

A CONTENT ANALYSIS OF SUSTAINABILITY POLICIES AND PLANS FROM  
STARS-RATED CANADIAN HIGHER EDUCATION INSTITUTIONS

by

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Submitted in partial fulfilment of the requirements  
for the degree of Master of Environmental Studies

at

Dalhousie University

Halifax, Nova Scotia

August 2014

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## **Abstract**

Higher education institutions (HEIs) have a role to play in the transition to a more sustainable society through academics and managing their operations using sustainable practices. This study aims to deepen our understanding of Canadian HEIs engaging in sustainability by investigating the content of sustainability policies and plans from a sample of 21 Canadian HEIs that have completed the Sustainability, Tracking, Assessment and Reporting System (STARS). A content analysis of sustainability policy and plan documents was conducted to understand: 1) how the policies conceptualize sustainability and a sustainable campus; 2) the sustainability goals outlined in the policies and plans; and 3) if the plans employ best practices of plan creation and design. The study found that most HEIs conceptualized sustainability as having environmental, economic, and societal aspects, and campus sustainability as including research, education, operations, and community outreach domains. Most policy and plan goals emphasized the environmental aspects of the facilities domain, while on-campus social and economic goals were less prevalent. While most sustainability plans were described as being created through a broad collaborative process, far fewer plans had assigned timelines and parties responsible for attaining the sustainability goals as was recommended in the literature. These findings are of importance to campus sustainability practitioners who are seeking to create or update their sustainability policies and plans, and for scholars interested in the role of these documents in promoting campus sustainability.



## **List of Abbreviations Used**

AASHE: Association for the Advancement of Sustainability in Higher Education

DESD: Decade of Education for Sustainable Development

ESD: Education for Sustainable Development

HEI: Higher Education Institution

SEPN: Sustainability and Education Policy Network

SHE: Sustainability in Higher Education

STARS: Sustainability Tracking, Assessment, and Rating System

## **Acknowledgements**

Dr. Tarah Wright, Thank you for your positive support and guidance throughout this learning process. It really was a pleasure to work with and learn from you!

Dr. Kate Sherren, thank you for your feedback and guidance. Your critiques and practical perspective pushed me to look deeper at my work.

Dr. Kathleen Kevany, thank you for taking the time to be my external reviewer.

The SEPN team, this project was largely a collaborative effort. Thank you to the whole network and the coding team in particular for providing a supportive learning environment throughout this project.

Dr. Philip Vaughter, thank you for the hours of skype time, your supportive ear, positive comments, and quick wit.

SRES students, thank you for your generous help, support and amazing friendship. These two years wouldn't have been the same without you. Thank you!

Family and friends, as your encouragement and support meant the world to me.

To Camilo, thank you for everything.

Social Science and Humanities Research Council, Québec Fonds de Recherche - Société et Culture, Dalhousie Faculty of Graduate Studies, and the Hudson Garden Club for your support of this research.

## **CHAPTER 1: INTRODUCTION**

This chapter provides an introduction to this thesis. It begins with a context section to provide background information and define terms used within the thesis. Next, an overview of the thesis project is given including the research questions used to guide the study. Finally, an overview of the format of the thesis is offered to prepare readers for what is to follow.

### **1.1. Context**

Sustainable development has become a popular, yet contested paradigm used by organizations and governments around the world (Dovers, 2005; Drexhage & Murphy, 2010). The goal of sustainable development is to find solutions to the world's environmental challenges while taking into consideration the needs of less developed nations to increase their citizen's socio-economic status and health (WCED, 1987). While the concept of sustainable development has been critiqued, commonly agreed-upon principles are inter and intra-generational equity and an awareness of the interconnections between the environment, economy, and society (Drexhage & Murphy, 2010). In essence, for sustainable development to occur, development must consider all three interconnecting elements in decision-making, and must allow the current generation to meet their needs without compromising the ability of future generations to meet their needs as well. One important component of transforming society to this development paradigm is education, as people need new values, knowledge, and skills, if they are to create personal and organizational change for sustainability (United Nations Environment Programme, 1992).

Higher education institutions (HEIs) (colleges and universities) have a role to play in educating about sustainable development. In 2003, the United Nations declared the Decade of Education for Sustainable Development (DESD) from 2005-2014 and outlined the important role of tertiary education (UNESCO Education Sector, 2006). The DESD called for HEIs to engage their students in sustainability learning, to be places of research in sustainability education, to be leaders by modelling best practices in sustainability

management, and to be ‘poles of activity’ for their communities and nations (UNESCO Education Sector, 2006).

The academic field of sustainability in higher education (SHE) has emerged in response to calls for universities to lead society toward a sustainable future (Association of University Leaders for a Sustainable Future, 1990; Orr, 1992; Orr, 1995), and is considered a distinct specialization within the field of sustainability scholarship (Filho, 2005), and a subset of educational research (Fien, 2002). While there are many arenas of inquiry within the field of SHE (e.g. studies of sustainability education, the greening of physical operations, and descriptive case-studies), this thesis focuses itself in the area of sustainability policy analysis.

Scholars have advocated for HEIs to create policies and plans to guide the institutionalization of sustainability on campus and these have increased in numbers in recent years (Velazquez, Munguia, Platt, & Taddei, 2006; White, 2014; Wright, 2006). Sustainability policies are short visionary documents that help to guide sustainability initiatives and provide the HEI community with a clear vision of sustainability on campus. Sustainability plans tend to be longer documents that aim to provide more detail on how to implement a policy vision. Scholars note that the development of these documents can be a useful step in negotiating the sustainability goals among diverse groups of stakeholders (Conroy & Berke, 2004), and once completed, they can be used to create an overarching framework for campus sustainability (Cortese 2003; Creighton 1998; Koester et al. 2006; Krizek et al. 2012; Lukman & Glavič 2006; Velazquez et al. 2006; McNamara, 2010).

HEIs in Canada have created sustainability policies and their accompanying implementation plans (Vaughter, Wright, & Herbert, in-press), yet little is known about the content or quality of these documents. In the United States, one recent study found that while the SHE plans are extremely diverse they tend to focus on campus operations and environmental concerns, while social equity issues are less common (White, 2014). We lack information about these documents in the Canadian context. In order to help address this gap, extract best practices, and recommend ways to move forward, this thesis

will examine the content of sustainability policies and plans from a sample of Canadian colleges and universities from across Canada.

## **1.2. Project Overview**

This thesis represents one portion of a larger six-year collaborative research project by the Sustainability and Education Policy Network (SEPN) whose aim is to explore, understand, and ultimately improve the policy and practice of sustainability education in formal primary to tertiary education in Canada (see [www.SEPN.ca](http://www.SEPN.ca)). SEPN's research plan began with a census and content analysis of governing documents from Canadian HEIs and provincial ministries of education (see Bevridge, Mackenzie, & Vaughter, in-press; Vaughter, McKenzie, Lidstone, & Wright, in-press; Vaughter, Wright, & Hebert, in-press). Later stages of the SEPN research plan builds on this text-based analysis and includes a national survey and site studies in order to gain a deeper understanding of sustainability policy and practice in Canadian formal education. The research reported on for this thesis contributes to the early phase of the SEPN research plan and aims to inform the later phase of on-the-ground research through a content analysis of sustainability policy and planning documents.

The focus of this thesis research was a sub-set of Canadian HEIs who have engaged in the Sustainability Tracking, Assessment, and Rating System (STARS) established by the Association for the Advancement of Sustainability in Higher Education (AASHE). This subset was chosen because it was hypothesized that a HEI with a STARS rating is one that has already thought about and engaged with sustainability and may provide examples of best practices for sustainability policy and planning, as well as for the practical purposes of segregating a portion of the SEPN documents for my thesis work.

### **1.6.1. Research Questions and Goals**

The goal of this study was to investigate the content of STARS-rated HEI's sustainability plans and policies. In particular, this study aimed to discover: how the HEIs are conceptualizing sustainability and a sustainable campus, their goals for the future, and how they plan to implement them.

This thesis will address this goal using the following research questions about the content of sustainability policies and plans in STARS-rated Canadian HEIs:

- a) How do the policies conceptualize environment, sustainability, or sustainable development?
- b) How do the policies conceptualize a sustainable campus?
- c) What are the sustainability goals outlined in the policies and plans?
- d) Do the plans employ best practices of plan creation and design as noted in the literature?

These research questions were addressed through a qualitative content analysis of sustainability policy and plan documents in a collaborative coding method (MacQueen et al., 1998; Saldana, 2013). The scope of this study is limited to colleges and universities in Canada that were members of AASHE and had completed a STARS rating as of the spring of 2013. The temporal scope is further defined as documents that were publicly available as of September, 2013.

### **1.6.2. Thesis Structure**

This thesis is divided into six chapters and one appendix. Chapter one has provided the context of this study and the project overview including research questions. Chapter two is a literature review that provides relevant background literature to situate the thesis. Chapter three details the methods used for this study. Chapters four and five are stand-alone chapters presented in publication format exploring respectively: a) the content of sustainability policies including the conceptualizations of sustainability, campus sustainability, and the goals outlined within the documents; and b) the content of sustainability plans including the goals outlined in the documents, and aspects of plan quality. Chapter six is the concluding chapter that overviews the key findings, contributions to theory and practice, and suggestions for further research. The appendix is a copy of the codebook used for this thesis.

## **CHAPTER 2: LITERATURE REVIEW**

The following chapter is a summary of the literature reviewed for this thesis. The chapter opens with an exploration of the concept of sustainable development, followed by a discussion regarding the need for education for sustainable development. Next the literature about sustainability in higher education is reviewed, followed by a general description of governing documents and sustainability assessments. The chapter concludes with a summary of the knowledge gaps presented in the literature.

### **2.1. Sustainable Development**

Environmental issues such as deforestation, desertification, pollution of air, water, and land, and climate change caused by population growth and high resource consumption have caused the natural world to reach a limit where it is beginning to give poor ‘vital signs’ (Mebratu, 1998). These problems are complex and ‘wicked’ in nature (Fletcher, 2009; Posner, 2013) as they are tied to changing contexts, stakeholders, and a lack of objective policy solutions (Posner, 2013). In response, environment and development problems are often addressed simultaneously in a systems perspective under the banner of sustainable development (Mebratu, 1998). While sustainable development is a fluid concept that is under debate some agreed upon principles are:

- Inter and intra-generational equity: intergenerational equity for future generations and the concept of fairness and equity between and within nations, with a priority to improving the living conditions of the world's poor.
- A long term view using the precautionary principle: lack of scientific certainty should not hinder action when there is a threat of irreversible or serious damage.
- Integration and understanding of the complex interconnections between the environment, economy, and society. (Drexhage & Murphy, 2010)

The concept of sustainable development gained popularity after the publication of the Our Common Future report by the United Nation’s World Commission on Environment and Development led by Gro Harlem Brundtland in 1987. The goals of the report included protecting natural resources, increasing equity within and among nations, ensuring that growth occurs to provide the needs and aspirations of humanity, but that it also reduces energy and resource use (WCED, 1987). Brundtland (1987) describes how the international economic system currently in place was created out of a need to rebuild

after World War II. However, after the developing nations have seen that the trajectory of their development is un-sustainable, in relation to the environment, we need to find a sustainable alternative to development. Brundtland (1987) argues that we cannot stop development as “environmental degradation, first seen as mainly a problem of the rich nations and a side effect of industrial wealth, has become a survival issue for developing nations” (p. xi). Although the report is over 350 pages long, the most common quote from the text is a part of the definition of sustainable development: “humanity has the ability to make development sustainable – to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs.” (WCED, 1987, p. 8).

Although sustainable development is a term that has been taken up by many governments, businesses, and organizations (at least on a policy level) there has also been criticism of the concept. Sustainable development has been criticized for being vague, inherently dichotomous (Mebratu, 1998; Robinson, 2004), and anthropocentric in its viewpoint, neglecting the intrinsic value of nature (Kopnina, 2012; Stables, 2001). Stables (2001) describes the term sustainable development as a “paradoxical compound policy slogan” (p.42) and “oxymoronic” (p.42) whose appeal allows for buy-in from a wide array of people with different perspectives. These types of terms have popular appeal in the policy context and serve to get politicians re-elected, however it does not ensure effectiveness or clarity in goal setting (Mebratu, 1998; Stables, 2001). Stables (2001) argues that the outcomes of this type of policy is therefore unpredictable and it depends upon what the actors interpret these terms to mean. Further, some worry that government and business were using the term to suggest that the ‘development’ in sustainable development meant growth (Robinson 2004). In response, academics and non-governmental organizations are using the term sustainability to shift the focus back to the need for humans to live within environmental limits (Robinson 2004). Although there are arguably some differences between the terms sustainable development and sustainability (Robinson, 2004), for the purposes of this thesis the terms will be used synonymously.



## 2.2. Education for Sustainable Development

The concept of sustainable development requires a large societal paradigm shift. One important aspect of this shift is through education (United Nations Environment Programme, 1992). In 1992, Agenda 21 described Education for Sustainable development (ESD) as comprised of three main components: basic literacy for all, public awareness of environment and development issues, and training (United Nations Environment Programme, 1992). The avenues for this education are formal education for youth (pre-school, primary, and secondary school) and adults (tertiary education) as well as non-formal learning, including media communication (United Nations Environment Programme, 1992; The Earth Charter Initiative, 2000). McKeown and Hopkins (2003) argue that education and literacy for all was included in Agenda 21 because a nation cannot make a sustainable society if their citizens cannot read, as they cannot adapt to changes. Further, increasing public awareness may have an environmental benefit as better educated voters lead to better governments (McKeown & Hopkins, 2003). ESD aims to cultivate the knowledge, values, and skills needed for a sustainable living, hands-on learning, as well as a recognition of the importance of moral, spiritual education, and traditional knowledge (The Earth Charter Initiative, 2000).

Specific learning outcomes for ESD proposed by scholars commonly include working to create change agents, systems or holistic thinkers in interdisciplinary ways (Rowe & Johnston, 2013). Teaching students to use systems and resilience thinking in the context of ESD helps students develop higher order cognition to be able to navigate complex sustainability problems (Fazey, 2010). Hungerford and Volk (1990) also advocate for the inclusion of problem-solving skills as outlined in the Tbilisi Declaration and Belgrade Charter. Although these learning outcomes were identified more than 30 years ago few educational institutions have implemented them, or implemented them fully (Rowe & Johnston, 2013). ESD builds upon environmental education and a common learning outcome seen in the literature is ecological or environmental literacy (Hungerford & Volk, 1990; Orr, 2004). Orr (2004) proposes specific environmental education outcomes for all students in higher education, irrelevant of discipline:

- laws of thermodynamics,

- appropriate scale,
- sustainable forestry and agriculture,
- steady-state economics,
- environmental ethics,
- limits of technology,
- basic principles of ecology,
- carrying capacity, energetics, and
- least-cost and end-use analysis.

Beyond these specific learning outcomes, scholars also advocate for new, progressive methods of teaching for sustainability that engage students in active ways, as well as incorporate multiple perspectives (Redman & Wiek, 2013), and self-reflection (Fazey, 2010). The most often discussed strategy within the literature reviewed was experiential or hands-on learning (Barber & Rousseau, 2013; Cotton & Winter, 2010; Fazey, 2010; Orr, 1992; Van Matre, 1990; Wright & Horst, 2013). Experiential learning engages students and allows students to be active and motivated to learn (Fazey, 2010) and also involves the community in participatory research to address local environmental issues (Cotton & Winter, 2010; O’Riordan, 2004). Pooley and O’Connor (2000) advocate for the inclusion of first-hand experience as it tends to be affectively (or emotionally) predicted and has a role to play in predicting attitudes alongside second-hand experience, which is cognitively (or mentally) predicted. Cotton & Winter (2010) also emphasize affective as well as cognitive learning outcomes and put forward the concept of transformative sustainability learning, which includes cognitive, affective, and psychomotor learning; or more simply a mixture of head, heart, hands. Soetaert and Mottart (2004) critique this line of reasoning and caution the simplicity of attempting to teach morals and facts. They argue that neither facts nor curriculum are neutral as curriculum is a representation of facts and that students should learn about a multitude of perspectives and cultural views. Stables (2001) also advocates for a deeper understanding of culture, writing that students need a “critical retrospective on the histories that have brought us to an appreciation of ecological crisis: the history of science for example, and of the increasingly secular humanism that has driven and interpreted it” (p. 43).

- While scholars have some disagreements as to how best to educate for sustainable development there is momentum at the international level for ESD. In 2003, the United Nations assigned the years 2005-2014 the Decade of Education for

Sustainable Development (DESD) in order to promote and support the uptake of ESD globally. The objectives of the DESD are to (UNESCO Education Sector, 2006):

- Give an enhanced profile to the central role of education and learning in the common pursuit of sustainable development;
- Facilitate links and networking, exchange and interaction among stakeholders in ESD;
- Provide a space and opportunity for refining and promoting the vision of, and transition to sustainable development – through all forms of learning and public awareness;
- Foster increased quality of teaching and learning in education for sustainable development;
- Develop strategies at every level to strengthen capacity in ESD

Although the DESD is promoting ESD at the international level, there is also an emphasis on honouring regional understandings of ESD, the role of local tradition (Calder & Leicht, 2007), and regional needs. For example it has been found that less developed regions tend to focus on providing access to education, increasing literacy rates, and education quality, unlike more developed regions who have accomplished these goals (for the most part) (Wals, 2009). Within formal education the DESD promotes a ‘whole school approach’ where ESD is not an add-on to existing curriculum, but a thread woven through primary, secondary, and higher education; it should be included in existing curricula and in good practices by learners and teachers, such as, through recycling practices (UNESCO Education Sector, 2006). As the ESD decade is drawing to a close this year many scholars are looking back at the progress made throughout the decade. Filho (2014) notes in his recent editorial that while much progress has been made in initiatives during the DESD, there have been some problems including lack of financial and staff resources, limited communication, and engagement on behalf of experts.

Moving forward, the following areas of improvement are identified for ESD:

- to document and disseminate initiatives, research, and projects on ESD;
- to network and communicate;
- to engage in applied sustainability: implementing practical projects on the ground;
- to have integrative efforts paying attention to particulars of each nation (one size fits all approach will not work);
- and to engage in capacity building including the education of teachers (Filho, 2014).

This last point, the education of teachers and other members of society in order to build capacity speaks to the role of sustainability in higher education institutions (HEIs) where the next generation of leaders and workers are trained.

### **2.3. Sustainability in Higher Education**

This section describes the literature reviewed for sustainability in higher education (SHE). It begins with the commitments made by HEI leaders to international declarations, followed by the scholarly definitions and models for SHE. The section concludes with a description of the literature of the barriers and criticisms to SHE.

#### **2.6.1. International Declarations**

Many HEI leaders around the world have made public commitments to addressing sustainability at their institutions. The Talloires Declaration was the first SHE declaration signed by university administrators in 1990 and was organized by the University Leaders for a Sustainable Future (Association of University Leaders for a Sustainable Future, 1990). In Canada, the Halifax Declaration was created in 1991 to address campus sustainability issues in a Canadian context (*The Halifax Declaration*, 1992).

One common theme seen through such declarations is that the HEIs have a moral and ethical responsibility to be leaders in promoting sustainability (Lozano, Lukman, Lozano, Huisinigh, & Lambrechts, 2013; Wright, 2004). Declarations most often include a commitment to address sustainability in curricula, research, and community outreach and about half of the declarations include the themes of operations, inter-university collaboration, transdisciplinarity, and programs to educate faculty on sustainability issues (Lozano, Lukman, et al., 2013). A study into the underlying discourses of SHE declarations offers a critique that the declarations do not encourage HEIs to be self-reflective into the ways in which they may contribute to the creation of an ‘unsustainable’ society. Further, ecological and poverty problems are framed as naturally occurring, which reduces agency (Sylvestre, McNeil, & Wright, 2013). In other words, the declarations do not discuss that the roots of these social and ecological problems are embedded in our history and current development paradigms. By not unpacking these issues, it is difficult for HEIs to envision a path to a more sustainable future for both the HEIs and broader society (Sylvestre et al., 2013).

Although SHE declarations seem to signal a commitment by HEIs to engage in sustainability, Wright (2002) found that signing the Halifax declarations had not necessarily led to sustainability initiatives on the ground. However, Muller-Christ et al. (2013) argue that sustainability declarations “can serve as a key internal driver as it allows members of the university to then specify the meaning of HESD [higher education for sustainable development] by initiating internal discussions and negotiations about its integration at their institution” (p. 136). Therefore studies suggest that while public commitments to sustainability may be used as a tool to foster institutional change, other methods are also needed.

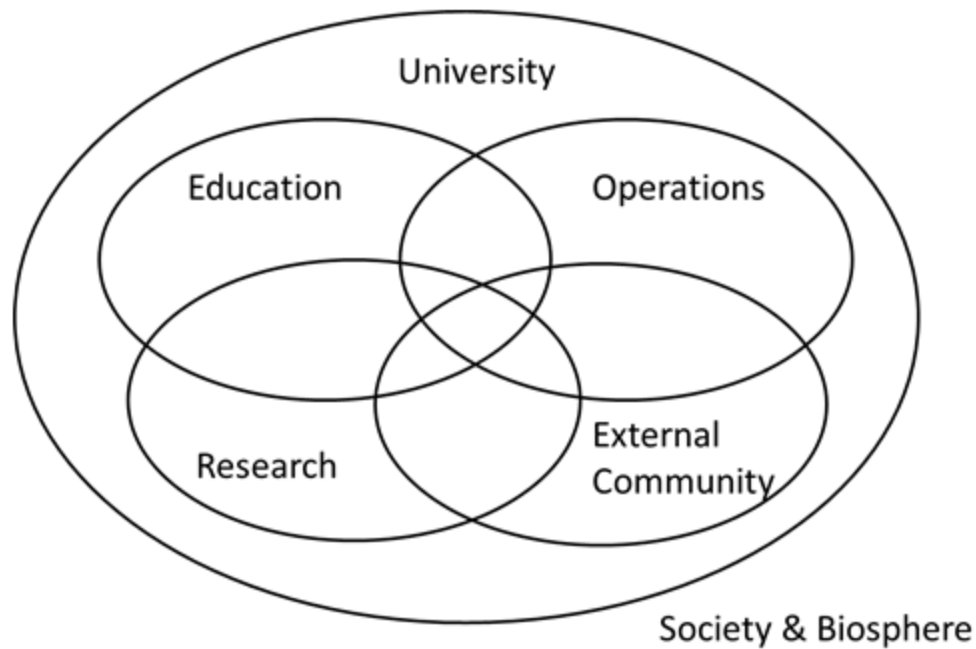
### **2.6.2. Definitions and Models of SHE**

International declarations have outlined the motivations and basic goals of SHE; researchers within the field of SHE have worked to further define and create conceptual models of SHE. A review of definitions of SHE found that while definitions vary, commonalities include the three aspects of sustainability (economy, environment, and society) as well all aspects of campus life (including employees, students, and campus operations) (Moganadas, Corral-Verdugo, & Ramanathan, 2013). Velazquez et al. (2006) put forth their definition of a sustainable university as:

A higher educational institution, as a whole or as a part, that addresses, involves and promotes, on a regional or a global level, the minimization of negative environmental, economic, societal, and health effects generated in the use of their resources in order to fulfill its functions of teaching, research, outreach and partnership, and stewardship in ways to help society make the transition to sustainable life-styles. (p. 812)

However the authors note that, like regional definitions of sustainability, HEIs should create their own definitions of a sustainable campus, specific to their institution. Krizek et al. (2012) further argues that the ideal model of a sustainable campus is a fully self-actualized and integrated campus community where there is high level of coordination, and sustainability is at the central mission of the HEI. Although the authors agree that this is very challenging, it is the ultimate goal in campus sustainability (Krizek et al., 2012).

Scholars call on SHE to be modeled using a systems view (Koester et al, 2006; Posner, 2013), or a systemic (Alshuwaikhat & Abubakar, 2008), integrated (Alshuwaikhat & Abubakar, 2008; Cortese, 2003), or whole-systems approach (Koester et al., 2006). Although the terms used vary they describe essentially the same concept that 1) campus sustainability should encompass more than just the learning that occurs in the classroom, but also includes both curricular and co-curricular (after-school activities) education, research (student and faculty research for sustainability), facilities operations (transforming building, procurement, and maintenance practices), and community outreach (including the broader community in these efforts); 2) these aspects of campus life are interconnected; and 3) by viewing the campus in this systems view leverage points for transformative and institutional change can be found (Alshuwaikhat & Abubakar, 2008; Cortese, 2003; Koester et al., 2006; Müller-Christ et al., 2013; Posner, 2013; Velazquez et al., 2006). Cortese (2003) also argues that sustainable development must be integrating into all aspects of university life and that these aspects are interconnected (Figure 1). Focusing on the student experience for example, Cortese (2003) explains how students learn from their physical surroundings or what Müller-Christ et al. (2013) refer to as the hidden curriculum. If a campus is powered by renewable energy and has eliminated waste through the creation of closed loop systems then students are exposed to these ideas and see how it works in practice. Further, campus greening and community outreach can be connected to the classroom by having students work on real world problems of their community fostering teamwork and stronger community connections.



