

TAKING STOCK

The current state of sustainability in
British Columbia Universities and Colleges

INITIAL DRAFT COPY

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1) Introduction and Summary

Overview

This report is an inquiry into the state of sustainability in universities, colleges and other institutions of higher learning in British Columbia, Canada. Sustainability is a concept, a goal, and a strategy. The concept speaks to the reconciliation of social justice, ecological integrity and the well being of all living systems on the planet. The goal is to create an ecologically and socially just world within the means of nature without compromising future generations. Sustainability also refers to the process or strategy of moving towards a sustainable future.

Institutions of higher learning are being called upon to be leaders in this process of continual learning and action. They can lead by example ensuring their own policies and operations respond to ecological and social realities. Furthermore, through meaningful research, offering dedicated programs and courses or even infusing sustainability through all course offerings, universities and colleges can prepare and inspire students to take on the variety of tasks to build sustainable communities.

Through this report the BC Working Group on Sustainability Education wishes to take stock of where we are at in BC, what colleges and universities are doing to meet the challenge of sustainability and where we need to go from here.

Organization

After the introduction and background section, which includes a description of our methodology, research findings are presented in 4 subsections:

1. We provide a sense of the level of **commitment** of BC's institutions to sustainability
2. We present the specific initiatives that individuals and the institutions have taken to advance the project of sustainability in terms of **policy**, campus **operations** and academic **programming**
3. We provide a list of recognized **barriers** inhibiting the progress of sustainability
4. We offer some exciting **local stories of inspiration** – stories from some of the visionary individuals and groups guiding BC along the path to sustainability

We conclude the report with a discussion of principles of sustainability education and recommendations for action distilled from the priorities identified by study respondents and from an event held on March 31st, 2007 which brought over 75 individuals together to respond to the question "why sustainability education?".

*Goal
To compile a
comprehensive
report of the
sustainability
efforts undertaken
by BC's
universities and
colleges.*

Who should read this report?

We intend this report to be an important resource for government officials, university administrators, faculty, staff, students and concerned citizens wanting to get a grasp of the sustainability efforts of colleges and universities in the province.

2) Background

An important movement is occurring at universities worldwide to promote strategies and processes for creating more sustainable campuses. This movement began with a number of international declarations and commitments made by universities around the globe. For example the Thessaloniki Declaration (1997) affirmed that "all subject disciplines must address issues related to the environment and sustainable development and that university curricula must be reoriented towards a holistic approach to education". There are several organizations in North America whose mandate is to implement sustainability in educational institutions and to aid colleges and universities in creating plans for a sustainable future (i.e. Association for the Advancement of Sustainability in Higher Education – AASHE; University Leaders for a Sustainable Future – ULSF).

As a part of the British Columbia Working Group on Sustainability Education, we are conducting research that focuses on sustainability initiatives at BC's post-secondary institutions. One of the key pieces of research for our project is gathering stories about sustainability programs from university and colleges across BC. Our intention is to provide the research community in BC as well as the public and the Provincial government a valuable report about the state of sustainability in BC's learning institutions. This project will be published as a report submitted to the Walking the Talk network (www.walkingthetalk.bc.ca) and it may be followed up as a longer research report to be peer reviewed.

If you have any concerns or questions about this research please contact Dr. Janet Moore at Simon Fraser University - JLMOORE@sfu.ca (Ph: 604-268-7884).

What is sustainability?

Sustainability is a concept, a goal, and a strategy. The concept speaks to the reconciliation of social justice, ecological integrity and the well being of all living systems on the planet. The goal is to create an ecologically and socially just world within the means of nature without compromising future generations. Sustainability also refers to the process or strategy of moving towards a sustainable future.

What is sustainability education?

What we teach, what we don't teach and how we teach are all considered when creating sustainability education. Sustainability education is a process of creating a space for inquiry, dialogue, reflection and action about the concept and goals of sustainable development.¹

¹ Moore, J. (2005). [Is Higher Education Ready for Transformative Learning?: A Question Explored in the Study of Sustainability](#). *Journal of Transformative Education*. Vol. 3: 76-91.

3) Methodology

Research was completed in Fall 2006 – Spring 2007 and consisted of three well-defined stages.

The initial stage involved a scan of the websites of the 26 public institutions of higher learning in BC. We found the web addresses of all the institutions listed on the Ministry of Advanced Education's website (<http://www.aved.gov.bc.ca/institutions/welcome.htm>) and conducted a detailed search for evidence of sustainability in terms of policy, operations and programming. At this time, we also searched for individuals who could be potentially helpful contacts for learning more about efforts at each institution. A database was constructed to organize information (and contact information) for each institution.

The second stage involved follow-up surveys and interviews of relevant individuals at many of these institutions. While we assumed some useful information regarding sustainability efforts could be obtained through a website scan, we wanted to "ground proof" by connecting with administrators, faculty and staff who were most involved in campus sustainability efforts. Surveys were sent to at least 3 key individuals at 22 institutions and were completed and returned by 20 individuals representing 13 institutions. Follow-up in-depth interviews were conducted with 11 individuals representing 7 institutions. The open ended surveys included questions surrounding commitment, engagement, initiatives, barriers and stories about sustainability efforts on the campuses. Each individual consented to participate under conditions of anonymity. Interviews explored a broader range of issues and concerns around sustainability at colleges and universities.

Currently we are completing the third stage of the research which involves presenting a draft online at <http://www.walkingthetalk.bc.ca> for feedback. Due to busy schedules (busyness being one potential indicators of our unsustainable situation), we were unable to connect with individuals at every institution BC. We hoped that by making the report available before publishing it we could solicit a broader range of observations. We also wanted to confirm with the participants that we had fairly represented their institutions. **NOTE: This current draft is the report referred to. We look forward to hearing and incorporating your feedback.**

Note on Funding:

This report is funded by the research budget of Janet Moore at Simon Fraser University – Centre for Dialogue.

4) Findings

Researchers used the following means to obtain a better understanding of the state of sustainability in BC's public institutions of higher learning.:

- scanned all 26 of the institutions' websites
- reviewed written surveys completed by 20 individuals representing 13 institutions*
- conducted in-depth interviews with 11 individuals representing 7 institutions

We now present our findings in 4 sub-sections.

1. We provide a sense of the level of **commitment** of BC's institutions to sustainability
2. We present the specific initiatives that individuals and the institutions have taken to advance the project of sustainability in terms of **policy**, campus **operations** and academic **programming** and research
3. We provide a list of recognized **barriers** inhibiting the progress of sustainability
4. We offer some exciting **local ideas** – stories from some of the visionary individuals and groups guiding BC along the path to sustainability

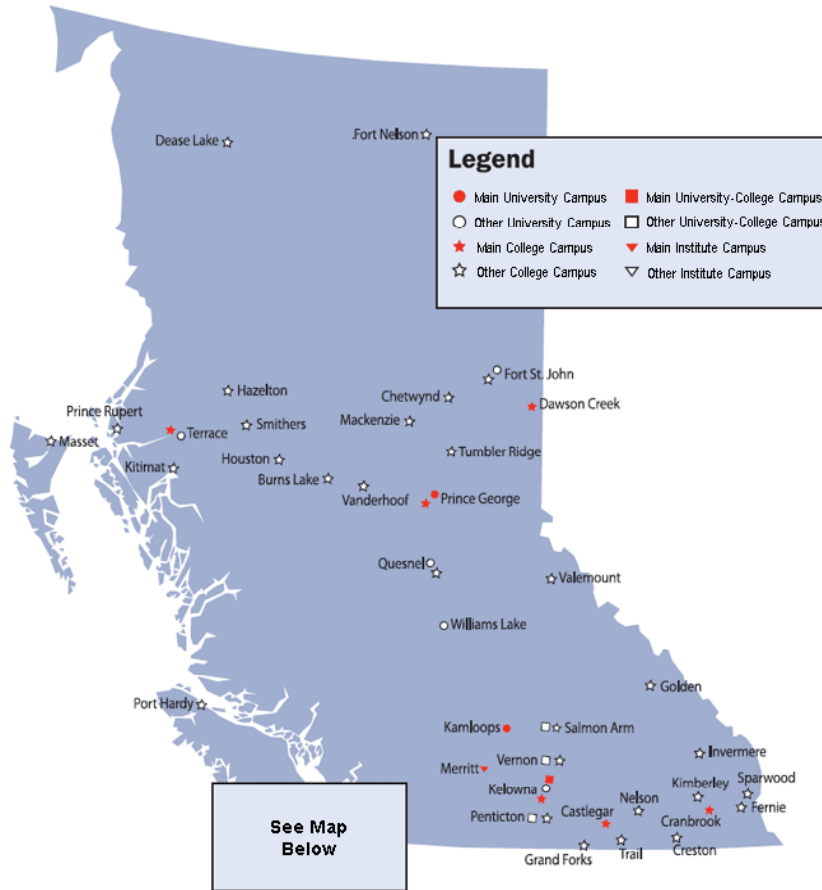
* We were able to connect with the following 13 institutions.

