group (consulting firm), the Canadian Gas Association, and the International Center for Sustainable Cities (NGO). The plan will help to revise the GVRD's Livable Region Strategic Plan.

The authors began by researching the forces shaping cities in the 21st century (technological transformations, climate change, demographics, resource scarcity, globalization, and worldview shifts) and the history of Vancouver. Then they developed: a list of constraints facing the region; seeds of sustainability (opportunities); vision statements; and end-state goals. They decided to build their 100-year plan around the three core themes of resilience, sustainability and livability. The content falls into four overarching categories, each of which has sub topics. These are: 1) Place (natural habitat and climate); 2) People (health & well-being, social equity, culture and First Nations); 3) Infrastructure (buildings, materials, water, energy, mobility, communications, and agri-food); and 4) Governance (economic development, land use, governance, decision support, and human security). Using the predictive modeling software of QUEST, MetaScale, and MetaFlow, they forecasted the vision and end-state goals, and backcasted scenarios. For each of the scenarios, there was a critical path and a preferred path with a "solution space" in between.

Then indicators were developed through "design Charrettes" to measure the results. Table 4 outlines the eight strategies for sustainability in the 100-year plan. This entire process is based on The Sheltair Group's Adaptive Management Framework. This partnership approach, with a consulting firm as the champion, makes this process unique.

Table 4: Vancouver's 100-year Strategies for Sustainability

From the scenarios they determined eight cross-cutting catalyst strategies for action. These strategies are:

- 1) Protect and connect ribbons of blue and webs of green;
- 2) Design multi-use spaces and convertible structures;
- 3) Plan short loops and integrated infrastructure networks;
- 4) Become net contributors;
- 5) Experiment and learn as we go;
- 6) Enhance the diversity of choices;
- 7) Create shock resilient cells; and
- 8) Green and clean the import/export chains.

(Cities Plus, 2003)

The GVRD maintains a Sustainable Region Initiative that works towards implementing the official plan, the 100-year strategy and other functional strategies. See their web site at: <http://www.gvrd.bc.ca/sustainability/>. Many individual cities within the District also make their own specific efforts. Specific to eco-procurement, Richmond's Environmental Purchasing

Guidelines are promoted. The City of Vancouver does not specify their eco-procurement efforts as such, but has set green LEED standards for public buildings, and has taken initiatives related to energy and transportation including purchasing ecological vehicle options for their fleet, and demanding environmental criteria when selecting couriers. For more information about Vancouver's sustainability initiatives see: <http://vancouver.ca/sustainability/index.htm>.

4.1.3 Whistler, British Columbia

The Resort Municipality of Whistler, located north of Vancouver in British Columbia, had a population ranging from 10,000 permanent residents to 40,000 including tourists in 2003. Their *Official Community Plan* was adopted in 1993. From 2000-2002 Whistler conducted a successful community-wide pilot project in partnership with The Natural Step (TNS) called *Whistler: It's our Nature*. The Program began by certain organizations in the community using the TNS Framework to learn about sustainability and determine actions for their organization. The "Early Adopters" included the Chateau Whistler, the Whistler-Blackcomb Resort, Tourism Whistler, the Resort Municipality of Whistler, a local small business representing the Chamber of Commerce, and the local citizens' environment group, AWARE. All of this was followed by an Education and Awareness Program that was distributed from the Early Adopters to the rest of the community through presentations, media, workshops and print material.

In 2004 and 2005, Whistler adopted parts I and II of their regional sustainable development strategy called *Whistler 2020 – Moving Toward a Sustainable Future*. This plan outlines the vision and strategic plan for the region to the year 2020, but also the longer journey to 2060. It used TNS system conditions as the basis it's sustainability objectives, as can be seen in Table 5. Volume I describes the vision, sustainability objectives, priorities and directions; while Volume II details the strategies, actions and indicators for each of the topic areas. There is also a Volume III with additional background information. This community-wide plan is being adopted by partner organizations and will contribute to amendments to the Official Community Plan. Whistler has also incorporated sustainability considerations into their 2010 Winter Olympics bid.