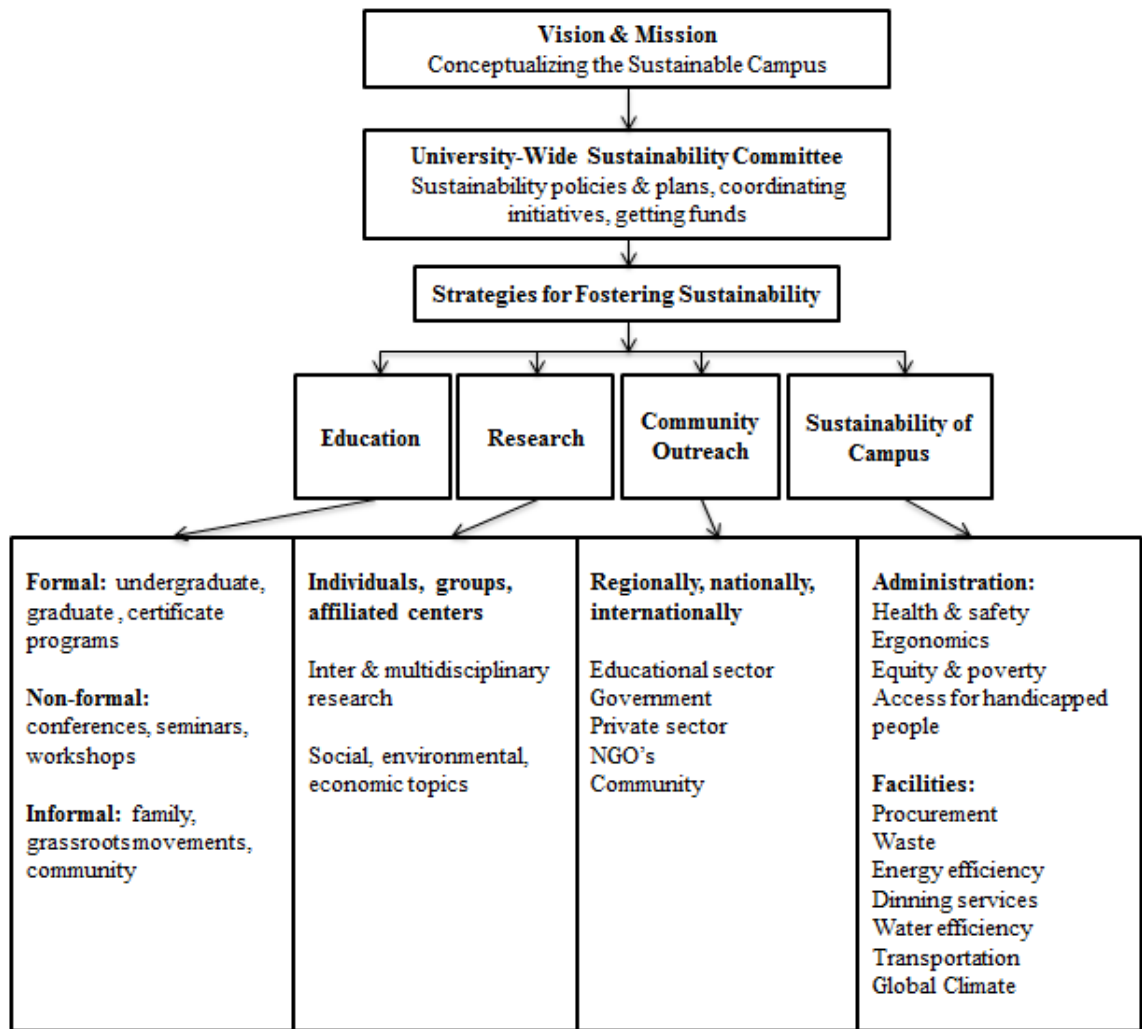
**Figure 1: Model of SHE as a fully integrated system**

(Adapted from Cortese, 2003)

Wals and Blewitt (2010) describe this model of SHE as third-wave sustainability. It is the next generation of sustainability in higher education that goes beyond previous ad hoc campus greening efforts and works to integrate sustainability into the curriculum and “refers to a university’s attempt to re-orient teaching, learning, research and university-community relationships in such a way that sustainability becomes an emergent property of its core activities” (p. 54).

Velazquez et al. (2006) provide a model of campus sustainability in their seminal review paper that clearly describes this integration of sustainability on campus (Figure 2). In their model, ESD in higher learning is broken up into formal, non-formal, and informal activities (Velazquez et al., 2006). In formal learning, sustainability should be addressed in all academic disciplines and training programs as people from all backgrounds and in many careers will need to be motivated and educated about sustainability (Rowland et al., 2013). Agenda 21 thus urges universities to create cross-discipline courses that are open

to all students (UNEP, 1992). This has been enacted in some instances as an introductory course that is a general sustainability requirement for all students (Lopik, 2013; Wals, 2011). Non-formal learning is also important as campus decision makers and campus community members need to be educated on the change agenda if large scale behavioral change is going to occur on campus and in the larger society (Allen, 1999).



**Figure 2: Systems view of Sustainability in Higher Education**

(Adapted from Velazquez et al., 2006)

Sustainability research includes research on sustainability topics, often in interdisciplinary teams or approaches (Velazquez et al., 2006), making the research process itself more aligned with sustainability principles (green labs programs), and using



the campus as a laboratory to test sustainability technology and ideas (Posner, 2013). Participating in community outreach and partnership is one method to both spread the sustainability paradigm into the community and to provide hands-on problem-solving experiences for students (Müller-Christ et al., 2013). As previously described, operations can be a testing ground to showcase innovative examples of sustainability to the public, and may involve faculty research and community partnerships (Müller-Christ et al., 2013). By working to reduce the ecological footprint of the campus, and increasing access for all users, HEIs show that they are ‘walking the talk’ of sustainability (Müller-Christ et al., 2013). This ensures that messages received by students inside the classroom are given credibility through experiences in daily life (Müller-Christ et al., 2013). Posner (2013) notes that HEIs also engage in aligning operations with sustainability principles in order to manage financial risk posed by rising energy prices (and other operational costs) as well as to “establish and maintain a positive public reputation for social responsibility” (p. 265). These visions of a sustainable campus demonstrate that HEIs are complex organizations with many independent and interdependent parts (Sharp, 2002).

While attempts have been made to in HEIs to improve campus sustainability “generally, however, HE in North America has not been redesigned in a way that transcends the physical aspects and changes the DNA of the university” (Wals & Blewitt, 2010, p. 60). Cotton and Winter (2010) agree that although SHE is considered a university-wide issue and it is being studied in new and innovative ways, integration of sustainability into the curriculum has been “‘patchy’ at best” (p. 40) with much of sustainability relegated to campus greening. However, Velasquez et al. (2006) found that campus sustainability actors have implemented educational initiatives of SHE (90%), followed by research (80%), and outreach/partnership (60%). Yet the authors also acknowledge that incorporating sustainability into a higher education institution is not an easy or direct task.

### **2.6.3. Barriers and Criticisms to SHE**

The main barriers to implementing sustainability in higher education identified in the SHE literature are: 1) lack of time, financial, and other resources devoted to sustainability on campus (Karatzoglou, 2013; Krizek et al., 2012); 2) HEIs are old, conservative

institutions with mental models that do not allow for quick, sweeping changes (Krizek et al., 2012) and instead have a habit of following old patterns, what is known as “path-dependency” (Lopik, 2013, p.82); and 3) interdisciplinarity, expressed as a hallmark of ESD, encounters barriers because the structure of the university is at odds with this ideal (Jones, Selby, & Sterling, 2010; Lopik, 2013).

Additionally, SHE does not exist in a vacuum and HEIs are influenced by how they are situated within the larger and often ‘unsustainable’ economy and society (Orr, 2004). As Rowland (2013) states “we need to be mindful that our educational institutions were not established nor are they structured to create the healthy, just, and sustainable society we are seeking” (p. ix). Academia has from the beginning participated in patterns that degrade the resilience of the sociocultural and ecological systems on which life depends (Carp, 2013).

Within the Canadian context the primary barrier to integrating SHE has been identified by various campus stakeholders as lack of financial resources (McNeil, 2013; Wright & Wilton, 2012; Wright & Horst, 2013). Secondly, social barriers, similar to the general public, were identified including lack of understanding of sustainability, differing opinions and attitudes, and achieving behavioral change for sustainability (ie. turning off lights) (McNeil, 2013; Wright & Wilton, 2012). Multiple understandings and interpretations of sustainability throughout the institution that can be at cross purposes to one another makes agreeing on one definition and vision for campus sustainability difficult and perhaps undesirable (Sylvestre, Wright, & Sherren, 2014). An in-depth collaborative process is advised in order to create a shared vision based on the nature of plurality with HEIs (Sylvestre et al., 2014).

The main critiques of SHE are that: 1) the current political, ideological, or value-laden nature of working towards SHE (Cotton & Winter, 2010; Kissel, 2010) has had an absence of critical discussion, which is essential in an institute for higher learning (National Associations of Scholars, 2011); 2) SHE has been idealistic in its calls for sweeping structural change by not taking into account the value of disciplines, and the divergent interests of faculty and administrators (Sherren, 2010); and 3) the quality of research in this emerging field has focused mainly on case studies and theoretical work,

and lacks empirical and comparative studies (Bevridge et al., in-press.; Shriberg, 2002; Vaughter, Wright, McKenzie, & Lidstone, 2013). On the latter, scholars have criticized the quality of SHE case studies for their lack of rigor, methods, and methodologies, and their focus on descriptive and narrative accounts (Corcoran et al. 2004; Fien 2002). While case studies aid our understanding of organizational change and innovation at an institutional level, our understanding of campus sustainability lacks breadth.

In the Canadian context, a review of research conducted on sustainability in higher education also revealed that most research conducted was in the form of case studies (see Bardati, 2006; Brunetti, Petrell, & Sawada, 2003; Clarke, 2006; Conway, Dalton, Loo, & Benakoun, 2008; Dahms, McMartin, & Petry, 2008; Guz, 2004; Mitchell, 2011; Moore et al., 2005; Richardson & Lynes, 2007), with only a handful of articles that compared sustainability topics between HEIs (such as Beringer, Wright, & Malone, 2008; Canadian Association of University Business Officers, 2009; Fonseca, Macdonald, Dandy, & Valenti, 2011a; Helferty & Clarke, 2009; Owens & Moore, 2008; Sherren, 2008a). The case studies covered a variety of topics ranging from creating educational programs, campus-wide audits and environmental management systems, green buildings, and United Nations Regional Centres of Excellence for education for sustainable development. Campus greening was a popular topic with many studies covering the themes of auditing, reporting, environmental footprint calculation and environmental management systems.

Two comparative studies were found that researched the state of SHE by comparing different Canadian HEIs. Beringer, Wright, and Malone (2008) compared the state of SHE in Atlantic Canada by conducting a survey using the Sustainability Assessment Questionnaire (SAQ) by University Leaders for a Sustainable Future (ULSF), reviewing webpage content, mission statements and sustainability plans. The SAQ survey aims to capture a holistic view of sustainability activities on campus including curriculum, research and scholarship, student opportunities, institutional mission, structure and planning. The study found that most Atlantic Canadian HEIs were engaging somewhat in sustainability practice with the highest concentration of activity in curriculum, followed by research, while campus operations was lagging. Just over half of institutions had

addressed sustainability in institutional structures or planning. The authors note future research needs to be done to compare these results to the rest of Canada.

The second comparative Canadian study was an unpublished study conducted by the Canadian Association of University Business Officers (CAUBO). The study was discovered through email contact with the organization and lacks a detailed description of its methods. The study, published in 2009, surveyed its members from HEIs across Canada (n=33) on the policies, practices and structures that advance sustainability on these campuses. CAUBO (2009) found that "a majority of participating universities (70%) have a formal policy/statement relative to sustainability, with large universities (83%) more likely to have such a policy than small or medium-sized universities" (p.3). A majority of participating universities (74%) include environmental, economic, and social sustainability in their sustainability policy. Regardless of size, universities predominantly include environmental and economic sustainability in their policy. Medium and large universities are more likely to include social sustainability as well. The study found that fifty-eight percent of participating universities report annually to their boards on sustainability. A majority of these include multi-year targets and action plans. The reporting remains primarily environmentally-focused (68%), although some progress is made relative to reporting on social and economic objectives. Few (5%) report against academic objectives or goals relative to sustainability.

In terms of facilities, "a majority of universities (67%) formally adopt a green building standard requiring certification for new construction. LEED Silver is the most frequently-specified minimum level" (Canadian Association of University Business Officers, 2009, p.3). Similar to Beringer, Wright, and Malone (2008), CAUBO (2009) also finds that large universities, located in urban centres, are more likely to focus on sustainable transportation. For GHG commitment, 21 % of HEIs surveyed had a commitment to achieving carbon neutrality. In terms of community engagement, fifty-eight percent of HEIs engage in community service related to sustainability or internship programs with a marked difference in larger HEIs engaging over smaller schools.

These two studies by Beringer, Wright, and Malone (2008) and CAUBO (2009) are the closest to addressing the research questions of this thesis however, the first is

concentrated on one geographic area of Canada, and the second is not a peer reviewed study. Therefore, there remains a need for comparative studies in Canada, and the results of these studies can also help shed light on the results expected for this thesis. As the research questions of this thesis deal with policies and planning documents for sustainability the following sections provide a background to these texts.

#### **2.4. Sustainability in Higher Education Governing Documents**

An emerging trend in campus sustainability is the creation of governing documents specific to sustainability (White, 2014; Wright, 2006). This section draws upon literature from the fields of public policy, environmental planning, and SHE in order to provide a background of the role and use of governing documents, specifically sustainability policies and plans, in SHE.

In her book *Beyond Policy Analysis: Public Issue Management in Turbulent Times* (1997), Pal helps to clarify what policy is and what it is not. "A policy is an avowal of intent, a recognition of a problem and a statement of what might be done about it" (Pal, 1997, p.77). A policy is a guide, a map to bring you to an end goal; it is not the action itself, it is not programming, or the individual actions of staff (Pal, 1997). Policies are mental constructs, strings of phrases and ideas and through the analysis of policy texts, researchers "attempt to grasp an underlying structure of ideas that supposedly guide action" (p.12). Further, Pal (1997) notes that policy is created by those in power at an institution - by management and "[s]ince policy is a guide, it has a normative or coercive dimension: if the policy says you must do X, then you must (should) do X. Not everyone is empowered to make these sorts of statements." (p.5). Therefore a policy text can help illuminate the vision of practice that management holds within the institution, and not necessarily what is accepted or what is happening on the ground.

Within HEIs, governing documents for sustainability include both sustainability policies and plans. There are both general policies that outline the core values of the HEI and specific policies for sub-topics, such as recycling and procurement that may be created afterwards (Allen, 1999). Sustainability plans allow campus planners to set "integrated goals, objectives and strategies for the future" (White, 2014, p. 229). These plans often include operations, academics, and administration aspects of campus life and integrate

environmental, social, and economic impacts (White, 2014). Sustainability policies can help create an overarching framework for campus sustainability (Cortese 2003; Creighton 1998a; Koester et al. 2006; Krizek et al. 2012; Lukman & Glavič 2006; Velazquez et al. 2006; McNamara, 2010) and having completed a sustainability plan has been seen to be a factor significantly related to the successful implementation of sustainability initiatives (McNamara, 2010).

Studies suggest that sustainability policies and plans are an emerging trend in SHE (White, 2014; Wright, 2006). Wright (2006) states that university environmental policies have become more common over the past three decades. Velasquez et al. (2006) reports that between 50-60% of HEI sampled globally have sustainability policies. In Canada, of the 220 accredited HEIs, 50% of HEIs have either a sustainability policy or planning document (Vaughter, Wright, et al., in-press). One study found that in a broad sample of 50 Canadian HEIs, 70% have a sustainability policy, and 44% have a sustainability plan (Vaughter et al., in-press).

Some factors identified to produce a high-quality plan include the plan: 1) being formally adopted by the HEI, 2) communicated to all campus members, 3) having goals, tasks, and timelines, 4) having a measurement and feedback process to assess goal completion, and 5) identifying the roles and responsibilities of participants (Krizek et al., 2012; McNamara, 2010). Additionally, Koester et al. (2006) argues that timelines can be useful to help prioritize campus sustainability goals. Further, Brown and Hamburger (2012) note that timelines and measurable indicators can be helpful to judge the progress of sustainability initiatives during reporting and monitoring phases of the plan.

Community consultation and collaboration are also advocated to ensure a successful policy or plan development process. Conroy and Berke (2004) state that conflict is inherent in sustainable development planning because of the need to balance social, ecological, and economic goals concurrently. The authors find that the "...best way to address these conflicts is through a community-based collaborative planning process partnering planners and citizens" (p. 1382). A collaborative approach is ethically desirable (Dovers, 2005), helps build social capital, and strengthens the community (Conroy & Berke, 2004). It also helps build effective policy (Dovers, 2005) by reducing

conflict, and getting buy-in to the policy change agenda (Conroy & Berke, 2004). Although planners and policy makers find this process time consuming and expensive (Conroy & Berke, 2004; Pal, 1997) it is now a “political must” (Pal, 1997). When conducting public participation both depth (level of control given to participants on policy outcomes) and breadth (every community member has equal chance to participate in the process) in public consultation are required for successful planning (Conroy & Berke, 2004).

Few studies to date have investigated the content of sustainability plans. In a study that evaluated 27 campus sustainability plans in the United States, White (2014) finds that the plans are extremely diverse. The author posits that one motivating factor for the creation of the plans may be participation in AASHE. The process for developing the plans includes broad stakeholder consultation on campus. The content of the plans focuses on campus operations and environmental concerns, while social equity issues are less common. Academics are often addressed, but in relation to how to “adapt course work and majors to meet the needs and interests of students” (White, 2014, p.238). The domain of research within the plans focuses on using the campus as a site of investigation. It remains to be seen whether or not Canadian campus sustainability plans are similar to their American counterparts.

SHE governing documents have certain limitations based on the unique and complex identities of HEIs. Sporn (1996) describes how HEIs are complex organizations with distinct cultures and are influenced from within by academic freedom and autonomy, and from without by environmental pressures (funding, resource changes, government or student demand). Therefore HEI decision-making processes are long and complex due to different interests of academic and administrative staff (Sporn, 1996). Additionally, HEI curricula is created in a decentralized manner with each discipline and institution operating independently with faculty teaching material based on their professional expertise (Sherren, 2008b). The disciplines are self-regulating, self-organizing, and self-sustaining (Sherren, 2008b) meaning that governing curricula through a centralized administration would be met with heavy resistance. In fact, university faculty have been

found to be “strongly opposed” to policy seen to limit academic freedom (Sylvestre, Wright, & Sherren, 2014, p. 1531).

Academic freedom is a longstanding tradition within HEIs; however, it has not been fully delineated or given the force of law (Altback, 2001). Academic freedom is a core value of academia that ensures the freedom of faculty to teach and research and students to learn without fear of sanctions or termination from authorities (Altback, 2001). Some argue that academic freedom should be limited to the faculty’s specialty and professional expertise, and that faculty should remain politically neutral and objective to ensure institutional neutrality (Altback, 2001). While others argue that academic freedom is broader and should allow faculty the freedom of political expression on all subjects (Altback, 2001). In Canada, the Association of Universities and Colleges of Canada (AUCC) released a statement on academic freedom in 2011 that was approved by all members (AUCC, 2011). The AUCC statement defines academic freedom as "the freedom to teach and conduct research in an academic environment" as well as to "freely communicate knowledge and the results of research". However, the statement defines academic freedom as more narrow than free speech and states that academic freedom must be "based on institutional integrity, rigorous standards for enquiry and institutional autonomy, which allows universities to set their research and educational priorities" (AUCC, 2011). This is essential to the role of the university in a democratic society, to pursue truth and knowledge within integrity (AUCC, 2011). Current pressures impacting academic freedom in industrialized nations, like Canada, include the corporatization of research and the increased managerialism of the university (Altback, 2001). The AUCC statement discusses the role of university leadership to safeguard academic freedom especially to ensure that funding does not interfere with faculty autonomy (AUCC, 2011).

## **2.5. Campus Sustainability Assessments and the STARS**

One way that HEIs can monitor and track their progress towards sustainability goals over time is with sustainability assessment tools that measure and report various campus sustainability indicators. Assessment tools provide accountability and allow the institution to learn if and how they are engaging with sustainability (Fonseca, Macdonald, Dandy, & Valenti, 2011). Assessments can help a HEI answer the questions of how the



campus needs to change and how hard these changes are likely to be (Martin, 2011). For example, an assessment might show that while the HEI has reduced greenhouse gas emissions through increased sustainable transportation options on campus, old buildings with antiquated heating and cooling systems are producing many more emissions on campus. Additionally, assessments can focus a campus on continuous improvement and be used to communicate progress towards sustainability to campus community members and the public (Shriberg, 2002).

While individual assessment tools are beneficial to an organization, standardized assessments allow for comparisons to be made across multiple institutions in order to benchmark leaders, identify and communicate best practices, and common goals (Shriberg, 2002). For example, a standardized assessment tool might show how one campus has achieved a high score for its quality diversity and accessibility programs. This information could help other campuses weak in these areas implement similar programs. However, in an environment where financial issues are a pressing problem for HEIs, as seen previously in section 2.4.3, standardized assessment tools may also be used for public relations.

In Canada, standardized assessments have gained popularity over the years with various SHE organizations creating and promoting their own assessment tools. Of the 220 HEIs in Canada, 43% have conducted a standardized sustainability assessment (Vaughtner et al., in-press). The most common standardized assessments used in Canada are CÉGEP Vert, Campus Sustainability Assessment Framework (CSAF), and the Sustainability Tracking, Assessment, and Rating System (STARS) (Bevridge et al., in-press).

In Quebec, the *Environnement Jeunesse* organization created in 2004 the *CÉGEP Vert* certification specifically designed to meet the needs of CEGEPs (*Collège d'enseignement général et professionnel*, or General and Vocational College) (Environnement Jeunesse, 2014). The Sierra Youth Coalition (a youth orientated section of the environmental non-profit organization Sierra Club) created the CSAF in 2003 in conjunction with a student as part of her master's thesis (Beringer, 2006). The CSAF was based on the ISO 14,000, the Global Reporting Initiative (GRI), twelve other existing frameworks and help from a panel of SHE experts in order to meet the needs of Canadian HEIs for a tailored auditing

tool (Beringer, 2006). The CSAF tool “capture[s] the ecological, social, and economic dimensions of sustainability as expressed in the complex human-environment interactions of post-secondary institutions” (p.440).

The Sustainability Tracking, Assessment and Rating System (STARS) was created in 2006 and has been gaining popularity among HEIs in North America (AASHE, 2012; Martin, 2011). STARS is a self-reported system where HEIs earn credits for aspects of campus sustainability and earn a rating of bronze, silver, and gold (Liebert, 2010).

STARS is similar in scope to the CSAF, yet has a more streamlined list of credits/indicators (CSAF has 169, STARS has 67). STARS credits include the themes of education and research; operations; planning, administration, and engagement; and special credits for innovation (Association for the Advancement of Sustainability in Higher Education 2012). HEIs that have completed a STARS audit can publish their results online and see how they compare against other HEIs.

One critique of these assessment tools is that the numerous indicators require a lot of data to be collected from across many diverse parts of the campus and they require a lot of time and resources to complete (Beringer, 2006; Liebert, 2010). This may limit the ability of campuses with fewer staff resources allocated to sustainability to complete the assessments. In response some campuses have used students to gather and report on the data as an experiential learning activity within a course, although as can be expected, this can be a difficult process (Beringer, 2006). Having students collect and analyze assessment information may limit the assessment’s quality. Despite these critiques, scholars generally believe these assessments are useful to advance sustainability in HEI, as they are useful tools to gather information on the state of sustainability, compare best practices, and to communicate progress towards sustainability (Beringer, 2006; Martin, 2011; Shriberg, 2002).