- British Columbia Institute of Technology
- Camosun College
- Capilano College
- Emily Carr Institute
- Kwantlen University College
- Langara College
- Royal Roads University
- Selkirk College
- Simon Fraser University
- Thompson Rivers University
- University of British Columbia
- University College of the Fraser Valley
- University of Victoria

While we were able to obtain some information about the other 12 institutions' from their websites and other sources, these other institutions did not participate in our survey:

- College of New Caledonia
- College of the Rockies
- Douglas College
- Institute of Indigenous Government
- Justice Institute of British Columbia
- Malaspina University College
- Nicola Valley Institute of Technology
- North Island College
- Northern Lights College
- Northwest Community College
- Okanagan College
- University of Northern British Columbia
- Vancouver Community College

Institutions of Higher Education in BC



- Universities**
- **Royal Roads** – Victoria
 - **Simon Fraser (SFU)** – Burnaby, Vancouver, Surrey
 - **Thompson Rivers (TRU)** – Kamloops
 - **British Columbia (UBC)** – Vancouver, Kelowna
 - **Northern British Columbia (UNBC)** – Prince George, Quesnel, Terrace, Fort St. John
 - **University of Victoria** - Victoria
- University Colleges**
- **Kwantlen** – Langley, Richmond, Surrey
 - **Malaspina** – Nanaimo, Duncan, Powell River, Parksville
 - **University College of the Fraser Valley (UCFV)** – Abbotsford, Chilliwack and Mission
- Colleges**
- **Capilano** – N. Vancouver
 - **Camosun** – Victoria (2)
 - **New Caledonia (CNC)** – Prince George, Burns Lake, Mackenzie, Quesnel, Valemount, Vanderhoof
 - **College of the Rockies** – Cranbrook, Creston, Fernie, Invermere, Golden, Kimberley
 - **Douglas** – New Westminster, Coquitlam
 - **Langara** – Vancouver
 - **Okanagan** – Kelowna, Salmon Arm, Vernon, Penticton (collaborating with UBC – Kelowna)
 - **North Island (NIC)** – Courtney, Campbell River, Port Hardy, Port Alberni
 - **Northern Lights** – Dawson Creek, Fort St. John, Fort Nelson, Chetwynd, Dease Lake, Hudson's Hope, Tumbler Ridge
 - **Northwest Community College (NWCC)** – Terrace, Prince Rupert, Hazelton, Houston, Kitimat, Masset, Smithers, Stewart
 - **Selkirk** – Castlegar, Trail, Nelson, Grand Forks
 - **Vancouver Community College (VCC)** – Vancouver (3)
- Institutes**
- **British Columbia Institute of Technology (BCIT)** – Burnaby, N. Vancouver, Richmond, Vancouver
 - **Emily Carr Institute of Art and Design** – Vancouver
 - **Institute of Indigenous Government (IIG)** – Burnaby
 - **Justice Institute of British Columbia** – New Westminster, Maple Ridge, Victoria
 - **Nicola Valley Institute of Technology (NVIT)** - Merritt

Source: Ministry of Advanced Ed. <http://www.aved.gov.bc.ca>

4.1) Commitment

Our intention in this report is to provide an initial survey of the state of sustainability in BC's public institutions of higher learning. It is not our intention to rank universities and colleges or provide some kind of quantitative evaluation of these efforts. Preferring a more open and discursive approach, we suggest that presenting the stories of successes and challenges as told by those working towards more sustainable campuses will be more helpful than a "Maclean's-style" ranking.

We can begin by getting a sense of how committed institutions are to sustainability through asking the following questions:

- Has the institution signed the Talloires Declaration of University Presidents for a Sustainable Future?
- Has the institution conducted a Campus Sustainability Assessment Framework (CSAF) audit?
- What do individuals involved in sustainability efforts say about their institution's commitment?
- What is the depth and breadth of policies, operational initiatives, programming and academics at the institution(considered in Section 4.2)?

Has the institution signed the Talloires Declaration?

One indicator of the commitment of an educational institution to sustainability is whether or not it has signed the Talloires Declaration. Originally composed in France in 1990, this document reflects an official commitment by university administrators to environmental sustainability in higher education. Essentially a plan for incorporating sustainability and environmental literacy into teaching, research, operations and outreach, the Talloires Declaration has been signed by over 300 institutions in 40 countries (see <http://www.ulsf.org>).

In Canada, 27 institutions have signed the Talloires Declaration (as of June, 2007), including the following 5 in BC:

- Emily Carr Institute
- Simon Fraser University
- University of British Columbia
- University of Northern British Columbia
- University of Victoria

These institutions have shown commitment and leadership by signing the Talloires Declaration. However, as there is no monitoring of Talloires signatories and no enforcement mechanism to ensure they are living up to their commitments, we are unable to confirm sustainability of institutions based solely on their signature on this document. In our survey, respondents from Langara College and the University College of the Fraser Valley expressed concerns that the Talloires Declaration had not always been taken seriously by some of its signatories. While these institutions were interested in signing, they did not want to rush in until they could ensure compliance.

Has the institution conducted a Campus Sustainability Assessment Framework Audit?

Another measure of commitment is engagement with the Campus Sustainability Assessment Framework (CSAF). CSAF was developed by Lindsay Cole, a graduate student at Royal Roads University and an advisory panel of 15 students, faculty and sustainability experts who in turn consulted with 130 others to develop a consistent way for measuring socio-economic and ecological sustainability on campuses (see: <http://syc-cjs.org/sustainable/>). The CSAF process has been promoted by the Sierra Youth Coalition as a means of measuring various dimensions of campus sustainability. The intention is for students to complete the work preferably for credit. This bottom's up approach embodies the notion that the campus should be a "living laboratory"². Completing the CSAF process enables each institution to see where its efforts and resources could best be focused to inspire its own sustainable development.

The CSAF looks at the following dimensions of sustainability, which are all important to consider if an institution wants to take sustainability seriously³

Human System	Ecosystem
<ul style="list-style-type: none"> • Community Health and Wellbeing • Purchasing and Materials • Economy, Income and Investments • Governance, Policy and Implementation • Research and Curricula 	<ul style="list-style-type: none"> • Indoor Environment and Air Quality • Transportation, Space and Planning • Water Management • Energy Management • Waste Management

Across Canada, 35 institutions are undertaking this assessment, including the following 8 in BC:

Institutions	completed	In progress	Commencing in 2007-2008 ⁴
Camosun			☺
Emily Carr		☺	
Langara			☺
Royal Roads		☺	
Simon Fraser		☺	
TRU			☺
UNBC		☺	
UVIC		☺	

² see Orr, D. (1992). *Ecological Literacy- Education and the Transition to a Postmodern World*, Albany, New York: State University of New York Press

³ Note: we have chosen to a different but complementary approach in this report

⁴ Institutions that have committed funding and / or capacity to undertake CSAF in the near future

What do individuals involved in sustainability efforts on the campus have to say about their institution's commitment?

We asked our respondents to comment on the level of commitment towards sustainability at their institution and on the level of engagement of administration, faculty, staff and students. We understood this assessment would be subjective and by no means could we present some precise, objective evaluation. Rather we were interested in getting a general impression of commitment levels as well as determining the range of opinions. Taking time to read these responses will provide a sense of the state of sustainability on campuses around the province.

The following statements are taken from surveys of individuals involved in campus sustainability and concern the question of institutional commitment and engagement.

Most campuses are addressing certain aspects of sustainability, yet no campus has committed the entire institution to a framework for sustainability.

- o UBC is widely recognized as a leader in campus sustainability efforts in Canada, yet, as pointed out by Planning Professor Bill Rees, the campus still has a large and ultimately unsustainable ecological footprint.⁵ One concern of campus activists is the scale of market condominium development on campus.
- o Kwantlen University College has shown great commitment to reducing energy use - a commitment that was recognized with the 2002 Leadership Award as the top Canadian post-secondary institution in "going green". However, it does not have a sustainable traffic management plan and most students still arrive in single-occupancy vehicles.
- o SFU has a leading edge research group – the Centre for Sustainable Community Development - and yet does not have a dedicated staff person to monitor its own campus sustainability

While overshadowed by the efforts of the larger institutions, some of BC's colleges are making ambitious commitments to sustainability. For example:

- o Selkirk College includes "environmental responsibility" as one of its core values and has formed a committee to guide the development of a 5 year plan aimed at making the college a leader in environmental sustainability
- o Langara College held an all-college forum this Spring whose theme was sustainability and has a vision of becoming the first fully comprehensive sustainability institution in Canada, infusing this sensibility through all programs and courses (see Section 4.4 below)
- o Capilano College is in the process of developing an environmental management system and is particularly interested in the model of campus sustainability developed by Leith Sharp at Harvard University

^{5 5} see Rees' assessment of UBC sustainability see the UBC Graduate Magazine, Feb 2007 issue <http://www.gss.ubc.ca/publication.html>

A common theme amongst survey respondents in all types of institutions was the recognition that there were pockets of deep commitment (found in particular departments or organizations) but that coordination of efforts and obtaining institution-wide buy in and support was a daunting challenge. In many cases these efforts were from grassroots (often student organizations), which was seen as encouraging but insufficient without administrative support. For example:

- o The School of Construction and the Environment at BCIT is the focus of sustainability efforts at that institution, outside of which there is little commitment. A respondent noted “the Student Association is engaged in promoting sustainability through initiatives like the Eco-Fair. However this does not seem to translate into consistent communication and effort to move sustainability forward on a day to day basis”.
- o A respondent from UVIC stated that the institution “has a long history of doing the right thing when it comes to sustainability. Individual people and departments are committed, however as an institution, UVIC recognizes there is more to do. Adoption and implementation [of recommended actions from 2007 Strategic Plan] will require top-level buy in from both the administrators as well as the Board of Governors”

Of course, the level of commitment is also suggested by the policies, programming and operational initiatives undertaken by the institutions. We will turn our attention to those efforts now.

