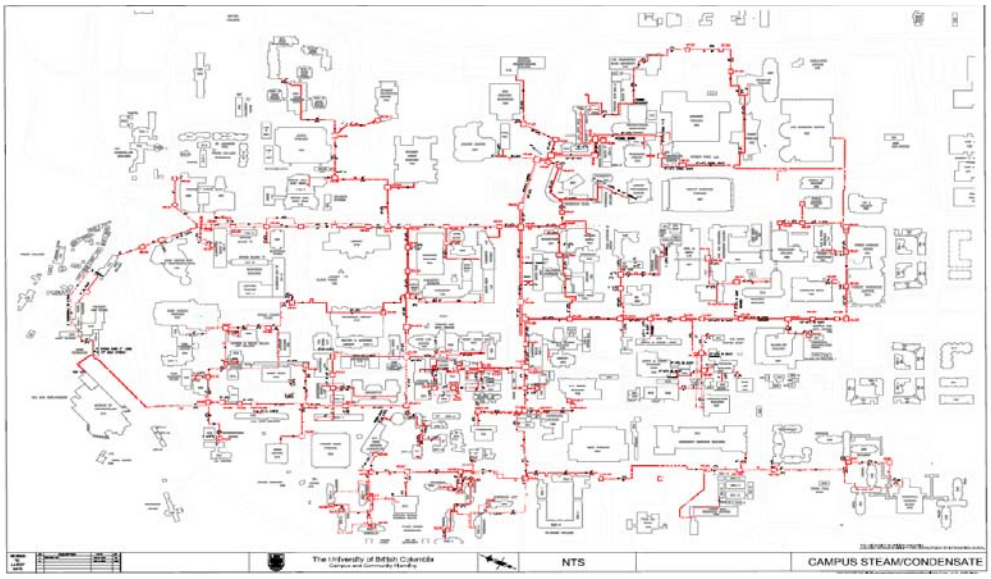
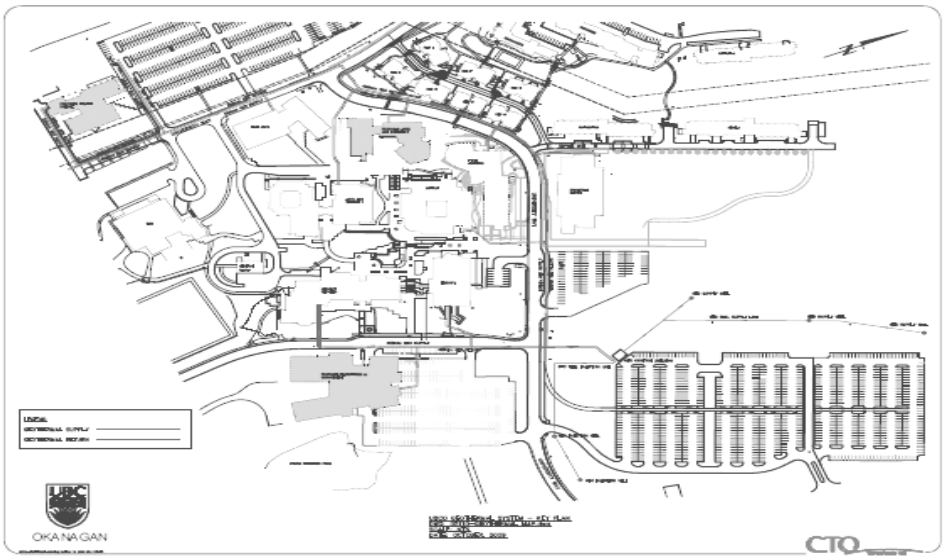
Exploring and Exemplifying Sustainability

UBC's Sustainability Academic Strategy

October 17, 2009





UBC Vancouver's Steam Heating System (top) and UBC Okanagan's Geothermal Field (bottom): Treating both UBC's campuses as integrated energy, water and waste systems offers an unparalleled opportunity to link teaching and learning, research and partnerships, and operational activities through the Sustainability Academic Strategy

Table of Contents

UBC Sustainability Academic Strategy

List of Recommendations

Teaching and Learning

TL1 Student Access to Sustainability Learning Opportunities
Recommendation: Improve access to sustainability learning opportunities for every student who desires them, regardless of their degree program. This should be accomplished by effectively communicating these opportunities through online resources and student advising, and by the creation of 'sustainability pathways' through every degree program providing up to a minor in the study of sustainability. Institutional changes for improving student access to sustainability education, in collaboration with established Faculty structures and campus programs, should be explored.

TL2 Sustainability Curricula and Teaching Fellows
Recommendation: Develop a respected, rewarded, and supported core of faculty who are leaders in sustainability teaching and learning, and develop a suite of undergraduate and graduate courses to improve UBC's sustainability curriculum. These 'Sustainability Teaching Fellows' will contribute to the development of sustainability themes and courses to help coordinate cross-faculty teaching of sustainability for all students.

