

Report on the Development of a Strategic Plan
Integrating Earth and Human Systems
Sustainability
in the Academic Teaching, Research and Outreach
Activities
of Memorial University of Newfoundland

March 2009
Steering Committee for the EHSSI

Foreword

- Over the period, December 2007 to December 2008, there has been a great deal of discussion by numerous faculty and others on how environmental sustainability as an academic subject can be integrated and enhanced in the full spectrum of teaching, research and outreach activities of the university. This discussion has been facilitated by an ad hoc committee of faculty operating under the title: *Steering Committee on Earth and Human Systems Sustainability Initiative (EHSSI)*.
- The Steering Committee has conducted a number of workshops and commissioned some research on this topic to guide the development of a strategic plan for the university. The committee has used a listserv to keep faculty, staff and others apprised of progress, and to seek their input on the development of the initiative.
- The theme of the workshop discussions leading to the development of a strategic plan has centered on the questions: ***How can MUN best contribute towards enhancing global/regional/local Earth and Human systems sustainability? And, more specifically, what actions can we collectively take to support this objective?*** This theme is distinct from the focus of the Advisory Committee on Sustainability which is addressing in a separate forum the means to minimize the university's ecological footprint and to make MUN's campuses environmentally sustainable.
- As noted by the *Guelph Institute of the Environment* on its website, the relationship between human society and the environment is complex, and environmental issues are becoming increasingly important, as are the fields of research and policy surrounding them. "Appreciating the complexity of such issues, the University of Guelph recognizes that understanding today's environment requires not only expertise, but also a multi-faceted and inter-disciplinary approach to research and the policy-making that uses it."

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- This report is another step in sharing progress and obtaining input on the direction and form of the initiative. To this end, listserv members and others are invited to offer their comments and suggestions to strengthen this report.
- Once the report is finalized, the Steering Committee will forward it to the university's administration as a basis of discussion on the next steps to realize its findings.

Introduction

The purposes of this report are to:

- provide a synthesis of the progress achieved in developing a strategic plan for the Earth and Human Systems Sustainability Initiative (EHSSI);
- present an outline of a strategic plan;
- identify a series of remaining issues that need to be addressed; and
- propose some next steps to achieve implementation of the report's findings.

Background

Beginning with the December 2007 initial strategic planning session and subsequent activities (see below), one can conclude that there is significant interest in and support by Memorial faculty and others of a MUN-sponsored environmental sustainability 'initiative'. The December 2007 planning session laid the groundwork and identified some potential opportunities and actions in support of an initiative. Now, after a year of internal discussions and three workshops, a vision, goals and a series of actions are close to being finalized. Once these are solidified, the opportunities and actions identified to date can be further assessed and prioritized to form the basis of a strategic plan for the initiative. It will be important that the final plan encompass the interests of the faculty, administration and others in both the St. John's and SWGC campuses to gain their support to move the initiative forward.

Update of the work of the consultant

The consultant interviewed key members of Memorial's administration in St. John's and SWGC. There is a keen interest by them in seeing this initiative succeed. Memorial's strategic plan currently calls for the university to "... support the province in creating a sustainable, knowledge-intensive,

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internationally competitive economy". There is recognition that this initiative can assist Memorial to meet one of its strategic goals. At the same time, the administration has not taken any position on the form and direction that this initiative needs to take to be successful within the MUN community.

In their discussion with the consultant, SWGC administrators promoted the mandate and resources currently in place on their campus that support teaching, research and outreach in environmental sustainability. They identified their co-operative working relationships with the provincial and community agencies in the Western Region of the province as a distinct advantage for them. Workshop participants from both campuses see a real advantage for both campuses in working together in developing this initiative.

Some in the administration identified a caution to the Steering Committee with respect to the idea of developing a distinct faculty or school at Memorial in that it may not be the best approach. They suggest that it could foster a 'silo' effect and work against the interdisciplinary approach being promoted through the workshops. The Dean of Science also shared his view that the initiative and his concept of a Marine and Environmental Research Centre at Memorial could proceed in tandem, and that there are synergies in co-location of resources at some point in the future. There is a general recognition by the administration that for the initiative to move forward some additional resources (undefined at present) will be required. On the SWGC campus, progress is currently being made on establishing a School for the Environment to house the multiple interdisciplinary environmental programs in Corner Brook as well as new graduate programs in environmental disciplines.

The consultant surveyed members on the EHSSI listserv in August and September 2008 to gather information on the courses and academic programs, as well as research and outreach activities in which they are engaged or planning to undertake in the field of environmental sustainability (broadly defined). From the responses received (19), the consultant learned that there is a significant level of activity and interest in the subject matter of this initiative. Many of the respondents provided specific views on how MUN could develop an interdisciplinary approach to support this initiative and the focus of any strategic plan. They also identified the ways they could be involved and support the initiative. Many of the ideas identified in the

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survey responses are reflected in the findings from the initial planning session and the three workshops held to date.

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In addition, the consultant scanned MUN's website for a list and description of its undergraduate and graduate academic programs, including specific courses, research activities as well as the activities of specialized centres to identify those programs and activities that relate to the subject matter(s) of the initiative, namely: the environment, environmental sustainability, climate change and related topics. From this high level examination, it is quite apparent that MUN (at both the St. John's and SWGC campuses) is positioned to mount a significant initiative in support of this subject matter if it can bring the differing activities together or at least have them align themselves with the initiative. See Appendix A for a summary of the scan of Memorial's current activities in the field of environmental sustainability and related fields.

The consultant also conducted an internet search of other universities in Canada, United States, Europe, Australia and New Zealand to determine how they are approaching the topic of environmental sustainability in their academic, research and outreach activities. The primary focus of this search was to understand their academic, research and outreach organizational structure(s) in support of specialized initiatives in this subject area. There is a wide range of approaches from having programs of study based in science faculties to the establishment of stand-alone institutes with a multi-disciplinary/functional approach. An example of the latter approach that has emerged is the Dalhousie College of Sustainability that provides a Major in Sustainability that was recently approved by the Dalhousie University Senate, which is being promoted nationally, (and to be operative in Fall 2009).

The conclusion to be drawn from this search is that most universities in Canada and many across the globe are offering undergraduate and graduate programs and related courses in the field of environmental sustainability; in addition some have significant research activity underway. Several have also engaged in a variety of outreach activities. For most of the universities cited, they are offering an interdisciplinary approach through a variety of means.