4.2) Sustainability Initiatives

A major thrust of our research was to learn about the specific efforts of individuals and institutions across the province towards sustainability. We present these efforts in 3 categories:

- a) **Policy and Institutionalization** – refers to policies, guidelines, vision statements, formation of committees or associations and staff positions related to sustainability
- b) **Operations and Campus Management** – refers to specific initiatives (e.g. recycling, energy retrofitting, green building, green purchasing) to make campus operations and procurement more sustainable
- c) **Programming and Research** – refers to academic programs, courses, project-based learning opportunities, research efforts and other teaching and learning efforts related to sustainability

A) Policy and Institutionalization

Leading institutions such as UBC, BCIT and UVIC have institutionalized sustainability through developing policy, operating a sustainability office or supporting efforts with paid staff. Respondents to our survey unanimously agreed that if we are serious about addressing the challenges of sustainability, institutions must make sustainability a central part of their vision and operations, and that they must enact meaningful policy while establishing an office with paid staff dedicated to initiating and coordinating sustainability efforts. This section assesses the state of sustainability in BC's institutions of higher learning by showing which institutions have paid staff and specific policy dedicated to sustainability.

The following institutions in BC have a paid sustainability coordinator position:

- BCIT (School of Construction and Environment)
- UBC (the 1st institution in Canada to do so (1998))
- UVIC
- SFU – ½ time position
- Capilano College – 25% of contract for purchasing manager is dedicated to campus sustainability
- Royal Roads – position discontinued

The following institutions have or are developing specific policy relevant to promoting environmental sustainability:

Institution	Policy
BCIT	<ul style="list-style-type: none"> • campus master plan emphasizes sustainability • unique sustainability framework for the School of Construction and Environment ensures all departments consider dimensions of sustainability in their operations and programming
Camosun	<ul style="list-style-type: none"> • green procurement policies (including recycled paper purchasing)
Capilano	<ul style="list-style-type: none"> • early stages of developing a plan of action for sustainability and development of an environmental management system
College of the Rockies	<ul style="list-style-type: none"> • Environmental Responsibility Board Policy Statement developed related to sustainability in procurement
Emily Carr	<ul style="list-style-type: none"> • no policy drafted yet but sustainability becoming more of an emphasis
Kwantlen	<ul style="list-style-type: none"> • a recognized leader in campus sustainability - president emphasizes "environmental stewardship in our communities" and pursuit of both environmentally responsible and fiscally sustainable policies supported by resource management action plan (2005), Action Plan for Reducing Greenhouse Gas Emissions (2005) and Sustainability Policy (being drafted)
Langara	<ul style="list-style-type: none"> • drafted a sustainability policy in 2002 • concept paper outlines strategy for comprehensive program for campus-wide sustainability to commence Fall 2007
NWCC	<ul style="list-style-type: none"> • sustainability mentioned in mission statement and values

Institution	Policy
Royal Roads	<ul style="list-style-type: none"> environmental sustainability a key principle and founding tenet of the University, reflected in Environmental Stewardship Policy sustainability initiatives included in 2006 campus plan currently developing a campus wide environmental management system
Selkirk	<ul style="list-style-type: none"> environmental responsibility stated as an official value drafting a 5 year plan aimed at making the college a leader in environmental sustainability sustainability emphasized as an important concern in new plans for Castlegar and Nelson campuses
SFU	<ul style="list-style-type: none"> currently drafting a campus sustainability policy
UBC	<ul style="list-style-type: none"> Policy on Sustainable Development 1997 (1st in Canada) sustainability office opened in 1998 (1st in Canada) Sustainability Coordinator program has 165 sustainability champions in departments across campus numerous other plans and initiatives make UBC a recognized leader
UCFV	<ul style="list-style-type: none"> 2004 Strategic Plan declares sustainability as a strategic aim of the institution and sustainability included in college “values” no detailed campus sustainability plan or policy drafted yet sustainability emphasized as an important concern in new campus plans
UVIC	<ul style="list-style-type: none"> 2007 Strategic Plan outlines a number of sustainability related initiatives including the creation of a campus sustainability policy Numerous operations policies and directives

B) Operations and Campus Management

University and college campuses are like small cities and their impacts can be substantial. For example, UBC is the third largest employer in BC and its economic impact on the region is over \$4 billion⁶. Whether or not its purchasing decisions take sustainability into account can have a profound impact; as can its decisions about such things as energy and water consumption and waste. Indeed, each campus across BC has a substantial impact on its community and can choose to be a major ecological burden or a pioneer in ensuring its daily operations respect ecological realities. While it is likely that the ecological footprints of all of BC’s campuses (even UBC⁷) are too large to be considered sustainable, innovative initiatives are being undertaken. It is vitally important for institutions of higher learning to take sustainability seriously in daily operations (e.g. materials, energy and water use, waste management) and in campus management (e.g. buildings, campus green spaces) not

University and College Campuses are like small cities and their impacts can be substantial.

⁶ M’Gonigle & Starke (2006)

⁷ see widely acclaimed Planning Professor Bill Rees’ assessment of UBC sustainability see the UBC Graduate Magazine, Feb 2007 issue <http://www.gss.ubc.ca/publication.html>

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only to reduce their ecological footprints, but to become shining examples for students and communities to follow.

This section provides a list of important considerations for greening operations and campus management. Some innovative examples from campuses across BC have been included. A summary table follows.

Campus Metabolism

In urban studies, cities are often described as organisms. The same metaphor can be applied to campuses. Like organisms, campuses inhale and exhale, take in “food” (e.g. water, energy and other materials including paper and pizza) and expel wastes. In an unsustainable situation, campuses (or cities) consume materials, energy and water and expel wastes at levels that the Earth’s ecosystems cannot support indefinitely. The fact that many resources are not obtained (and wastes not dealt with) locally can complicate the picture. The full cost of consumption - financial, ecological and social - is rarely visible to our eyes on our campuses. We need to consider that our long-term quality of life, not to mention global social justice, depends on our becoming more aware of the wider ranging implications of unbalanced metabolism.

Many sustainability initiatives involve finding innovative ways to get by with less materials, water and energy as well as finding more effective ways of dealing with wastes. Developing effective programs that reduce, reuse and recycle materials, conserve energy and water and reduce wastes, pollution and greenhouse gas emissions are becoming increasingly valued by BC’s institutions of higher learning.

To raise awareness both around consumption and around efforts to reduce consumption, the UBC sustainability office has created a real time calculator featured on the homepage of its website⁸. This example underscores the importance not only of undertaking sustainability initiatives but of communicating these initiatives as part of the effort to transform campus cultures.

CONSUMPTION ON THE UBC VANCOUVER CAMPUS (In real-time since September 1, 2006)	
64,277,494	sheets of copy paper used
128,285,96	kWh of electricity used
2,643,532,8	litres of water used
RESOURCES SAVED ON THE UBC VANCOUVER CAMPUS (In real-time since April 1, 1999)	
90,518,95	sheets of copy/printing paper saved
108,198,58	kWh of electricity saved
7,887,075,8	litres of water saved
39,744	tonnes of green house gas emissions reduced
13,618,86	dollars saved

⁸ taken on June 10, 2007 from <http://www.sustain.ubc.ca/>

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Recycling:

Overview

- Recycling involves collecting materials such as paper or beverage containers, which will be re-manufactured into other products.
- All of the institutions we contacted had some kind of recycling programs

Examples

- According to its 2005-2006 Sustainability Annual Report, UBC has been able to divert 42% of its waste through effective recycling and composting programs. Paper waste, compostable material, beverage containers, surplus chemicals from Health Research Resource Office (1st program of its kind in Western Canada) and electronic waste are no longer sent off to landfills around the region and beyond.
- UVIC has extensive recycling and composting programs that include battery and cell phone recycling
- BCIT has committed to becoming a “Zero Waste” campus

Commentary

- It is important that these institutions continue to expand recycling programs but it is even more important that they find ways of reducing consumption of materials in the first place as well as closing the recycling loop by purchasing recycled products.

Composting:

Overview

- Composting involves the natural process of “recycling” organic wastes – vitally important in that organic wastes constitutes the single largest category of wastes going to BC’s landfills. Furthermore, the product provides an organic fertilizer solution.
- Fewer institutions have instituted composting programs (see summary Table below)

Examples

- Camosun College is currently piloting a composting program that focuses on yard wastes and on bathroom paper waste. Think of all the paper towels that are needlessly thrown out. Its current composting program which focuses on food waste already diverts over 51 metric tonnes a year (2004-2005). That’s the equivalent of 53 trailers worth of garbage not going to the Hartland landfill.