Table 5: Whistler's Sustainability Objectives using TNS

1. Eliminate our contribution to progressive buildup in concentrations of waste from the earth's crust.
2. Eliminate our contribution to progressive buildup in concentrations of waste produced by society.
3. Eliminate our contribution to ongoing physical degradation of nature.
4. Eliminate our contribution to undermining other people's ability to meet their needs.

(Resort Municipality of Whistler, 2005)

The TNS Framework uses the metaphor of a funnel to represent the declining room to maneuver due to declining potential of natural systems coupled with the increasing demand on natural systems. Staying within the funnel is staying within sustainable development. The four-step "A-B-C-D" process provides the process. The A step is for awareness raising; the B is for setting baseline data; the C is for determining the compelling vision; and the D represents the strategies in order to get there.

One of the strategies outlined in Volume II is for materials and solid waste. Table 6 details their vision of success, and is highly relevant for eco-procurement. These too were developed using

the TNS conditions. The Sheltair Group, has also worked with Whistler. For information on Whistler’s sustainability efforts see: <http://www.whistler.ca/Sustainability/>.

Table 6: Whistler 2020 - Materials and Solid Waste Strategy – Description of Success

In 2020, Whistler’s material flows are managed in comprehensive, convenient and upstream way, and the resort community is well on its way to embracing the concept of a ‘zero waste’ society. In the future:

- Whistler offers the same or higher quality service using less materials than in the past
- Whistler is using durable materials that are less environmentally harmful, preferring recycled, natural and sustainably harvested materials, and plentiful metals
- The resort community is ‘closing the loop’ by providing appropriate opportunities for reducing, reusing and recycling materials
- Increased business performance and economic opportunities are being realized as a result of smart materials management
- Whistler has adopted ‘zero waste’ as a defined goal
- The community is committed to providing infrastructure capable of continually decreasing our residual wastes
- Local businesses, residents and visitors are knowledgeable about material flows, and demonstrate a strong ethic of responsibility and stewardship toward resources and materials
- Substances and chemicals that are harmful to human health are being eliminated, replaced, or managed in a way that they do not disperse in nature
- Partnerships are developed such that collective procurement choices favour companies and suppliers that are consistent with our identified materials and solid waste values

(Resort Municipality of Whistler, 2005)

4.2 Key Variations Between Nine Case Regions

There were numerous variations between regional approaches to sustainable development strategy. Figure 3 outlines the key differences in terms of the theoretical framework. This report focuses on detailing the differences found within the four circled boxes. Specifically the discussion will compare the types of plans, the champions and lead organizations, the collaboration models (partners versus participants) and the time horizon and predictive modeling frames and their implications for the plan content. A particular emphasis has been placed on eco-procurement. Table 7 visually displays the key variations between the 9 case studies.

Figure 3: Flow Diagram of Key Concepts in Regional Sustainable Development Strategic Management which is Designed for Realized Strategy

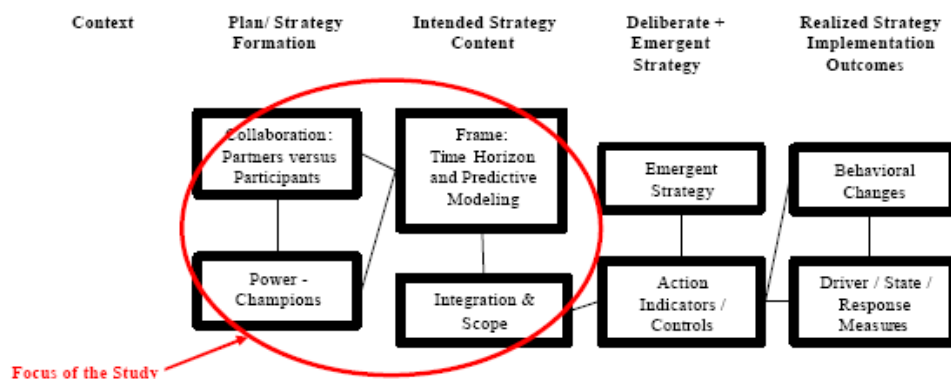


Table 7: Nine Canadian Regions and their Variance on Sustainable Development Strategic Management Key Concepts and Related Variables