For Memorial to excel in this endeavour and to be able to recruit high calibre teaching professors and researchers specializing in this field, as well as students interested in pursuing studies, it will have to identify and develop a niche for itself. During the workshops, there were several comments and

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suggestions offered that recognized the merits of this approach. Deciding on a specific niche that Memorial should develop will require further consideration within the faculty and administration. The results of the comparison of Canadian universities that are shown below outline how some of these universities are positioning themselves, and offer examples from which Memorial can learn.

The following table presents a summary of the findings from the search of twelve other Canadian universities and how they are supporting their ‘environmental sustainability’ mandate. Appendix B adds information about other Canadian universities as well as some universities the United States and elsewhere.

University	Organizational Unit(s)	Mandate
Dalhousie	<i>Dalhousie College of Sustainability</i>	The College offers a common place - physical and virtual - for the study of sustainability-based problems at Dalhousie. A range of lectures, seminars and other activities will be offered, building a shared sense of community around environmental and sustainability-related issues. An undergraduate major in Environment, Sustainability and Society will be offered in Fall 2009.
McGill	<i>McGill School of Environment</i>	The School’s mission is to provide an interdisciplinary program that will develop a broad-based environmental literacy in the undergraduate population; develop opportunities for graduate students to pursue the studies of the environment at an advanced level to create future leaders and researchers; and generate new ideas, new insights, new technologies, and new approaches to understanding and redressing environmental problems through academic research and outreach that draws on McGill’s existing strength in research and spans disciplinary boundaries. The School offers undergraduate programs in environment leading to a bachelor's degree in either: Arts, Arts and Science, Science or Agricultural and Environmental Sciences. The School also offers a Minor in Environment and a
	<i>Global</i>	The Global Environmental and Climate Change

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	Environmental and Climate Change Centre	Centre (<i>GEC3</i>) is a cross-disciplinary, multi-university research centre bringing together more than 40 researchers from six Quebec universities (McGill University, Université de Montréal, Université du Québec à Montréal, Université de Sherbrooke, Université Laval, Université du Québec à Rimouski) to study processes, modeling and impact of environmental and climate change.
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Ottawa	<i>Institute of the Environment</i>	The Institute's mandate is to support interdisciplinary collaboration and innovation in environmental research and education and to promote an understanding of the environment in the community at large. Its research mandate is to facilitate interdisciplinary environmental research on campus and elsewhere, and to identify and colonize developing niches in the environmental research and education landscape by building on existing strengths or interests of institute members.
Toronto	<i>Centre for Environment</i>	The Centre serves as a hub to direct students, faculty and the outside community to environmental initiatives across three campuses at the university. Core undergraduate Arts and Science programs are provided in environmental policy, environment and society, and environmental sciences. Also, collaborative programs are offered together with various departments. At the graduate level, a stand-alone professional Masters of Environmental Science is offered through the Centre at the Scarborough campus. Interdisciplinary graduate collaborative programs in Environmental Studies, as well as in Environment and Health, are provided in partnership with almost twenty other units of the University of Toronto. Distance education and certificate programs also provide opportunities for professional development, as do regular workshops in areas such as Environmental Finance and the Natural City.

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Guelph	<i>Guelph Institute for the Environment</i>	The Institute's vision is to network the university's widespread expertise on environmental issues and connect it to the wider community and policy makers. By providing a focal point for environmental work, it hopes to draw together the energies of the university, policy makers at all levels of government, and the wider public to create a recognized and accessible resource of cross-disciplinary environmental research.
Manitoba	<i>Natural Resources Institute</i>	The Institute takes a holistic interdisciplinary approach to natural resource and environmental management in its teaching, research and outreach programming. Its mission is to create, preserve, communicate and apply interdisciplinary knowledge in areas of resource and environmental management, and thereby contribute to the well-being of the people of Manitoba, Canada and the World.
Saskatchewan	<i>School of Environment and Sustainability</i>	The School offers graduate students a variety of Master and Doctoral programs that are interdisciplinary in both learning and research. These programs emphasize the complex nature of environmental and sustainability challenges, and the need for interdisciplinary understandings across a range of topics. As such, the School raises questions about how and which people and places are most affected by unsustainable practices, how our current policies contribute to (un)sustainability, and how Saskatchewan is placed within a global political economy. Students are given opportunities to address environmental and sustainability challenges with regional, national, and international significance.

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Calgary	<i>Institute for Sustainable Energy, Environment and Economy</i>	The Institute's mission includes: developing and promoting a collaborative vision and strategic focus for expanded research and education in energy and environment at the U of C; initiating and coordinating major collaborative research and academic initiatives in energy, environment and economy, and attracting/facilitating funding for such initiatives; developing and facilitating collaboration across units at the university and with industry, government and other research organizations, to achieve synergies and increase effectiveness, improve funding, and ensure critical mass, excellence and international recognition; facilitating integration of research, development and innovation activity in energy, environment and economy with advanced education and the development of highly qualified personnel; promoting and providing impartial and scientifically sound information on energy and environment issues; and building the image and identity for the university in the area of energy, environment and economy.
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Alberta	<i>School of Energy and the Environment</i>	<p>The School's approach is to examine and solve key issues related to energy and the environment in today's rapidly changing world. The School brings together the university's unique and extensive combination of expertise in diverse areas - engineering, science, arts, agriculture, native studies, business, law, public health, medicine and others - in a virtual environment that conducts research, undertakes interdisciplinary education and cultivates and contributes to worldwide discussions on critical issues surrounding environment, energy and the economy. The School is affiliated with the newly created Canada School of Energy and Environment that seeks to stimulate the development of new technologies to mitigate the environmental impact of current energy sources while acting as a catalyst for the development of sustainable alternate energy sources.</p>
Simon Fraser	<i>Centre for Sustainable Community Development</i>	<p>The Centre's mission is to support the sustainable development of communities through research, education (credit and non-credit), and community mobilization; it provides research, training and advisory services throughout British Columbia and Canada as well as internationally. The Centre offers an undergraduate certificate and post-baccalaureate diploma (also available through distance education), graduate support, and a non-credit professional program.</p>

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UBC	<i>Institute for Resources, Environment and Sustainability</i>	The Institute is both an interdisciplinary research institute and a major interdisciplinary graduate education program at the university. Its mission is to work to foster sustainable futures through integrated research and learning about the linkages among human and natural systems, to support decision making for local to global scales.
Victoria	<i>School of Environmental Studies</i>	The School addresses environmental problems from three distinctive perspectives: ethnoecology, ecological restoration and political ecology. This combination makes the School unique in Canada, and one of the main reasons their undergraduate and graduate programs are in demand. The School has a strong commitment to innovative community-based research, field-based and experiential learning, co-operative education, and providing some of the knowledge and habits to become an ecological citizen.