Commentary

- see http://grrn.org/campus/campus_compost.html for stories and solutions re: campus composting

Energy / Emissions Management

Overview

- Perhaps no aspect of sustainability has received more attention than energy conservation. Concerns about pollution and greenhouse gas emissions, as well as concerns about declining energy resources in a “peak oil” scenario (and terms of hydro power capacity) have prompted careful attention to how we use energy and deal with emissions.
- Fortunately, this concern seems to be registering with many campuses in BC.

Example: Energy Innovators and Greenhouse Gas Registry

- Institutions in BC have shown commitment to sustainable energy management through their participation in federal programs such as the Energy Innovators Initiative (which supports energy conservation efforts) and the Canadian Standards Association (CSA)

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Climate Change – Greenhouse Gas Registry (GHG Registry)⁹. The GHG registry allows institutions to register, monitor and track emissions which, in turn provides them with opportunities to focus on savings and be recognized for best practices. For our purposes here, participating in the GHG registry can be taken as another sign of commitment to sustainability.

In BC, 38 institutions (e.g. businesses, schools) are participating in the GHG registry including the following universities and colleges (indicates Gold Level)*

- BCIT
- Camosun College*
- Capilano College
- Kwantlen University College
- Langara College*
- Royal Roads
- SFU*
- UCFV*
- UBC*

Example: BC PowerSmart

- Another local route that some campuses have taken is the BC Hydro “Power Smart”¹⁰ program. The energy utility company has partnered with businesses and institutions throughout the province to “help identify the best and most sustainable energy management program” for them.

The following institutions have become “BC Power Smart” Partners:

- **Camosun College** – recently committed
- **Emily Carr** – lighting retrofit program provided more effective lighting for art students while saving the institute \$10,000 / year and reducing lighting energy use by 50%
- **Kwantlen** – lighting retrofit program and recommissioning building management systems to maximize operation efficiency have allowed the college to grow rapidly while substantially reducing energy use and saving \$235,000 / year. Indeed, Skip Triplett, Kwantlen’s president announced that these improvements on the four campuses would enable the institution to provide “one free year of power every three years”. Furthermore, through the “Green Power Certificates” program, Kwantlen procures enough ‘green’ energy to run the lab, teaching areas and greenhouses of its new Institute of Sustainable Horticulture. These efforts have bolstered Kwantlen’s reputation as a “green” leader
- **SFU** – major lighting retrofit and purchasing “Green Power Certificates” are part of the strategy of SFU to become a “green” leader while saving \$250,000 / year

⁹ see <http://www.oee.nrcan.gc.ca/commercial/existing.cfm> and <http://www.ghgregistries.ca>

¹⁰ see <http://www.bchydro.com/business/success/success1032.html>

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- **UBC** – major lighting retrofit that saved UBC \$600,000 / year. Encouraged by these results, UBC undertook “Ecotrek” – the largest energy (and water) retrofit in Canadian history which involved a variety of measures such as: upgrades to steam plant and distribution system, ventilation systems in 100 buildings, computerized heating and ventilation control, metering utilities. In 3 years, UBC has saved \$3.8 million and it is expected to save \$2.4 million / year.

Commentary:

- The programs introduced above can help BC’s institutions become wiser in energy use. Establishing a campus culture of conservation with widespread support is critical. Campuses also have to recognize that other factors such as transportation and food choices can impact energy use and emissions.

Water Management

Overview

- There is a growing concern around this most precious resource, in light of high population growth in the province and unpredictable water supply (exacerbated by climate change)
- Some campuses (see summary table) are managing water consumption through such measures as: increasing the efficiency of appliances (i.e. using sensor faucets and low flush or no flush toilets) and carefully managing water use on lawns.

Example

- UBC (Kelowna) is faced with the problem of poor tap water quality. Students have reacted by purchasing bottled water. Of course, one of the concerns of this solution is the amount of plastic waste generated by bottles. The Student’s Union proposed a program where high quality drinking water would be provided for a nominal charge included in student’s fees.

Other Sustainability Initiatives

Beyond the concern with campus metabolism, there are a number of other related areas that are vital to campus sustainability efforts:

Sustainable Built Form

overview

- According to the sustainability office at UBC, the world’s building industry accounts for 30% of all energy consumption and 40% of the Lower Mainland’s greenhouse gas emissions. Green building involves among other attributes, consciously reducing resource throughput in the construction and operations of buildings
- Campuses across BC are realizing that smarter design can produce cost savings along with environmental, aesthetic and social benefits.

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examples

- UBC has been dedicated to green building since 1996, with the UBC Properties Trust setting aggressive targets for each new building. For example, the Liu Centre for the Study of Global Issues:
 - provides a “beautiful space to inspire sustainable solutions” with high quality, natural lighting
 - is the first non-industrial building in Canada to use High Volume Fly Ash – a waste material that can be substituted for cement in concrete which greatly reduces greenhouse gas emissions
 - used high quality salvaged materials
 - features low energy lighting fixtures, low-flush toilets, natural ventilation system (which reduces energy use) and electrical load sharing with neighbouring buildings
- Langara’s new library building is LEED gold certified and features:
 - “Fly ash” concrete
 - non-polluting geothermal energy
 - designed so that it can expand within building shell to accommodate 50 years of growth
 - unique wind towers replace the need for energy intensive air conditioning

Transportation demand management

overview

- How staff and students get to and from campus can have major consequences for the quality of life and the environment in BC communities. Slowly we are coming to realize that transportation systems that favour single-automobile use are fraught with problems – for example, traffic headaches, pollution and greenhouse gas emissions.
- BC campuses are beginning to make efforts towards facilitating alternative, more sustainable modes of transportation – public transit, cycling and walking

examples

- UVIC’s has a sophisticated traffic demand management program that involves cycling infrastructure improvement (including amenities for cyclists), a “Bike to Work” week to raise awareness, crosswalk and signage improvements, rideshare, car-share and car pooling programs, dedicated parking areas for motorcycles, scooters and electric bicycles and an employee bus pass program. Since 1996, while campus population has grown by 15%, traffic volume has decreased by 20% with single occupant vehicles representing less than 50% of the trips to campus.
- UVIC was also the first BC institution to implement a universal bus pass (UPASS). Now, students at many institutions in the GVRD and Victoria region enjoy a reduced transit rate (included in student fees). This program is being piloted this Fall for students at UBC – Kelowna campus.
- UBC is committed to maintaining 1997 traffic levels while it dramatically grows. Its transportation management plan is based on the UPASS, carpooling and biking

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initiatives, a campus shuttle and an intentional decrease in parking space. 60% of UBC students now arrive by bus.

Other concerns include:

- **campus land management** – efforts at ensuring ecologically responsible management of campus lands through such means as responsible pest management and preservation and restoration of habitats
- **sustainable food systems** – efforts at promoting healthy and ecologically responsible food choices on campus
- **indoor air quality and health** – efforts such as ensuring “green” custodial services that promote a healthy campus
- **social, cultural, aesthetic and other considerations**

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The following table highlights operational and campus management initiatives being undertaken by institutions of higher learning in BC¹¹:

Institution	Com-post	Power Smart	GHG registry	Green Building	TMP	Other Initiatives (and Notes)
BCIT	☺		☺	☺		<ul style="list-style-type: none"> - "Zero Waste Policy" - "Energy management action plan" – focuses on lighting, building envelopes and mechanical systems – Energy Innovators Initiative - numerous green technology initiatives and demonstration projects, many that involve students (e.g. solar Power Tower, green roofs, yearly Eco-Fair, AFRESH Home, an on-campus, a multi-functional facility that demonstrates affordability, flexible and adaptive reuse, incorporation of renewable energy technologies, etc. - sustainability- a key value in all campus planning decisions - see: http://www.bcit.ca/green/
Camosun	☺	☺	☺			<ul style="list-style-type: none"> - major program to "green" custodial services – employing micro-fibre technology, avoiding toxic chemicals - major water and energy conservation programs involving retrofits, computerized lighting management - xeriscaping and integrated pest management
Capilano			☺			<ul style="list-style-type: none"> - some water / energy conservation programs - "green meetings" program (where non-disposable items are used in staff meetings) - next major focus is on composting program and promoting organic food in cafeteria
Emily Carr		☺				<ul style="list-style-type: none"> - major energy conservation program
Kwantlen		☺	☺	☺		<ul style="list-style-type: none"> - major programs to reduce energy use / emissions – one of the 1st institutions in Canada to join the federal Energy Innovators Initiative and register with GHG Registry - commitment that all new buildings are LEED certified and that all renovations will involve "life-cycle" costing - see: http://www.kwantlen.ca/facilities/energy.html

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Compost = has an extensive recycling and composting program

Power Smart = is a partner in the BC Hydro Power Smart Program (discussed above)