## **2.6. Summary of Knowledge Gaps**

This literature review chapter demonstrates that while SHE is an emerging field making significant steps to theorize and understand campus sustainability, there are still gaps within the literature that need to be addressed. Firstly, as is common in emerging fields of research, SHE has been dominated by case studies and lacks studies that compare two or

more HEIs (Bevridge et al., in-press; Fien, 2002; Shriberg, 2002; Vaughter et al., 2013). This is also true in the Canadian context where the few comparative studies represent the Atlantic Canadian region, or a sub set of CAUBO members (Beringer, Wright, & Malone, 2008; Canadian Association of University Business Officers, 2009). While the SHE field has created useful models of what campus sustainability should ideally look like (Krizek et al., 2012; Lozano, Lozano, Mulder, Huisingh, & Waas, 2013; Velazquez et al., 2006), we have little information (with the exception of some case-studies) about how campus sustainability is being taken up in Canadian HEIs. The organization AASHE has put forward an assessment tool known as STARS to help HEIs progress towards SHE (Liebert, 2010; Martin, 2011), yet we know little about this sub-group of HEIs who have engaged in STARS and who are committed to sustainability. While we understand that sustainability policies and their accompanying implementation plans exist (Vaughter, Wright, et al., in-press), we do not know the quality or content of these documents in Canada. This thesis aims to help address these gaps by conducting a content analysis of sustainability plans and policies from Canadian HEIs that have used and published the results of the STARS tool.

## **CHAPTER 3: METHODS**

This chapter provides a description and rationale for the methods used in this thesis.

### **3.1. Content Analysis Rationale**

The objective of this thesis is to investigate HEIs current vision and future plans for campus sustainability as expressed in sustainability policy and planning documents of STARS-rated HEIs. In particular, this study aims to learn: 1) how the HEIs are conceptualizing sustainability, 2) how the HEIs are conceptualizing campus sustainability, 3) what are their goals for the future, and 4) what is the process of plan creation and implementation outlined in the texts.

In order to meet these goals this study employed a qualitative content analysis of sustainability policy and planning documents from STARS-rated HEIs in Canada. As mentioned previously, this study is part of a larger research project from the Sustainability and Education Policy Network (SEPN). As such, sustainability policy documents for both HEIs and provincial education ministries across Canada were collected and coded by a team of researchers working on the SEPN project. The coding structure was developed collaboratively so that in the future comparisons could be made between the results obtained through coding conducted by various researchers. As previously described, this study focuses on a sub-set of the documents collaboratively collected – namely, the sustainability policy and planning documents from STARS-rated HEIs in Canada. It should be noted that while the documents were collected collaboratively, the coding (with the use of a collaboratively-created codebook) and analysis for the documents from STARS-rated HEIs in this thesis was conducted by myself as a single researcher.

A qualitative content analysis method was chosen to allow for the content of the policy documents to be thematically categorized and for general patterns to emerge between the texts. Krippendorff (2013) argues that content analysis is “a research technique for making reliable and valid inferences from texts (or other meaningful material) to the context of their use” (p.29). The author further explains how this systematic reading of texts is useful for understanding social phenomenon. In this study, content analysis was

used to understand how HEIs prioritize and conceptualize campus sustainability. This method has been used by other researchers in the field; for instance White (2014) used a content analysis method when investigating campus sustainability using sustainability plans in the United States.

### **3.2. Study Population: Canadian STARS-rated HEIs**

The population used for this study was Canadian HEIs that had completed a STARS-rating from the Association for the Advancement of Sustainability in Higher Education (AASHE) as of the spring of 2013 (n=21). The population was chosen for a number of reasons. First, the STARS program is a detailed process that requires significant investment in time and resources, and therefore STARS-rated HEIs demonstrate significant engagement with campus sustainability (Liebert, 2010) and are more likely to have best practices. Second, choosing STARS-rated HEIs was a practical way to limit the scope of the study for a master's thesis (as of the spring of 2013 there were 220 accredited HEIs in Canada) (Association of Universities and Colleges of Canada, 2013). Third, the development of a sampling frame was relatively easy, as a list of Canadian institutions that had STARS rating was provided by AASHE staff who are members of the SEPN research team (Table 1).

The HEIs in this STARS-rated sample range geographically over seven provinces and are predominantly focused in British Columbia, Alberta, and Ontario (Table 1). The bias towards HEIs located in the western provinces (10 HEIs in British Columbia and Alberta) also means that institutions sampled were established later (1960s-1990s) compared to those on the east coast (1800s). The HEIs are located in either urban or suburban settings. The sample is comprised of English language institutions, with one bilingual English and French HEI. AASHE does not provide resources in French and therefore French HEIs, located mainly in Quebec and New Brunswick, are not represented in the sample.

In terms of student population, the HEIs range in size from six small HEIs with fewer than 8,500 students; six mid-range HEIs with between 17,000 and 30,000 students; and nine large HEIs with over 31,000 students. Additionally, the sample is heavily represented by research intensive universities known as the 'U15' with nine out of 21 belonging to that group. There are only five colleges (or 24% of the sample) in the

sample of HEIs, which is less than the national figures (colleges represent 37% of HEIs in Canada) (Association of Universities and Colleges of Canada, 2013). There are also no CEGEPs (*Collèges d'enseignement général et professionnel*, or General and Vocational Colleges) among the STARS sample, probably due to the presence of the *CECEP Vert* program (section 2.6) and the lack of French resources available from AASHE. Overall, the sample is biased towards English, large research institutions, in urban areas, in the west coast of Canada, which are younger (most established between 1960-1990s). The majority of the HEIs have a STARS ranking of silver, with few bronzes, only one gold, and no platinum rankings.

**Table 1: HEI and sustainability policy and plan information**

Higher Education Institutions			Sustainability Policies and Plans				
Institution Name	Population	STARS	Type	Title	Date	# Pages	
Okanagan College, BC	8,500	Silver	Policy Plan	N/A	N/A	N/A	
Royal Roads University, BC	2,772	Silver	Policy Plan	Environmental Stewardship Policy	2000	1	
Simon Fraser University, BC	34,711	Silver	Policy Plan	Royal Roads University Sustainability Plan	2008	33	
Thompson Rivers University, BC	22,036	Silver	Policy Plan	Sustainability Policy	2008	3	
University of British Columbia, BC	39,726	Gold	Policy Plan	Sustainability Strategic Plan	2013	28	
University of Northern British Columbia, BC	4,144	Silver	Policy Plan	N/A	N/A	N/A	
King's University College, AB	619	Silver	Policy Plan	Campus Sustainability Action Plan	2010-2012	16	
University of Alberta, AB	39,094	Silver	Policy Plan	Sustainable Development Policy	2005	4	
University of Calgary, AB	31,327	Silver	Policy Plan	UBC Sustainability Strategy	2006-2010	35	
Northern Alberta Institute of Technology, AB	28,900	Bronze	Policy Plan	N/A	N/A	N/A	
University of Saskatchewan, SK	20,223	Bronze	Policy Plan	UNBC Green Strategy	2009-2011	6	
Red River College, MB	32,000	Silver	Policy Plan	Sustainability Statement of Action	2010	2	
Durham College of Applied Arts and Technology, ON	7,000	Bronze	Policy Plan	N/A	N/A	N/A	
University of Ottawa, ON	39,599	Silver	Policy Plan	N/A	N/A	N/A	
University of Western Ontario, ON	25,821	Silver	Policy Plan	Sustainability Plan	2012-2016	25	
Wilfrid Laurier University, ON	17,160	Bronze	Policy Plan	Sustainability Policy	2009	5	
Sheridan College Institute of Technology and Advanced Learning, ON	52,000	Bronze	Policy Plan	Institutional Sustainability Plan	2011	38	
McGill University, QC	34,819	Silver	Policy Plan	Sustainability Policy	2008	2	
Concordia University, QC	43,162	Silver	Policy Plan	N/AIT Sustainability Strategy	2009	42	
Dalhousie University, NS	18,354	Silver	Policy Plan	N/A	N/A	N/A	
Saint Mary's University, NS	7,586	Silver	Policy Plan	N/A	N/A	N/A	
			Policy Plan	Environmental Sustainability Policy	2008	3	
			Policy Plan	Environmental Sustainability Policy	N/A	N/A	
			Policy Plan	Environmental Sustainability Policy	N/A	N/A	
			Policy Plan	Environmental Sustainability Policy	1992	1	
			Policy Plan	Advancing Environmental Sustainability at the University of Ott	2010	24	
			Policy Plan	Environment and Sustainability Policy	2010	3	
			Policy Plan	Creating a Sustainable Western Experience	2012	18	
			Policy Plan	Sustainability Policy	2009	3	
			Policy Plan	Sustainability Action Plan	2012-2016	32	
			Policy Plan	Sustainability Policy	2012	2	
			Policy Plan	N/A	N/A	N/A	
			Policy Plan	Sustainability Policy	2010	2	
			Policy Plan	N/A	N/A	23	
			Policy Plan	Environmental Policy	2007	3	
			Policy Plan	N/A	N/A	6	
			Policy Plan	Sustainability Policy	2009	2	
			Policy Plan	Dalhousie Sustainability Plan	2010	12	
			Policy Plan	N/A	N/A	N/A	
			Policy Plan	Sustainability Strategy Task Force Report	2009	5	

### **3.3. Data Collection**

This thesis analyzed the sustainability policies and plans of the STARS-rated HEIs (Table 1). The criteria used to identify the sustainability policies used in this study were the following: (a) documents must be institution-wide (not at the departmental level), and (b) focused on the environment, and/or sustainability, and/or sustainable development, and (c) a formal policy document approved or signed by the board of governors or the university president. The criteria for the sustainability plans used in this study were similar: (a) documents must be institution-wide, and (b) focused on the environment and/or sustainability-specific plans or strategies that were (c) approved by the institution. These criteria excluded assessments, reports, and plans in the draft form. The rationale behind these criteria was that plans that were not approved may contain stretch goals and other implementation details that had not been agreed to by the institution. Additionally, reports and assessment documents contain information pertaining to past action, but not goals for the future and were thus not comparable.

These sustainability policies and plans were collected as part of a larger SEPN document collection initiative where the team searched the websites of HEI institutions using the website's search bar to conduct a Boolean search. The following search terms and term variations were used: "sustain" ("sustainable development", "sustainability", "sustainable"), "environment" ("environmental", "environmental sustainability", "ecological", "green"), and "Aboriginal" ("Indigenous", "First Nations", "Métis", "Inuit"). The bracketed variations were added if the first term did not automatically include references to the variations. Sustainability/green/environmental internal webpages were also searched for lists of policies and planning documents. Further, the HEI website was searched for a list of institutional policies.

The AASHE website ([www.AASHE.org](http://www.AASHE.org)) was used to access the STARS profile pages of the HEIs to create a list of HEIs that had received a STARS credit for having a sustainability plan. That list was cross-checked against the documents collected using the search strategy outlined above. When a plan was listed on the STARS profile page but was not found in our data collection, inquiries were made by email and phone to the



contact person listed for the HEI on the STARS profile page as well as sustainability or facilities staff at the HEI.

The documents were saved as PDF files and uploaded onto the NVivo qualitative analysis program (QSR International Pty Ltd., 2012) located on a project server hosted by SEPN at the University of Saskatchewan, to which each researcher had access. The software was chosen to help manage and query the data, manage and share ideas amongst the research team, and to increase the effectiveness and efficiency of the learning throughout the research project (Bazeley, 2007).

### **3.4. Code Development and Thematic Analysis**

Cope (2010) describes coding as a way to make sense of and reduce large quantities of qualitative data into meaningful clusters. Through the arrangement of text by topic and by breaking text down into smaller “packages” coding allows the researcher to make sense of the data and begin to pay special attention to its content (Cope, 2010). Furthermore, coding allows for the organization of data in order to be able to address specific research questions by grouping, finding, and pulling out different codes (Cope, 2010). This allowed for the ideas within the textual documents studied to be separated and organized in order to answer the specific research questions of this study. It also helped to keep track and make sense of the large amount of data found within the sustainability plans in particular.

The sustainability policy and planning documents in this study were analyzed using thematic coding. One goal of the SEPN project is for comparisons to be made across the entirety of the dataset between geographic regions, institutions, and between primary/secondary and tertiary levels of formal education. Therefore, a collaborative coding process was established by the team. Multiple coders working in different locations jointly improved the reliability and validity of the coding while tackling the large volume of data present (MacQueen et al., 1998; Saldana, 2013). The coding team consisted of four researchers who directly coded the policy documents under the supervision of two faculty members and a number of scholarly advisors who provided guidance to the coding team.

Cope (2010) describes the inherent tension of coding with multiple coders between wanting to code in a consistent manner, and the coders wanting to reflect what they are seeing in the coding process. Cope (2010) advises that this can be improved by providing definitions of each code. This was an important factor that influenced the collaborative coding process and the creation of a codebook (Appendix A). The team members individually coded a sample of five documents (until they reached saturation, i.e. a point where few new codes emerge) for each type of document to be coded (sustainability policies and plans). Each team member compiled their own list of codes that emerged inductively, as well as areas of interest to each researcher based on the characteristics of the textual data, common-sense constructs, and professional definitions and theories found in literature reviews (Ryan & Bernard, 2003). The deductive codes created for this study included: 1) the definitions or conceptualizations of environment, sustainability, and sustainable development, 2) the implementation details used in the policy texts (timelines, persons responsible, and goals) and 3) the aspects of campus sustainability seen in the SHE literature (research, education, facilities, community outreach, governance). Other deductive codes created by the research team included the purposes of education, and pedagogy. As the codebook was a collaborative process by researchers coding both HEI sustainability and general documents, and EC-12 provincial education documents, some codes within the codebook were not applicable to this study and vice versa.

After the individual sample coding was completed, the team met to discuss the codes and the language used to label them. A master codebook was created with nested hierarchies of grandparent, parent, child, and grandchild codes as needed to address the level of detail of codes found in the texts. As per the advice of MacQueen et al. (1998) the codebook included definitions, examples, and inclusion and exclusion criteria when necessary. Once this phase was completed, the team divided the documents and began coding using the codebook. However, this was an iterative process and the coding team met regularly throughout the process when new codes were identified, discussed, agreed upon, and added to or removed from the codebook as necessary. As Cope (2010) explains "[t]he recursive strength of coding lies in its being open to new and unexpected connections, which can sometimes generate the most important insights" (p.283).

Inter-coder reliability checks were used to increase the reliability and validity of the analysis (Ryan & Bernard, 2003). Inter-coder reliability is a measure of the “degree to which coders agree with each other about how themes are to be applied to qualitative data” (p.104) and was used to ensure that coders were using the codebook in the same way. Line by line coding was used with a segmentation of at least one sentence.

Finally, MacQueen et al. (1998) argues that researchers can only keep thirty to forty codes in their mind at one time. The first round of coding was therefore conducted with forty parent codes, and later rounds of coding were conducted with child and grandchild nodes going into more detail each time. It is important to note that while the codebook used for this thesis was devised through a collaborative coding method, the documents used in this study were coded and analyzed solely by the author.

### **3.5. Analysis**

Coding is part of the analysis, and is an iterative process whereby multiple rounds of coding the same text occurs before central themes emerge and writing can begin (Saldana, 2013). Cope (2010) agrees and argues that rather than “imagining that analysis of the data is something that begins after the coding is finished, we should recognize that coding is analysis (and is probably never truly 'finished!)" (p.284-285). The analysis for this study was done through multiple rounds of coding within NVivo qualitative software (QSR International Pty Ltd., 2012) in what Saldana (2013) calls first and second cycle coding methods. First cycle coding analytics used in this study included: attribute coding (to identify document type, date created, etc.), descriptive coding (codes the topic, not the substance of the content or message), sub-coding or nested coding (the process of creating hierarchies with parent, child, and grandchild codes), and simultaneous coding (coding one piece of text twice to capture two different ideas that are occurring at the same time). Analytic memos were also created within the NVivo software (QSR International Pty Ltd., 2012) to record notes on node content and emerging themes. After the first few rounds of coding using first cycle methods, focused coding was employed by using Microsoft Excel to filter based on the frequency (number of sources and number of overall mentions) counts of the codes. This helped to identify what were the most and least prevalent codes.

In qualitative research, sometimes the most interesting data is what is not there, or rarely there (Ryan & Bernard, 2003). The most interesting of these codes (both the most common codes, and the least common codes revealing gaps in the data) based on the literature and the research questions were then returned to for further rounds of coding using second cycle methods. Pattern and axial coding were used to remove (or ignore) redundant codes, and to group the most salient codes into larger themes. The cross tabulation function in NVivo was used to discover the relationship between codes (QSR International Pty Ltd., 2012). For example, cross tabulation was used to discover how the codes of energy and finance overlapped, and the content of plan goals.

In order to differentiate my work from that of the other coders and researchers using the SEPN server, I used the collections function of NVivo to make sets of the AASHE plans and policies. I used those sets to run queries of specific nodes or groups of nodes of interest. I also made memos on these queries labelled 'Lauri's Thesis' to distinguish them.

### **3.6. Limitations of Methods**

Like any study, the use of these methods has some limitations. As previously described, the STARS-sample is biased towards English, large research institutions, in urban areas, in the west coast of Canada, which are young (established 1960-1990s). However, there are also HEIs with small student populations, and located across seven provinces. Additionally, as STARS-rated HEIs this sample has shown to be engaged in campus sustainability efforts.

The collection of policy and planning documents was halted in September, 2013 due to time and resource limitations. Since that time new institutions have completed STARS, and institutions included in the sample for this thesis have approved new policy documents. Therefore this thesis represents a snapshot in time of STARS-rated HEIs and their policies.

The documents analyzed in this thesis were institution-wide, high level documents. Many institutions also have department or unit plans or policies, and/or specific policies or plans on related topics (health & safety, building, transport, accessibility, equity, etc.),

which could be included in a broad definition of sustainability. It was my assumption that the institution-wide sustainability policies and plans would have helped to guide the creation of more specific policies or plans. However, it is possible that they hold other conceptualizations of sustainability or have goals that are working at cross purposes to each other.

This thesis is centered on 'desk-based' methods only. This enabled the researcher to code a large amount of documents from a large sample of HEIs in a collaborative coding method that increased the reliability and validity of the methods, and contributed to the larger SEPN study. However, the limitation of this type of 'desk-based' method is that little to no further information was obtained concerning how the policies are created or used, or the meaning of the language used within the text. It would be interesting to create a follow up study to investigate these questions in order to uncover the impact of sustainability policies on a campus.

## **CHAPTER 4: AN ANALYSIS OF CANADIAN STARS-RATED HIGHER EDUCATION SUSTAINABILITY POLICIES**

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### **4.1. Statement of Contribution**

Lauri Lidstone was responsible for the research and writing of this manuscript. Tarah Wright was the thesis supervisor and Kate Sherren was the sole committee member. Both provided guidance, revision, and feedback. A version of this paper has been accepted with minor revisions for publication in the Journal of Environment, Development, and Sustainability for a special edition titled "Environmental Education for Sustainable Development".

### **4.2. Abstract**

Uptake of sustainability into campus administration has been identified as important for establishing and maintaining campus sustainability initiatives because of its ability to institutionalize sustainability on campuses. This paper explores how higher education institutions (HEIs) are defining and enacting sustainability in campus administration, using policy documents as a tool to achieve this. This paper analyzes the sustainability policies of 21 Canadian HEIs that have used the Sustainability Tracking, Assessment and Rating System (STARS) from the Association for the Advancement of Sustainability in Higher Education (AASHE). The policies were coded thematically with a focus on the conceptualizations of sustainability, conceptualizations of campus sustainability, and how the documents address the dominant themes found in the sustainability in higher education (SHE) scholarly literature. This paper finds that most policies conceptualize sustainable development using the Brundtland definition, with aspects of environment, society, and economy. Policies conceptualized campus sustainability as including teaching, research, operations, and community outreach, with policy goals that emphasize facilities initiatives. This paper contributes to our understanding of the challenges and

priorities associated with integrating sustainability into the administration of Canadian HEI institutions at the end of the Decade of Education for Sustainable Development.

### **4.3. Introduction**

Universities are like small cities with university administrators as the city councillors - facing the challenge of solving major environmental problems while serving the needs of their citizens (in this case students, faculty, and staff) in a socially and economically responsible manner. Indeed, higher education institutions (HEIs) (also known as post-secondary education institutions) attempting to become more sustainable in their practices are having to constantly balance the triple bottom line of sustainability (economics, society, environment) in a way that allows their institutions to thrive, and perhaps lead in the sustainability movement. The opportunity for HEIs to be sustainability leaders can be seen through innovation and models of sustainable practices for other organizations, cities and corporations. Additionally, HEIs are tasked with providing education to the next generation of professionals who need to be equipped with the skills to deal with environmental and sustainability problems of the future. The United Nations (UN) highlights this special opportunity and challenge faced by HEIs in its discussions about higher education as detailed in the documentation regarding the UN Decade of Education for Sustainable Development (DESD) that ran from 2005-2014 (UNESCO Education Sector 2006; Wals 2009). Now as the DESD draws to a close we are taking the pulse of sustainability in HEIs in Canada and the challenges and priorities of institutionalizing sustainability in HEIs through an analysis of campus sustainability policies.

The sustainability in higher education (SHE) literature emphasizes the need to envision a systems, ie. holistic or whole-institution, approach to implementing campus sustainability that encompasses more than just classroom learning, and includes all facets of university life: education (curricular and co-curricular education), research (student and faculty research for sustainability), operations (transforming building, procurement, maintenance practices, human resources, and student administration), and community outreach (including the broader community in these efforts) (Alshuwaikhat & Abubakar 2008; Cortese 2003; Council of Ministers of Education of Canada 2010; Koester et al. 2006;

UNESCO Education Sector 2006). This same framework is found in many international commitments to campus sustainability signed by university and college presidents (Lozano et al. 2013a). HEIs are complex organizations with many independent parts (Sharp, 2002), however a systems view of campus sustainability envisions these aspects as interdependent and supporting each other in the quest for sustainability (Beringer & Adomßent 2008; Krizek et al. 2012). Scholars note the importance of creating sustainability policy and planning documents to help create an overarching framework for campus sustainability (Cortese 2003; Creighton 1998; Koester et al. 2006; Krizek et al. 2012; Lukman & Glavič 2006; Velazquez et al. 2006) and have seen their increase on campuses in recent years (Wright, 2006).

A sustainability or environmental policy is one element of HEI sustainability governance documents that also includes plans, strategies, and reports. There are both general policies that outline the core values of the HEI and specific policies for sub-topics, such as recycling and procurement, that may be created afterwards (Allen, 1999). "A policy is an avowal of intent, a recognition of a problem and a statement of what might be done about it" (Pal, 1997, p.77). Further, policies are intended to improve organizational communication and consistency of practice among staff members. A policy text can help illuminate the vision of practice that management holds within the institution, and does not necessarily represent the actions of staff on the ground (Pal, 1997).

The Association for the Advancement of Sustainability in Higher Education (AASHE) is a not-for-profit organization with a mission to support HEIs in their quest for sustainability. Based out of the United States, AASHE provides resources and an annual conference on SHE. In order to help HEIs compare their sustainability performance among member institutions, and to provide a benchmarking tool, AASHE has created the Sustainability Tracking, Assessment and Rating System (STARS) that has been gaining popularity among HEIs in North America (Association for the Advancement of Sustainability in Higher Education 2012; Martin 2011). STARS was first designed to be used in the United States and Canada and in 2013 AASHE opened it to HEIs around the world (Association for the Advancement of Sustainability in Higher Education, 2013). STARS offers breadth in its view of what it means to be a sustainable campus. For



example STARS credits (a self-reported point-based system) include the themes of education and research; operations; planning, administration, and engagement; and special credits for innovation (Association for the Advancement of Sustainability in Higher Education 2012). The drawback of this broad view of campus sustainability is that data has to be collected from diverse stakeholders across the campus. Therefore STARS is a long and detailed process to carry out (Liebert 2010) and thus we can hypothesize that HEIs that have completed STARS have some degree of commitment to sustainability.

Although the terms environment, sustainable development, and sustainability are often used interchangeably, they represent different perspectives on solving environmental challenges. McKeown and Hopkins (2003) argue that the traditional conceptualization of environment, as seen in environmental education, focused mostly on the human impact on environment, and Kopnina (2012) explains how environmental education in the 1970s focused on nature and conservation. This is seen in the Belgrade and Tbilisi charters in the 1970s where the focus was on pollution and not on poverty reduction, democracy, or literacy (McKeown & Hopkins 2007). The concept of sustainable development emerged in the late 1980s after discussions within the UN commission chaired by Gro Harlem Brundtland to address both the environmental crises and the needs of predominantly southern and less developed nations to address socio-ecological issues of health, literacy, and poverty (Robinson 2004; World Commission on Environment and Development 1987). McKeown and Hopkins (2003) explains how in the drafting of Agenda 21 “the goal shifted to finding a realistic and balanced approach to environmental protection while alleviating human suffering and the ravages that accompany poverty” (p. 119-120). Sustainable development has been commonly defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development, 1987, p.7). Sustainable development has also been criticized for being vague, inherently dichotomous (Robinson 2004), and anthropocentric in its viewpoint (Kopnina, 2012). Some worry that government and business were using the term to suggest that the ‘development’ part of sustainable development meant growth (Robinson 2004). In response, academics and non-governmental organizations are using the term

sustainability to shift the focus back to the need for humans to live within environmental limits (Robinson 2004). Sustainability has been described as the triple bottom line, or ‘three pillars’ model encompassing environmental, social, and economic aspects.