			Calgary	Edmonton	Halifax	Hamilton	Kitchener	Montreal	Toronto	Vancouver	Whistler
Stage	Concept	Variable									
Context	Demographic	Province	Ab	Ab	NS	On	On	PQ	On	BC	BC
		Population (large (L), medium (M), or small (S))	M	M	M	M	M	L	L	L	S
		Regional Municipality (R) or Single City (S)	R	R	R	R	R	R	R	R	R
Formulation Process	Plan Types	Official Plan (O)	O	O	O	O	O	O	O	O	O
		SD Strategy (S) and/or Environmental Strategy (E)	S	S		S	E	S	E	S	S
		Power : Champion on SD Planning	M	M	M	M	M	M	M	M	M
Intended Strategy Content	Frame	Partners (N) versus Participants (P)	N	P	P	N	P	N	P	N	N
		Time horizon for SD strategy	100	2&5		28		5		100	26&56
		For official plan	30	10	25	~30	~30	10	30	25	30?
Intended Strategy Content	Eco-Procurement Content	For enviro. strategy (in years)	-	20			1		25		
		Modeling – Backcasting (B)								B	B
		Yes (Y)			N	Y	N	Y			Y
		No (N)									
		Related Content Only (R)	R	R					R	R	

5. Discussion

There are implications on the regional sustainable development strategy content depending on the plan types, the formulation process followed, and the frame used.

Comparing and contrasting the regional sustainable development strategy of nine cases identified some distinct variations in approaches. This study specifically focused on the sustainable development strategy formulation and content. Content was observed in up to three different plan types. This section provides a discussion on the practical implications to the sustainable development strategy content of the different plan types, champions, collaboration approach, and frame.

5.1 Plan Types

All the cities observed had official plans. The names of these varied from GVRD's *Livable Region Strategic Plan*, Whistler's *Official Community Plan*, Halifax's *Regional Municipal Strategy*, and the *Calgary Plan*, to the *Montreal Master Plan*. Each one was created to meet the

provincial requirements, and was approved by the relevant provincial ministry responsible for cities. While Hamilton's first official plan was approved in 1980, Halifax is in the process of developing their first regional plan now. The timeframes of these plans also differ, with Plan Edmonton's plan targeting 10 years, but most aiming for 25 to 30 years. All of these plans include content about physical, economic, and social development, and include content related to sustainable development, due to the jurisdiction of the city over transportation, sewage treatment, water services, waste management, public buildings, and land management. As Whistler's plan indicates, it contains "detailed policies regarding land use, development, servicing, and protection of the natural environment."

What really differ between cities are the plans and strategies that complement the official plan. Some cities, such as Vancouver, Whistler, Montreal, Hamilton, and now Calgary have created, or in the case of Calgary, are currently creating, sustainable development strategies. These vary significantly in timeframe from five years in Montreal to Whistler and Hamilton's vision 2020 approach, to 100 years in Vancouver and Calgary. Whistler was in part modeled after Hamilton as is Calgary in part modeled after Vancouver. Each of these have different frames, different champions, and different collaboration models, the implications of which will be described in future sections. For the most part, they all take a collective approach, create a geographic based strategy for the region, and include partners, instead of creating a strategy for the organization alone. The final four cities, Edmonton, Halifax, Toronto and Kitchener do not have specific collective sustainable development strategies; though Edmonton has a two-year corporate business plan that has sustainability content and is called *Sustaining the Vision*, and roughly a five-year, *Urban Sustainability Action Plan*.