GHG Registry = is a participant in the CSA Greenhouse Gas Registry program (discussed above)

Green Building = has a LEED certified (or equivalent) building and is committed to sustainability in the built environment

TMP = Traffic Management Plan

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Institution	Com-post	Power Smart	GHG registry	Green Building	TMP	Other Initiatives (and Notes)
Langara			☺	☺		<ul style="list-style-type: none"> - LEED gold certified Library building (with geothermal power and other innovations) - restoration of on-campus wetland
Royal Roads	☺		☺	☺	☺	<ul style="list-style-type: none"> - annual waste audit - major energy conservation programs - chemical free cleaning system - see http://www.royalroads.ca/about-rru/governance/sustainability/
SFU		☺	☺	☺		<ul style="list-style-type: none"> - major energy conservation programs - UniverCity – sustainable community project - pilot programs: local food and composting - see http://www.sfu.ca/~sustain/index.html
TRU						<ul style="list-style-type: none"> - efforts focused on raising awareness around disposable items (e.g. coffee cups)
UBC (Vancouver)	☺	☺	☺	☺	☺	<ul style="list-style-type: none"> - recognized as a leader in campus sustainability with numerous programs - Ecotrek program – largest energy and water retrofit program in Canadian history - many examples of green buildings and commitment to continue - see http://www.sustain.ubc.ca/
UBC (Kelowna)						<ul style="list-style-type: none"> - recycling program - Student Union program to provide good drinking water to students to counter excessive plastic waste (UBCO has notoriously poor tap water quality)
UVIC	☺			☺	☺	<ul style="list-style-type: none"> - extensive energy and water management programs - natural landscaping, integrated pest management and a variety of ecological restoration projects, major water conservation program - transportation demand management including cycling promotion and employee bus pass program - commitment to Campus Health – green cleaning products, indoor air quality emphasis, “no idling” rule - see: http://uvsp.uvic.ca and http://web.uvic.ca/vpfin/financialplanning/campusplanning/campusplanningmain.htm

C) Academics / Programming

While campus sustainability as written up in policies and implemented in operational initiatives is important both in terms of reducing negative ecological impacts and in setting an example, teaching and research are equally critical in bringing about the required cultural reorientation for sustainability. Many institutions across BC are beginning to offer courses and programs that specifically emphasize sustainability. It is difficult to present a comprehensive list of all the programs and courses that consider sustainability. Established courses in disciplines from ecology, biology and environmental science to economics, politics and geography may or may not focus on “sustainability”.

Ideally all courses will emphasize sustainability one day, but in the meantime it is crucial to develop courses and programs that specifically focus on it.

BCIT emphasizes sustainability in programs such as welding and ironworking – areas not normally associated with sustainability. UVIC’s Business programs include an emphasis on sustainability, in fact all MBA students take a course in sustainability. UBC conducted a detailed study of its course offerings and determined that over 300 could be considered as involving “sustainability”. The extent to which these courses emphasize “sustainability” is difficult to assess.

Many advocates of education for sustainability would prefer to see the subject matter as a theme transcending and encompassing all disciplines. This approach underscores Langara College’s efforts to become a comprehensive sustainability institution.

A respondent from BCIT pointed out that ideally all courses will emphasize sustainability one day, but in the meantime it is crucial to develop courses and programs that specifically focus on it. In this spirit we will now explore the extent to which institutions of higher education in BC have developed programs and focused academic research specifically on sustainability.

The following is a list of programs that explicitly focus on sustainability:

Institution	Sustainability Programs
BCIT	<ul style="list-style-type: none"> • sustainability focus in programs within School of Construction and the Environment • development of new program offering - Bachelor of Technology in Sustainable Urban Development • Centre for Advancement of Green Roof Technology • partnership with BC Hydro to developing renewable and clean energy technologies through Centre for Energy Systems Applications • AFRESH home – demonstration project for sustainable habitation
Camosun	<ul style="list-style-type: none"> • 2 year diploma in Environmental Technology
Capilano	<ul style="list-style-type: none"> • Global Stewardship and Environmental Science and Management programs
Douglas	<ul style="list-style-type: none"> • Building Environmental Systems program • runs community workshops focusing on different sustainability topics such as: species at risk, pollution and habitat destruction
Emily Carr	<ul style="list-style-type: none"> • courses in education for sustainability and green design complement focus on art and social consciousness

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Kwantlen	<ul style="list-style-type: none"> • 2 year diploma program in Environmental Protection Technology • Sustainable Horticulture Program
Langara	<ul style="list-style-type: none"> • 2 year diploma program in Environmental Studies that emphasizes human impacts, ecology, law and field techniques • Continuing Studies program in Environmental Stewardship teaches energy reduction, renewable technologies, sustainable communities and policy (10 courses) • future emphasis on comprehensive sustainability through existing programs
Malaspina	<ul style="list-style-type: none"> • plans to offer a renewable energy program in the near future
Northern Lights	<ul style="list-style-type: none"> • alternative energy training opportunities as an add-on certification to existing programs
Royal Roads	<ul style="list-style-type: none"> • undergraduate and graduate programs in Environment and Management and Environmental Education and Communication • developing Masters in Sustainable Development course
Selkirk	<ul style="list-style-type: none"> • natural resource management program at the college for 40 years that has long focused on sustainability • offers a degree in Peace Studies with an emphasis on peace and sustainability • other community initiatives around sustainable economic development, climate change analysis and environmental planning • planning to offer a Renewable Energy Certificate Program
SFU	<ul style="list-style-type: none"> • Centre for Sustainable Community Economic Development – a leading research institute that offers a certificate program • Resource and Environmental Management Program (REM) • project-based sustainability courses offered through the Semester in Dialogue
UBC	<ul style="list-style-type: none"> • Institute for Resources, Environment and Sustainability which offers degrees including PhDs - sustainable development research initiative which is partnered with IRES to develop research tools to better understand sustainable development • The Faculty of Land and Food Systems which offers degrees including PhDs, emphasizing integrated research and education that addresses global issues surrounding ecological health and sustainable food production. • School of Community and Regional Planning which features prominent researchers in urban sustainability and offers degrees including PhDs • Social, Ecological, Economic Development Studies (SEEDS) – research collaborative • over 300 courses related to sustainability
UCFV	<ul style="list-style-type: none"> • Centre for Environmental Sustainability focuses on researching, measuring, teaching, assessing and inventorying issues related to water, soil, air and biological systems in the Fraser Valley • see: http://www.ucfv.ca/sustainability.htm
UNBC	<ul style="list-style-type: none"> • has developed a strategic research plan that emphasizes 3 themes related to sustainability <ul style="list-style-type: none"> ○ Natural Resources and the Environment ○ Rural, Remote and Northern Community Health ○ Community Sustainability • offers programs in environmental studies, planning, engineering and science among other offerings focusing on sustainability

UVIC	<ul style="list-style-type: none"> • Business program emphasizes sustainability • POLIS project – research on ecological governance • interdisciplinary research activities related to sustainability are undertaken by faculty in such disciplines as Environmental Studies, Engineering, Geography, Public Administration and Law • Institute of Integrated Energy Systems conducts research on technologies such as fuel cell
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4.3) Barriers

While universities and colleges in BC are implementing policies and interesting initiatives, there are a substantial number of barriers inhibiting change. Our survey respondents were asked to comment on the factors inhibiting their institutions from becoming more sustainable. While some of these barriers were unique to certain geographies or types of institutions, most of the concerns were more pervasive. The most commonly cited barriers included:

- bureaucracy and accounting practices
- inertia of the status quo
- unsustainable practices and societal norms beyond the scope of the institution
- lack of funding
- lack of awareness and communication
- other concerns (e.g. lack of acknowledgement, lack of a bold vision, labour concerns)

We will begin this section by exploring the pervasive barriers recognized by our respondents, before considering barriers unique to certain schools. We have included this commentary on the barriers to sustainability not to paint a gloomy picture, but rather so that we can begin working creatively together towards overcoming these challenges.

The following barriers, were the most often cited by respondents and are likely relevant to institutions everywhere. They are listed in order of the frequency with which they appeared in our surveys.

- **Bureaucracy and Accounting factors** - the most often cited barriers related to institutional inflexibility,
 - A respondent from Capilano College noted that all college purchasing decisions were based solely on short-term costs and that there was no recognition for life-cycle costing. So even if some measure would save money (and the environment) in the long term, if the upfront costs were higher it would be hard to justify in the current year's budget.
 - Similarly a respondent from UBC mentioned how divided accountabilities can compromise sustainability. They provided the example that if one division constructs a new building and another assumes the operating costs, it is difficult for the first division to justify the extra upfront costs associated with sustainability unless a more coordinated approach is adopted.
 - A respondent from Emily Carr Institute agreed suggesting that often "organizational structures make common sense ideas very difficult to implement".