The literature regarding SHE in Canada to date has focused mainly on campus case studies (see for example: Bardati 2006; Clarke 2006; Dahms et al. 2008; Richardson & Lynes 2007). The case study research has illuminated educational programs, campus operations (audits, environmental management systems, and green buildings) and United Nations Regional Centres of Excellence for education for sustainable development. The handful of Canadian SHE studies that compare sustainability topics between two or more campuses have focused on one geographic region (Beringer et al. 2008), sustainability reporting mechanisms (Fonseca et al. 2011), and student contributions to campus sustainability (Helferty & Clarke 2009). Scholars in the past have also criticized SHE case studies for their lack of rigor, methods, and methodologies, and their focus on descriptive and narrative accounts (Corcoran et al. 2004; Fien 2002). While case studies aid our understanding of organizational change and innovation at an institutional level, our understanding of campus sustainability lacks breadth, including how it relates to the aims of the DESD.

If we are to move beyond a piecemeal understanding of campus sustainability and understand the puzzle of if and how HEIs are progressing on DESD goals, we need more comparative studies. Past research has emphasized the need to study Canadian campus sustainability from a broad, cross-Canada, comparative perspective (Beringer et al. 2008) and the content of sustainability policies in particular (Vaughter et al. in-press). This study aims to help fill that gap by providing an analysis of sustainability and environmental policies from all universities and colleges in Canada that are rated using the STARS from AASHE as of September, 2013. This analysis of policy documents will help to understand how HEIs are defining and enacting sustainability through formal policy. This study answers the following research questions: 1) how is sustainable development, sustainability, or environment conceptualized within the policy documents? 2) how is campus sustainability conceptualized within the policy documents? and, 3) how do the policy goals compare to the dominant SHE literature? This information is

important to practitioners aiming to institutionalize sustainability on campus through the creation of policy and SHE scholars to understand the priorities of governing these city-like institutions of higher learning.

#### **4.4. Methods**

This study helps inform a six year collaborative research project by the Sustainability and Educational Policy Network (SEPN), whose aim is to investigate sustainability in Canadian formal education. SEPN's research plan began with an analysis of governing documents (sustainability policies and plans, and general strategic plans) (see Bevrige, Mackenzie, & Vaughter, in-press; Vaughter, McKenzie, Lidstone, & Wright, in-press; Vaughter, Wright, & Hebert, in-press), followed by a national survey and site studies to gain a deeper understanding of sustainability policy and practice. This study presents a sub-set of the larger SEPN document analysis focusing solely on STARS-rated institutions and will help inform SEPN's next phase of on-the-ground research.

This study examined sustainability policies from Canadian HEIs that had conducted a STARS rating as of September, 2013. Twenty-one Canadian HEIs had completed a STARS rating (5 technical colleges, and 16 four-year degree granting universities). This represents approximately 10% of the HEIs in Canada (220 as of October, 2012) (AUCC, 2012). This sample is heavily represented by large research intensive universities known as the 'U15' with nine out of 21 belonging to that group. These universities and colleges range from a student population of 615 to 52,268 students, and include campuses in seven of the ten provinces in Canada. All HEIs are English language, or bilingual English and French institutions, as no French language HEI in Canada has conducted a STARS rating in Canada to date. This membership gap is explained by the absence of French resources and marketing materials by AASHE as well as other alternative campus sustainability programs available in French in Canada.

The sustainability policy documents from the HEIs were collected by a team of researchers from SEPN and uploaded into NVivo software on a project server in order to allow access by team members working across the country (QSR International Pty Ltd., 2012). The team searched for documents that were both i) high-level, institution-wide documents whose scope covered the whole institution and not just one department, and ii)

environment-specific, including those specifically concerned with the following areas: curriculum, facilities/operations, research, community outreach, and overarching governance. Furthermore, for this paper, a policy was defined as a formal policy document that was signed by the university president or approved by the board of governors. This excluded documents in the draft form, planning documents, reports or assessments. Documents were collected from university and college websites, through a Boolean search strategy using the following search terms (and term variations in parenthesis): sustain (sustainable development, sustainability, sustainable); environment (environmental, environmental sustainability); ecological; green; and Aboriginal (Indigenous, First Nations, Métis, Inuit). Aboriginal search terms were used to try to identify local or culturally appropriate understandings of sustainability. Sustainability, green, and environmental webpages, as well as lists of internal policies, were also searched within the HEI websites.

Each policy document underwent a thematic content analysis in a collaborative coding process (Saldana, 2013). SEPN researchers created a codebook inspired by the work of MacQueen et al (1998) in an iterative process that began with an individual coding phase of five sample documents, group discussion and consensus, codebook creation, and inter-coder reliability checks. The codebook contains both a priori codes that were developed by the team based on specific sustainability policy issues of interest to the researchers, including what conceptualizations of sustainability were used within the documents, and how the content related to the campus sustainability literature, and a posteriori codes that emerged as the team collectively examined a sample of the policy documents. The codes in the codebook were then used to analyze the policy documents. When two themes were discussed concurrently within the texts, both themes were coded. It should be noted that while the creation of the codebook was a collaborative process, the coding of the documents for this study was completed by the lead author.

## **4.5. Results and Discussion**

### **4.5.1. Policy Overview**

Of the 21 HEIs that had completed a STARS rating, we found that 14 (67%) of them had a high-level environmental or sustainability policy (Table 2). This is higher than the

national results showing that 50% of the 220 HEIs in Canada have either a sustainability policy or plan (Bevridge et al., in-press; Vaughter, Wright, et al., in-press). We found that seven of the 21 institutions had not addressed sustainability within a formal high-level policy, although they may have other planning or reporting documents. An initial examination of the policies within the other 14 revealed that they generally were short documents consisting of one to five pages, mostly divided into purpose, scope, and goals sections. A variety of terms were used in the title of the policies. The majority of policy titles used the terms sustainability or sustainable development, while two used the term environmental, and two combined the terms environment/al and sustainability (Table 2).

#### **4.5.2. Conceptualizations of Sustainability, Sustainable Development, and Environment**

An examination of how the policies conceptualized the terms sustainability, sustainable development, or environment within the document revealed a variety of understandings that we have categorized into four main themes (Table 2). These themes include: the three pillars model of sustainability described by environment/ecology, economic, and society; an environmental conceptualization that included the terms ‘protect’ or ‘preserve’ the environment, ‘environmental stewardship’, ‘conservation’, or ‘environmental performance’; the Brundtland conceptualization of sustainable development consistent with the Brundtland Commission’s ‘Our Common Future’ report with a focus on intergenerational equity; and the health conceptualization that discusses human health. Most policies used a conceptualization of sustainability or sustainable development instead of a narrower environmental conceptualization, which was similar to the policy titles (Table 2). Many of the policies used multiple conceptualizations within one document.

**Table 2: Policy Details**

Policy Date <sup>1</sup>	HEI Name	HEI Type	Population <sup>3</sup>	Policy Name	Page Length	Conceptualization used within the policy	
						Pillars	Environment/Brundtland Health
2012 (2011)	Sheridan College Institute of Technology and Advanced Learning	College	Large	Sustainability Policy	2	✓	✓
2010	King's University College	University	Small	Sustainability Statement of Action	2	✓	✓
2010	McGill University	University	Large	Sustainability Policy	2	✓	✓
2010	University of Western Ontario	University	Medium	Environment and Sustainability Policy	3	✓	✓
2009 (1995) <sup>2</sup>	University of Calgary	University	Medium	Sustainability Policy	5	✓	✓
2009	Dalhousie University	University	Medium	Sustainability Policy	2	✓	✓
2009	Wilfrid Laurier University	University	Medium	Sustainability Policy	3	✓	✓
2008	Northern Alberta Institute of Technology	College	Medium	Sustainability Policy	2	✓	✓
2008	Red River College	College	Medium	Environmental Sustainability Policy	3	✓	✓
2008	Simon Fraser University	University	Large	Sustainability Policy	3	✓	✓
2007	Concordia University	University	Large	Environmental Policy*	3	✓	✓
2005 (1997)	University of British Columbia	University	Large	Sustainable Development Policy	4	✓	✓
2000	Royal Roads University	University	Small	Environmental Stewardship Policy*	1	✓	✓
1992	University of Ottawa	University	Large	Environmental Policy*	1	✓	✓

**Table Notes:**

Policy Date: current/revised version (original version in brackets)

University of Calgary's 1995 Environmental Policy was replaced in 2009 by the Sustainability Policy.

Student population: number of students enrolled as listed in the institutions' annual plans for 2011-2012, including all full and part-time undergraduate and graduate students.

Small= <8,500; Medium= 8,501 - 33,999; Large= >34,000

\* Denotes environmental policies that use only an environmental conceptualization, and not a conceptualization of sustainability or sustainable development.

The majority of the policies (11/14) used the three pillars model of sustainability with environment, economic, and society components. In three instances, the theme of health and safety was also included creating four pillars of sustainability.

Half (7/14) of the policies used a conceptualization consistent with the Brundtland Report. Most of these policies quoted directly from the report to define sustainable development as development that “meets the needs of the present without compromising the needs of future generations”, while one policy had the aim of "improving the quality of human life while living within the carrying capacity of supporting ecosystems"(World Commission on Environment and Development, 1987). Half (7/14) of the policies used both a conceptualization of the pillars and Brundtland.

An environmental conceptualization was seen alongside a conceptualization of sustainability or sustainable development throughout nine of the documents. Of those policies that used the environmental conceptualization, six (6/7) used the terms to ‘protect’ or ‘preserve’ the environment; some (3/7) labelled this specifically as ‘stewardship’, and others (5/7) used the terms environmental sustainability when describing an environmental-specific conceptualization. Another common concept was environmental management system or environmental performance.

Three policies used a purely environmental conceptualization; these were the same three HEIs that had environmental or environmental stewardship in the policy title (University of Ottawa, Concordia University, and Royal Roads University) and were also older policy documents (pre 2008).

There was little evidence of regional or culturally appropriate definitions of sustainability. One example was King’s University College which used a concept of “creation care” consistent with the HEI’s religious mission and values, while integrating climate change and evidence-based science in decision making.

These findings suggest that while most HEIs studied have a policy on the topic of sustainability with an emphasis on the environment, only a few older policies focused solely on the environment.

These findings reflect the prominently seen definitions of sustainability and sustainable development found within the literature (Kopnina, 2012; Robinson, 2004). These findings agree with those of a similar unpublished study by the Canadian Association of University Business Officers (CAUBO) (2009) that found that 100% of HEI policies they studied included environmental issues, while only 83% included economic, and 74% included social sustainability. The CAUBO (2009) study found that the majority of participating universities (74%) included the 3 pillars of environmental, economic, and social sustainability. Compared to the national results, STARS-rated institutions use a conceptualization of the three pillars more often (79% vs. 58% for national results), the Brundtland conceptualizations about the same amount, and an environmental conceptualization more often (65% vs. 43% for national results) (Vaughter, McKenzie, et al., in-press).

These conceptualizations seem to be consistent with international understandings of sustainability and sustainable development. In his mid-decade report Wals (2009) argues that while “there should be space for multiple interpretations and meanings of ESD [Education for Sustainable Development], there is a common understanding that education and learning in the context of sustainable development must recognize the interconnections between the environmental, social, cultural and economic aspects of SD” (p. 64). As the STARS-sample includes nine large, research intensive universities this may explain the international and general nature of the conceptualizations. Policy makers in large institutions with diverse stakeholders may need to cater to a plurality of interests similar to the process of creating international declarations. The smallest and only private HEI in the sample showed a culturally distinct conceptualization.

#### **4.5.3. Conceptualizations of Campus Sustainability**

We found that most policies (9/14) explicitly describe the scope of a university's involvement with sustainability to include teaching, research (sometimes combined as academic practices), facilities/operations/services, and community involvement. A few policies implicitly suggested this scope through their goals, which are discussed in detail later in the paper. This holistic or systems conceptualization of campus sustainability is consistent with the sustainability in higher education literature (Alshuwaikhat &



Abubakar 2008; Cortese 2003; Council of Ministers of Education of Canada 2010; Koester et al. 2006; UNESCO Education Sector 2006), and also reflects the various sections of the STARS (Association for the Advancement of Sustainability in Higher Education 2012).

The importance of the HEI's role to model practices and provide institutional leadership in sustainability issues was a theme in almost all (12/14) of the policies. For example, Sheridan College's policy stated "As an academic institution, employer, investor and community partner, Sheridan College believes that we can and must lead the way in ensuring a sustainable future." More than half (8/14) of policies also described the institution's responsibility to engage in sustainability initiatives. Some policies noted the HEI has an impact on the economy and the environment, two policies described responsibility as part of their duty as a corporate citizen, and one policy used the term "moral obligation" to describe this responsibility. A few policies also noted the responsibility to adhere to international and/or regional sustainability declarations made by the HEI. Some policies combined the themes of responsibility and leadership (6/14), for example Red River College's policy read "As an institute of education and research, the College has a responsibility to be a leader in the protection of the environment both through instruction and example". Four of the policies used language surrounding leadership while lacking the idea of modeling practices or the responsibility to engage in sustainability. This may suggest that engaging in sustainability is another way for a HEI to be a leader among its peers and gain the status as the 'leader' in sustainability. However, the idea of responsibility to engage in sustainability may be implied in its definition and very nature.

These findings are in contrast to a sample of 40 HEIs (of which 20 were STARS-rated) that found the theme of leadership present in 14/40 or 35% of sustainability policies and plans in Canada (Vaughter, McKenzie, et al., in-press). This may suggest that STARS-rated HEIs have a stronger interest in providing leadership or being leaders than other HEIs. These findings of institutional leadership and responsibility reflect the findings and theories within the sustainability in higher education literature (Clugston & Calder 1999; Cortese 2003; Creighton 1998; Keniry 1995) as well as some of the international

declarations (Lozano et al. 2013a; Wright 2002), such as the Halifax Declaration and the Council of Ontario Universities statement on sustainability (Council of Ontario Universities, 2009; *The Halifax Declaration*, 1992). The University of British Columbia, for example, quoted the Halifax Declaration, “Universities are entrusted with a major responsibility to help societies shape their present and future development policies and actions into the sustainable and equitable forms necessary for an environmentally secure and civilized world.” The Halifax Declaration also describes that the present generation has an “ethical obligation” to address the environmental and social issues that are the root causes of “environmental unsustainability” (The Halifax Declaration 1992). It would seem that the policy documents reflect the traditional conceptualizations of campus sustainability for the most part, including the wide scope of its reach, and the themes of leadership and responsibility.

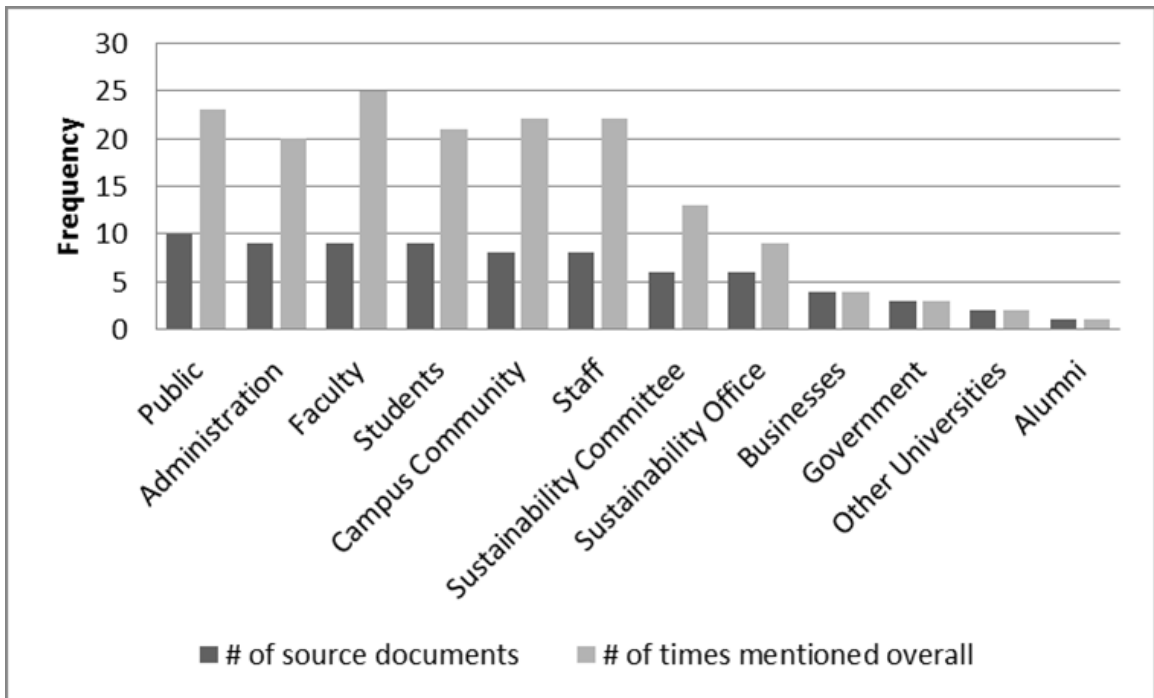
#### **4.5.4. Policy Goals**

This section describes the sustainability goals outlined by the policies and is broken up into the dominant themes of campus sustainability found in the SHE literature: education, research, facilities, community engagement, and policy implementation. While most of the policy goals examined align within these themes, the policies tended to focus more heavily on goals pertaining to facilities, and less so on education, research, and community engagement.

##### **4.5.4.1. Facilities**

Campus facilities (or infrastructure) actions were mentioned the most often within the policies, in the most detail, and in some cases (3/14) were the focus of the policy. Facilities goals dominated those policies that used a conceptualization of the environment and not sustainable development. Energy was the most common facilities domain mentioned (10/14) (Figure 3). It was most often described in terms of conservation and efficiency and often in conjunction with the design of buildings and procurement of goods that are energy efficient. For example, one of Western University’s policy goals was “building and renovating facilities in accordance with energy efficiency and sustainability principles”. Four policies also described the need to reduce dependence on fossil fuels and use renewable energy sources. While many policies discussed energy,

only two policies explicitly discussed emission reduction. One policy linked energy use to emissions and called for monitoring: “Identify opportunities, and wherever possible implement programs to reduce energy consumption and the use of fossil fuels to significantly reduce the University’s emissions while establishing robust systems for energy monitoring and targeting” (Wilfred Laurier University). One policy also described the need to complete an energy audit using the STARS framework within one year of the policy.



**Figure 3: Frequency of facilities goals in the policies sorted by number of source documents.**

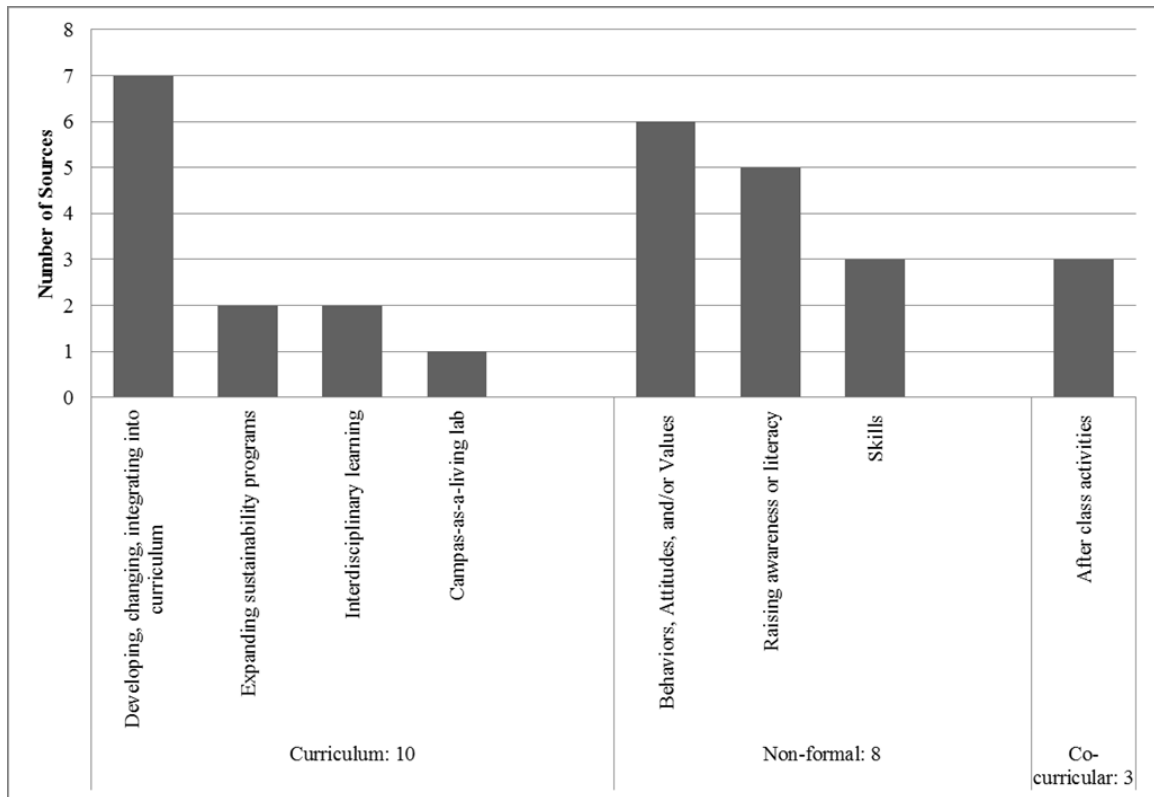
This focus on energy reflects the transformation on Canadian campuses, where 15 years ago campuses were focusing on trying to institutionalize recycling programs, and now that waste management programs are well established across Canada, efforts have moved to focus on greenhouse gas inventories and climate action plans (Helferty & Clarke 2009). As reduction in energy use has the double benefit of reducing emissions and operational expenses it is not surprising that it is the most mentioned facilities domain within the policies. Facilities managers in Canada state that lack of funding is the number one issue facing HEIs over the next 10 years, and is also the largest barrier to campus

sustainability (Wright & Wilton 2012). It is unfortunate however, that there was not more emphasis in the policies on sourcing energy from renewable resources as facilities practices can serve as models of best practices for the community, showcasing new sustainable technologies or ideas for students and the wider community (M’Gonigle & Starke 2006; Mcmillin & Dyball 2009).

After energy, the next most common facilities domains mentioned in policies were (in order of prevalence): procurement (wise material use, product lifecycle), waste (reduction and recycling practices, pollution, and hazardous waste), and buildings (design and construction using sustainability practices, and aiming for Leadership in Energy and Environmental Design standards) (Figure 3). Food or dining services were not mentioned at all within the policies. It is common in Canada for campus food to be contracted out to private companies. Although some of these organizations have their own sustainability policies and programs, we would hope that HEIs would take the responsibility to ensure sustainable practices along the length of their value chain including sub-contractors.

#### ***4.5.4.2. Teaching and Learning***

While facilities was the dominant theme in the policies, teaching and learning for sustainability was mentioned by a majority of policies (11/14) yet only briefly with little detail provided. We divided these teaching and learning goals into three groups: education for students within formal curriculum, non-formal learning by the whole campus community (including students), and participation in co-curricular activities related to sustainability (Figure 4).



**Figure 4: Teaching and learning goals in the policies sorted by number of source documents.**

Integrating sustainability into the curriculum was found within 10 policies and was described as developing or making changes to curricula, integrating sustainability into all programs, and expanding sustainability programs. For example, Red River College aimed “[to] foster social and environmental responsibility in our students through the curriculum taught...[and] instructors have the responsibility to incorporate principles of social and environmental sustainability into their curriculum as appropriate to the subject being taught”. There were three policies that described equipping students with the appropriate skills to address sustainability challenges. For example, the University of Calgary’s policy states that they aim to “produce scholars with the necessary expertise and skills to address the complex challenges of a sustainable, peaceful, and just society...”. There was little description of what these skills would be or how they would be taught.

There was not a lot of information about how these changes to curriculum would take place, except for a few mentions of increasing interdisciplinary scholarship, and hands-on

projects. Two policies described the need for interdisciplinary scholarship, and one of these policies also included inter-departmental and trans-disciplinary inquiry. One policy described campus-as-a-living-laboratory programs where students identify institutional priorities for sustainability and engage in hands-on projects. These two themes agree with ideas in the SHE literature as ways to break down the silos of academia, and help students learn to solve real-world sustainability problems (Creighton 1998; Ferrer-Balas et al. 2008; Jones et al. 2010). By providing links between curriculum and student research, and campus operations, scholars find benefits to both students and facilities managers, helping to transform the institution (Beringer & Adomßent 2008; Mcmillin & Dyball 2009; Savanick et al. 2008).