Findings from the SWOT Analysis

Over the course of four workshops, faculty and others contributed to identifying the internal strengths (S) and weaknesses (W) related to undertaking the initiative, along with the external opportunities (O) and threats (T), commonly referred to as a SWOT analysis. The overall conclusion is that MUN's strengths outweigh its weaknesses in this field, and that the opportunities are significant if given the chance to be acted on. Though there are some threats, they are minimal in relation to the environment in which MUN operates and can take action on this initiative. The summary of the SWOT analysis is contained in Appendix C.

Themes in support of a strategic plan

Drawing on the results of the SWOT Analysis, the following themes have emerged:

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- a. environmental sustainability is viewed as a significant societal and political issue - locally, provincially, nationally and internationally;
- b. most major Canadian universities have a dedicated centre or institute for environmental studies, teaching and/or research;
- c. while MUN has identified environmental sustainability within its current strategic plan and SWGC has specifically positioned itself to a centre of excellence in environmental sustainability, sufficient resources have not been dedicated to meet expectations;
- d. there is a strong consensus among faculty for MUN to expand its teaching, research and outreach programs in support of building capacity in the province in this subject matter;
- e. MUN can take advantage of provincial government interest and legislation and available funding to mount a new initiative(s) in this subject area;
- f. MUN is well-positioned to partner with a wide range of stakeholders in the community including the private sector to develop and/or deliver on any new initiative related to environmental sustainability;
- g. any new initiative that addresses environmental sustainability should be approached from an inter-disciplinary perspective and knowledge-base; at the same time, existing academic programs at MUN could be encouraged to broaden their offerings in this subject area;
- h. MUN has to consider how it distinguishes itself from other universities in moving ahead on its initiative; and
- i. finally, additional resources - financial, teaching, support services, infrastructure, etc. - are required to support any new and meaningful initiative and/or expansion in existing programs and research at both campuses.

Developing a vision and a series of goals for EHSSI

At the December 2008 workshop where participants discussed a potential vision for the initiative, four options were presented. These four options are presented below along with a recommended vision statement for the initiative.

1. MUN as an internationally recognized world leader in/of exemplary teaching, research and outreach (dialogue) for the achievement towards community and regional sustainability; or
2. MUN is a community of people dedicated to minimizing our impact on the environment while maximizing our impact on the responsible environmental actions of others; or
3. A sustainable society informed and supported by a post-secondary system;
4. A responsible and sustainable campus/community/North Atlantic through research, teaching, outreach, promotion, support. (It would be all-inclusive and focus on a combination and harmonization of earth & human systems issues.)

Based on the foregoing, it is recommended that a *vision statement* for the initiative would read as follows:

- ***MUN will become a world leader in environmental sustainability through teaching, research, and community outreach. The Memorial community will facilitate Newfoundland and Labrador's transition to a sustainable society within the broader context of a North Atlantic political economy.***

This can be interpreted as Memorial University envisaging our province (whose society consists of its people, its environment, its economy and its government) evolving and being sustained through the development, application and sharing of knowledge, understanding and critical thinking in the field(s) of environment sustainability. A North Atlantic context provides a clear and appropriate niche cognizant of a history of resource extraction. For its part, Memorial will support the vision through its own teaching, research and outreach activities and by influencing the efforts of others.

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It is anticipated that further discussion will take place on the wording of this statement among faculty and the administration with the approved statement to be incorporated eventually in the university's strategic plan.

To achieve the vision for the initiative Memorial will have to set a number of goals. At the December 2008 session, participants identified a wide range of goals. These are listed below, as follows:

- Continually strive towards sustainability as an institution and a province
- Presence of a centre for sustainable studies
- Promote, enhance, reward interdisciplinary research and teaching for faculty and graduate students
- Communication through interactive dialogue
- Promotion through public education and policy recommendations
- Acting, doing, practicing, embodying, engendering sustainability
- Building, expanding and maintaining linkages and partnerships
- Research – to increase understanding and technical capacity
- Teaching – to share understanding
- Outreach – to community, government, media
- Practice within university – to contribute to the vision, provide credibility in outreach and to test applications in MUN wherever possible
- To include faculty, staff and students
- Foster and promote innovation
- Enhance collaboration and partnerships
- Increase capacity and commitment to research, teaching, policy evaluation and the community
- An interdisciplinary and institutional approach
- Ability to influence public/government policy
- Create awareness within and beyond
- Act as a focal point
- Build capacity across all components

It is suggested that this list of goals can be condensed into *four main goals*:

- **Goal 1:** *To enhance Memorial's resources dedicated to teaching, research and outreach activities related to Earth and Human Systems sustainability*
- **Goal 2:** *To ensure that Memorial's teaching, research and outreach activities in the field of Earth and Human Systems sustainability are planned and delivered from an inter-disciplinary perspective*
- **Goal 3:** *To facilitate the development of public policy, community capacity and private sector initiative(s) that support Earth and Human Systems sustainability*
- **Goal 4:** *To create and support greater public awareness in the province of the importance of and the strategies for achieving a sustainable society*

Again, further discussion will take place on the wording of these goals among faculty and the administration with the final list of goals to be included in the university's strategic plan.

Identifying a series of priority actions for the EHSSI

At the December 2008 workshop participants identified a list of priority actions that could be undertaken to move the initiative forward within Memorial. For each action, a person or persons were also identified to lead and begin the development of the action item, in collaboration with the EHSSI Steering Committee. Others will be asked to assist in the design and implementation of the action items as the initiative moves forward. These action items have been aligned with the four suggested key goals present above. For certain goals, the actions have been repeated as they serve to support more than one goal.