- Respondents at both Capilano College and BCIT raised the question of how we measure success. Reporting on the specific savings of sustainability initiatives needs to be a priority, but so does acknowledging those areas that cannot be quantified such as behaviour and attitude change towards improved quality of life.
- A respondent from SFU noted that “institutional lethargy” was a huge factor: “even the smallest changes in policy have to be debated over and over again before anything happens and it is so frustrating”
- **Inertia** – respondents noted another key barrier was simply the inertia or momentum of the status quo. Pervasive dominant social discourses often conflict with the priorities of sustainable development and render transformation very difficult
 - A respondent at BCIT found risk aversion and resistance to new ideas as the most important barriers to transformation. A particular manifestation of this involved the resistance to implementing a more sustainable geothermal energy system at a building on the new aeronautics campus. In the end a compromise was reached whereby a boiler was installed as well, which is now seen as unnecessary.
 - A respondent from SFU noted “extreme risk aversion” as a major barrier, noting that “suggestions for change are met by “why we can’t””
 - A respondent from Capilano College noted that the “but this is how we’ve always done things” discourse pervades much of the discussion on campus operations. Furthermore new technologies mean new processes. Adopting rechargeable batteries means someone has to become in charge of ensuring batteries are ready for the next lab session. Composting facilities means someone has to be made in charge of collecting and managing the organic waste.
- **Funding Concerns** – lack of funding for sustainability initiatives was seen as a key inhibitory factor
 - A respondent at Camosun College echoed concerns of many campuses across BC that present funding compromises the ability to secure a full time sustainability coordinator position that could effectively focus efforts.
 - A respondent from SFU noted that we fund a VP Research, knowing that research is important and can be better facilitated through a high level administrative position. “Acknowledging that sustainability is at least as important we should be able to find funding for a VP – Sustainability or at least a full time sustainability coordinator position”
 - A respondent at Royal Roads University noted that “being responsible for sustainability was not cheap” and was disappointed that the University had not

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been able to continue supporting one full and one part time position in the sustainability office

- A respondent from UVIC noted that funding was the main barrier. “Sustainability is competing with everything else on campus for scarce budget dollars. The province, for example, does not provide any additional funding for capital building projects which are done in a sustainable manner. Also individual departments do not have the individual budgets (or incentives) to allow for items such as carbon offsets, 100% recycled paper, environmentally friendly furniture etc.”
- **Lack of Awareness and Communication** – another oft cited barrier is lack of awareness at all levels from students up to administrators
 - A respondent from Capilano College noted a lack of both knowledge and time as significant barriers inhibiting staff and faculty from being able to do more. They noted that entrenchment within silos was a recurring barrier to the communication required for transforming the campus. This seemed to be a common theme in many of the responses.
 - Respondents from a number of institutions including Royal Roads, SFU and Langara College noted that their institutions had done a poor job of promoting the sustainability efforts being undertaken. A respondent from Langara College, who was actively involved with campus sustainability efforts, only learned about the construction of an award winning green building on campus, when he inquired about an unusual development, which turned out to be the geothermal heating system.
 - A respondent from Emily Carr suggested that sustainability was seen as a narrow area of research or an administrative function and not something that all administration, staff, students and instructors should engage with in different ways. He further suggested a major barrier existed in that many faculty and staff might not feel they have the expertise to implement sustainability initiatives or teach sustainability concerns in classes. Leadership at many levels may lack the “get it” factor.
- **Other important barriers noted include:**
 - larger societal norms, partnerships (e.g. with public transit) and governmental regulations limiting what universities can do
 - a respondent from UBC (Okanagan) discussed how treacherous the bike commute to the campus on the edge of Kelowna was. Students either have to follow the main highway along a bike path which suddenly disappears as it approaches the overpass to school... or they have to

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trespass along a private back road. Unclear jurisdictional responsibilities inhibit the resolution of the issue which has blown up in the local media.

- lack of recognition or support (rewards) for those efforts that are being undertaken
- lack of recognition of the huge potential resource of keen and willing students to contribute to worthwhile efforts
- inconsistency because of lack of institutionalization of sustainability efforts
- lack of leadership or bold visions
- labour issues – e.g. collective bargaining agreement prevents charging staff more for parking to encourage other methods of commuting

The following barriers were unique to certain schools or to the type of institution

- BCIT has challenges unique to its trades programs such as dealing with toxic chemicals and construction waste, similarly Emily Carr has the unique issue of dealing with unique wastes from its art programs
- a respondent from UCFV noted that despite the institution's commitment to sustainability it was very difficult to reduce automobile dependency due to high rates of commuter traffic and poor transit connections in the communities such as Abbotsford and Chilliwack. Presumably this issue is relevant to many colleges outside of major centres
- The business dimension of sustainability may be emphasized over ecological integrity at institutions based in some resource-dependent communities. This appeared to be the definition of sustainability at institutions such as North Island College and College of New Caledonia
- Two concerns were commonly voiced by respondents from colleges:
 - one involved the small size of these institutions and how that limited their access to resources and ability to implement sustainability initiatives
 - NOTE: a contrary argument was raised by a respondent from Langara College, who saw the College's small size as an asset, suggesting that colleges had fewer bureaucratic barriers, better prospects for communicating between different departments and were generally more nimble and adaptable
 - a second concern involved the fact that students were less likely to take ownership of their campuses due to the fact that university transfer and diploma programs only lasted 2 years. Furthermore the established campuses may be able to inspire more school spirit translating into more student activism in support of sustainable campuses

- However, a respondent from SFU claimed that their institution had similar challenges as those of the smaller colleges – lack of student pride in and ownership of their campus. “SFU is definitely a commuter campus. Students come up, take their classes and then get the hell off the mountain. There are no places for students to hang out and connect, no student union building, no space for clubs. This has actually been a big issue in student elections. Compared with places like UVIC, students are just not connected to their campus and thus not connected to the issues [like sustainability]”
- while large, established institutions may have more access to resources, sustainability challenges are also more complex and institutional inertia greater

4.4) B.C. Stories of Inspiration

Through this process we have heard many inspiring stories and great ideas from the dedicated individuals working tirelessly to advance sustainability in BC’s universities and colleges. We wanted to share what we learned from these visionaries. UVIC scholars Michael M’Gonigle and Justine Starke have laid out a compelling new vision for universities in their book *Planet U – Sustaining the World, Reinventing the University*. We present their ideas on transforming university governance, which emphasizes comprehensive local innovation. We explore how Langara College is making the vision of comprehensive sustainability a reality, before learning how Common Energy, a group based at UVIC and UBC, is developing a plan to move campuses beyond climate neutral. We explore how researchers from SFU, UBC, BCIT and Emily Carr have come together to form The Learning City - an effort to develop better sustainability education programs based on the principles of interdisciplinary, dialogue and project-based learning. Finally, we present the vision of the BCIT School of Construction and Environment to green the working world.

Planet U - Comprehensive Local Innovation

One recurring theme in our survey responses was a concern that campus sustainability involved a number of admirable but disconnected efforts that were ultimately limited by the current governance model. This sentiment is echoed and articulated eloquently by UVIC scholars Michael M’Gonigle and Justine Starke. In their book *Planet U – Sustaining the World, Reinventing the University* (2006) the authors argue that the current university model is ill-equipped to meet the challenge of sustainability and then suggest how it could be better equipped to do so.

As M’Gonigle and Starke see it, “the challenge of the planetary university comes down to this: creating realistic reforms that produce transformative but evolutionary change. For proposals to be meaningful, they must not be add-ons but integral to the university in its institutional processes and substantive actions” (p 164). Universities, for the most part operate with a 19th Century model that is

For proposals to be meaningful, they must not be add-ons but integral to the university in its institutional processes and substantive actions.

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hierarchical (top-down) and largely fails to capitalize on its greatest assets – critical thinkers, unparalleled research capabilities, engaged students and purchasing power. As they have become larger and more complex, these institutions have become more fragmented - “sustainability” becomes one more division, responsible for a narrow set of concerns, valued for being able to marginally minimize damage, provide good publicity and save the institution money.

To M’Gonigle and Starke, the university cannot respond to the daunting challenges of the 21st Century. To become a meaningful catalyst for change and lead in the social transformation towards sustainability will involve integrative, interdisciplinary and truly visionary thinking. The authors suggest the recommendations of Marsha Hanen provide a place to start. After reviewing UVIC’s planning structure and process, Hanen advocated wholesale revisions that reached far beyond creating a sustainability coordinator position. She suggested creating an “overarching ‘office of planning and sustainability’ that could bring the academic curriculum together with groundskeeping, the physicist with the philosopher, the imaginative planning with operational practicality”. Building on this momentum, the institution could create an office and position of Vice President for Planning, Innovation and Sustainability, and ensure that this office is accountable to a broadly participatory planning body. These ideas seem too radical in today’s institutional political reality and yet arguably are not radical enough to address tomorrow’s ecological realities.

Regardless of the specific institutional arrangements, which will likely look different on different campuses, M’Gonigle and Starke assert that governance for sustainability would be *comprehensive, local and innovative*.

To be comprehensive means “to be all-inclusive in one’s quest for sustainability – addressing what is taught in engineering and medicine, in physics and in economics as well as what is done in the shadow curriculum of institutional operations” (p 170).

To be comprehensive means to be all-inclusive in one’s quest for sustainability – addressing what is taught in engineering and medicine, in physics and in economics as well as what is done in the shadow curriculum of institutional operations.