The third type of plan that might exist is an environmental strategy, which might also be complemented by issue specific strategies or plans for topics such as climate change, waste management, etc. These topic specific plans are functional plans for the implementation of the larger corporate strategies such as the official plan, sustainable development strategy or environmental strategy. In terms of cross-cutting environmental strategies, they exist in Edmonton, Toronto, Kitchener and though not officially, in Whistler too. Toronto, and Kitchener are two cities without sustainable development strategies, leaving only Halifax without a sustainable development or environmental strategy. All of these environmental strategies have taken an organizational approach, involving participants, instead of a partnership approach.

5.2 Power – Who are the Champions?

In the case of Vancouver, The Sheltair Group consulting firm, partnered with the GVRD, one of the universities (UBC), an NGO (ICSC), and a company (Canadian Gas Association) to create their plan in order to compete in an international competition on 100-year plans. Thus, their lead champion was a consulting firm with a wide variety of lead partners. One of these organizations, the International Center for Sustainable Cities, is now helping other Canadian cities, such as Calgary to also create 100-year plans. Thus, while the City of Calgary is the lead on their Imagine Calgary initiative, it is the ICSC who has championed it. Whistler also has had outside help in creating their partnership-based strategy. The Natural Step, an international NGO with a Canadian branch, has advised and supported them throughout the process. While the resort

municipality is the lead, the other private and NGO partners in the region have been equal partners since the start.

The Ville de Montreal was the lead on their strategy, involving an advisory group of partners to help them develop their sustainable development strategy. The end result involves partners reporting on their progress back to the city. Hamilton is similar in that the City took the lead in setting up a multi-stakeholder task force, and their process involved extensive public consultation. From early on, Hamilton was linked with ICLEI's Local Agenda 21 approach. Initially Hamilton has struggled with how to involve the community in the non-city based goals of their Vision 2020. Initially, they separated out the city goals from the community ones, and took responsibility for the ones related to their organization. A community committee was created to handle the others. Over the years, while the city goals have been implemented, the community ones did not make much progress. The committee folded, and at another point they tried to create an NGO to oversee the process. Now they are taking the partnership approach with other key stakeholders such as the university. In terms of the environmental strategies, the approach taken by those regions do not involve partners. The city is the champion, and others are involved through public participation.

The implications of this formulation approach are that the lead entity and/or champion have significant influence on the collaboration model, the frame of the sustainable development strategy, and on the content. For example, Whistler's strategy is founded in The Natural Step system conditions, while Vancouver's strategy follows The Sheltair Group's Adaptive Management Framework. Calgary's strategy will be 100 years instead of another frame because of the involvement of the International Center for Sustainable Cities. Some isomorphism still occurs between regions, such as Whistler (and many other regions not included in the cases selected) using a 2020 vision, even when they created their plan in 2004, while Hamilton's original 2020 vision was created in 1992. While the New Deal for Cities might start standardizing the approaches taken, for now, there is variance between models, in part based on who the city chooses to work with to help champion the effort.

There are other champions on functional plans, such as the Federation of Canadian Municipalities (FCM) and ICLEI's Partners for Climate Protection Program. There is room for the CEC to become the champion on Eco-Procurement, perhaps partnered with ICLEI that does Eco-Procurement in other parts of the world but not in Canada; with FCM in relation to climate change and energy products and services; and with TNS in regards to product stewardship policies.

5.3 Collaboration – Partners versus Participants

Sustainable Development requires involvement of numerous organizational types, as the goal is usually larger than the role of any one organization. The main organizations in a municipal sustainable development collective strategy are local municipalities within the region, other levels of government, academic institutions, local businesses, non-governmental organizations, and civil society in general. No one organization can truly plan a sustainable development strategy without the involvement of other organizations. For example, Vancouver cannot demand green procurement (such as CO₂ emissions on couriers) without there being businesses that offer the green services (such as the new hybrid fleet of a courier company). As the overall

sustainability goals are larger than any one organization, it makes it difficult to set corporate level goals of sustainability without a larger network of actors involved. This has implications for the process for the plan formation, content of the plan, and the approach to implementation.