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Goals	Priority Actions	Lead Person (s) (suggested at workshop)
1	Enhance emphasis on sustainability in MUN strategic plan	Steering Committee
	Highlight and promote existing strengths	I. Muzychka, P. Trela
	Need for funding to advance the initiative	Steering Committee
	Need for champions to be resourced and time provided to advance actions	Steering Committee
	Add and integrate sustainability courses and content in all programs	Steering Committee, P. Trela, J. Wroblewski
	Launch the next phase of the sustainability initiative through a pilot project(s)(e.g. a campus in the city program; public debate opportunity(s); connect with the Bonne Bay Marine Station; connect with the Labrador Institute; create a dedicated web-site and an information-clearing house)	K. Parewick, M. Clair
2	Enhance St. John's-SWGC campus co-ordination (to include College of the North Atlantic and Labrador Institute)	Steering Committee, W. Bowers, A. Carter
	Plan for a centre for sustainability studies in coordination with initiatives underway on both campuses, particularly SWGC's developing School for	B. Neis, L. Tarasov, J. Wroblewski, Carter
	Focus on developing sustainable campus(es)	J. Lepawsky, T. Rowe
	Add/integrate sustainability courses and content in all programs	Steering Committee, P. Trela J. Wroblewski
3	Develop capacity for outreach with a focus on sustainability with the community, government and educators - with emphasis on two-way communication to allow community access/input into MUN, and allow for knowledge mobilization	R. Greenwood, B. Neis, A. Fisher, K. Hawboldt
	Develop a North Atlantic focus within context of a resource-based economy and international linkages	Steering Committee
4	Develop capacity for outreach with a focus on sustainability with the community, government and educators - with emphasis on two-way communication	R. Greenwood, B. Neis, A. Fisher, K. Hawboldt

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	to allow community access/input into MUN, and allow for knowledge mobilization	
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The identified actions and their alignment with the suggested goals need to be further reviewed to ensure they represent the priorities for the initiative and are achievable. The lead person(s) associated with the action items were suggested at the December 2008 workshop and have to be finalized with them; as well, others will have to be identified who may be prepared to assist in the further design and development of the action items.

Some outstanding issues to be addressed

In order to finalize a strategic direction for the initiative, and to ensure its success both within the university and the community at large, the Steering Committee and the administration will need to further discuss and reach consensus on answers to the following questions (with drafted suggestions from the Steering Committee):

- 1. What should be the roles of St. John's and SWGC campuses in the design and implementation of any new initiative? (e.g. how their current approaches, resources and activities could be leveraged in any new initiative?)*

The Steering Committee believes that by building on the ESSHI workshop at SWGC and on subsequent discussions in St. John's, it seems there are a number of strategic links that can be readily established between ESSHI and SWGC.

There is significant interest in and support by SWGC faculty and staff to advance the MUN-sponsored Earth and Human Systems sustainability initiative. The key to a productive initiative is our ability to effectively leverage SWGC resources, utilize SWGC assets, and build on local partnerships in the region. It will also be important to avoid unnecessary duplication in academic and research programs. As mentioned by a number of our colleagues, this means clearly differentiating between EHSSI and existing entities. In particular, there is a need to identify the relationship between the initiative and SWGC's current strengths in environmental fields established through its current programs in Environmental Studies, Environmental Science, Resource Management as well as the emerging Environmental Policy Institute. We need to seek synergies where possible. Moreover, we need to ensure ESSHI offers opportunities to advance graduate

programming on the Grenfell campus. This would make the initiative particularly valuable to SWGC.

On a wider scope, it will also be critical that the ESSHI initiative strongly complement or expand the *Centre of Environmental Excellence (CEE)* housed at SWGC, an initiative already funded by the provincial government. There needs to be direct reference made to the potential for CEE to realize a number of EHSSI goals and objectives through a strong and meaningful participation under ESSHI. Finally, this initiative offers a ready means for Grenfell to work more collaboratively with St. John's to improve and shape an Earth and Human Systems research agenda for the region and the province.

- 2. How should the initiative be supported organizationally? There is one suggestion for a separate school or faculty or centre as other universities have done - this raises the question as to what form of separate academic, research, outreach or other unit should be developed at Memorial, if any; what should be its mandate; how would it relate to the proposed Marine and Environmental Research Centre being championed by the Dean of Science; where should it be housed? how should it be resourced?*

The Steering Committee is recommending a centre for sustainable studies rather than a school or faculty approach. As evidenced in previous correspondence related to the experiences of Dr. Mark Abrahams, a separate school or faculty risks the very real possibility of being isolated from the university community at large. A centre that allows for coordination and direct and continued interaction with other schools and faculties seems to be a much more prudent model for us.

The Centre for Marine and Environmental Research proposed by Dr. Abrahams can fully address this recommendation if it can become a clear partnership with all relevant schools and faculties (Arts, Business, Education, Engineering, Medicine, and Science).

The mandate of Centre should include:

- Stimulating and coordinating inter-disciplinary research projects across the University's various faculties, departments, centres and campuses.

- Coordinating inter-disciplinary courses, programs, diplomas and degrees at the undergraduate and graduate levels.
- Coordinating outreach activities such as public lectures, meetings with policy makers, etc.

Some of the key issues to resolve include:

a) Does the center need more than a director and secretary for administration? Will faculty members be administratively tied only to their existing faculties or will there be some joint administrative responsibilities/contexts? e.g., P&T, speaker budgets, teaching, etc? Will there be some faculty members purely assigned to the center? More bluntly, where should the center fit on the spectrum of:

[centre just to house students/faculty together to promote interaction

-----> centre holding large number of faculty administratively tied to it, who have at most secondary links to existing faculties/departments]

b) Where will the operation budget come from (key issue for Deans we suspect)?

c) Can SWGC be electronically tied in?

d) How will interdisciplinary programs (such as the environmental science program) be integrated into the Centre?

The Steering Committee also considered whether or not there is a role for the Harris Centre. The Harris Centre has indicated that it would be a willing partner to any new centre, with the goal of creating synergies between the two. The exact relationship between the two centres would need to be worked out once the structure and mandate of the new centre were established. The Harris Centre's strengths in public policy, regional development and knowledge mobilization could complement the new centre's strengths in Earth and Human Systems sustainability. Where appropriate, the Harris Centre would be happy to cooperate with another centre, especially as it relates to public policy (e.g., connecting to policy advisors) and to regional development (e.g., helping non-governmental organizations carry out sustainability

projects). These could run the gamut from formal partnerships to informal “one-off” projects.

3. How should the mandates and work plans of the Advisory Committee on Sustainability and the EHSSI, along with the various student-based activities, be coordinated and made mutually supportive?

The Steering Committee has identified an appropriate relationship between the EHSSI and the Advisory Committee on Sustainability (ACS) and various student groups as follows:

The EHSSI, the Advisory Committee on Sustainability (ACS), and student initiatives such as MUN Project Green, share complementary visions and objectives. These complementarities are assets that should build upon and enhanced.

The ACS focuses on sustainability initiatives related to university operations. Membership in the ACS includes staff, faculty, and students from the St. John's campus, Marine Institute and Sir Wilfred Grenfell College, and representatives from government. The Sustainability Co-ordinator, a staff person within Facilities Management, is an ex-officio member of the ACS.