To be local means to reconnect with the communities they operate within and should serve – “to stop long enough to look down” and see the importance of studying, preserving and where appropriate improving the institution’s own context (p 174)

To be innovative means drawing on the variety of knowledges found at this unique university, creating new participatory institutional designs that support dialectical tension and allow for creativity and innovative solutions to problems (p 179)

To M’Gonigle and Starke, the promise of comprehensive local innovation is to “develop new structures and processes of local / global production and distribution... an Earth-changing goal” (p 180).

Comprehensive Sustainability at Langara College

One institution putting the vision of comprehensive, local innovation into practice is Vancouver's Langara College. The college has long been characterized by having pockets of deep green sentiment. This enthusiasm has translated into some notable initiatives such as restoring an on-campus wetland, developing a green building (the new LEED gold certified library) and drafting a campus sustainability policy 5 years ago. However these efforts had not inspired any broader, consistent strategy for campus sustainability. The policy was largely ignored. The college was not able to fund a sustainability coordinator position. Not, had it been able to undertake some of the more ambitious efforts of larger institutions, such as UBC.

Not satisfied with this lukewarm approach, Paul Sunga, a biologist and international development scholar, along with other faculty, students, staff and administration formed the Langara Environmental Committee. The goal of the committee was to develop a comprehensive strategy for transforming Langara¹². The emphasis is on piloting innovative operational practices and then integrating the study of these practices into a wide range of courses and programs.

Essentially faculty, staff and students will engaged in a campus-wide process of inquiry, seeking and trying innovative approaches to reduce the ecological footprint of the campus and connect in positive ways with the community. This inquiry is then to be streamed into a wide range of courses. So, for example, sustainability efforts in the Fall 2007 semester will focus around local food. Inquiries might be made into how Langara can make its food provision more sustainable through efforts to connect with the local Punjabi Market community or to develop campus policies for purchasing organic. Issues around sustainable food at the college will then be approached from a variety of different angles in health, geography and economics classes, for example. Langara's strategy demands a new governance model that supports widespread collaboration and dialogue, a spirit of experimentation, interdisciplinary thinking, a supportive network for instructors and flexibility in evolving curricula.

An all-college forum focused on the theme of sustainability, a wiki site devoted to discussing the sustainability strategy and the development of the first inquiries and courses to be offered in the Fall 2007 semester are all indicators that Langara is serious about becoming a leading model of comprehensive sustainability and providing "leadership and innovation as the Lower Mainland grapples with unprecedented challenges on the ecosystem scale".

Common Energy – Going Beyond Carbon Neutral

(excerpted from: "Going Beyond Climate Neutral: Planning for Climate Change Leadership with the University of Victoria: The Progress Report" – June 2007)

Imagine the following:

- A regional transportation network connecting people and places with rail, buses, and the

¹² Laid out in the "Transforming Langara College - Proposed Program of Comprehensive and Innovative Sustainability" concept paper see: http://wiki.langara.bc.ca/wiki/index.php/Transforming_Langara_College

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- paths and infrastructure for cycling and walking;
- A vibrant local economy providing well paying, secure employment, and an innovative cluster of green businesses developing knowledge and technologies for export;
- Delicious, sustainably grown regional cuisine bringing us healthy, affordable food to our tables from prosperous local farms and urban agriculture;
- Quality, energy efficient buildings keeping us comfortable in an ecologically restored and revitalized urban environment;
- A system of financial trusts connecting climate change mitigation projects with the investment they need to become a reality;
- People actively and practically engaged in local governance processes creating sustainable regional policy and initiatives
- A university facilitating all of these concepts through active engagement with students, staff, and faculty while simultaneously producing innovative research and leading by example.

How do we do more to solve the problems of climate change than we do to cause them?

Making these kinds of visions a reality is the goal of Common Energy, a network of students, staff, faculty, and regional partners with hubs at UVic and UBC. At the heart of their efforts is the question: how do we do more to solve the problems of climate change than we do to cause them?

While many institutions have talked about climate (or carbon) neutrality, Common Energy's goal is to move universities and colleges beyond this goal. Climate neutrality involves institutional efforts to reduce campus emissions and then purchase carbon offsets. However, Common Energy believes that the unique assets of the university – research capabilities, creative thinkers, student energy, economic power and a large land-base – allow for more ambitious goals. The university can go beyond managing its own energy footprint and position itself to catalyze more widespread community and cultural change.

To this end, Common Energy UVic is in the midst of a large collaborative planning process that is focusing its efforts on the following projects:

creating a “climate trust” to finance CO2 reduction projects at the university and in the region

- 1) developing a **“University Challenge”** to guide and reward sustainability efforts within the institution
- 2) integrating its “beyond climate-neutral” goal into **curricula** so students will contribute to tangible solutions through problem-based, interdisciplinary, service-learning

These projects support 6 working groups of committed individuals, who have come together to develop specific sections of the action plan:

- 1) The **Business and Economy Working Group** focuses on how to green the region's economy, for example exploring how the university can support local green businesses through its purchasing and investment policies, and stimulate a green business cluster through its technology transfer and co-op programs.
- 2) The **Civic Engagement and Governance Group** will release a “Toolkit for Engagement” to

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help people connect with civil society and governance structures and will create a multi-stakeholder advisory network to improve decision making and guide the plan's implementation.

- 3) The **Energy Working Group** will collaborate with the administration to complete an energy audit and ensure continuous improvement in energy use.
- 4) The **Transportation Working Group** is trying to make it possible for all members of the university community to commute using low or no carbon modes of transport, supporting efforts towards a campus-wide transit pass and light rail transit that connects UVic and the region.
- 5) The **Food Working Group's** efforts include lobbying for a local food purchasing policy, increased edible landscaping and the expansion of composting efforts.
- 6) The **Buildings, Infrastructure and Ecology Working Group's** efforts will focus on climate neutral building and retrofitting policies, comprehensive water demand management practices and ecological restoration efforts.

Since its launch in November 2006, Common Energy has grown steadily with a new hub emerging at UBC. Common Energy's goal is to become a network of networks, linking people between and within advanced education institutions across the province. Common Energy recognizes that networks need to evolve into "intentional working relationships where new knowledge, practices, courage and commitment can develop. It is from these relationships that emergence becomes possible and emergence is the process by which all large-scale change happens on the planet. Separate, local efforts connect and strengthen their interactions and interdependencies. What emerges as these become stronger is a system of influence, a powerful cultural shift that then greatly influences behaviors and defines accepted practices'." Margaret Wheatley.

Common Energy provides a compelling model and integral vision for campuses and communities across BC. They see a unique role for advanced education through the synthesis of academic and operational assets into comprehensive strategies. Ultimately, Common Energy is working to connect the creativity and energy of people in advanced education dedicated to solving the problems of climate change across BC to share ideas and build momentum.

For more information, see: <http://www.commonenergy.org/>

The Learning City

The Learning City project (www.learningcity.gnwc.ca) is an inter-institutional research project of Simon Fraser University (SFU), The University of British Columbia (UBC), Emily Carr Institute (ECI) and British Columbia Institute of Technology (BCIT) that intends to reorient higher education toward sustainability by creating classrooms that engage with real world problems and events. The Learning City began with a group of young academics meeting to discuss how higher education might shift to address the current issues of global and local unsustainability within core university and college teaching and learning environments. They are a group of researchers and educators from a range of disciplines – urban studies, industrial design, community planning, sociology, kinesiology, zoology and education. Each of the researchers respective base disciplines provides a somewhat different concept of sustainable development and what is needed to achieve it. Through action research they have created a series of courses,

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conceptual and research frameworks as well as national and international networks interested in
the role of higher education in sustainability.

The project is a response to the scarcity of sustainability programming within traditional curricula at universities and the perceived need to scale up and integrate academic work with sustainability efforts in our cities and communities. The aim is to demonstrate to instructors the need for sustainability education and to allow them to imagine new possibilities in their own teaching. To produce Learning City curriculum and pedagogy, they engage in dialogue, activity and learning with community members outside the academy and assume that learning can happen bi-directionally. The intention of the research is to find out if the Learning City classroom can make a difference to the students and community that we engage with. The research contributes to a number of fields including educational research, program evaluation, sustainability, urban policy and the emerging field of the scholarship of teaching and learning.

The Learning City Classroom is based on a model of collaboration in which instructors and students from a range of disciplinary backgrounds come together and engage in their community to work on real world problems. The path to sustainability requires cooperation among sectors in order to find workable long-term solutions. Two pilot courses ran during the first year of the Learning City Project and we are currently awaiting development of the Great Northern Way Campus before hosting any more courses.

- Action and Awareness: Focus on Urban Sustainability. June- July 2006. The course focuses on planning for multi-use regional alternative transportation routes, eg. the Central Valley Greenway.
- Angles on Green Building. Fall 2006. Focused on the emergence of green buildings in Vancouver as part of a move toward sustainable design with a specific focus on. the Centre for Interactive Research on Sustainability (CIRS).