Beyond educating students, many (8/14) policies outlined the need to educate the broader university community (staff, students, faculty) about sustainability. For example, Wilfred Laurier University's aims to "promot[e] awareness within the University and the broader community of how their personal actions can affect the environment, and how even small changes in their attitudes and actions can collectively contribute to a more sustainable future". Co-curricular activities used to educate students and other campus members both on and off campus appeared in 3 policies; however, little information about these programs was given.

While 10 policies did describe curriculum goals, the researchers were surprised to not see more detail of specific learning outcomes within the policies as was seen in the facilities goals. Especially in those competences of ESD that are not specific to ESD, such as critical thinking, problem solving and interdisciplinarity (Wals 2009). This may be due to the importance placed on academic freedom or the criticism of some scholars and advocacy groups who feel that sustainability has been used as an ideology and has lacked debate (National Associations of Scholars 2011). In a study investigating faculty conceptualizations of a sustainable university, Sylvestre, Wright, and Sherren (2014) found that while faculty differed in their perspectives on what a sustainable university should entail, there was a consensus among faculty who were "strongly opposed to policy related statements that were seen to limit academic freedom" (p. 1531). It may be that formal sustainability policy is not the best method to increase sustainability in academics.

It may also be that policies are drafted by sustainability offices embedded within facilities departments, or facilities staff, who have not engaged sufficiently with faculty on these topics. More research needs to be done to understand why more detail on sustainability education was not included within the policies.

#### ***4.5.4.3. Research***

Most policies (10/14) include research within the aims of their sustainability policies; however, overall, research was mentioned very briefly in these documents. For example, Sheridan College commits that “step by step, [it] will strive to align [its] business operations, academic, *research*, student services, human resources, and stakeholder relationships with sustainability principles in ways that advance [its] long-term academic objectives” (italics added for emphasis). In the cases where more detail was given, research was described in three ways: research dissemination (3/10), to solve the problems of sustainability (2/10), interdisciplinary research (2/10), and the use of research in evidence-based decision making (1/10).

We can hypothesize that the lack of detail concerning sustainability research is related to the academic freedom of faculty and their students to choose research topics. Furthermore, most public funding for research in Canada is provided at the national level, although universities have their own research priorities that help direct resources. It is likely that as research priorities are subject to change over time they would not be included in a sustainability policy and may be found in research strategic planning documents. Despite these barriers we suggest some sustainability research goals that might be included within the policies including: greening of research practices (green lab programs), sharing of equipment and other research resources, and connecting faculty interested in sustainability research to enhance interdisciplinary collaboration.

#### ***4.5.4.4. Community Engagement***

Engaging with the community was seen in most (11/14) of the policies. We have divided this section on community engagement into three sub-themes: communication, collaboration, and consultation.

Communication to advance campus sustainability was a goal outlined in 9 policies. Policies detailed the need for external communication with alumni and the wider community about the commitment of the HEI towards sustainability and its progress therein. There was also an element of learning as policies outlined the need to communicate the rationale behind sustainability or to share sustainability knowledge with the community. Communication within the university was equally important to raise awareness about the existence of the policy, sustainability commitment, goals, progress, and programs to the campus community. For example, Simon Fraser University's policy describes that their sustainability advisory committee "promotes sustainability programs and initiatives and participates in advancing the message of sustainability throughout the University among faculty, students and administrative and support staff".

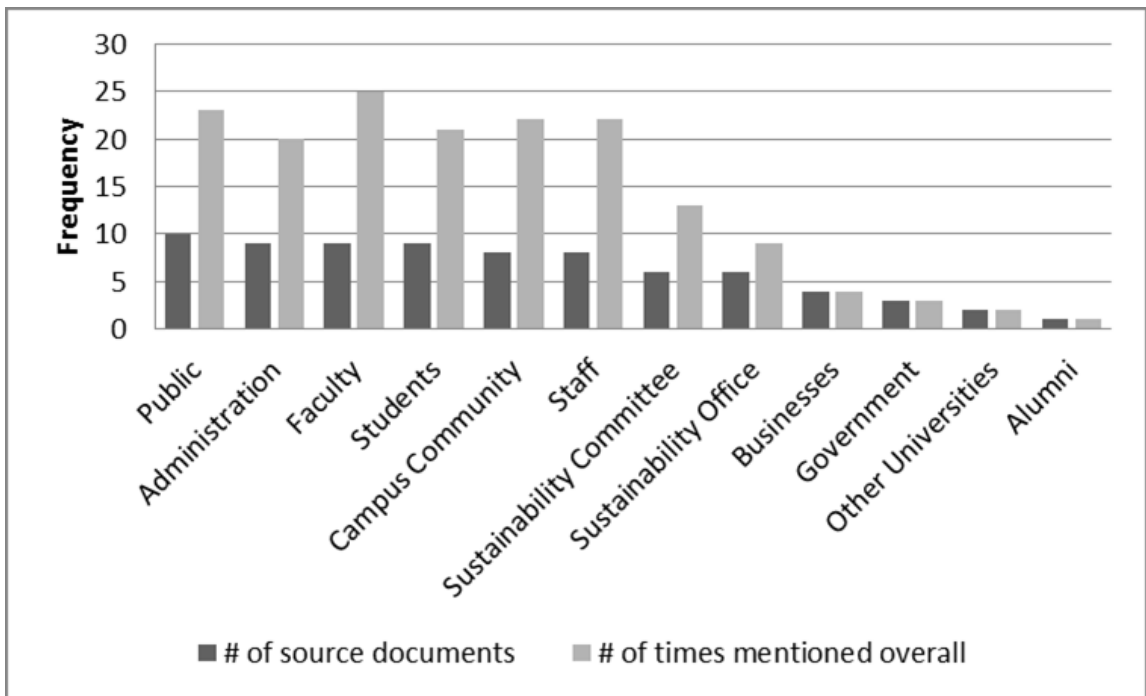
Collaboration with external and internal stakeholders was a goal stated by more than half (8/14) of policies, while another 4 policies used the term partnerships in a similar way. These HEIs aimed to work collaboratively with alumni, the surrounding community, government, business, and other universities to advance sustainability knowledge and/or action. Within the HEIs, collaboration was discussed as providing opportunities for students, staff, and faculty dialogue and action on sustainability, promoting synergy and awareness of different groups working on campus, and creating a culture of collaboration.

Some policies (5/14) described a process of consultation that would take place with campus stakeholders in order to elicit feedback on sustainability policies, planning and reporting processes. Two policies also described receiving information on environment impacts. For example, Concordia's policy describes "receiving, studying and responding to suggestions or concerns of an environmental nature brought from any member of the University community; and receiving and reviewing communication from external environmental and auditing bodies".

These themes of communication, collaboration, and consultation are important aspects of campus sustainability as transformative change for sustainable development requires the buy-in and strength of the whole campus community (Mcnamara 2010; Sharp 2002). The most widely accepted declarations for sustainability in higher education all included outreach and collaboration as a main themes (Lozan et al. 2013).



These various forms of stakeholder engagement were discussed in relation to various stakeholder groups on and off campus (Figure 5). The public or outside community was mentioned by the most documents, and faculty was mentioned the most overall within the documents. It is gratifying to see that a high number of HEIs policies list a wide variety of stakeholders for these processes; however some specific groups seem under represented. Working with other HEIs was only seen in two policies. In order for HEIs to advance on sustainability, sharing of information, ideas, and resources between HEIs is important. When coupled with the findings that most STARS-rated HEIs see themselves as some kind of sustainability leader, this might suggest that sustainability is seen as a method of differentiation. Another stakeholder group completely absent from these policies were Aboriginal peoples, which may suggest a lack of intra-generational equity.



**Figure 5: Frequency of stakeholders listed in policies sorted by the number of source documents.**

#### ***4.5.4.5. Policy Implementation***

The theme of policy implementation captures both text-based (sub-policies and procedures, plans, and reports) and staff resource (staff positions and committees) goals described within the policies. Most policies (9/14) outlined the creation of reporting

processes to review sustainability progress and ensure accountability, including monitoring, assessments, and auditing. Half (7/14) of the policies analyzed outlined the need to create sustainability planning or strategy documents to create a process for goal setting and implementation. A few (4/14) policies outline the need to create sub-policies and procedures in specific topics, such as, green building or transportation.

More than half of the policies (9/14) describe the role of a sustainability office/director (6/14), or a multi-stakeholder sustainability committee/council (6/14). The multi-stakeholder committee is made up of students, staff, faculty, and administrators. The roles of the office or director of sustainability and the multi-stakeholder committee are similar. They are described as having the following tasks:

- internal and external communication regarding sustainability;
- creating awareness, compliance, reporting, and revision of the policy;
- project development and management (sometimes shared with other units); and
- providing support and guidance to improve campus sustainability.

These results agree with the findings of McNamara (2010) who found that over 50% of American AASHE respondents have an office of sustainability to manage sustainability projects, 20% are managed by an informal group, and 98% have a multi-stakeholder sustainability council, committee, or task force. This is also similar to the findings of Beveridge et al. (in review) who found that in Canada 33% of HEIs had a sustainability office or officer and this was strongly related to having a sustainability policy or plan.

Only two policies mentioned investments, and in both cases very superficially, in their policies. Sheridan College described itself as an “...academic institution, employer, *investor*, and community partner...” (italics added for emphasis) when describing its responsibility to environmental sustainability. The other HEI was Simon Fraser University that stated “SFU will balance quality, cost and environmental sustainability in its purchasing and investment decisions. Where relevant, long-term and life-cycle costs will be considered in achieving this balance”. At a time when student-led campaigns urging college administrators to divest from fossil fuel companies in their endowment funds are sweeping North American campuses (Fossil Free, 2013; Stephenson, 2013), it

is interesting to note that this emerging grassroots trend has not made its way into any of the campus policies investigated in this study.

Beyond investments, finances were discussed as a way to ensure the long term viability of the HEI in a way that balances environmental and social sustainability (3/14), and two policies included accounting for external or life-cycle costs. In two policies, finances were also used as a qualifier for policy goals. For example, Concordia University's policy couches the language of its building goals: "green building principles shall be utilized where financially feasible in all significant projects..." There was no mention of sustainability financing models (such as revolving funds) within the policies, however, a review of other policies of the HEI analyzed found that it is not common practice to include funding information within policy documents.

Some policies (6/14) also discuss the need to respect environmental laws and regulations, and two policies specify that they will work to exceed them. Fewer than half (6/14) of the policies reaffirmed their commitment to national and international sustainability declarations. These commitments included the Talloires Declaration, the Halifax Declaration, and the UNEP International Declaration on Cleaner Production, the University and College Presidents' Climate Change Statement of Action for Canada, and the Council of Ontario Universities commitment (Ontario Universities Committed to a Greener World).

While policy goals broadly aligned with research, teaching, and community outreach as seen in the SHE literature, the policies tended to focus more heavily on goals pertaining to facilities, and less so on education or research. This is in contrast to sustainability declarations that focus on curricula, research, outreach and collaboration, and less on facilities (Lozano et al. 2013a).

#### **4.6. Conclusions and Recommendations**

This paper analyzed the sustainability policies from STARS-rated Canadian institutions of higher education. While some of the insights gained in this study can be used to understand other HEIs, in no way do we infer that the findings can be representative of other HEIs. The findings suggest that STARS-rated institutions are more likely to have

policies when compared to other HEIs sampled in Canada (Vaughter, McKenzie, et al., in-press). We investigated the conceptualizations of sustainability and campus sustainability used in the documents, and how the policy goals related to the dominant themes in the literature. The study finds that most policies used a conceptualization of sustainable development or sustainability consistent with the *Our Common Future* report description of intergenerational equity, and the incorporation of economic, environmental, and social aspects of sustainability, however, a minority of policies used a narrower environmental conceptualization. A common theme seen in the policies was an institutional sense of responsibility and a desire to lead the way to a sustainable future, which seemed more prevalent than in a sample of other HEIs across Canada (Vaughter, McKenzie, et al., in-press).

Most policies echoed the scope of campus sustainability seen in the literature, including: research, education, facilities, and community outreach. However these aspects were not equally balanced as there was a greater emphasis on facilities domains, and less on the domains of research and education. In terms of facilities goals, discussions of energy dominated the texts, followed by procurement, waste, and building design, while campus food was not mentioned. Teaching and learning for sustainability was a main theme in the policies and was discussed mostly as changes to formal curricula, with some discussion of non-formal learning for the campus community and student activities. Research was given only cursory mention within most of the policies, which we hypothesize is due to the tradition of academic freedom. Engaging with the campus community and wider public was a theme that appeared in the policies and it was discussed in terms of communication, collaboration, and only occasionally consultation with a variety of stakeholders both on and off campus, with an emphasis on the public, administration, and faculty. Policy implementation goals included the creation of sub-policies, plans, and reports, as well as increased staff resources and committees. Financial support or planning for these policy goals and the greening of campus investments was rarely present within the texts. There was a focus on respecting legislation related to sustainability and international HEI declarations.

The goals of the United Nations DESD were to focus on education, and one of the tenets of higher education is to educate students. The content of these policies show that while students will be exposed to campus greening and its hidden curriculum (the idea that students learn from their physical surroundings see Müller-Christ et al., 2013), little is mandated through formal policy for the education of students in the formal curriculum.

The institutionalizing and transformation of campus sustainability is a long process and this check-up of campus sustainability through the analysis of policy documents does show some commitment in terms of facilities management, community engagement, the creation of sustainability committees and offices. There is more work to be done to improve the quality and breadth of sustainability policy goals in HEIs. Engaging more with faculty on the topics on research and education, as well as including mechanisms for funding and addressing sustainability within the HEIs investment portfolios are important next steps if a systems view of sustainability is going to be incorporated in policy.

It is important to note that while this paper presents the policy goals outlined in the texts, sometimes policy follows practice. The HEIs may be engaging in more (or less) sustainability initiatives than are outlined here. This paper gives an indication of only what has been institutionalized into one aspect of the administrative structure of the HEI and not what is happening on the ground.

Policy creation helps institutionalize sustainability on campus. As students, faculty, and even staff with an interest in sustainability may come and go, sustainability policy may ensure that sustainability remains a part of the HEI. The level of awareness of the policy, how and if this policy is enacted or policed within the HEI is still unknown and may create avenues of future research. Similarly, it would be interesting to compare this study to non-AASHE member HEIs, and other nations and regions around the world. The most vital question in policy research is do these policies indeed lead to sustainable transformation on the ground. The STARS data provided openly to the public by AASHE could perhaps be used as a proxy for this.

At the end of the UN Decade for Education for Sustainable Development we find that many STARS-rated colleges and universities in Canada have created formal

sustainability policies, but that for the most part their focus is facilities based, with little emphasis on educating students in the classroom.

#### **4.7. Acknowledgments**

This publication draws on research from the Sustainability and Education Policy Network (SEPN), supported by a Partnership Grant from the Social Sciences and Humanities Research Council of Canada (Grant No 895-2011-1025, Principal Investigator Dr. Marcia McKenzie). For more information, to share an initiative or research project, or to join the network, please visit [SEPN.ca](http://SEPN.ca). Many thanks to the collaborative coding team at SEPN: Kathleen Aikens, François Bregha, Marcia McKenzie, Rebecca McNeil, and Philip Vaughter. Additional funding for this paper was provided by the Québec Fonds de Recherche - Société et Culture.

## **CHAPTER 5: CANADIAN STARS-RATED CAMPUS SUSTAINABILITY PLANS: PRIORITIES, PLAN CREATION AND DESIGN**

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### **4.8. Statement of Student Contribution**

Lauri Lidstone was responsible for the research and writing of this manuscript. Tarah Wright was the thesis supervisor and Kate Sherren was the sole committee member. Both provided guidance, revision, and feedback. This paper has been submitted for publication to the journal *Sustainability* for a special edition titled “Sustainability Approaches in Education”.

### **4.9. Abstract**

The use of integrated campus sustainability plans is an emerging trend in higher education institutions (HEIs) to set sustainability priorities and to create a work plan for action. This paper analyzes the sustainability plans of 21 Canadian HEIs that have used the Sustainability Tracking, Assessment and Rating System (STARS) from the Association for the Advancement of Sustainability in Higher Education (AASHE). The plans were coded thematically with a focus on the sustainability goals, aspects of plan design, and process of plan creation outlined in the texts. This paper finds that sustainability goals focused on the environmental aspects of sustainability, while social and economic aspects were less emphasized. Further, most plans were described as being created through a broad stakeholder-consultation process, while fewer plans assigned timelines and parties responsible to sustainability goals. This paper contributes to our understanding of the priorities of Canadian HEI institutions at the end of the Decade of Education for Sustainable Development and is useful for practitioners interested in developing their own campus sustainability plans.

#### **4.10. Introduction**

Universities and colleges have been targeted to help to promote a transition to a more sustainable society (eg. Cortese, 2003; UNEP, 1992). The United Nations created the Decade of Education for Sustainable Development (DESD) from 2005-2014 and outlined the important role of higher education institutions (HEIs) (UNESCO Education Sector, 2006; A. Wals, 2009). The DESD called for HEIs to engage their students in sustainability learning, be places of research in sustainability education, be leaders by modelling best practices in sustainability management, and to be ‘poles of activity’ for their communities and nations (UNESCO Education Sector, 2006).

To some degree, HEIs have responded to this call to action, as evidenced by the signing of international sustainability in higher education declarations (Lozano, Lukman, et al., 2013; Sylvestre et al., 2013; Wright, 2002), the proliferation of sustainability in higher education publications (Wright & Pullen, 2007), and the creation of organizations like the Association for the Advancement of Sustainability in Higher Education (AASHE). Further, many universities have begun developing sustainability policies and plans for their individual campuses (McNamara, 2010; Vaughter, Wright, et al., in-press; White, 2014). Sustainability policies are institution-wide statements that outline the vision of sustainability on campus, and sustainability plans are longer, more detailed documents that provide a basis for implementing this vision. This study is focuses on campus sustainability plans in order to better understand how HEIs are envisioning sustainability on their campuses and how they plan to enact sustainability in higher education (SHE).

The SHE literature to date has focused predominantly on successful campus case studies, but lacks a robust collection of comparative empirical research (Karatzoglou, 2013). Although there are notable exceptions, especially in the past eight years, the balance of case studies can be criticised for their lack of lack of rigor, methods, and methodologies, and their focus on descriptive and narrative accounts (Corcoran et al. 2004; Fien 2002). This has impacted the SHE community’s ability to understand campus sustainability from a broad perspective, and to allow comparisons between institutions. Within the Canadian context, a need has been identified to study Canadian campus sustainability from a broad, cross-Canada, comparative perspective (Beringer et al. 2008).



This paper aims to address these gaps in the emerging SHE field by analyzing the content of sustainability plans from campuses across Canada who are members of AASHE and who have completed the Sustainability Tracking, Assessment and Rating System (STARS). As campus sustainability plans are an emerging trend (White, 2014), this paper also aims to investigate the quality of the planning documents. In order to address these goals this paper will answer the following research questions: 1) what is the content of the goals outlined within the sustainability plans? ; and 2) do the plans employ best practices of plan design as noted in the literature? This information will be useful to practitioners working to create or revise campus sustainability plans as well as to illuminate the campus sustainability priorities of these STARS-rated institutions.

## **5.4 Background:**

### **5.4.1 Sustainability in higher education**

While definitions of sustainability in higher education vary, commonalities include the three aspects of sustainability (economy, environment, and society) as well as all realms of campus life (including employees, students, and campus operations) (Moganadas et al., 2013). SHE scholars have proposed a systems approach to enacting campus sustainability that includes education, research, operations, and community outreach (Krizek et al., 2012; Lozano, Lozano, et al., 2013; Velazquez et al., 2006). This systems approach goes beyond previous ad hoc campus greening efforts and works to integrate sustainability into the curriculum and make sustainability at the core of the HEIs activities (Wals & Blewitt, 2010).

Integrating sustainability into the HEIs is a difficult task, with the most basic barriers being lack of time and resources devoted to sustainability on campus (Karatzoglou, 2013; Krizek et al., 2012). Within the Canadian context, researchers find that financial barriers are the most common barriers to campus sustainability cited by campus stakeholders (Mcneil, 2013; Wright & Wilton, 2012; Wright & Horst, 2013). Further, although research occurring within the HEI can be innovative, it does not necessarily rub off on the running of the institution (Creighton, 1998) as HEIs tend to be very traditional in nature and have a habit of following “path-dependency” (Lopik, 2013, p.82). Additionally, HEIs are complex organizations with many independent parts (Sharp, 2002) and contain

diverse stakeholders with differing perspectives on sustainability that can make aligning one vision of campus sustainability difficult (Sylvestre et al., 2014).

#### **5.4.2 Sustainability plans**

One tool used to help guide the institutionalization of sustainability on campus and overcome some of the identified barriers to SHE is the development of an integrated institutional sustainability plan (Velazquez et al., 2006; White, 2014). Campus sustainability plans include operations, academics, and administration aspects of campus life in an integrated manner, and should include the environmental, social, and economic aspects of sustainability (White, 2014). These plans differ from campus sustainability policies as they are longer, more detailed documents that aim to guide the implementation of the campus sustainability vision, often first outlined in a short policy statement.

Having completed a sustainability plan has been seen to be a factor significantly related to successful sustainability initiatives (McNamara, 2010). The development of a plan can be a useful step in negotiating the sustainability goals among diverse groups of stakeholders (Conroy & Berke, 2004), and - once completed - policies and plans can be used to create an overarching framework for campus sustainability (Cortese 2003; Creighton 1998a; Koester et al. 2006; Krizek et al. 2012; Lukman & Glavič 2006; Velazquez et al. 2006; McNamara, 2010).

Sustainability plans are an emerging trend in campus sustainability (White, 2014). In the United States, one study found that 35% of AASHE member HEIs had a sustainability plan, while only another 13 plans were found at other HEIs (White, 2014) and another study found that less than half of HEIs analyzed had completed a written plan (McNamara, 2010). In Canada, 44% of HEIs had a sustainability plan in 2013 (Vaughter, Wright, et al., in-press).

Within the Canadian context, a study by Vaughter et al. (in-press) found that the majority of sustainability policies and plans in HEIs favoured environmentally-focused facilities management goals, and were vague in the details of sustainability research and education. Similarly, Lidstone, Wright, and Sherren (in press; Chapter 4 of this thesis) found that the policies of HEIs who were AASHE members focused on the facilities domain and the

environment even though the policies described conceptualizations of sustainability, and campus sustainability that included social and economic aspects, as well as a systems view of campus sustainability.

### **5.4.3 Plan quality**

While White (2014) cautions that more information is needed on campus sustainability plans before we can evaluate what makes a "high quality plan" (p. 230-231), the literature does provide some guidance. Factors that are known to produce high-quality campus sustainability plans includes the plan: 1) being formally adopted by the HEI, 2) being communicated to all campus members, 3) including goals, tasks, and timelines, 4) providing a measurement and feedback process to assess goal completion, and 5) identifying the roles and responsibilities of participants (McNamara, 2010). Additionally, Koester et al. (2006) argue that timelines can be useful to help prioritize campus sustainability goals. Further, Brown and Hamburger (2012) note that timelines and measurable indicators can be helpful to judge progress of sustainability initiatives during reporting and monitoring phases of the plan.

The field of sustainability planning suggests that high quality sustainability plans include consultation and community involvement, and that a longer timeframe and more resources will produce better plans (Conroy & Berke, 2004). A community-based collaborative planning process is suggested as it helps build effective policy (Dovers, 2005) by reducing conflict, achieving buy-in to the change agenda, and stimulates innovation (Canada. National Round Table on the Environment the Economy, 2011; Conroy & Berke, 2004; Delprino, 2013). Therefore, the literature suggests that high-quality sustainability plans should include goals and tasks, identify roles and responsibilities of parties, timelines, and that plans should be created from broad stakeholder collaborative planning.

### **5.4.4 AASHE and its STARS**

Based out of the United States since 2005, the Association for the Advancement of Sustainability in Higher Education (AASHE) provides resources, professional development, and networking opportunities to its members to support their quest for SHE (see [www.AASHE.org](http://www.AASHE.org)). In order to help HEIs compare their sustainability performance

among member institutions, and to provide a benchmarking tool, AASHE created the Sustainability Tracking, Assessment and Rating System (STARS) in 2006 that has been gaining popularity among HEIs in North America (AASHE, 2012; Martin 2011). STARS is a self-reported system where HEIs earn credits for aspects of campus sustainability and receive a rating of bronze, silver, gold, or platinum (Liebert, 2010). The STARS credits align with a systems view of sustainability and includes the themes of education and research; operations; planning, administration, and engagement; and special credits for innovation (Association for the Advancement of Sustainability in Higher Education 2012).