Therefore, it is recommended that:

- EHSSI maintain strong and effective communication ties and where appropriate partnerships with ACS through the Sustainability Co-ordinator, and Project Green through its membership.
- EHSSI focus its activities on its core competencies of teaching, research, and educational outreach.
- Issues related to the sustainability of MUN's operations (e.g., energy efficiency of buildings, car pooling, carbon offsets for travel) be dealt with by ACS.
- At least one member of the EHSSI Steering Committee should also sit on the ACS.

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- At least one student member of MUN Project Green should participate in the EHSSI.
4. *How does the initiative align with provincial and federal government policy objectives, are refinements required for the initiative to be embraced by government, and how can these governments and their agencies support this initiative financially and otherwise?*

The Steering Committee believes that once MUN's administration identifies a future direction for the EHSSI, then plans to engage government(s) can begin to take shape. The discussions with federal and provincial officials can facilitate their feedback and input on the design of the initiative especially those elements that will require additional public funding to advance them.

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As these questions are being addressed, each faculty and department can take it upon themselves to consider how it supports the initiative. Each Dean, director and department head could assist by identifying how the theme of Earth and Human Systems sustainability can be incorporated in their respective course offerings, research initiatives and outreach activities. This approach will help identify current capacity as well as areas where additional capacity needs to be developed.

Next Steps

Members of the EHSSI listserv will be provided with a copy of this report and asked to provide any additional comments prior to it being finalized.

Members will also be asked to consider assisting in the development of the individual actions.

1. Once the report is finalized, it will be presented to the University's administration as a basis of discussion with the Steering Committee to determine the appropriate course of action for implementation.
2. Based on the discussions between the Steering Committee and the administration, it is expected that:
 - a. there may be a requirement to further refine the goals and actions of the initiative to ensure alignment with the university's strategic plan, goals and available resources;
 - b. a process to engage the federal and provincial government representatives in the province to solicit their support for the initiative can be designed; and
 - c. some resources can be allocated in the university's 2009-10 budget to initiate some of the 'quick hit' actions identified in the report.
3. The mandate and membership of the Steering Committee needs to be reviewed to ensure it is resourced to continue to support the initiative as it moves forward within the university.

More generally, a key step is to build a clear and shared consensus of the vision for EHSSI from the grass-roots to the executive level, so that discussions with the provincial government can be grounded in "here is what we want to establish or do, here is what MUN is committing to the initiative, and here is how the provincial government might be involved".

The strategic plan will need to clarify MUN's intentions regarding structure and purpose, identify Memorial's "niche", and clearly differentiate between the EHSSI and existing entities and processes, and provide clarity to suggested roles for each of St. John's and SWGC.

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Appendices

Appendix A Results of Scan of MUN Activities

Program of Study	Cours e(s)	Degree/Diplo ma	Related Activity	Researc h Activity	Commen t*
Arts/Fine Arts/Humanities/ Social Sciences					
Aboriginal Studies	Nil	Nil	Nil		<i>Potential applicabilit y</i>
Anthropology & Archaeology	Nil	Nil	Nil		<i>Potential applicabilit y</i>
Applied Ethics		Diploma- Environmental Ethics			
Canadian Studies	Nil	Nil	Nil		<i>Potential applicabilit y</i>
Classics	Nil	Nil	Nil		<i>Limited applicabilit y</i>
Creative Writing	Nil	Nil	Nil		<i>No applicabilit y</i>
Drama & Music	Nil	Nil	Nil		<i>Limited applicabilit y</i>
Economics	Yes	Nil	Nil		<i>Applicable</i>
English	Nil	Nil	Nil		<i>No applicabilit y</i>
English Language & Literature	Nil	Nil	Nil		<i>No applicabilit y</i>
English as a Second Language	Nil	Nil	Nil		<i>No applicabilit y</i>
Environmental Studies (SWGCI)	Yes	Bachelor of Arts	?		<i>Very applicable</i>
Ethnomusicology	Nil	Nil	Nil		<i>No applicabilit y</i>
European Studies	Nil	Nil	Nil		<i>Some applicabilit y</i>
Film Studies	Nil	Nil	Nil		<i>Some</i>

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					<i>applicability</i>
Folklore	Yes				<i>Some applicability</i>
French Language & Literature					<i>No applicability</i>
French & Spanish	Nil	Nil	Nil		<i>No applicability</i>
Geographic Information Sciences	Yes				<i>Very applicable</i>
Program of Study	Course (s)	Degree/Diploma	Related Activity	Research Activity	Comment *
Geography	Yes	Diploma, undergraduate degree, honours degree, graduate arts/science degrees, doctorate degree			<i>Very applicable</i>
German Language & Literature					<i>No applicability</i>
German & Russian	Nil	Nil	Nil		<i>No applicability</i>
Heritage Resources	Nil	Nil	Nil		<i>Potential applicability</i>
Historical Studies (SWGCI)					<i>Potential applicability</i>
History	Yes	?	Maritime Studies Research Project Tri-Council Eco Research Project on Sustainable Development in a cold ocean environment		<i>Potential applicability</i>
Humanities	Yes	Graduate	Nil		<i>Potential</i>

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		degree			<i>applicability</i>
Law & Society	Nil	Nil	Nil		<i>Potential applicability</i>
Linguistics	Nil	Nil	Nil		<i>No applicability</i>
Medieval Studies	Nil	Nil	Nil		<i>No applicability</i>
Newfoundland Studies	Nil	Nil	Nil		<i>Potential applicability</i>
Performance & Comm. Media	Nil	Nil	Nil		<i>Limited applicability</i>
Philosophy	Yes	Graduate degree?	Nil		<i>Applicable</i>
Police Studies	Nil	Nil	Nil		<i>No applicability</i>
Political Science	Yes	Graduate degree?	Nil		<i>Very applicable</i>
Professional Writing	Nil	Nil	Nil		<i>No applicability</i>
Psychology	Nil	Nil	Nil		<i>Limited applicability</i>
Religious Studies	Yes	Nil	Nil		<i>Applicable</i>
Program of Study	Course(s)	Degree/Diploma	Related Activity	Research Activity	Comment*
Russian Studies	Nil	Nil	Nil		<i>No applicability</i>
Social/Cultural Studies (SWG C)	Nil	Nil	Nil		<i>Potential applicability</i>
Sociology	Yes ?	Graduate degree?, doctorate degree?	Nil		<i>Potential applicability</i>
Sociology/Anthropology	Nil	Nil	Nil		<i>Potential applicability</i>
Theatre (SWG C)	Nil	Nil	Nil		<i>Limited applicability</i>
Tourism Studies	Nil	Nil	Nil		<i>Potential</i>