TL3 Co-curricular Opportunities
Recommendation: Formalize recognition of sustainability experiences outside the classroom. The creation of a Sustainability Certificate program and a sustainability designation on students' transcripts will help to establish the value of co-curricular learning, while resources should be devoted to increasing the availability and number of opportunities for UBC students to gain sustainability learning and leadership skills.

Research and Partnership

RP1 Sustainability Projects and Research Fellows
Recommendation: Create five part-time 'Sustainability Research Fellow' positions. These Fellows will focus on coordinating new research initiatives of interest to the major Funding Councils, with a goal of increasing the number of flagship grants UBC obtains from the major funding Councils in the area of sustainability. Fellows will also provide strategic advice on sustainability research and partnership activities across campus, and look for opportunities to build both international and local community-based research partnerships.

RP2 Research on Campus as a Living Laboratory
Recommendation: Develop and coordinate with existing interdisciplinary research projects focusing on the technological, behavioural, economic, social and other aspects of UBC's ongoing operational sustainability projects. Possible candidates for such projects would be a campus-wide clean energy heating and micro-grid system (building on the existing Alternative Energy Services Project), South Campus as a model community (connecting to the ongoing work at the UBC Farm), working to develop a project with the University neighbourhood Association, or UBC Okanagan exploiting its significant geothermal capacity to approach carbon neutrality.

RP3 Research on the University as an Agent of Change in the Community
Recommendation: Work in partnership with one or more communities in BC to study the feasibility and consequences of sustainability projects in those communities.

RP4 Sustainability Research Events
Recommendation: Develop a series of sustainability-related events and symposia that create opportunities for networking, partnership, and shared learning.

Operations and Administration

OA1 Investing in Innovation and Demonstration
Recommendation: Support innovation and projects that will advance the goal of becoming a net positive energy and water campus. This could include the implementation, within the next 3-5 years, of a municipal scale micro-grid waste, water and energy project.

OA2 Access to Funding for Sustainability Capital Projects
Recommendation: By 2010 the university should establish a Sustainable Campus Fund and develop related policy to guide decision-making that includes lifecycle analysis in the selection of the best, highest value projects for the university. UBC should work with the provincial government to find innovative ways to make it possible for UBC to be able to invest in sustainability projects without being constrained by the provincial government debt capital cap.

OA3 Meeting and Exceeding Third Party Benchmarks
Recommendation: By 2010, prepare a comprehensive UBC Campus Sustainability Plan (2010-2015) which sets targets that meet or exceed the highest level of external standards and benchmarks.

OA4 Supply Chain Management
Recommendation: The University and dedicated representatives should work with key suppliers to build lifecycle-based sustainability targets and tracking mechanisms into all major contracts.

OA5 Behaviour and Organizational Change
Recommendation: By 2010, design and commence the implementation of a targeted, campus-wide behavioural and organizational change program that supports the resource conservation goals and targets outlined in the Campus Sustainability Plan (2010-2015). This will have an initial focus on climate-related goals and targets and should involve the active participation of students and faculty through research and teaching activities.

Implementation

I1 The University Sustainability Initiative (USI)
Recommendation: UBC should create the University Sustainability Initiative (USI) with a full-time Director and appropriate levels of staff and budgetary support. The USI would be located in the CIRS building and initially include four units: 1) Teaching & Learning, 2) Research & Partnerships, 3) Campus Operations, and 4) the Okanagan Sustainability Institute.

I2 Showcasing Sustainability Activities
Recommendation: UBC should substantially upgrade its communication activities, to showcase sustainability on campus and share UBC's sustainability story with the world.

I3 Changing Reward Systems
Recommendation: Enhance support for staff, faculty and community (e.g. alumni, First Nations, UNA) to engage in sustainability leadership and practice in teaching, research and campus sustainability. Explore opportunities to embed sustainability into UBC's resources and infrastructure over the longer term. This includes an adjustment of peer review criteria to account for the value of sustainability research, service, and partnership activities and provide opportunities for self-identification as a sustainability researcher. Faculty members and graduate students should be rewarded if their commitments to sustainability education require significant inputs of time and other resources. Employee efforts should be reinforced through recognition and awards, training opportunities and peer to peer networking and knowledge exchange.

1. UBC Strategic Plan and Sustainability at UBC

In Fall 2009, UBC will release its new Strategic Plan, which will include a number of strategies that address cross-cutting themes including the Aboriginal Strategic Plan, an International Strategy, and this Sustainability Academic Strategy. The Sustainability Academic Strategy (SAS) will provide a framework to guide the UBC community in ongoing planning and decision-making for sustainability, spanning UBC's Vancouver and Okanagan campuses.