Involving other actors in a municipal sustainable development planning process can be done through a number of different techniques (Roseland, 1998). Collective Strategy is a known concept in management literature, and is defined as multi-organizational planning which involves a collective of organizations (formal network to informal collective), which may or may not be cross-sectoral (Astley and Fombrun, 1983). More recently, the literature has focused on inter-organizational networks (Oliver, 1990). There has even been one study done on multi-sectoral, inter-organizational collaborations, focusing on eco-policy development. One of their propositions was that “The greater the need for complementarities in environmental goals, strategies, structures and systems, the greater the likelihood that organizations of different sectors will be involved in environmental policy and program formation, on the one hand, and implementation, on the other” (Starik and Heuer, 2002). The regional sustainable development strategies undertaken in these case cities are a form of collective strategy, which complements the corporate strategy (official plan), business level strategies (departmental plans), and functional strategies (such as waste management plans).

As noted already, Vancouver, Whistler, and Montreal all have clear partnership models, with slight variations in terms of each city’s role. Calgary is still developing their *Imagine Calgary* strategy, but will probably also end up with this model. Hamilton has evolved to a form of partnership now. All the other regions do not have specific regional sustainable development strategies, and their environmental strategies used public participation in their formulation, resulting in the plan being a city document and not as a document in which the city is one partner in a collective of partners.

The collaboration approach has implications on the content that is included on regional sustainable development. For example, Table 8 outlines the green economy considerations in the available plans for Montreal, Vancouver and Halifax. It is obvious that the partnership approach allows for different topic areas to be included as the scope is geographic instead of limited to the city’s immediate jurisdiction.

Table 8: Examples of Green Economy Considerations in Regional Sustainable Development Plans

Montreal sustainable development (partners):

- Adopt good sustainable development practices in businesses, institutions and industries.
 - Create an information network
 - Implement an EMS (roles for both city and businesses defined)
 - Green Procurement (both city and partners)
 - Product design based on waste reduction (universities, businesses, city)

Vancouver long-term (partners):

- Green and clean the import / export chains

Halifax (public participation):

- Urban Streetscape Design to enhance desirability as an economic and cultural center.
- Zone Natural Resource and Agriculture
- Public transportation based around residential / mixed use clusters.

The implications of a collective regional sustainable development strategy approach include:

- Diversity of organizational participation in formation and implementation
- Geographic goals rather than organizational goals
- Voluntary participation
- Diverse framework, goal types, perspectives and tools
- Integrated economic, ecological and social approach

Thus, there is a real value to having both an official plan for the city itself, but also a collective regional sustainable development strategy created with multi-sectoral partners.

5.4 Frame – Time Horizon and Predictive Models

There are many framing factors that impact on the content of the plan. Of particular interest to the variances found in the case study plans are the time horizons used, and the predictive modeling used. Sustainable Development is a concept that includes intergenerational timeframes, so this is difficult to address in a short-term strategy. Some authors have studied the theory on planning time horizons (Ancona, Goodman, Lawrence and Tushman, 2001), though none of the time literature discusses the implication of long versus short term strategic planning on the content or implementation of the plan / strategy.

Most municipal regional sustainable development plans and strategies are based on one time frame. Vancouver uses a 100-year frame, while Montreal uses a 5-year, and Hamilton approximately a 30-year timeframe. Even combined with their official plans, (25-years for Vancouver, and 10-years for Montreal), there are still wide variances. Kitchener, Montreal and Edmonton have all opted for short-term planning, with Calgary, Whistler, and Vancouver opting for medium and long-term. Halifax only has the one plan at 25 -years, while Toronto's plans are both medium-term. As can be seen from Table 1, these variances are significant.