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(SWGC)					<i>applicability</i>
Visual Arts (SWGC)	Nil	Nil	Nil		<i>No applicability</i>
Women's Studies	Yes?	Graduate degree?	Nil		<i>Potential applicability</i>
Sciences					
Aquaculture	Yes	Graduate degree	Interdepartmental committee oversees program of study		<i>Very applicable</i>
Biochemistry	Yes	Graduate science degree, doctorate degree	?		<i>Very applicable</i>
Biology	Yes	Graduate science degree in Marine Biology, doctorate degree in Marine Biology	Sustainable Forest Management Network		<i>Very applicable</i>
Chemistry	Yes	Interdepartmental Master Program in Environmental Science, doctorate degree	?		<i>Very applicable</i>
Cognitive & Behavioural Ecology	Yes	Graduate science degree, doctorate degree	Nil		<i>Very applicable</i>
Computational Science	Yes?	Graduate science degree?	Nil		<i>Applicable</i>
Computer Science	Yes?	Graduate science degree?, doctorate degree?	Nil		
Program of Study	Course(s)	Degree/Diploma	Related Activity	Research Activity	Comment*

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Earth Sciences	Yes	Joint program with Faculty of Engineering Joint undergraduate major with Geography Graduate science degree, doctorate degree	Centre for Earth Resources Research (CERR)		<i>Very applicable</i>
Environmental Science	Yes	Bachelor of Science (Environmental Science-SWGC), graduate environmental science degree, graduate science degree, doctorate degree	The Master of Environmental Science is an interdisciplinary program offered by the Faculty of Science		<i>Very applicable</i>
Food Science	Yes	Graduate science degree, doctorate degree	?		<i>Very applicable</i>
General Science (SWGC)	Yes	Bachelor of Science (General Science-SWGC)	?		<i>Very applicable</i>
Geography (see above)					
Instrumental Analysis	Yes	Graduate science degree, doctorate degree	?		<i>Very applicable</i>
Mathematics & Statistics	Yes	Graduate applied statistics degree, graduate science degree, doctorate degree?	Nil		<i>Applicable</i>
Physics & Physical Oceanography	Yes	Graduate science degree, doctorate degree	Bonne Bay Marine Station/ Observatory Canadian/NL Centre for Ocean Gliders		<i>Very applicable</i>

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			Physical Oceanography Group		
Psychology	Yes	Master of Applied Social Psychology?	Nil		<i>Applicable</i>
Program of Study	Course (s)	Degree/Diploma	Related Activity	Research Activity	Comment *
Science	?	Nil	Ocean Sciences Centre		<i>Very applicable</i>
Sustainable Resource Management		Bachelor of Resource Management (SWGC)			
Professional Programs					
Business Administration	Nil	Nil	Centre for International Business Studies Associates Roundtable		<i>Potential applicability</i>
Education	?	Graduate degree?	Curriculum, teaching and learning studies		<i>Potential applicability</i>
Employment Relations	Nil	Nil	Nil		<i>No applicability</i>
Engineering	Yes	Master of Engineering Master of Applied Science Doctorate degree	Ocean Engineering Research Centre		<i>Very applicable</i>
Human Kinetics & Recreation	Nil	Nil	Nil		<i>No applicability</i>
Marine Studies (Marine Institute)	Yes	Bachelor of Maritime Studies Graduate diploma Master of Marine Studies	Fisheries resource management focus		<i>Very applicable</i>
Medicine (Community)	Yes	Graduate science degree	Applied health services		<i>Potential applicability</i>

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Medicine)			research, community health and humanities		y
Music	Nil	Nil	Nil		No applicability
Nursing	Nil	Nil	Nil		Potential applicability
Oil & Gas Studies	Yes	Graduate degree	?		Potential applicability
Pharmacy	Nil	Nil	Nil		Potential applicability
Social Work	Nil	Nil	Nil		Potential applicability
Program of Study	Course (s)	Degree/Diplo ma	Related Activity	Researc h Activity	Comment *
Technology (Marine Institute)	Yes	Bachelor of Technology	?		Applicable
Interdisciplinary Programs					
Interdisciplinary PhD	Yes	Doctorate degree	Graduate Research Integrity Program Graduate Student Research Colloquium Series Aldrich Interdisciplinary Lecture & Conference		Applicable
Specialized Centres					
Atlantic Computational Excellence Network					
Archaeology Unit					Applicable
Atlantic Provinces Council on the					Applicable

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Sciences (APICS)					
Bonne Bay Marine Station					<i>Applicable</i>
C-CORE					<i>Applicable</i>
Canadian Centre for Marine Communications (CCMC)					
Canadian Committee on Labour History (CCLH)					
Centre for Aquaculture and Seafood Development					<i>Applicable</i>
Centre for Career Development					
Centre for Collaborative Health Professional Education					<i>Potential applicability</i>
Centre for Earth Resources Research (CERR)					<i>Applicable</i>
Centre for International Business Studies (CIBS)					<i>Applicable</i>
Centre for International Nursing					<i>Potential applicability</i>
Centre for Marine Simulation					<i>Applicable</i>
Centre for Sustainable Aquatic Resources					<i>Applicable</i>
Program of Study	Course (s)	Degree/Diploma	Related Activity	Research Activity	Comment *
Co-operative Education Services Centre					
CREAIT Network					
Eco-Research Program					<i>Applicable</i>
English Language					

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Research Centre					
Genesis Group					
Harris Centre (The Leslie Harris Centre of Regional Policy and Development)					Potential applicability
Institute of Social and Economic Research (ISER)					Potential applicability
International Centre					
Killick Project for E-Learning Research					
Labrador Institute					Potential applicability
Labrador West Centre for Interactive Learning in Labrador City					Potential applicability
Maritime History Archive					
Maritime History Publications (MHP)					
Memorial University of Newfoundland Botanical Garden					Potential applicability
MI International					Potential applicability
NSERC/Petro-Canada Chair for Women in Science and Engineering (CWSE)					Potential applicability
Ocean Sciences Centre					Applicable
Offshore Safety and Survival Centre					Potential applicability
P.J. Gardiner Institute for Enterprise and Entrepreneurship					Potential applicability
J. R. Smallwood					Potential

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Centre for Newfoundland Studies					<i>applicability</i>
Newfoundland and Labrador Heritage Web Site					
Research Centre for the Study of Music, Media and Place (MMaP)					<i>Potential applicability</i>
Program of Study	Course (s)	Degree/Diploma	Related Activity	Research Activity	Comment *
Virtual Design Centre					<i>Potential applicability</i>

* Represents the external consultant's (and not the Steering Committee's) assessment of the applicability of the program, etc. to the EHSSI.