One of the STARS categories titled *Coordination and Planning* awards points in its credit system for institutionalizing sustainability and making it a campus priority in governance documents. STARS allocates credits for both incorporating sustainability into strategic and physical campus plans, and developing sustainability and climate action plans (AASHE, 2012). STARS requires that plans are created from broad multi-stakeholder involvement, and include measureable goals, with strategies and timelines to achieve those goals (AASHE, 2012). However, as STARS is completely self-reported, a credit awarded for sustainability planning does not guarantee that a plan actually exists, nor does it ensure the quality of the plan.

One critique of assessment tools like STARS, is that the numerous indicators require a lot of data to be collected from across many diverse parts of the campus requiring a lot of time and resources to complete (Beringer, 2006; Liebert, 2010). We see this as a benefit for our study, and this commitment allows us to hypothesize that HEIs that have completed STARS have made a substantial commitment to engaging with sustainability on campus. By investigating the plans of those engaging with sustainability we hope to identify trends for campus sustainability goals and plan design.

## **5.5 Methods**

This study analyzed the sustainability plans from HEIs in Canada that had completed a STARS rating from AASHE as of September, 2013. For this paper, a sustainability plan was defined as an institution-wide, integrative document that was a final plan (no draft documents, white papers, assessments, or policies were used for the analysis). The plans

were collected over the summer of 2013 with a final check for documents in in September, 2013. Data collection was conducted through a search of HEI websites using a Boolean search with the following search terms (and term variations in parenthesis): sustain (sustainable development, sustainability, sustainable); environment (environmental, environmental sustainability); ecological; green; Aboriginal (Indigenous, First Nations, Métis, Inuit) as well as a search of internal sustainability webpages. The AASHE website was also used to compile a list of STARS-rated HEIs that received a credit for having completed a sustainability plan. In those cases where a credit was given, but no plan was found using our search methods, we followed-up by email and phone to the contact name provided on STARS, or the office of sustainability or facilities department at the HEI. Documents were uploaded into a NVivo qualitative software program (QSR International Pty Ltd., 2012) to help manage and query the data (Bazeley, 2007).

This study was part of a larger research project on sustainability education that investigated governance documents of primary through tertiary formal education in Canada education (see [www.SEPN.ca](http://www.SEPN.ca)). In order to allow comparison between various types of documents coded by different researchers at dispersed sites the team employed a content analysis using a collaborative coding method (MacQueen et al., 1998; Saldana, 2013). First, a codebook was created by conducting an individual round of coding on a sample of five of each type of governance document (sustainability policies and plans, and strategic plans). Second, the team met, discussed emerging codes, and reached consensus on code meaning and structure. The codebook included code definitions, examples, exclusion and inclusion criteria (MacQueen et al., 1998). Third, the team coded the documents with an iterative coding process that included codebook updates and inter-coder reliability checks (Saldana, 2013). The codebook was created from mainly inductive coding that emerged from the documents, as well as some codes that were the expressed interests of the researchers (ex. timelines, goals), and the codebook structure was based on the domains of SHE within the literature. Although the coding was conducted collaboratively with a team of researchers, the coding and analysis for this paper was conducted by the lead author. After the coding was completed, frequency counts of the codes were created to gain an understanding of the most and least common

codes. The cross-tabulation function within the NVivo software was used to determine what codes overlapped with text coded as goals, timelines, and parties responsible.

## **5.6 Results**

### **5.6.1 Overview of Plans**

Of the 21 STARS-rated Canadian HEIs we found that 14 (67%) had a sustainability plan (Table 3). Of the HEIs that had plans, twelve were universities, and two were colleges. Of the seven that did not have a plan, three were public universities that had plans but only in draft form at the time of the study, three were colleges, and one was a small (fewer than 700 student), private university. It should be noted that these three colleges and the private university self-reported that they had a sustainability plan within the STARS database, however no plan was found through our initial search methods and follow-up contact with these HEIs revealed that plans were still in development.

The 14 HEIs in our study that did have plans were located in 5 of the 10 Canadian provinces (Table 3). Their student populations ranged in size from 2,772 (Royal Roads University) to 51,768 (University of British Columbia), however most of the HEIs in our sample had between 20,000 and 40,000 students. The province that had the most plans was British Columbia with 5 plans. All HEIs sampled are English language institutions with the only French language representation being from a bilingual HEI.

The most common titles given to the documents include “action plan”, “strategy”, and “plan”. Despite this diversity in titling, this paper will use the term ‘plan’ to describe all of the documents, as it is the most commonly used term in the documents collected, and is the term most often used in the literature (McNamara, 2010; White, 2014). The dates the plans were published begin in 2006, with 12 plans published since 2009. This was not a surprise, as campus sustainability plans are an emerging trend (White, 2014), and plans are often designed to be updated every three to five years. The length of the plans vary from 1 to 42 pages, however the average was 23 pages.

**Table 3: Details of the HEIs and the plan documents.**

HEI Name, Province	Population	Plan?	Plan Title	Plan Date	Page Length
Royal Roads University, BC	Small	Yes	Royal Roads University Sustainability Plan	2008	33
Simon Fraser University, BC	Large	Yes	Sustainability Strategic Plan	2013	28
Thompson Rivers University, BC	Medium	Yes	Campus Sustainability Action Plan	2010-2012	16
University of British Columbia, BC	Large	Yes	UBC Sustainability Strategy	2006-2010	35
University of Northern British Columbia, BC	Small	Yes	UNBC Green Strategy	2009-2011	6
University of Alberta, AB	Large	Yes	Sustainability Plan	2012-2016	25
University of Calgary, AB	Medium	Yes	Institutional Sustainability Plan	2011	38
Northern Alberta Institute of Technology, AB	Medium	Yes	NAIT Sustainability Strategy	2009	42
Red River College, MB	Medium	Yes	Sustainability 365	2013	1
University of Ottawa, ONT	Large	Yes	Advancing Environmental Sustainability at the University of Ottawa	2010	24
University of Western Ontario, ONT	Medium	Yes	Creating a Sustainable Western Experience	2012	18
Wilfrid Laurier University, ONT	Medium	Yes	Sustainability Action Plan	2012-2016	32
Dalhousie University, NS	Medium	Yes	Dalhousie Sustainability Plan	2010	12
Saint Mary's University, NS	Small	Yes	Sustainability Strategy Task Force Report	2009	5
University of Saskatchewan, SK	Medium	Draft	Campus Sustainability Plan	2012	72
McGill University, QC	Large	Draft	2013 VISION 2020: Creating a Sustainable McGill Action Plan	2013	23
Concordia University, QC	Large	Draft	Draft Planning for Sustainability at Concordia University	2007	6
Okanagan College, BC	Medium	No	N/A	N/A	N/A
King's University College, AB	Small	No	N/A	N/A	N/A
Durham College of Applied Arts and Technology, ONT	Small	No	N/A	N/A	N/A
Sheridan College Institute of Technology and Advanced Learning, ONT	Large	No	N/A	N/A	N/A

**Table Notes:**

Population: number of students enrolled as listed in institution's annual plans for 2011-2012, including all full and part-time undergraduate and graduate students.

Small = <8,500; Medium = 8,500-33,999; Large = >34,000.



Denotes presence of plan. These plans were analyzed in the study.

Denotes HEIs with a draft plan.

Denotes HEIs with no plan.

### 5.6.2. Plan Goals

The sustainability goals outlined in the plans were mostly divided into the domains of university life (research, education, facilities, community engagement, planning or administration) similar to those outlined in the STARS framework. Two exceptions to this trend were the University of British Columbia (UBC) and Northern Alberta Institute of Technology (NAIT), which divided their goals into social, economic, and ecological categories, more closely echoing the language in the general realm of sustainability.

Plan goals usually had a broad overarching goal, followed by a series of strategies necessary to accomplish the broad goal. All plans included facilities goals and most plans included community engagement and education goals, while research and administration goals were less prominent. The following section will provide a synopsis of these sustainability goals.

#### 5.6.2.1 Facilities

All of the 14 plans outlined goals for improving the sustainability of facilities management on campus (Table 4).

**Table 1: Facilities Themes**

<b>Facilities Themes</b>	<b>Of 14 plans:</b>	<b>%</b>	<b>#</b>
Waste		100%	14
Building		93%	13
Procurement		86%	12
Emissions		86%	12
Food		86%	12
Transportation		86%	12
Energy		71%	10
Water		71%	10
Landscaping		57%	8
Resource		43%	6
Technology		36%	5

Waste management or ‘reduce, reuse, recycle’ was a theme discussed in all of the plans. We found that 29% of plans had the ambitious waste reduction goals of becoming a zero waste campus. For example, the University of Ottawa recommends to “move towards becoming a zero-waste campus, achieving a waste diversion rate of 70% by 2015 and of



75% by 2020”. Plans often sought to go beyond traditional waste streams and sought to manage e-waste, compost, and reduce the use of food packaging. Plans also included an increase in the amount of collection sites in residences, offices, and construction sites. Conducting audits, planning for, and/or reporting waste on campus was present in 29% of plans.

Incorporating sustainable building design and construction was seen in 93% of plans. The most common sustainability building standard seen in the plans was the ‘Leadership in Energy and Environmental Design’ (LEED). LEED goals ranged from achieving LEED standards for specific upcoming new buildings, to meeting or exceeding LEED Gold standards for all buildings. Some HEIs also aimed to follow their own internal building guidelines. Building themes also overlapped with other facilities themes (water, energy, recycling) that were incorporated into sustainable building design, as well as education to promote the sustainable behavior of building users (signage to turn off lights). Reducing building sprawl, increasing building density, and/or creating sustainable livable communities close to or on campus was seen in 36% of plans. For example UBC aimed to “develop and implement an equitable space allocation policy to encourage downsizing, the sharing of space, and more efficient use of under-used space” and to become “a Model Sustainable Community [to] create a truly livable campus environment in which people may flourish at work, at home, and at play”.

#### ***5.6.2.2 Community engagement***

We found that 86% of plans had community engagement goals. The target groups for this engagement were primarily with the internal campus community and the external community or public (Table 5). Plans also aimed to engage with non-governmental organizations (NGOs), businesses, government, and other HEIs. Sustainability committees and offices were also commonly discussed on-campus stakeholders. Only one plan, from the UBC aimed to engage with local Indigenous communities by:

Partner[ing] with the Indigenous people of the southern interior of British Columbia (under MOU of 2005 with the Okanagan Nation Alliance) in order to continue to development programs and courses on Okanagan Indigenous culture,

history, philosophy, and knowledge that are collaborative, mutually respectful, complementary, and authentic.

**Table 2: Engagement Themes**

<b>Engagement Themes</b>	<b>Of 14 plans:</b>	<b>%</b>	<b>#</b>
Campus Community		64%	9
Public/Community		57%	8
NGOs		50%	7
Sustainability Office		43%	6
Faculty		36%	5
Students		36%	5
Government		29%	4
Other HEIs		21%	3
Staff		21%	3
Sustainability Committee		21%	3
Businesses		14%	2
Indigenous Communities		7%	1

We found that 57% of plans aimed to create partnerships or formal relationships with networks, organizations, businesses, and municipalities in order to promote and/or engage in sustainability work (Table 6). For example, Simon Fraser University aimed to “[d]evelop partnerships with businesses and not-for-profit organizations to co-generate solutions, prototypes and grant applications to better connect current work being done by these organizations and the University”.

Similarly, 50% of the plans aimed to engage in collaboration or informal relationships with stakeholders. These more informal initiatives included creating spaces for collaboration on sustainability issues on campus, creating university-community groups to identify issues of importance, or simply using the term ‘collaboration’ in short goal statements.

**Table 3: Community engagement goals outlined in the plans.**

Types of Community Engagement	Of 14 Plans:	%	#
Partnerships		57%	8
Collaboration		50%	7
Communication		43%	6
Community service		43%	6
Consultation		36%	5
Advocate for sustainability policy		21%	3

### **5.6.2.3 Education**

We found that 86% of plans had goals within the domain of education in both formal and non-formal learning (Table 7).

In terms of formal learning, HEIs planned to develop curricula by both integrating sustainability into existing courses and by increasing the number of sustainability course offerings, programs, minors, and certificates. For example, St. Mary's University (SMU) aimed to “[i]ncrease the number of environmental and sustainability-oriented courses at SMU [; i]ncrease the environmental and sustainability content in existing SMU courses [; and i]ncrease the number of students engaged in environmental and sustainability-oriented courses”. Two plans had goals related to specific sustainability topics: UBC aimed to increase the number of students studying Aboriginal and international issues and perspectives, and NAIT aimed to continue to offer a course on fuel cell technology.

**Table 4: Education goals outlined in the plans.**

Education themes	Of 14 Plans:	%	#
Formal curriculum		79%	11
- Integrate sustainability into existing courses		36%	5
- Increasing no. of courses or programs		36%	5
- Foundational course for all students		14%	2
Non-formal learning		50%	7
- Residence life programming		43%	6
- Orientation of students and/or employees		29%	4
Audit of sustainability course offerings		21%	3
Campus as a living laboratory		14%	2
Interdisciplinary learning		14%	2

In terms of non-formal learning, HEIs aimed to engage students, staff, faculty, and the broader community in sustainability learning outside of the classroom in order to increase

the sustainability literacy and awareness. The most common initiatives were to integrate sustainability learning into residence life programming and orientation for students and/or employees. However, a myriad of other initiatives seen in the plans also included hosting a speaker series, conferences, workshops, creating publications, and tours available to all campus and community members. For example, Wilfred Laurier University aimed to “improve marketing of Sustainability Office resources, including the website, Green Guide, EcoReads newsletter, programs, events, etc....[and to] publicize an annual sustainability report via social media and relevant presentations”.

#### **5.6.2.4 Administration, governance and planning**

This section of goals captured aspects of campus administration, governance, and planning within the plans (Table 8).

We found that 64% of plans aimed to measure and report on sustainability goals in order to improve transparency and aid in planning for campus sustainability. Some of these plans included a reporting component directly into their sustainability plan. For example, Wilfred Laurier University included their entire sustainability report within their plan document.

We found that 57% of plans clearly stated that they planned to create new policies and plans on specific subjects related to sustainability (climate action, transportation, procurement, food, etc.). For example, Red River College aims to “[a]pprove a new Sustainability Policy that incorporates social, economic and environmental factors ..[and..]a new Green Building Policy to guide construction renovation, leases and operations”, among others.

**Table 5: Administration, governance, and planning themes**

<b>Administration Themes</b>	<b>Of 14 Plans:</b>	<b>%</b>	<b>#</b>
Sustainability reporting		64%	9
Creating specific policies/plans		57%	8
General finance		50%	7
Endowment investments		36%	5
Diversity & accessibility		29%	4
Health & safety		21%	3
Integrate sustainability into high-level plans		21%	3

Finances, including both general finance and endowment investments, were described in two distinct ways within the plans. First, 57% of plans described goals to ensure long-term funding of sustainability projects on campus and/or investing in companies that followed sustainability principles. These plans included initiatives like revolving funding models, leveraging government and donors for funds, and creating seed programs to fund sustainability projects proposed by staff, faculty and students. For example, Simon Fraser University aimed to “[e]nhance and stabilize sustainability funding by creating a revolving loan fund for collaborative cross-unit projects (including those with longer term Return on Investment)”. While 29% of plans had goals to address sustainability within their own endowment investments, only one plan mentioned a set of standards to guide sustainable investment: the UN Principles on Responsible Investment. Second, 29% of the plans also had financial goals that aimed to ensure the long-term financial stability of the HEI through consistent financial support. These plans included initiatives like increasing fundraising, the endowment fund, and attracting government funding to “ensure ongoing financial viability” (UBC) of the institution.

#### ***5.6.2.5 Research***

We found that 50% of plans had goals related to sustainability research (Table 9). Providing or recruiting more funding for students and faculty to conduct sustainability research (student TA/RA positions/scholarships, funding research projects, including sustainability in internal grant criteria, and attracting federal and provincial funding) was most commonly seen. Providing resources for sustainability research included the creation of a new graduate program, a center of excellence for sustainability research, and a field station for graduate and faculty research. Proposed methods to reduce the barriers and increase the level of inter or trans-disciplinary research included creating an interdisciplinary graduate program, supporting faculty, and creating trans-disciplinary research clusters. For example, the University of Western Ontario commits that:

innovative partnerships will be developed across Western academic disciplines to research and propose solutions to societies most pressing sustainability challenges...[and] external collaboration will be encouraged to increase

opportunities for trans-disciplinary sustainability research and raise awareness on the scope of Western’s research activities in fields of sustainability.

**Table 6: Research goals outlined in the plans**

<b>Research Themes</b>	<b>Of 14 Plans:</b>	<b>%</b>	<b>#</b>
Funding		36%	5
Other resources/structures		21%	3
Increasing interdisciplinarity		21%	3
Greening research practices		14%	2
Tracking sustainability research		14%	2
Integrate sustainability into HEI research plan		7%	1

### 5.6.3 Plan Quality

This section includes details of the plans that point to the plan’s quality as detailed in the literature – the process of plan creation, timelines, and parties responsible. One caveat is that this information is only what was described within the sustainability plan.

Information about the plan’s creation may not have been included within the plan, and there may be details about the plan’s implementation included in a separate unpublished document.

#### 5.6.3.1 The Process of Plan Creation

We found that 93% of plans described the process or initiatives on their campus that led up to the creation of the sustainability plan (Table 10).

**Table 7: Activities that led to the creation of the sustainability plan**

<b>Plan creation history</b>	<b>Of 14 Plans:</b>	<b>%</b>	<b>#</b>
Consultation with campus stakeholders		79%	11
Staff resources for sustainability		50%	7
Campus sustainability policy		43%	6
Past sustainability initiatives across campus		29%	4
Internal sustainability commitments		14%	2
External sustainability declarations		14%	2
Campus located in natural setting		14%	2

We found that 85% of plans described how broad stakeholder consultation or a collaborative planning process was used in the creation of the sustainability plan. There was a variety of ways that plan creators consulted their community, these included:

surveys, focus groups, interviews with key stakeholders, email and web forums. For example, UBC describes how

[i]n preparing this plan, a stakeholder consultation process was carried out with more than 40 departments, all faculties, and all major student organizations at the UBC campuses. Together these groups developed a framework and identified major goals for sustainability. Next, these groups identified objectives and set specific targets. The result is that each of the objectives listed in Inspirations and Aspirations: The Sustainability Strategy has at least one UBC unit that has assumed responsibility for achieving it.

Most of this consultation was conducted with campus community members such as faculty, staff, and students; however the plan from Dalhousie University also described consultation with the local municipality. Four plans described the length of time over which the consultation occurred; these ranged from eight months to two years.

We found that 50% of plans described how the appointment of human resources to campus sustainability efforts preceded the creation of their sustainability plan. These staff resources included the creation of a sustainability committee or office, or a staff appointment responsible for campus sustainability.

#### ***5.6.3.2 Timelines***

We found that 79% of plans integrated timelines into their plans to some degree. While 50% of plans assigned a specific timeline for the completion of each goal, 14% of plans assigned the same timeline for every goal within the plan (Table 11). For example, the Wilfred Laurier University's plan is from 2012-2016 and the text states that the plan guides actions over this timeframe. For each specific goal there is also an assigned target year (when the goal should be accomplished) and an indicator (used to measure goal success). At the end of the plan, there is an appendix where all action items are broken down into ongoing, short term (2012-2014), and mid-term (2014-2016) timelines.

In those cases where there were specific timelines assigned to each individual goals, the timelines were not equally distributed throughout the plans. Facilities goals were assigned the majority of the timelines followed by education, and community engagement goals.

For example, the University of Ottawa’s plan has a series of outcomes for the year 2020 for each set of goals (teaching, research, operations, etc.). This plan also has some specific timelines for operations goals, such as, "increasing outdoor and indoor greenspace on campus by 20% by 2020.”

**Table 8: Timelines employed within the plans.**

<b>Types of timelines used</b>	<b>Of 14 Plans:</b>	<b>%</b>	<b>#</b>
All/most goals assigned a timeline		50%	7
No timelines in plan		21%	3
Whole plan assigned one timeline		14%	2
Only one goal assigned a timeline		14%	2

### ***5.6.3.3 Parties Responsible***

We found that 72% of plans had assigned responsibility for all or some goals to a campus community member (Table 12). Of these, 14% assigned a senior administrator (usually a vice president) responsible for each goal. For example, UBC’s goal for fair trade coffee reads “Target: Offer “fair trade” coffee at all eligible Food Service units [;] Timeline: 2007 [;] Responsible Portfolio: Food Services [.] VP ADMIN & FINANCE”. Even in those instances where there is more discussion to be had before a firm goal could be created (ex. sustainable endowment investments) these plans assigned a senior administrator responsible for moving forward on that issue. We found that responsibility was assigned to the appropriate party whose job description fits the theme of the goal. For example, responsibility for curriculum goals was assigned to the Vice President Academic (VPA), faculty, deans, and/or senate.

Alternatively, we found that 36% of plans invited participation from campus community members in order to help implement the goals. For example, Royal Roads University actively encouraged the engagement of employees through both a senior level committee and a grassroots volunteer group. The University of Western Ontario did not have a party responsible for each goal and instead invited the whole campus community to take responsibility for campus sustainability goals:

We have been inspired by your visions. Our strategy “Creating a Sustainable Western Experience” is testament to that inspiration, setting us forth on a shared direction for Western’s sustainability endeavours. The strategy sets out our 10-



year goals and our 5-year desired outcomes. It now needs you —Western students, staff, faculty and alumni— to work with us to implement the “how”...The involvement and input of the entire Western Community will move the campus into the next phase of its planning and sustainability pursuits.

Similarly UBC asked campus community members to take responsibility upon themselves to be sustainability leaders in conjunction with assigning a party responsibility for each goal. UBC even produced “*Inspirations and Aspirations: The UBC Sustainability Strategy AND YOU* is a companion document that outlines the various targets that we, as individuals, can strive for in our own work, study, and research at UBC” (italics not in original).

**Table 9: Parties assigned responsibility for goal completion**

<b>Responsibility Assigned for goal completion</b>	<b>Of 14 Plans:</b>	<b>%</b>	<b>#</b>
Assigned responsibility to all goals		36%	5
- Senior admin (VP, senate, deans) listed		14%	2
- Staff member or whole department listed		14%	2
Assigned responsibility to some goals		36%	5
- Sustainability committee, office, or council listed		21%	3
Invited participation for goal completion		36%	5

## **5.7 Discussion**

The key findings identified in this study are that: 1) the majority of STARS-rated Canadian HEIs have a campus sustainability plan; 2) the goals in the sustainability plans accentuate the environmental aspects of sustainability while social and economic are given less emphasis; 3) the plans commonly describe a process of broad stakeholder engagement during the creation of the plan; and, 4) many sustainability plans have incorporated timelines and assigned accountability to implement their sustainability goals.

### **5.7.1 Overview of Plans**

Compared to other studies (McNamara, 2010; Vaughter, McKenzie, et al., in-press; White, 2014), our results suggest that STARS-rated HEIs have more sustainability plans than other HEIs. A broad sample of 50 HEIs from across Canada (including STARS-rated HEIs) shows that only 44% had sustainability plans in place at the time of this study

(Bevridge, Mackenzie, & Vaughter, in-press; Vaughter, Wright, & Herbert, in-press). By focusing on the HEIs that were not STARS-rated from these 50 HEIs, we see that only 28% have a sustainability plan compared to the 67% in this study (Vaughter, McKenzie, Lidstone, & Wright, in-press). These findings are similar to those of White (2014) who found that in the United States 35% of AASHE member HEIs had a sustainability plan, while only another 13 plans were found at other HEIs in across the country (however this study only used the title of ‘plan’ and not ‘strategy’). Another American study found that fewer than half of HEIs analyzed had completed a written plan (McNamara, 2010). We concur with White (2014) who suggests that the STARS credit for an integrated sustainability plan may have encouraged the AASHE member HEIs to create a plan, or it may be that the higher prevalence of plans in STARS-rated HEIs is explained by these HEIs being already more engaged in sustainability than other HEIs.

### **5.7.2 Plan Goals**

Sustainability goals within the plans analyzed in this study had a focus on the environmental aspects of sustainability, while social and economic aspects were less emphasized. This was evidenced by environmental goals in the facilities domain being present in all plans. Economic goals (ie. finances at 50% and investments at 35%) and social goals on campus were less prominent than environmental, but were definitely present (i.e. accessibility and diversity at 29%, and health and safety themes at 21%). However, community engagement is a type of social goal that was present in 86% of plans. This suggests that STARS-rated HEIs may see their commitment to the social aspects of sustainability as an off-campus issue.