Table 9: Examples of Water in Regional Sustainable Development Plans of Different Time Horizons

Montreal (5 years):

- Action items such as “control the illicit usages of water” or “increase water access points”

Halifax (25 years):

- Planning for land designation of residential development based on feasibility of water and sewer infrastructure expansion over 25 years.

Vancouver (100 years):

- Plan water supply infrastructure based on decreased supply due to climate change and increased population.

The implications are that the 100-year documents are visionary, the 15 to 30-year documents are strategic, and the two to five-year are more about action planning. Ideally, there should be all three levels, though which levels are best done collectively versus by the city alone is yet to be determined. Examples of the implications can be seen in Table 9. Generally the implications of different time horizons include:

- Different integration of ecological, social and economic considerations. Ecological considerations such as climate change tend to be viewed in the longer term, while economic considerations tend to be more immediate;

- Different capacity to accommodate ecological limits and intergenerational timeframes of infrastructure projects;
- Different topics are covered in more in-depth based on their cycle and urgency.

In terms of green procurement, the vision level should be included in a longer and/or medium term strategy, but shorter term action plans are still needed. Whistler's strategy from Table 6 is a 15-year vision.

In terms of predictive modeling, it is part of the strategy formulation process, and influencing the content frame and therefore the content scope. Traditionally long-range predictions are done through forecasting, extrapolating on past trends, building scenarios for future trends, or modeling future trends. More recently, in ecological sustainability journals, there has been a push towards backcasting (Robinson, 1988; Robinson, 2003). This involves defining ecological limits, and/or determining a 'most desirable future' outcome well into the future (30 – 100 years typically), and creating paths from the present to that goal, while staying safely within the sustainability parameters. Both Whistler and Vancouver used backcasting approaches in their sustainable development strategy formulation. Halifax has used extrapolation of population to determine future need, and has only recognized ecological limits in the area of water usage in areas outside the city's water infrastructure. Hamilton's new *Triple Bottom Line* analysis tool uses scenarios to show the implications of one decision on other considerations. In general, these approaches complement one another, but backcasting offers a great way of including ecological limits.

6. Conclusion

The overall contribution of this study is to provide additional information about regional sustainable development strategies being undertaken in nine regions of Canada. This is an emerging area and there is not yet a standardized approach, though that may change with the implementation of the federal government's New Deal for Cities. By identifying the variance between approaches, particularly in the areas of plan types, formulation approach, and the implications on content, this study could help planners consider the options available and the implications of some of those options. Specifically, for regional sustainable development strategy, the collective / partnership approach has huge potential to help overcome some of the jurisdictional limitations of cities. Using backcasting has the potential to help keep predictions within ecological limits. Having multiple time horizons allows for a different integration of ecological, economic and social considerations, which may lead to better decisions being made. It allows for both the visioning and the action planning levels to proceed.

In terms of eco-procurement, only three cases (Whistler, Montreal, and Hamilton) have explicit strategies for this area. Other cities, such as Vancouver, have indirect references to it in their green building or energy / climate change initiatives. This is in part due to the fact that there is no specific champion for eco-procurement in Canada. ICLEI promotes it in other parts of the world; FCM promotes tools, particularly as they relate to climate change; and, TNS, the Sheltair Group,

and CIRAIG are working with municipalities to pilot initiatives. CEC is well positioned to complement the other programs and help support green purchasing in Canadian municipalities; especially, by working with other partners such as CIRAIG, TNS, FCM and ICLEI. As cities are currently prioritizing climate change initiatives, eco-procurement related to greenhouse gas reduction would be very applicable.