The Learning City is currently engaged in discussions for a proposed Master's Program in Sustainability Leadership at the Great Northern Way Campus (www.gnwc.ca). Future research will include investigations of the best methods to evaluate transdisciplinary, co-taught courses.

Adapted from Enabling Sustainability: Five Key Features of the Learning City Classroom. By Janet Moore, Rob VanWynsberghe and Meg Holden (2007). A Book Chapter for Dushenko, B., P. Robinson and A. Dale "Urban Sustainability, Reconciliation and Reconnecting Place and Space".

For more information, see: <http://www.learningcity.gnwc.ca>

BCIT – Greening the Working World

When welders and iron-workers are talking about reducing ecological footprints and zero-waste then we will be getting somewhere. At least that is the reasoning of John English – Dean of the School of Construction and Environment at BCIT. Guided by his vision, the School's ongoing transformation is one of the most exciting stories of campus sustainability in BC. The name of the school, itself provides one hint of its direction. The Dean wants to be sure that the emphasis on

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the relationship between the built and natural environments is at the centre of the School's identity.

The Dean believes BCIT has a unique opportunity and critical role. Graduates of trades and technical programs at BCIT will immediately begin working in a wide range of occupations, many of which are implicated in the problems of environmental degradation. To this end, he imagines a four – prong approach to sustainability education built on the twin foundations of integration and interdisciplinarity. The four prongs include:

- 1) New credentials – developing new programs that directly address sustainability challenges, such as ecological restoration and sustainable urban development (diploma programs soon to be offered at BCIT)
- 2) Shifting existing credentials – for example shifting the emphasis in civil engineering from new construction to reconstruction
- 3) Adding new capacities to existing programs – integrating practices that reduce adverse impacts of energy and materials programs (such as welding)
- 4) Desegregating the relationship between operations and academics – emphasizing project-based learning and envisioning the campus as a “living laboratory”

In our interview, John English provided an example of the integration emphasized in this fourth prong. Outside his building it so happened that the roots of a magnificent tree had burst through a pathway. The renegade roots posed a safety and access hazard especially for physically impaired students. Campus operations responded in the standard way, proposing to come in and remove the tree. John suggested a more integrative approach could be taken, where this “problem” could be reconceived as a “learning opportunity”. Students from the forestry and architectural drafting programs were asked to come up with a solution. The students recognized values in leaving the tree standing. It provided shade in the hot summer months and was a critical part of scarce green space on campus. As an alternative solution, a boardwalk was designed and built by students which preserved the tree while responding to the concerns of safety and accessibility. While saving one tree might seem like a minor accomplishment, the learning experience of the students involved in solving an actually-existing, local problem is so valuable. This story illustrates the essence of comprehensive local innovation.

A more integrative approach sees “problems” as learning opportunities.

As part of its commitment to sustainability, the School of Construction and Environment has created a new full-time position – a Director of Sustainable Development and Environmental Stewardship. In collaboration with the Dean, the current Director Jennie Moore, has established a sustainability framework, which could serve as a model for other institutions (and indeed for other Schools at BCIT).

The framework is based on the following 6 themes:

- 1) protection of assets
- 2) balanced use and renewal of resources
- 3) accounting for all costs and benefits
- 4) reducing wastes and eliminating toxins
- 5) ensuring safety and access to services
- 6) supporting opportunities for continuous improvement and enjoyment

Under this framework, each fiscal year all programs are required to undertake and report on concrete measures that address at least one of these themes in their operations and programming. These efforts are noted in the annual operational and financial plan. Each program is given incentive to take tangible steps towards sustainability as future financing is contingent upon it.

Within each program and from the Dean on down, there is a strong commitment to continue to innovate and to be a major catalyst in the large-scale transformation and greening of the working world.

5) Where do we go from here?

The main purpose of this report has been to provide an overview of efforts and shortcomings in terms of sustainability at institutions of higher learning in BC. However, in wrapping up we would also like to address the question of “where do we go from here?”

10 Principles of Sustainability Education

On March 31st the BC Working Group for Sustainability Education hosted an exciting workshop with 75 participants that explored the question “Why Sustainability Education?”. Out of deliberations at this event, we were able to distill 10 Principles of Sustainability Education. We have included this list of principles to inspire thought, debate and action. As well we have included a list of recommendations taken from surveys and interviews with participants in this study. It is our sincere hope that government officials, institutional administrators, educators, students and citizens of BC reflect on these promising ideas and take action.

The following 10 Principles of Sustainability Education were derived from deliberations at the “Why Sustainability Education?” event held at the SFU Wosk Centre for Dialogue in Vancouver, March 31st, 2007:

1. **Sustainability education is just about good education.** It is learner focused and incorporates the stages of action...reflection...action...praxis.
2. **Sustainability education commits to new ways of thinking about – and being in – the world.** This means understanding and incorporating the concepts of “enough” and of “living like we plan on staying here.”
3. **Sustainability education needs to be integrated, not inserted.** It is not a subject but the lens through which all subjects need to be understood and taught.
4. **Sustainability education demands both leadership and collaboration.** Educators need to model the change we want to see. We cannot realise sustainability in education without support and leadership from faculty, staff, administration, and community. We need to participate in the valuable work that is going on, support and improve existing projects, and create meaningful partnerships. Working across sectors is challenging but worthwhile.

5. **Sustainability education encourages us to take risks and to address the hard questions.** Experimentation with uncertainty, ongoing discussion and adaptation, and critical thinking are all important. In our resource-based province, it's vital to address directly the personal risk felt by those who fear loss of their livelihood due to an increased focus on sustainability.
6. **Sustainability education draws from all cultural traditions.** BC has a wealth of cultures and traditions. We need to create education that acknowledges, learns from, and incorporates the sustainable practices of all of our cultural groups.
7. **The language of sustainability education must be simple and transferable.** Language reflects values. It's important that we all "use the same language to mean the same thing" across sectors and across disciplines.
8. **Sustainability education is about the individual and the collective.** It involves establishing a relationship between self and community. Through community-building, educators can facilitate learning experiences that will lead to individual self-actualisation and will help us connect more deeply to our surroundings.
9. **Sustainability education includes arts and culture.** The arts can play an important role in promoting reflection and messages that address both the individual and the collective.
10. **Sustainability education is dynamic, positive and contains hopeful messages.** An attitude of hope and excitement will spur people to change more than guilt or fear. We need to give people concrete tools they can use, and to celebrate our successes.

Recommendations from Surveys

All respondents were asked to comment on the priority actions that their institutions should take to become more sustainable. We have distilled these compelling ideas down into 10 specific recommendations.

1. **A statement from the Ministry of Advanced Education that shows commitment to Provincial sustainability objectives and makes clear the relationship between higher education and cultural change for sustainability.** Clear leadership from the Ministry would encourage and support school administrators to make bold statements and take decisive actions around sustainability.
2. **The establishment of sustainability offices and paid sustainability coordinator positions ideally on every campus** – to coordinate, direct and initiate (and find funding for) programs and projects requires full time commitment. There are established precedents in BC and around North America that provide evidence for the success of such institutionalization of the commitment to sustainability.

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3. **The establishment of provincial standards** – building on valuable research (i.e. CSAF), we need to establish guidelines for sustainable practices and ways of monitoring progress
4. **Tie sustainability objectives in with key performance indicators.** Taking sustainability seriously involves having an official way of assessing campus practices and ensuring they are meeting criteria.
5. **Revise accounting procedures to support full-cost accounting.** Some institutions such as UVIC are experimenting with new accounting systems that take account of long term costs and benefits as well as more difficult to quantify benefits of sustainability. We need to have a provincial, if not national, dialogue around making accounting more responsive / -ble
6. **Provide academic support for teachers** – We will have arrived when students learn about sustainability in all the courses they take - geography, math, biology or economics. Sharing of information and databases are critical to enable teachers to learn how sustainability can be approached through their disciplinary lens
7. **Provide recognition for sustainability efforts** – What struck us in completing this research was realizing how many interesting projects were underway but how little recognition there was. To build synergies as well as just to pat backs, we need to find creative ways of recognizing efforts.
8. **Sustainability challenges should be approached as learning opportunities.** Students should be involved in designing sustainable futures.
9. **Major awareness building at all levels** – While awareness is not everything, it is an essential ingredient. We need to raise awareness of not only the students, but faculty, staff, administration and government officials. We all can learn more.
10. **Improve networking** – many of the above goals depend on clear and open channels of communication. The BC Working Group on Sustainability Education endeavours to facilitate such networking.

Conclusion

At this stage of the project we are inviting feedback from across the province regarding the content of the report. It is our intention to find out what is happening and to share this information across the network of colleges and universities in BC so that we can learn from one another when working towards the collective goal of creating a sustainable future. It is not our intention to provide a ranking of institutions but instead to provide an overview of the efforts being undertaken and the challenges we face.

Thus far we see the clear importance of policies, operations and programming but these efforts will fall short if there is no comprehensive sustainability strategy for the province and we are encouraged by our new collaborations with the Ministry of Advanced Education in pursuing sustainability goals.

Please respond by sending email feedback to takingstockbc@gmail.com and feel free to send us details of your programs, organizations and insights.

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