The emphasis on the environmental facet of sustainability (rather than the economic and/or social) is congruent with the trend seen in campus sustainability policies in Canadian STARS-rated HEIs where the facilities domain was similarly emphasized (Lidstone, Wright, & Sherren, in-press). This is in contrast to the conceptualizations of sustainability and campus sustainability seen within the same policies (Lidstone, Wright, & Sherren, in-press) that included the three aspects of sustainability (economy, environment, and society) as well as all aspects of campus life mirrored in the SHE literature (Moganadas et al., 2013). One of the main components of sustainability is

intra-generational equity (Drexhage & Murphy, 2010) and on campus this can be envisioned as occupational health and safety, equity and poverty, and access for handicapped users (Velazquez et al., 2006). This suggests that while HEIs envision a broad systems view of sustainability seen in the literature, there is more work to do on on-campus social and economic goals in order to align with that vision.

Sustainability research was present in fewer plans, yet in more detail than in Canadian campus sustainability policies (Lidstone, Wright, & Sherren, in-press). Goals within the plans focused on incentivising faculty and students to pursue sustainability research by providing and securing funding and other resources. Academic freedom demands that administrators cannot dictate that sustainability research be conducted; however these goals seem to suggest that they have found ways to encourage it. These results are similar to McNamara (2010) who found that all HEIs had goals related to sustainability research, however, 42% reported no progress to achieving these goals, and only 14% reported completing their research goals.

Educational goals within the plans included formal, non-formal, and informal learning. The majority of plans had goals for the formal curriculum, with the integration of sustainability into courses and the creation of new sustainability programs. However, there was little discussion of how this would be implemented or what type of learning outcomes were to be achieved. Educational goals found in this study align with the systems approach to campus sustainability that includes formal, informal, and non-formal learning (Velazquez et al., 2006). Education for sustainability within the plans was similar to sustainability policies from STARS-rated HEIs with both the integration of sustainability into the curriculum of existing courses and creating new programs, as well as the lack of specific learning outcomes or implementation details (Lidstone, Wright & Sherren, in-press). White (2014) and McNamara (2010) also found that the majority of HEIs, 81% and 84% respectively, had sustainability curriculum goals.

Learning outcomes for education for sustainable development described in the literature include creating change agents, thinking in systemic, holistic, and interdisciplinary ways (Rowe & Johnston, 2013), and problem solving skills (Hungerford & Volk, 1990). However, overall integration of sustainability into the curriculum within HEIs has been

described as “patchy at best” (Cotton & Winter, 2010, p.40) and few educational institutions have implemented these learning outcomes or implemented them fully (Rowe & Johnston, 2013). The lack of detail within curricula in this study may be that the tradition of academic freedom limits the power of sustainability planners. Academic freedom demands that any reform towards sustainability will come in very different shapes as it is interpreted by different thinkers (Rowe & Johnston, 2013).

### **5.7.3 Plan Quality**

The plans were assessed against indicators of planning quality outlined in the literature: engaging in a process of broad stakeholder engagement for plan creation (Canada. NRTEE, 2011; Conroy & Berke, 2004; Delprino, 2013; Dovers, 2005) and assigning timelines and accountabilities for goal completion (Brown & Hamburger, 2012; Koester et al., 2006; McNamara, 2010). STARS criteria for sustainability planning also require that plans are created from broad multi-stakeholder involvement, and include measureable goals, with strategies and timelines to achieve those goals (AASHE, 2012). It is important to note that this paper only presents what was described within the plan texts and information about the plan creation process may have not been described. Further, we may still lack information about what makes a high quality plan for SHE (White, 2014).

We found that 79% of plans explained how the plan was created through a process of broad stakeholder engagement. These results are higher than those of White (2014) who found that 62% of plans in the United States described a similar process including campus-wide meetings, working groups and subcommittees. If HEIs are engaging in a collaborative planning process as the plans describe, this is a welcome sign for sustainability on these campuses as collaborative planning and the stakeholder consultation that it requires are recommended for a number of reasons. First, the process of policy development can be a form of education about the change agenda for many diverse stakeholders, and can be used to foster organizational change (Allen, 1999; McNamara, 2010). Secondly, a community-based collaborative planning process is suggested as it helps build effective policy (Dovers, 2005) by reducing conflict, and getting buy-in to the change agenda (Canada. National Round Table on the Environment

the Economy, 2011; Conroy & Berke, 2004; Delprino, 2013). Additionally, a collaborative approach is ethically desirable (Dovers, 2005), helps build social capital (Conroy & Berke, 2004), and enables innovation through shared learning (Canada. National Round Table on the Environment the Economy, 2011).

We found that 64% of plans had timelines for all or most of their goals and 72% had assigned an employee responsible for all or some goals. Additionally, 36% of plans invited participation from the campus community to implement sustainability goals. We see from McNamara (2010) that high quality plans are correlated with progress on sustainability initiatives, and these plans include timelines and assigned roles and responsibilities to staff. Other SHE scholars note the importance of attaching timelines to goal setting (Posner, 2013; Wright, 2006), to help prioritize campus sustainability goals (Koester et al., 2006). Timelines and measureable indicators can also be helpful to judge progress of sustainability initiatives during reporting and monitoring phases of the plan (Brown & Hamburger, 2012). Having leadership from administrators in campus sustainability change efforts is important to provide both resources, public statements of leadership, and adopting policy (Allen, 1999; Koester et al., 2006; Krizek et al., 2012; Stephens, Hernandez, Román, Graham, & Scholz, 2008; Wells & Lekies, 2006). Given these suggestions we advocate that more timelines and responsible parties be assigned, especially upper administrators, for specific targets are implemented in sustainability planning practice. However, more research is needed to see if these practices are successful in campus sustainability change.

## **5.8 Conclusion**

The goals outlined in the plans investigated for this study reflect the priorities of STARS-rated HEIs in Canada. The sustainability goals outlined within the plans provides a welcome vision of campus sustainability that includes environmental, social, and economic aspects of sustainability, as well as many aspects of campus life. However, more work needs to be done to enhance the goals for social and economic sustainability on campus. Plan creation was described as including broad stakeholder involvement as is suggested in the literature, however, aspects of plan design including timelines and parties responsible were only incorporated in some plans. We suggest that more research,

including site studies to interview plan creators and other campus stakeholders, needs to be done to see if these aspects of plan creation and design are indeed beneficial in sustainability in higher education planning.

## **5.9 Acknowledgments**

This publication draws on research from the Sustainability and Education Policy Network (SEPN), supported by a Partnership Grant from the Social Sciences and Humanities Research Council of Canada (Grant No 895-2011-1025, Principal Investigator Dr. Marcia McKenzie). For more information, to share an initiative or research project, or to join the network, please visit [SEPN.ca](http://SEPN.ca). Many thanks to the collaborative coding team at SEPN: Kathleen Aikens, François Bregha, Marcia McKenzie, Rebecca McNeil, and Philip Vaughter. Additional funding for this paper was provided by the Québec Fonds de Recherche - Société et Culture.

## **CHAPTER 6: CONCLUSIONS**

This chapter synthesizes the various aspects of this thesis as a unified program of research. First, an overview of the research goals and questions will provide a summary of the study. Second, the key findings will be summarized with implications for theory and practice. Third, an account of the research limitations and avenues for future research are examined. Finally, the concluding comments round out the end of this chapter.

### **4.11. Project Summary**

This study sought to examine the content of sustainability policies and plans from STARS-rated HEIs in Canada. In particular, the study sought to learn how these HEIs are conceptualizing sustainability and campus sustainability, their goals for the future, and the quality of the planning documents. Literature reviewed for this thesis revealed that comparative studies of SHE were lacking and that while we knew that sustainability policies and planning documents were an emerging trend in integrating SHE, we lacked information about the content of these governing documents. Therefore, this study employed the following research questions to help investigate these issues:

What is the content of sustainability HEI policies and plans in STARS-rated Canadian HEIs?

- a) How do the policies conceptualize environment, sustainability, or sustainable development?
- b) How do the policies conceptualize a sustainable campus?
- c) What are the sustainability goals outlined in the policies and plans?
- d) Do the plans employ best practices of plan creation and design as noted in the literature?

### **4.12. Key Findings**

#### **4.12.1. Conceptualizations of sustainability**

This study found that policies conceptualized sustainability in three main ways. These themes, in order of prevalence, were the pillars model (economy, environment, and society, and sometimes health), the Brundtland definition (focusing on inter and intra-

generational equity), and the environmental conceptualization (protection, preservation, and stewardship of the environment). Most policies used a broad conceptualization of sustainability or sustainable development, rather than a narrower environmental view, and many of the policies used multiple conceptualizations within one document. For example, 50% of the policies used both the pillars model and the Brundtland definition, 64% of the policies used an environmental conceptualization along with either the pillars model or Brundtland conceptualization. Only 3 policies, which were among the older policies (i.e. created before 2008), used only an environmental conceptualization.

These findings agree with the work of Lozano et al. (2013) who argues that HEIs are picking up the use of sustainable development from broader society and the general education field. These conceptualizations reflect the prominently seen definitions of sustainability and sustainable development found within the literature (Kopnina, 2012; Robinson, 2004). In his mid-decade report for the United Nations Decade of Education for Sustainable Development, Wals (2009) argues that while “there should be space for multiple interpretations and meanings of ESD [Education for Sustainable Development], there is a common understanding that education and learning in the context of sustainable development must recognize the interconnections between the environmental, social, cultural and economic aspects of SD” (p. 64). The policies studied in this thesis captured this interconnection well, however there was little evidence of regional or culturally nuanced definitions of sustainability. This suggests that most STARS-rated HEIs are conceptualizing sustainability in internationally recognized ways. Comparing the results of this thesis to a national study on the content of HEI sustainability policies and plans in Canada it was found that STARS-rated institutions use a conceptualization of the three pillars more often (79% vs. 58% for national results), the Brundtland conceptualizations about the same amount of time (50% vs. 52% for the national results), and an environmental conceptualization more often (65% vs. 43% for national results) (Vaughter, McKenzie, Lidstone, & Wright, in-press). This suggests that most HEIs conceptualize sustainability in similar ways, yet STARS-rated HEIs use the 3 pillars model more often and may place more of an emphasis on the environmental aspect of sustainability.



#### **4.12.2. Conceptualizations of Campus Sustainability**

We found that 64% of policies explicitly describe the scope of a HEIs involvement with sustainability to include teaching, research (sometimes combined as academic practices), facilities/operations/services, and community involvement. The three policies that had only an environmental conceptualization also focused only on facilities domain of HEI activities. This holistic or systems approach conceptualization of campus sustainability is consistent with the sustainability in higher education literature (Alshuwaikhat & Abubakar 2008; Cortese 2003; Council of Ministers of Education of Canada 2010; Koester et al. 2006; UNESCO Education Sector 2006), and also reflects the various sections of the STARS (Association for the Advancement of Sustainability in Higher Education 2012).

We found that 86% of policies also discussed the importance of being a leader in sustainability practices and 57% conceptualized that their institution had a responsibility to engage in sustainability issues. These findings are similar to themes found in the sustainability in higher education literature (Clugston & Calder 1999; Cortese 2003; Creighton 1998; Keniry 1995) and some of the international SHE declarations (Lozano et al. 2013a; Wright 2002) that describe the moral responsibility of HEIs to engage in sustainability and their ability to provide leadership by modeling best practices. Further, these findings are in contrast to the work of (Vaughter et al., in-press.) who analyzed 50 Canadian HEIs (of which 21 were STARS-rated) and found the theme of leadership present in only 35% of sustainability policies and plans. This suggests that STARS-rated HEIs have a stronger interest in providing leadership for sustainability or being sustainability leaders than other HEIs.

#### **4.12.3. Sustainability Goals**

Both sustainability policies and plans emphasised goals in the facilities domain that were environmental in nature, while social and economic aspects of sustainability were less emphasized. Facilities goals were similar in both the policies and plans with waste, buildings, and procurement themes being dominant. However, emissions, transportation, and food were more prevalent in the plans than policy texts. It is possible that these are emerging trends in Canadian SHE as the policies were older documents.

While the policies included education and research goals very little detail was provided on how these would be implemented. Although fewer plans had research goals than the policies, those that did provided more detail than the policies about the HEIs aims for sustainability research. They also included more details on how to implement these goals including providing or finding funding and other resources to support faculty and student research in sustainability. Education goals were mainly described as formal (integrating sustainability into existing courses and creating new programs), non-formal (awareness to all campus stakeholders), or informal (co-curricular, residence life, and orientation programs). Few details of learning outcomes or specifics of goal implementation were present within the policies and plans, perhaps due to issues of academic freedom.

Both the on-campus social goals of accessibility, diversity, health and safety as well as the economic goals of general finance and investments were only present in a few of the documents. Economic goals were divided into two themes; one aiming to ensure funding for sustainability projects, and the other aiming to ensure the financial sustainability of the HEI itself into the future.

However, most policies and plans had described aims to engage with members of the campus community and the general public the most dominant, with government, business, NGOs (plans only), as well as specific mentions of sustainability offices and committees. Both policies and plans aimed to create partnerships, collaborate, and/or communicate although in different quantities in policies and plans.

Most policies and plans outlined the creation of reporting processes to review sustainability progress over time. Many policies and plans also described the need to create either specific policies, or integrated sustainability planning documents to create a process for goal setting and implementation. However, integrating sustainability policies or plans into other general planning or policy documents at the HEI to ensure a cohesive policy vision was rarely seen. Staff devoted to sustainability on campus either as a sustainability director, officer, or office staff, or as a multi-stakeholder committee was a trend seen within some of the documents.

The goals outlined here suggest that some of the SHE literature theory is reflected in campus sustainability policy and plan documents. However, on-campus social and economic goals are lacking, and research and education goals are not expressed in depth in some policies and plans. Based on these findings, I recommend that practitioners work to collaborate more closely with on campus stakeholders whose purview is accessibility, diversity, health and safety at the HEI to develop sustainability goals in these areas, as well as with faculty to engage in sustainability education and research more fully. Additionally, while I can speculate as to why these gaps between theory and policy and planning exist (academic freedom, lack of consultation with non-environmental staff), SHE researchers need to investigate these issues in more depth.

#### **4.12.4. Plan Quality**

The sustainability policy documents were found to be short, broad policy statements with little detail about implementation. Concerned that the visions of campus sustainability outlined in the policies may never be put into practice, I was curious to learn if the sustainability plans would provide more implementation details. The literature suggested a number of indicators to assess plan quality: that sustainability plans be created through a broad stakeholder engagement process and that they have measureable goals, timelines, and parties responsible assigned to each goal. Most of the planning documents described a collaborative plan development process. Half of plans assigned timelines to all of the goals, and 36% of plans had a responsible party for each goal. Only two of the plans assigned this responsibility to senior administrators at the HEI. These results signify that most STARS-rated HEIs are engaging with some sort of bottom-up process of plan creation, and some HEIs are engaging in a top-down style of management for campus sustainability goals. However, these results only indicate what is listed explicitly within the plans and may not tell the whole story of plan creation and implementation, and how this relates to plan quality.

#### **4.13. Study Limitations**

As with any study, the study design to ensure practicality in a restricted timeframe means that there are also limitations to the study that have led to unanswered questions and recommended avenues of further research.

This thesis presents a snapshot of those HEIs in Canada that were STARS-rated as of the spring of 2013. This means that other HEIs in Canada that have not used and publicized a STARS-rating, and any HEIs that have completed a STARS-rating since the spring of 2013 were not included. Delimiting the study thus allowed for a comparative view of Canadian HEIs active in sustainability to be captured within the limitations of a two-year Master's thesis and for this subset of HEIs engaging in sustainability to be highlighted. The broader Sustainability Education and Policy Network (SEPN) project was designed to capture non-STARS-rated HEIs, which will allow a broader insight into campus sustainability (Vaughter, McKenzie, et al., in-press.).

This study only analyzed campus-wide sustainability policy and plan documents. While specific sustainability policies and plans were noted during the data collection, and were described within the text, they were not analyzed in this study due to the restricted capacity of one master's student.

Additionally, this study only engages in text-based analysis of what was written within the policy and planning documents. As these documents were written by campus administrators, sustainability committees and officers, the study lacks understandings of sustainability held by other campus stakeholders, as well as any 'unofficial' goals not included within the texts. Information about the plan creation process or the implementation of sustainability goals not explicitly addressed in the plans could not be captured. More information is needed to see how sustainability policy and plan documents are created and used within HEIs.

#### **4.14. Avenues of Future Research**

While this study provides a more robust understanding of the content of sustainability policies and plans, including how the HEI conceptualize sustainability and campus sustainability, the sustainability goals, and the plan quality, there are many questions that remain unanswered. The following recommendations for future research stem from this thesis and will be discussed in more detail below: 1) further breadth and depth of text-based analysis of HEI governing documents; 2) in-person site studies to go beyond the confines of text-based research; and, 3) using the STARS data to compare policy and plan information to reports of SHE practice.

#### **4.14.1. Further Text Based Analysis**

As previously stated, the limitations of this study demanded that only campus-wide sustainability policy and planning documents were analyzed. The findings of the content analysis demonstrated that specific sustainability policies and plans on sub-issues such as transportation and buildings were also an important aspect of sustainability governance on many campuses. Further, a few HEIs aimed to integrate sustainability into other campus-wide governance documents such as strategic and research plans. While this study has provided an overview of campus-wide sustainability plans and policies, conducting a similar analysis on specific sustainability policies and other campus-wide governance documents would provide a clearer picture of HEIs goals and directions for sustainability. Particularly, it would be important to note policy visions that align or contradict with the HEIs visions of campus sustainability detailed in this study. These areas could become important points of leverage or barriers to institutional sustainability change.

Additionally, since this study represents a snapshot in time of STARS-rated campus sustainability in Canada it would be useful to conduct a follow-up study in subsequent years in order to measure campus sustainability progress over time. Similarly, comparing the STARS-rated subset of HEIs to others in Canada, such as those that have completed the Sierra Youth Coalition's Campus Sustainability Assessment Framework, other campus sustainability assessments, or a cohort that has not conducted an assessment would highlight any differences or similarities among these different groups of HEIs.

#### **4.14.2. Site Studies**

The second major avenue of future research is to conduct site visits to investigate the first-hand experience of sustainability directors and other campus stakeholders about the development process and use of policies and plans. The vision of campus sustainability outlined in the policies and plans presents the HEI's official, documented version of campus sustainability vision and goals. By visiting campuses, and perhaps interviewing stakeholders one might learn more about the policy and plan development process including more information about the breadth and depth of the collaborative policy and plan development process employed on the campuses (see Canada, 2011; Conroy &

Berke, 2004). The description of these processes contained within this study was not in sufficient detail to judge its quality.

Further, site studies could elicit information about how the policies and plans are implemented on campus (Are the policies policed? Is there follow up on plan goals? What is the level of policy and plan awareness on campus by various stakeholder groups?), and what structures are in place to support this (the role of sustainability offices and committees). Further, information about the purposes of the documents by their authors that were mentioned within this study could be further explored, such as policy as a communication tool, the importance of the policy development process itself, and/or goal setting as a road map of campus sustainability.

#### **4.14.3. STARS Data**

The third avenue for further research is to use the STARS data itself to learn about the usefulness of policy and plan documents, and aspects of plan design. As described in Chapter 1, STARS is a self-reported credit system that covers a wide range of campus sustainability indicators. Although the accuracy of the data may be suspect given its self-reported nature, it could still be used as a proxy for campus sustainability practice. The data from this study on the presence or absence of policies and plans, their date, their content, and indicators of plan quality could all be used to find correlations to the STARS data. STARS data can either be used for an overall score of the HEI or be broken down into thematic categories of campus sustainability. The STARS data set is publically available on the AASHE website allowing for ease of access.

#### **4.15. Concluding Comments**

Sustainable development is a visionary development paradigm and higher education institutions have a role to play in the transition to a more sustainable society. In a modest way, this study aimed to help understand how HEIs that are engaging in sustainability in Canada are taking on this task. The study's objective was to learn the content of STARS-rated HEI's sustainability plans and policies, including conceptualizations of sustainability, campus sustainability, future goals, and indicators of plan quality. This objective was achieved through a content analysis of sustainability policy and planning documents as presented in Chapters three and four.

In spite of the fact that many HEIs conceptualized campus sustainability in a systems approach to campus sustainability (including research, education, operations, and community outreach), and they conceptualized sustainability in ways that included environment, economy, and society, most policy and planning documents emphasized facilities goals that were environmental in nature. On-campus social and economic goals were lacking. This suggests that while campus policy makers and planners have embraced SHE theory they are still focusing on the environmental aspect of sustainability in planning and policies on their campuses.

While most sustainability plans are described as being created through a broad collaborative planning process, far fewer plans have assigned timelines and parties responsible to sustainability goals set within the plans. This suggests that while there is an acknowledgement that sustainability is a process that requires input from all stakeholders involved, there is less desire to assign tough timelines and responsibility to meet goals.

It is heartening to see in 2014, at the end of the United Nations Decade of Education for Sustainable Development, that these STARS-rated HEIs in Canada have embraced a forward-thinking vision of campus sustainability within their policy and planning documents (and hopefully in practice). However, as campus sustainability is a process of continuous improvement, it seems that there is, as always, more work to be done to transition these HEIs into true sustainable campuses.

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## Appendix A: Codebook

### [Source Classifications/ Attributes]

**The overarching Source Classifications are:**

*Governance, Facilities, Research, Curriculum and Community*

<b>Attributes</b>	<b>Description</b>	<b>Categories (if applicable/developed)</b>
Date: Inception	When was the document first created/published?	Date (Month, day, year)  Ex. January 1 <sup>st</sup> , 2001
Date: Updated	When was the latest revision/update to the policy?	Date (Month, day, year)  Ex. January 3rd, 2009
Author	Who authored the document?	Single Author,  Multiple Authors
Audience	Who is the intended audience	
Type (of document)	Refers to the kind of document and applies only to Governance-Sustainability docs	Policy, Plan, Mandate, Assessment, Climate Action Plan
Status	Whether the document is a final document or a draft; completed internally or externally (applicable primarily to Sustainability Assessments)	Draft, Final,
Sustainability-specific	An attribute to identify sustainability-related documents (useful primarily to draw information for sustainability-related docs only)	Sustainability-specific

Sustainability Assessment	A PSE audit, report, or assessment conducted for an internal or external audience.	Internal, External
AASHE	Is the document from an AASHE school?	AASHE, Non-AASHE
Other?		