As with anything new, there is not yet one best way for eco-procurement to be included in planning. It should show up at the vision level as strategies for promoting greening of the local economy, food security, green infrastructure, energy use and/or waste reduction, as was done in Hamilton. Or, even as a strategy on materials management, as Whistler has done. Or, it might be in a section specific to adopting good sustainable development practices, as Montreal has done. It really depends on the framing of the plans and plan types. For example, in Vancouver's 100-year plan, eco-procurement is related to the strategy on "greening import and export chains". Ideally, a vision about greening of the local economy should appear in a long-term (100-year) strategy, goals related to materials, food, energy, and water production, consumption, and disposal should be in mid-term (15 – 30-year) strategies, and specific action items on eco-procurement should be in shorter term action plans (2-5 years).

Future research on regional sustainable development strategies and eco-procurement should include:

- A further analysis of a few "best practices"; expanding the study from just formulation and content to also include implementation. What factors in the formulation process and content have implications for effective implementation? The focus could be specific to greenhouse gas reduction through green purchasing and supply chain management.
- A further exploration of the relationship between green procurement and life-cycle materials management. A program on eco-procurement should consider the production, consumption, and disposal or reuse of the product. While the federal government may only be responsible for procurement, a municipal government is also responsible for disposal for the entire geographic region (not just their organization). The types of policies related to green products are not only needed in purchasing, but also in waste management, agriculture zoning, etc. These are all linked, and many of them fall under the local and / or provincial authorities' jurisdiction.
- In-depth best practice cases should be conducted on eco-procurement related initiatives of Montreal, Hamilton, Whistler, and perhaps Vancouver (especially Richmond), Calgary and/or Edmonton as well. While Montreal and Whistler are in the early phases, Hamilton has years of implementation experience.

In conclusion, there is certainly a need for regions to create sustainable development strategies, and these should go beyond the boundaries of the municipalities' jurisdiction to include other key partners such as academic institutions, other levels of government, businesses, non-profit organizations, and civil society in general. Eco-procurement is an excellent tool to support the local economy while encouraging a move towards sustainability.

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Appendices

Appendix I – Selected Canadian Sustainable Cities Programs

Table 10: Websites of Selected Canadian Sustainable Cities Programs

Organization Type	Name	Program	Website
NGO	Canadian Institute of Planners	World Planners Congress	http://www.wpc2006.com
	Federation of Canadian Municipalities	Sustainable Communities; InfraGuide	http://www.sustainablecommunities.ca/Home/ and http://www.sustainablecommunities.ca/Tools/Eco-Procurement/ and http://www.fcm.ca/
	International Centre for Sustainable Cities	Sustainable Cities: PLUS Network	http://www.icsc.ca/
	International Council for Local Environmental Initiatives (ICLEI)	Local Agenda 21; Local Action 21; Cities for Climate Protection; Sustainable Procurement	http://www.iclei.org/
	International Institute for Sustainable Development	Sustainable Communities	http://www.iisd.org/communities/
	International Organization for Standardization	ISO 14000 series	http://www.iso.org/iso/en/ISOOnline.frontpage
	The Natural Step	TNS for Communities	http://www.naturalstep.ca/
Consultant	The Sheltair Group	Urban Sustainability; Resource Management	http://www.sheltair.com/home.html and http://www.citiesplus.ca
Academic	Dalhousie University	Cities and Environment	http://ceu.architectureandplanning.dal.ca/index.html
	Mount Allison U.	Rural and Small Towns	http://www.mta.ca/rstp/rstpmain.html
	Simon Fraser University	Sustainable Community Development; Governance Studies	http://www.sfu.ca/cscd/ and http://www.sfu.ca/igs/current_proj.html
	University of British Columbia	Sustainable Development Research Institute; Center for Human Settlements; Community and Regional Planning;	http://www.sdri.ubc.ca/ and http://www.basinfutures.net/ and http://www.chs.ubc.ca/ and http://cuer.sauder.ubc.ca/ and http://www.scarp.ubc.ca/
	University of Calgary	Environmental Design	http://www.ucalgary.ca/evds/index.htm
	Université Laval	aménagement et développement	http://www.crad.ulaval.ca/
	U. of Winnipeg	Institute of Urban Studies	http://ius.uwinnipeg.ca/services.html
	York University	Environmental Studies	http://www.yorku.ca/fes/index.asp
Canadian Government	Canadian Mortgage and Housing Corp.	Sustainability	http://www.cmhc-schl.gc.ca/en/inpr/su/
	Industry Canada	Sustainable Cities Initiative	http://strategis.ic.gc.ca/epic/internet/inscin-idvd.nsf/en/Home
	Infrastructure Canada	The New Deal for Cities	http://www.infrastructure.gc.ca/ndcc/publication/new_sreleases/2005/20050201ottawa_e.shtml
	Natural Resources Canada	Sustainable Communities Program (completed)	http://sci.nrcan.gc.ca/index_e.php
UN	UN-Habitat	World Urban Forum III; Local Agenda 21	http://www.unhabitat.org/wuf/2006/default.asp and http://www.unhabitat.org/programmes/agenda21/
	UN-Habitat and UNEP	Sustainable Cities Programme	http://www.unchs.org/programmes/sustainablecities/