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University	Dedicated Organizational Entity(s)	Academic/Teaching Programs - university-wide	Research Activity	Outreach Activity	
Canada					
Memorial	Earth and Human Systems Sustainability Initiative	See separate list	Research	Outreach	
	Centre for Environmental Excellence (SWGC)				
Dalhousie	Elizabeth May Chair in Sustainability and Environmental Health	Courses, undergraduate (a major in Environment, Sustainability and Society), honours, graduate and doctorate programs			
	Dalhousie College of Sustainability				
UNB	Faculty of Forestry and Environmental Management	Certificate, undergraduate and graduate programs (e.g. Inter-disciplinary Master of Philosophy in Policy Studies (Sustainable Development))	Research		
	Environment and Sustainable Development Research Centre				
McGill	McGill School of Environment	Diploma and undergraduate programs; graduate and doctorate environment option	Research		
	Faculty of Agricultural and Environmental Sciences				
	Global Environmental and Climate Change Centre (GEC3)				
Concordia	Department of Geography, Planning and Environment	Diploma, undergraduate, graduate, graduate	Research		

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	Faculty of Building, Civil and Environmental Engineering	certificate and doctorate programs			
Ottawa	Institute of the Environment	Undergraduate, graduate and doctorate programs	Research	Community Education (H2O Chelsea)	
Carleton	Carleton Sustainability Campus Network	Courses, undergraduate, honours, graduate and doctorate programs	Research		
	Department of Geography and Environmental Studies				
	Canada Research Chair (Tier 1) in Globalization and Global Environmental Change				
Toronto	Centre for Environment	Certificate, undergraduate, graduate and doctorate programs	Research		
Guelph	Faculty of Environmental Sciences/Environmental Sciences Council	On-line learning certificate and undergraduate programs	Research	Kenneth Hammond Lectures on Environment, Energy and Resources	
	Guelph Institute for the Environment (GIE)/Science Research Initiative				
Western	Environment and Sustainability Program (Faculties of Science, Social Science, Engineering, Graduate Studies)	Undergraduate, graduate and doctorate programs	Research		
	Environment Research Western (Research Centre)				

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Manitoba	Faculty of Environment, Earth and Resources	Undergraduate, graduate and doctorate programs	Research	Outreach	
	Natural Resources Institute				
Saskatchewan	School of Environment and Sustainability	Graduate and doctorate programs	Research	Partnerships	
	Centre for Studies in Agriculture, Law and the Environment (within the College of Agriculture and Bioresources)				
Calgary	Institute for Sustainable Energy, Environment and Economy	Courses and graduate programs	Research	Collaboration	
Alberta	School of Energy and the Environment	Undergraduate, graduate and doctorate programs	Research		
	Environmental Research and Studies Centre (within the Faculty of Agricultural, Life and Environmental Sciences)				
	Campus Sustainability Initiative				
Simon Fraser	Centre for Sustainable Community Development	Certificate, diploma, undergraduate, graduate and doctorate programs			
	School of Resource and Environmental Management				
	Faculty of the Environment (proposed)				

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Victoria	Faculties of Social Sciences and Graduate Studies	Diploma, undergraduate and graduate programs			
	School of Environmental Studies				
UBC	Institute for Resources, Environment and Sustainability (IRES)	Certificate, undergraduate, graduate and doctorate programs	Research		
	Faculty of Land and Food Systems				
Europe					
Sussex	Department of Biology and Environmental Science/School of Life Sciences	Undergraduate, graduate and doctorate programs	Research	Outreach	
	Science and Technology Policy Research (SPRU)				
Oxford	Environmental Change Institute (within the Oxford University Centre for the Environment)	Graduate studies	Research	Outreach	
Plymouth	School of Earth, Ocean and Environmental Sciences (within the Faculty of Science)	Diploma, undergraduate , honours, and graduate programs	Research		
University College Dublin	School of Geography, Planning and Environmental Policy	Undergraduate, graduate and doctorate programs	Research		
	Urban Institute Ireland				
Potsdam	Potsdam Institute for Climate Impact				

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	Research				
United States					
Michigan State	Center for Systems Integration and Sustainability	Undergraduate, graduate and doctorate programs	Research	Outreach	
	Environmental Science and Policy Program				
Harvard	Harvard University Center for the Environment	Undergraduate, graduate and doctorate programs	Research		
	Belfer Center for Science and International Affairs				
	Sustainability Science Program				
Arizona	School of Sustainability (Global Institute of Sustainability)	Certificate, undergraduate, graduate and doctorate programs	Research	Outreach	
	College of Agriculture and Life Sciences				
University of Texas at Austin	Environmental Science Institute	Undergraduate, graduate and doctorate programs	Research	Symposia; K-12 outreach	
	Center for Sustainable Development (School of Architecture)				
Clark	Global Environmental Studies	Undergraduate and graduate programs	Research		
	Environmental Science				
	Environmental Science and Policy				
	The George Perkins Marsh Institute				
Notre Dame	Environmental Research Centre	Undergraduate and doctorate programs	Research	Center for Environmental Justice and Children's	

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				Health	
	Center for Environmental Science and Technology				
	Global Linkages of Biology, Environment and Society (GLOBES)				
Cornell	Center for a Sustainable Future	Undergraduate, graduate and doctorate programs	Research	CRESP Centre for Transformative Action	
	Centre for Sustainable Global Enterprise				
Australia					
Melbourne	School of Land and Environment	Undergraduate program	Research		
	Australian Centre for Science, Innovation and Society				
New Zealand					
Auckland	School of Geography, Geology and Environmental Science (within the Faculty of Science)	Undergraduate, graduate and doctorate programs	Research		

Note to the Reader:

With ongoing interest in sustainability both nationally and internationally, this survey is not presented as a comprehensive listing, and initiatives that

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were not clearly promoted on websites or did not include the key phrases of 'Environment' and 'Sustainability' may have been overlooked.