## [CODING]

### Coding Instructions

- Note that underlined words are those that would be included in code. Link underlined words with forward slash, all in lowercase – e.g., “context/health/environmental” is code for \* item; “ed-specific/governance/general/competition” for \*\* item.
- Section of text may be coded with multiple codes (e.g., as to type of text as well as regarding the context of the text). Where possible it is preferable to code only once for content so that the same data does not appear multiple times when reviewing the analysed data.
- If you are creating a memo for your code make sure to add your name at the beginning of the memo (e.g., John:)
- The following bullets denote the level of nesting for the various terms:

\* Indicates term is a grandparent node

- Indicates term is a parent node
  - Indicates term is a child node
    - Indicates term is a grandchild node
      - ❖ Indicates term is a great-grandchild node

## 1.) TYPE OF TEXT *(i.e., mission/vision statements, image, taglines/mottos/other words what offer visual representation)*

- **Budget** *(As part of the document vs. the whole document; including tables relating to expenditures/revenues)*
- **Images** *(Exclusion Point: Don't code university logos/crests/watermarks under image codes!)*
- **Mission/Vision** *(Ministry or institution vision or mission statement)*
- **Other Tables**
- **Taglines** *(A variant of a branding slogan for a ministry or institution)*

## 2.) BROADER CONTEXT *(i.e., explanations of the broader setting without discussing education)*

### \*2.1B) SUSTAINABILITY CONTEXT

- **Conceptions of Sustainability**
  - **Campus Sustainability** *(References to the institutional culture of sustainability on campus or in a given institution)*
  - **Definitions** *(How sustainability is defined within the document)*
    - **Brundtland**
    - **Environment Specific**
    - **Non-Environmental Definition**
    - **Other**
    - **Pillars**
  - **Orientations to Issues** *(How position towards sustainability is presented within the document)*
    - **Anthropocentric** *(Human domination of nature and the environment)*
      - ❖ **Resource Access** *(Any reference to differentiated access/distribution/allocation of resources)*
      - ❖ **Resource Use** *(Sustainable harvesting/extraction of resources)*
    - **Bio-centric** *(Humans as a part of nature; intrinsic value of nature)*
    - **Ethical** *(Care or stewardship of the natural world framed as an ethical or moral imperative)*
    - **Constructed as Problem With Solution** *(Sustainability framed as a challenge, with potential solutions sometimes presented along with challenge)*
    - **Responsibility-taking** *(Any reference to differentiated responsibility for environmental or social problems/challenges)*
  - **Environmental or Sustainability Movement** *(References to the global activist movement of environmental or sustainability issues)*

- **Environmental Degradation** (Discussion of environmental degradation issues)
  - **Climate** Change (Changes to climate with implications for natural cycles, ecosystems, human society, etc.)
  - **Energy** Issues (Issues around energy production/consumption impacting the natural environment; Exclusion: separate from climate change issues)
  - **Food** Security (Issues around access to and control of food, including local sourcing, genetic modification, etc.)
  - **Other** (Issues not explicitly addressed in other environmental degradation child nodes, but still falling under the parent node of Environmental Degradation)
  - **Water** Issues (Degradation of water supplies, including water shortages, pollution, etc.)
- **Demographics**
  - **Aging** (Increasing amount of elders in human population)
  - **Growing** population (Increasing human population)
  - **Immigration** (Shifting human population)
- **Economy** (A broad perspective on the economic aspects of society)
  - **Competition** (Positioning economy so it is in a strong position against competitors)
  - **Green** Economy (A focus on economics as related to principles of environmental sustainability)
  - **Economic Growth** (A focus on continuous growth within the economy)
  - **Recession** (A shrinking of the economic market)
- **Equity** (Equal access or treatment; themes of equal rights and justice in access or treatment of people. Exclusion: not discussing workplace or schooling equal opportunity within an institution or ministry, that is coded under the Equal Opportunity code)
- **Global** (Context of focusing on global, international, or national issues)
  - **Internationalization** (Context of opening national borders with aim to create a global society, including market and freedom of movement across borders to live and work, homogenization of norms and values; ‘soup pot’ example)
- **Determinants of Health** (Exclusion criteria: DO NOT code if refers to a health issue that is within the PSE institution/Ministry, in that case code it as Health and Safety)
  - **Environmental** (Physical environmental determinants of health such as exposure to pollution (e.g., lead paint, carbon emissions, etc.))
  - **Social** (Human-made social determinants of health such as access to quality health care, access to health insurance schemes, and equity issues in terms of health care)
- **Localization** (Context of focusing on local and/or regional, provincial issues)
- **Multiculturalism** (i.e., references to multiple cultures/ethnicities, maintaining cultural identities in face of uniform globalization; ‘tossed salad’ example)
- **New Technology** (Adoption of new technologies – often information technologies or telecommunications)

- **Other Texts** (Formal acts or agreements, networks, commissions, declarations, or reports that are mentioned within the text – usually something and institution/Ministry is legally bound to or has signed on to. NOTE: Double code when crosses into policy origin references)
  - **Internal** (Other documents mentioned from within the institution or ministry)
  - **International** (Other documents mentioned from international governments or alliance, e.g., UN, APEC, OECD)
  - **National** (Other documents mentioned from the Canadian federal government)
  - **Provincial** (Other documents mentioned from the province or territorial government)
  - **Unknown** (Other documents mentioned from sources that are undisclosed)

### 3.) PSE INSTITUTIONS/MINISTRY OF ED-SPECIFIC

**3.1 GOVERNANCE (Acts of governance that include policy creation, legal acts, creation of offices, restructuring, BUT also broad goals that encompass academic and/or research and/or community engagement, etc.)**

#### **\*3.1B) SUSTAINABILITY GOVERNANCE**

- **Accountability** (Any reference of institutional accountability to community, board of governors, government, etc.)
- **Collaboration** (Working collaboratively with other PSE/Ministries or within the institution, to share information or resources, language that implies responsibility of all stakeholders regarding actions, institutional culture of sustainability)
- **Competition** (Competing with other institutions, provinces on a number of issues; usage of the term 'leader,' 'best,' 'number one' when describing entity)
  - **Differentiation** (i.e., uniqueness of institution as setting it above others)
  - **Economy** (i.e., to get a larger piece of the pie, etc.)
  - **Leader** (i.e., being among the forefront of peers, or known for something)
  - **Recruitment** (i.e., recruiting the top researchers, recruiting (green) students, enrolment, etc.)
- **Employer** (Any references to the role of the PSE institution/ministry as an employer)
  - **Workplace Environment** (Refers to the physical and social environment where the staff are working, same as learning environment under learning context)
- **Equal Opportunity** (Ensuring equal access (to education and employment) regardless of identifying characteristics (race, gender, disability, location, etc.))
- **Other Finance** (Budgetary issues regarding revenue, uses and expenditures)

- **General Operations** (References to the daily workings and/or management of an education institution including education, research, facilities, and administration. Exclusion criteria: DO NOT code for this if the reference is to ONLY the physical operations of the institutions. For that instance, code facilities)
- **Health and Safety** (Any issues relating to the health and safety of students or staff)
- **Other Finance** (Budgetary issues regarding revenue, uses and expenditures)
- **Policy/Plan Implementation** (The application or execution of a policy, plan, strategy, or mandate)
  - **Author** (References to author(s) of the document)
  - **Details of Implementation** (Details on how a plan/policy will be implemented within the ministry/institution)
  - **Goals of Implementation** (Exclusion point: More specific than general priorities – refers to specific departments/faculties/staff positions, is NOT institution wide; In that case use Purpose/Overarching Priorities code)
  - **Origins** (Any references made to origin, history, or inception of the policy document. The process by which the document was created. Example: A description of the consultation process of various stakeholders that occurred during the drafting of the policy document.)
  - **Reporting** (Double checking to see if the policy is actually happening – references to whom the institution/Ministry answers, plans for reporting, assessments, audits, transparency)
  - Who is **Responsible?** (Who is ultimately responsible for the plan/policy being implemented? Ex. VP)
  - Who is the **Target?** (Who has to take action under the plan/policy? Ex: student or faculty. NOTE: Always double code with populations to engage under Stakeholders codes)
- **Innovation** (Applications of new solutions (often used as a buzz word within education documents))
- **Interdisciplinary** (Institutionalization across institution/ministry domains includes research and education. Exclusion point: when refers to only education or curriculum see Interdisciplinary under curriculum, under Academic goals/priorities)
- **Investments** (Institutional investment of **financial resources** in the external marketplace, i.e., endowment funds)
- **Long Term Planning** (Continuous and/or long-term processes, strategies or plans)
- **Purpose/Overarching Priorities** (Of education, of the PSE or ministry, of sustainability at the PSE/ministry; includes goals of institution)
  - **Alignment** with (Purpose of the institution is to align/follow with priorities of...)
    - **Internal** (Refers to priorities/policies set by the institution itself)
    - **Provincial** (Refers to priorities/policies set by the province)
    - **National** (Refers to priorities/policies set by the federal government)



- International (Refers to priorities/policies set by the international community or an international body)
- Changing World (The purpose of the institution is to prepare students or society for an unknown future and/or changing world)
- Confidence (Purpose of the institution is to instil public confidence in the institution or education in general)
- Fulfil Students' (Purpose of the institution is to fulfil the needs and desires of its students)
  - Personally (Refers to fulfilling students personal desires and/or passions)
  - Potential (Refers to fulfilling students potential in workforce, in earnings, as member of society, etc.)
- Furthering Sustainability (Purpose of the institution is to incorporate sustainability into its structure)
  - Culture (Refers to creating a culture of sustainability on the campus)
  - Integrating (Refers to integrating sustainability into the vision, mission, polices, and/or actions of the institution)
- Growing Economy (The purpose of the institution is to grow the economy or the skilled workforce)
- Improve Outcomes (The purpose of the institution is to improve the educational outcomes and/or reduce the achievement gaps of its students)
  - Aboriginal (Refers to improving outcomes or addressing achievement gaps for FNMI students)
- Leadership (Purpose of the institution is to be a leader in education, in society, in the community, etc.)
  - Recruitment (Refers to being a leader in student recruitment)
  - Reputation (Refers to being a leader by having prestigious reputation)
- Preparation (Purpose of the institution is to prepare students for a particular tract upon completion of education)
  - Career (Refers to preparing students for careers)
  - Future Study (Refers to preparing students for future study)
  - Obtain Degree/Diploma (Refers to preparing students to obtain a degree or diploma at the completion of their studies)
- Preparing Citizens (Purpose of the institution is to prepare future citizens)
  - Ethical (Refers to preparing citizens to be ethical decision makers)
- Preparing Leaders (Purpose of the institution is to prepare future leaders and/or innovators)
  - Economy (Refers to preparing leaders for the world's markets)
- Preparing Members of Society (Purpose of the institution is to prepare future members of society)
  - Cohesive (Refers to preparing students to be part of a cohesive society)
  - Global (Refers to preparing students to be part of a global society)

- Participating (Refers to preparing students to participate in society)
- Productive (Refers to preparing students to be productive members of society, usually through economic activity)
- Preparing Students (Purpose of the institution is to prepare students within it to be a particular type of person when they leave it)
  - Engaged Thinkers (Refers to preparing students to be engaged and/or critical thinkers)
  - Entrepreneurial Spirit (Refers to preparing students to possess an entrepreneurial spirit or sensitivity for market innovation)
  - Highly Skilled (Refers to preparing students to be highly skilled members of workforce)
  - Parent (Refers to preparing students for being parents)
  - Responsible (Refers to preparing students to be responsible in their decisions and actions)
  - Well-Educated (Refers to preparing students to be well-educated upon completion of their studies)
- Public Funding (Purpose of the institution is to be or to continue to be publically funded)
- Public Good (Purpose of the institution is to serve the greater or the public good)
- Quality Services (Purpose of the institution is to offer a high quality of services)
  - Quality Childcare (Refers to providing quality childcare within institution)
- Reaching (The purpose of the institution is to reach every student – no student should be left behind/left out)
- Research (The purpose of the institution is to conduct research and contribute thru research)
  - Applied (Refers to researching for applied solutions to problems)
  - Knowledge (Refers to researching for the sake of generating knowledge)
- Scope (Purpose of the institution is to engage in teaching, research, community outreach, facilities management, and/or thru governance)
- Student Learning (Purpose of the institution is to provide learning opportunities for students)
  - Lifelong (Refers to creating students that are continuous or lifelong learning)
- Student Success (Purpose of the institution is to prepare students for success inside and outside academia)
  - Expertise in SD (Refers to contributing to the creation of scholars with knowledge and expertise in solving sustainability/sustainable development challenges)
- Quality (References to the highest standards of practice, excellence, best practices, or success. Exclusion: DO NOT code for Quality when it is in reference to Competition. See Competition.)

- **Restructuring** (Refers to any change in the organization of the PSE institution or ministry, i.e., board of governors)
- **Tradition** (References to the history, traditions, values or culture of the institution or place)

### 3.2 ACADEMIC GOALS/PROCESSES (Intents, methods, processes, and outputs related to education and formal schooling)

#### \*3.2B) SUSTAINABILITY ACADEMIC GOALS/PROCESS

- **Academic Freedom** (The inherent freedom of faculty members to pursue their research and teaching interests)
- **Co-Curricular** (Student learning that occurs outside of the formal classroom or program requirements (or research), also known as extra-curricular activities, includes clubs and societies)
- **Curriculum** (Instructional content)
  - **Development** (Developing/Development of curriculum)
  - **FNMI** (First Nations Métis Inuit curriculum)
  - **Gap Between Curriculum and Practice** (Any identified gaps between curriculum and practice)
  - **Interdisciplinary** (Curriculum is/should be inter/trans/cross disciplinary. Exclusion point: when interdisciplinary refers to research code as Interdisciplinary under Governance. )
  - **Subject-Specific** (Subject specific curriculum e.g., math, science, language arts, fine arts, health, social)
- **Knowledge** (Orientations to knowledge)
  - **Constructivist** (Framework that knowledge is constructed by individuals, societies, or other social systems)
  - **Impartial Knowledge** (Positivist; framework that knowledge represents objective truth, and that observer and subject are separate; knowledge should be conveyed in a neutral manner, lacking value judgements)
  - **Interconnected Knowledge Systems** (Holistic; framework that acknowledges the interconnectedness of knowledge and knowledge production, avoids reducing systems and ideas to the sum of their parts; integrates two or more knowledge systems)
  - **TEK** (Framework that is based on Traditional Ecological Knowledge)
- **Learning Context** (The physical and social space in which learning occurs)
  - **Flexibility** (Allowing for personalized choice within education, including student/family choice, location choice, e.g., distance learning)
  - **Learning Environment** (The physical space where formal learning occurs)
- **Pedagogy** (Understanding of and styles of instruction)

- Applied (Teaching and learning that link school to real life, e.g., participating in a city planning exercise)
- Holistic View of Learning (Teaching and learning that encompass the intellectual, social, and emotional)
  - Experiential (Teaching and learning through direct experience)
    - ❖ Community Service (Teaching and learning while working or volunteering in a community)
    - ❖ Study Abroad (Teaching and learning done outside the nation/territory of the participants)
- Outcomes Based (Teaching and learning aimed at specific curricular outcomes or tests)
- Student Centred (Teaching and learning that takes its cues from students vs. curriculum)
  - Inquiry Based (Teaching and learning that is based on the investigation of questions, scenarios, and problems)
  - Place Based (Teaching and learning that is rooted in a local context)
- Teaching as a Skill (Constructions of teaching as a skill set that can be learned)
- Transformative (Teaching and learning about processes that transform past beliefs)
- Ways of Knowing (Teaching and learning that different knowledge systems exist)
- **Stakeholder Learning** (Educating or raising awareness of sustainability related themes among students, staff, faculty, and community members)
  - Stakeholder Action (Teaching or learning about action)
    - Issues of Action (Issues, topics, or subjects that society, governments, and/or individuals act in response to)
      - ❖ Consumption (Issues relating to consumption of resources by either individuals or groups including governments and corporations, such as reducing, making ethical consumer choices, etc.)
      - ❖ Design (The design of infrastructure, such as city planning, green buildings, eco-cities, etc.)
      - ❖ Energy (Issues relating to the management, source and distribution of energy, such as fossil fuel use, alternative energies, energy efficiency, etc.)
      - ❖ Food (The management and protection of food sources, such as local sourcing, organic/non-organic food choices, ethical farming practices, etc.)
      - ❖ Other (Climate Change?)
      - ❖ Resource Management (The management and protection of renewable and non-renewable resources, such as timber, minerals, fossil fuels, etc.)

- ❖ Transportation (Issues relating to transportation such as mass transit, alternative transit, fuel efficient vehicles, commute routes and times, etc.)
- ❖ Waste Management (The management of physical waste, not related to GHG emissions e.g., recycling, cradle-to-cradle, pre-cycling, composting, etc.)
- ❖ Water Conservation (The management and protection of water resources e.g., water efficient technology, protecting fresh water sources, etc.)
- Locus of Change (The level at which change should take place)
  - ❖ Government (Changing governmental behaviours)
  - ❖ Personal Responsibility (Changing personal behaviours)
  - ❖ Society (Changing societal behaviours)
- Modes of Action (The method of engagement for initiating change)
  - ❖ Activism (Direct action to achieve political or other goals)
  - ❖ Behaviour (Action to change individual behaviour)
  - ❖ Citizenship (Acting within the political or legal system, e.g., voting, etc.)
- Cross-Competencies (Any reference to cross-subject or cross-discipline competencies such as critical thinking, problem solving, observation, collaboration)
- Social-Emotional-Physical Health Skills (Any reference to mental or physical health or increased social capacity, such as self-reliance, etc.)
- Subject/Discipline-Specific Skills (Any reference to skills relating to any subject or discipline such as literacy/reading, science, math literacy)
- Stakeholder Thinking (Developing, assessing, or understanding student thought processes)
  - Attitude (Developing, assessing, or understanding student outlook on a given topic)
    - ❖ Hope (An attitude with an optimistic outlook on the future)
  - Perceptions (Developing, assessing, or understanding how students perceive other and/or the world around them, including world-views)
  - Values & Ethics (Developing, assessing, or understanding student values, beliefs, morals, ethics, etc.)
- **Standards** (Student assessments related to academic performance)
- **Sustainability Approaches** (Any reference to competencies related to the larger social context that do have an environmental component)
  - Appreciating Nature (Teaching or learning about appreciating nature through any of the following lenses: Aesthetic, pragmatic, philosophical, spiritual)
  - Civic (Teaching or learning for understanding of or acting within political/legal systems)
  - Cultural Competency (Teaching or learning to navigate diverse cultural protocols; appreciation of diverse cultures)

- Environmental Learning/Education (*Teaching or learning about sustainability primarily related to environmental and/or ecological concepts*)
- ESD/E for S (*Teaching or learning within the framework of Education for Sustainable Development or Education for Sustainability*)
- Peace (*Teaching or learning to seek solutions to problems in a peaceful/non-violent manner include references to the environment*)
- Social Justice (*Teaching or learning to implement solutions and critically assess situations in an equitable and just manner*)
- STEM (*Teaching or learning within the framework of Science, Technology, Engineering, Math*)
- Stewardship (*Teaching or learning to care for and/or tend a place, resource, or integrated system*)
- STSE (*Teaching or learning within the framework of Science, Technology, Society, Environment*)
- Transitions (*Student matriculation thru various grade/schooling levels towards the goal of graduation*)
  - Workforce (*Student entry from schooling into the workforce*)

**STAKEHOLDERS** (*General stakeholder interactions including stakeholders from both inside and outside the institution/ministry; potential two or multi way relationship – services out but also service in*)

**\*3.3B) SUSTAINABILITY STAKEHOLDERS**

- Methods of Engagement (*Processes and ways ministry/institution engages with stakeholders*)
  - Advocate (*Supporting or urging by argument to support a group(s)*)
  - Capacity-Building (*Building capacity-skills and access to resources of stakeholders, including community groups, vulnerable community members, etc. Often refers to an unequal power relationship*)
  - Collaboration (*An informal partnership between the ministry/institution and stakeholders. Refers to a peer-to-peer relationship.*)
  - Communication (*Conveying information between actors*)
  - Consultation/Outreach (*Asking for opinion, consent or other information from stakeholders*)
  - Identify (*Establish or identify who the stakeholders to engage with will be*)
  - Modelling Practices (*Refers to instances where the stakeholder is modelling constructive sustainability actions to the wider community (or other stakeholders), this can also be known as leadership. Exclusion point: do not code this when the word leader or leadership is used in a context of competition. In that case, see competition.*)

- Partnership (*A formal partnership between the ministry/institution and stakeholders. Refers to a peer-to-peer relationship.*)
- Service (*Coming to aide to a stakeholder group; Ex. Community service*)
- **Population to Engage**
  - Administration
  - Alumni
  - Business
  - Faculty or Teachers
  - Families
  - FNMI
  - Government
  - NGOs
  - Other PSEs/Ministries of Education
  - Public/Community
  - School/Campus Community
  - Staff
  - Students
  - Sustainability Committee
  - Sustainability Office

**FACILITIES** (*The physical infrastructure, inputs, and outputs of an institution/ministry, also known as operations*)

**\*3.4B) SUSTAINABILITY FACILITIES**

- **Infrastructure Actions** (*Actions related to the physical running of the institution/ministry*)
  - Air Quality (*Issues relating to the air people breathe on facility and its physical attributes – usually is mentioned in relation to human health*)
  - Consumption (*Issues relating to consumption of resources by institution/ministry*)
  - Design (*Issues relating to institution/ministry infrastructure such as construction of new buildings, retrofits, repairs*)
  - Emissions (*Issues relating to the production of ANY greenhouse gas brought about by activities within or in conjunction with the institution; Example: May transport emissions but also composting emissions. Usually in relation to climate change/climate change policy.*)
  - Energy (*Issues relating to the management, source and distribution of energy in the institution/ministry.*)
  - Food (*Issues relating to the production and distribution of food within the institution/ministry*)

- Landscaping/Grounds (*Issues relating to the modifications of institutional/ministry land, including living elements, terrain, or bodies of water, or creating areas for biodiversity/conservation*)
- Resource Management (*Issues relating to physical inputs; everything but energy and emissions*)
- Technology (*Integration of new technology into institution/Ministry to help 'green' entity; references to information technology, technology services, or resources on campus*)
- Transportation (*Issues relating to transportation of students and staff to and from school, or fleet of institutional vehicles*)
- Waste Management (*Issues relating to physical outputs; everything but energy and emissions. For now includes light pollution and odour, but these may become grandchild nodes upon further analysis*)
- Water Management (*Issues relating to the management, conservation, and/or protection of water by the entity*)
- **Operations' Standards** (*i.e., use of performance measures in relation to operations*)
  - Achievement (*Reference to goals achieved, either specific or general; mentions of specific outcomes*)
  - Assessment or Evaluation (*Measurement of operations performance, either comparative or stand alone*)
  - Evidence (*Allowing infrastructure actions to be guided by evidence of good practice or the latest scientific evidence*)
  - Outcomes (*Monitoring and reporting the outcomes of infrastructure actions*)
  - Time Bound Goal (*A time line to have an operations goal completed by*)

## **RESEARCH** (*i.e., research goals/processes of the institution/Ministry*)

### **\*3.5B) SUSTAINABILITY RESEARCH**

- **Research Ethics** (*Ethical considerations of research within the institution*)
- **Research Goals** (*Particular goals of research within the institution*)
  - Alignment (*Aligning research goals with institutional, provincial, or other goals and priorities*)
  - Civic Involvement (*Using research as a means for engaging with the community thru scholarship*)
  - Competition (*The need to position the institution's research activities so that they can maintain competition with other institutions researching the same area*)
  - Core (*Research areas that are priorities for the institution – may be stated formally or informally*)
    - Economics (*Core research area focusing on economics*)
    - Energy (*Core research area focusing on energy*)



- Environment (Core research area focusing on environment)
- Health & Wellness (Core research area focusing on health & wellness)
- Living Lab (Core research area uses campus as a living lab for sustainability)
- Sustainability Literacy (Core research area is focused on literacy in sustainability)
- Technology (Core research area focusing on technology)
- Creating (Creating research features or facilities within the institution)
  - Centre of Excellence (Creating a centre of excellence for research)
  - Conference (Creating a new conference around a given area of research)
  - Field Station (Creating a new field station for research)
  - Graduate (Creating a new graduate program with a research component)
  - Program (Creating a specific program of research)
  - Research Chair (Creating a research chair)
- Cross/Trans/Interdisciplinary (Research that needs to or does coordinate, supports, or facilitates the crossing of disciplinary boundaries)
- Curiosity (Researching to satisfy curiosity or to explore possibilities without direct links to application of knowledge)
- Economy (Research into economic activity and productivity)
  - Development (Research examining economic development and entrepreneurship in the world's markets)
  - Diversified (Research examining diversification in the market)
  - Sustainability (Research examining how to make the economy more sustainable)
- FNMI (Pursuing research areas directly related to FNMI communities)
  - Relationships (Strengthening relationships to FNMI communities through shared research activities)
- Ground Breaking (Research that is ground breaking, new, innovative, or on the cutting edge of modern science)
- Large Impact (Research with a huge scope of impact on people or geographic regions with the knowledge it generates)
  - Areas (Research within specific areas of knowledge such as energy, technology, environment, etc.)
  - Transform (Research that will transform society at large)
- Partnerships (Partnerships between internal or external stakeholders on research activities)
  - Departments (Partnerships between departments at a given institutions)
  - Institutions (Partnerships between different institutions)
  - Business/Government/NGO (Partnerships between the institution and a business, government agency, or NGO partner)
  - Nations (Partnerships between different nations in research objectives)

- Progress (*Tracking and reporting progress in research activities*)
  - Creating (*Creating a system to track and record research progress*)
  - Reporting (*Reporting on current research activities – successes and progress reports*)
- Revenue – Needing (*Needing revenue sources to implement or continue research activities*)
- Revenue – Providing (*Providing a revenue source for the institution thru job creation, patents, grants, etc.*)
- Scales (*Scale that the research is conducted at*)
  - Local (*Research conducted at the local scale*)
  - National (*Research conducted at the national scale*)
  - Global (*Research conducted at the global scale*)
- Social Need (*Research into topics related to social issues*)
  - Quality of Life (*Research that seeks to improve quality of life thru knowledge it generates*)
- Students (*Using research to facilitate the educational needs of students*)
  - Educational Experience (*Research opportunities for undergraduates or high school students, often through course work*)
  - Sustainability (*Research that facilitates student and faculty learning about sustainability*)
  - Workforce (*Training for the workforce through research opportunities*)
- Sustainability (*Research into topics, systems, and activities related to sustainability*)
  - Applied (*The research looks to solve real world challenges around sustainability, i.e., the development of new technologies, strategies, and approaches to sustainability challenges*)
  - Define (*A definitive definition of what sustainability research is*)
  - Decision Making (*Using sustainability research for evidence-based decision making*)
  - Greening (*Greening the research process and/or conducting research more sustainably*)
  - Policy (*Research is mentioned specifically within the institution's sustainability policy and/or plan*)
- **Research Knowledge Mobilization** (*Dissemination and mobilization of research findings from the institution*)