Appendix II – List of Documents Used in the Study

Calgary:

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Appendix III – Concepts and Full List of Related Variables – Matrix

Table 11: Matrix for Data Collection on Regional Sustainable Development Strategic Management

Stage	Concept	Variable
Context	Demographic	Province Population Regional or Single City
	Impetus	Legal Rules Funding Competition
	History	Benchmarks History / Existing Plans Year adopted
Formulation Process	Power	Who had idea / champions Who decides on Frame Was there conflict Who wrote it
	Collaboration	Stakeholders Partners versus Participants Negotiation Type
	Process Followed	Scanning Process Time for Creation Input mechanisms
Intended Strategy Content	Frame	Time horizon(s) Length Content Frame
	Integration & Scope	Scope / Diversity of Topics Triple Bottom Line Balance Coverage of specific topic(s)
	Legitimacy Appeals	Rationality Public Participation / Negotiation Proposed Implementation Data, process, structure, consensus? Proposed Indicator type

Appendix IV – Biography of the Author

Amelia Clarke is currently the President of the Sierra Club of Canada and a PhD Student at McGill University. She is also a member of the federal government's National Advisory Council to the World Urban Forum III; a member of the Academy of Management: Organizations and Natural Environment Division's Greening Team; and liaison to the Sierra Club (US) Board. Besides the Commission for Environmental Cooperation, she has most recently consulted for the J.W. McConnell Family Foundation, the Canadian Environment Network, and Elements International. She was an advisor to the Canadian delegation for the United Nations World Summit on Sustainable Development (Johannesburg) negotiations and the United Nations Commission for Sustainable Development. Amelia Clarke has been involved with the UN Habitat file since co-coordinating the Youth for Habitat II Project in Canada and attending the Habitat II conference in Turkey in 1996. Best known for founding and being the first National Director of the Sierra Youth Coalition, she is most proud of launching their Sustainable Campuses Program, and her successful efforts to influence forest protection in New Brunswick.

Amelia Clarke is a PhD student in the Desautels Faculty of Management (Strategy) and a lecturer in the School of the Environment at McGill University. Her research interests include: sustainable development, corporate social and environmental responsibility (CESR), and environmental management. She has published or presented on numerous sustainability topics including: ecological sustainability, the Canadian Species at Risk Act, environmental management systems, sustainable forest management, environmental education, precautionary principle, and capacity building for youth. Her current work is on: environmental management systems in higher education institutions; composting attitudes and behavior in Montreal; and sustainable development strategy implementation (particularly for sustainable cities). Amelia Clarke has a BSc in Biology and Diploma in Engineering from Mount Allison University, and a Masters of Environmental Studies (MES) from the Faculty of Management at Dalhousie University.

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