Appendix C Results of SWOT Analysis (Combined)

<p>Questions used to assist in completing the SWOT analysis:</p> <ol style="list-style-type: none"> What are MUN/SWGC's <i>strengths</i> in terms of teaching, research and out-reach for environmental sustainability? What are MUN/SWGC's weaknesses in these areas? What opportunities are there for MUN/SWGC to contribute to enhancing society's understanding of environmental sustainability? What threats are there to MUN/SWGC in achieving its objective(s) in this field? 		
<p>Results of SWOT analysis in Dec. 2007, Sept. 2008 and Dec. 2008(St. John's Campus) <i>P=Priority from Dec 5th workshop</i></p>		<p>Additional analysis from October 2008 Workshop (SWGC)</p>
<p>Strengths (Internal)</p>		
1P	Diversity of knowledge and expertise at MUN	Existing programs & entities at SWGC; environmental policy institute
2	Energy & enthusiasm for EHSSI	Manageable, small size, connections, collaboration within SWGC
3	Academic flexibility in course/program development and teaching	SWGC geographical location on west coast with diverse and unique ecosystems
4	Change in upper Administration who are supportive	Supportive administration with awareness and interest
5P	Faculty renewal	Liberality and liberal thinkers with diverse views and interest in topic
6	Strong interest at faculty level for collaboration between St. John's campus and SWGC	Close connections to the community & potential to connect further
7P	Existing examples of interdisciplinary activity; MUN has strength and tradition in interdisciplinary approach	Experience (though limited) with implementing interdisciplinary programming
8P	Students are engaged (e.g. Project Green)	Student leadership, interest & support
9	Renewable focus in the Engineering Faculty	Good technology
10	Fragmentation can be creative	MUN graduate programs and students with interest in human dimensions in

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		this field of study	
11 P	MUN has identified sustainability as a strategic objective		
12	MUN likely to attract more research funding		
13 P	Environmental studies strength		
14 P	Bonne Bay Marine Station		
Weaknesses (Internal)			
1P	Fragmented expertise, activity; silos inhibit interdisciplinary approach; there is a structural barrier	Research support is limited; small disciplinary units; limited graduate program at SWGC coupled with residency issue	
2P	Absence of dedicated resources to promote & sustain EHSSI	Shortage of technology, IT&M support; overall small size	
3P	Faculty overload	Heavy teaching loads combined with existing committee work	
4	Lack of focus on academic programming in environmental sustainability at Administration level	Concern about status & resources to support graduate programs at SWGC	
5P	Cost to replace aging infrastructure	Lack of infrastructure, no room to grow, facing constraints	
6P	Administrative divide between St. John's campus and SWGC; lack of co-ordination	There is a 'distance' between campuses, along with transportation factors - in terms of time and cost	
7	Loss of experience and institutional memory through faculty retirements	Challenges to attracting faculty	
8	MUN commitment to sustainability is not evident; seen as special interest topic	SWGC caught in a transition	
9	Hard for faculty to get credit for interdisciplinary teaching		
10	Current divide in lexicon, teaching, etc. between natural sciences and social/policy sciences		
11	No home for interdisciplinary research; interdisciplinary programs within MUN are somewhat stranded	No institutional home for interdisciplinary approach	
12	Slow to act on opportunities	Lack of communications is a factor;	

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		limited connectivity to research network(s), related projects; are successes celebrated enough?; facing university inertia, bureaucracy and overall lack of leadership	
13 P	Absence of strong presence of Psychology, Political Science, Economics, Education, Business and Social Work and Communications faculty in initiative		
14	Lack of recognition of academic service		
15 P	Lack of urban sustainability expertise		
Opportunities (External)			
1P	Real thirst in the public for guidance, information, leadership; public now beginning to understand that there are choices beyond development	Build on connections to the community; nurture environmental partnerships; SWGC best-positioned to move forward with existing entities in place	
2P	Growing demand for graduates with interdisciplinary experience	Opportunity to mould new research, programs, etc.	
3P	Government/Premier support for sustainable development; <i>new Sustainability Act to be legislated</i> ; bilateral relations between civil servants, politicians and individual faculty; <i>White paper on PSE</i>	Connected through existing programs, expertise to government priority on sustainability; connected to federal NRCan; overall political support in place	
4P	<i>IBES is a major opportunity</i> ; government funding available for sustainability; high priority with funding and research bodies (e.g. new <i>NL Research & Development Corporation</i>)	Build on SWGC academic plan and MUN strategic plan	
5	The province still has natural areas and significant ecosystems, and an attachment of the people to nature, and students are attuned to nature as this what they grew up in		
6	Rising energy prices		
7	Provincial waste management issues		

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8P	Issue of carbon tax (also an issue in the 2008 federal election)		
9	Renewable energy potential in the province		
10	MUN to be rated along 'sustainability' indicator(s); could set it apart from other universities	Potential to integrate 'health' discipline to environmental initiative; connect with aboriginal groups	
11P	Waste management needs of the city and the province	Build on identified opportunities from previous workshops noting that all will need additional resources and support to implement	
Threats (External)			
1	Resource extraction orientation of the economy and associated environmental and social impacts	SWGC based in a single resource economy	
2	Being environmentally friendly does not mean loss of jobs and a weaker economy (does the province have a third world mentality in this regard?)		
3	Competition from other universities especially those with more developed interdisciplinary programs	Declining student enrolment as part of overall Atlantic region decline especially in natural and physical sciences; out-migration generally	
4	Political and personal tensions; government not seeking university expertise - while change is still lagging	If not done right, weakens both St. John's & SWGC programs, research, activities & future growth & development; concern that SWGC programs and approach could be swallowed up by St. John's campus	
5	New provincial R&D agency; may lead to force government agenda on MUN through control of research funds	Attracting new faculty in time of national shortage	
6	There is a lack of widespread		

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	understanding that sustainability of our natural environment in this province is a significant issue; though this perspective is changing		
7	Rural student perspective on the place of the environment in their lives is changing		
8	Lack of funding from the provincial government		
9	Three (3) largest sources of dioxin in Canada are in NL		
10	More words than actions to date	Is it the flavour of the month?	
11	No context to issues for media and others (i.e. there is a lack of a systems view)	Diverse understandings on sustainability should not lead to one view	
12 <i>P</i>	Resource extraction mentality (i.e. either jobs or environment thinking)		
13 <i>P</i>	Existing silos limit take-up of interdisciplinary graduates especially in universities		
14 <i>P</i>	Federal Conservative government funding priorities		
15 <i>P</i>	Need to do a 10-second sound bite vs. complexity of communicating on the issues		