The draft SAS has been produced by a Working Group established under the President's Advisory Council – Sustainability. The SAS Working Group is chaired by Dr. John Robinson, Professor in the Institute of Resources, Environment and Sustainability and Project Director for the Centre for Interactive Research on Sustainability (CIRS). The two Vice-Chairs are Dr. Peter Dauvergne, Director of the Liu Institute for Global Issues and Canada Research Chair in Political Science, and Ms. Charlene Easton, Director of the UBC Sustainability Office. Committee membership includes staff, faculty and students from the UBC-Vancouver and UBC-Okanagan campuses, plus external community representatives. See Appendix 1 for a list of Working Group members, and Appendix 2 for a description of the activities of the SAS Working Group.

Sustainability is at once a societal imperative and a topic of growing interest to students, faculty, staff and our partners in the community. While there are many different views of how best to define sustainability, most of them include a recognition that we must live within the planet's biophysical carrying capacity, we must provide systems of governance that propagate the values we want to live by and we must provide an adequate material standard of living for all. We see sustainability not as a prescribed set of outcomes, but as the emergent property of a societal conversation about what kind of world we want to live in, informed by some understanding of the ecological, social and economic consequences of different courses of action. It is thus a highly normative and political concept, though deeply informed by scholarship on the interaction of human societies and the environment around them. Universities should be a major locus for discussion and debate on all aspects of sustainability, including resource conservation, habitat preservation, climate change, social equity, and economic resiliency.

The SAS initiative will foster new forms of sustainability learning and research, and stimulate collaboration and partnership between UBC and the various communities with which it interacts. It will create a process through which the university community can demonstrate our shared interest in working toward a sustainable future. As this exploration proceeds, UBC will strive to demonstrate best practices in teaching, learning and operations to help fulfill its role of educating future citizens. The academic strategic process will recognize the many activities happening across the institution, identify key priorities for immediate action, and provide opportunities for members of the community to contribute to shaping future priorities for the UBC-V and UBC-O campuses.

2. The Sustainability Academic Strategy Vision

Sustainability is both a critically important topic for ongoing research and teaching, and a practical imperative for society. We therefore propose two core principles for the SAS. First, the university should **explore** the various dimensions of sustainability through research, teaching and learning. The challenges of sustainability range across disciplines and fields in the humanities, social sciences, natural and applied science, and the medical and health fields, and thus the exploration of sustainability transcends traditional academic boundaries. We need to contribute in disparate ways to the ongoing conversation about why we care about sustainability, what the constraints and options are, and how best to achieve more sustainable practices at many scales and in many contexts. Second, the university should **exemplify** sustainability in its operations and related activities both on and off campus. As an institution, the university should demonstrate best practices in achieving operational sustainability. Thus, we should demonstrate sustainability in everything we do.

These two principles reflect, respectively, the academic and operational dimensions of sustainability for UBC. An explicit part of the SAS mandate was to consider ways to better integrate academic and operational activities, as they relate to sustainability. To that end, we are proposing two cross-cutting

themes, intended to tie together teaching and learning, research and partnerships, and operational/administrative activities and functions.

The first cross-cutting theme proposed for the SAS, which is focused on internal activities, is the **Campus as a Living Laboratory**. UBC is a dynamic intersection of a large, internationally respected academy, diverse communities on and off campus, and a sophisticated operational infrastructure that runs the equivalent of a small city and town (UBC-V and UBC-O campuses, respectively). Building on existing initiatives to advance operational sustainability, our campuses powerful opportunities to further explore, test and demonstrate sustainability solutions. As a result, they can be "living laboratories" in which students, faculty, staff and community work together to discover, learn and take action to guide UBC toward sustainability.

A working definition of this theme reads, "Campus as a Living Laboratory *combines campus operations and administration (e.g. energy and water management, land use and ecosystem management, buildings and infrastructure, planning) with the education, research and outreach mandates of the university. Campus as a Living Lab involves students and faculty developing and applying sustainability research and teaching in collaboration with university staff and can also involve industrial or community partners working with academic and operational staff."*

One current example of a program which promotes the use of our campuses as a living laboratory is the UBC Social, Ecological, and Economic Development Studies program, which aims to enhance the sustainability of campus operations through coordinating applied, accredited project opportunities for UBC students. Through SEEDS, UBC staff are linked with faculty and students to collaborate in the design and implementation of sustainability research on campus.

The second cross-cutting theme proposed for the SAS pertains to the university's role in the world outside the two UBC campuses. Universities are strongly connected in various ways to civil society, business and government, locally and globally. Together these groups can participate and partner in the search for ideas and solutions instrumental to reinforcing the fabric of global society. This is the idea that underlies the concept of the **University as an Agent of Change**.

A working definition of this theme reads, "University as an Agent of Change *fosters UBC's active engagement with local, national and global communities through sustainability initiatives that engage these communities. In order to become a catalyst for change in society, a university must promote active dialogue and exchanges of information and ideas. It must assume the role of collaborator and co-learner with the larger community. This means creating meaningful partnerships for new forms of research, education and service*."

These two cross-cutting themes are intended to inform the specific recommendations developed for the SAS. In what follows, these recommendations are organized in terms of three activity areas: teaching and learning, research and partnerships, and operations and administration. Teaching and Learning builds on UBC's strengths as a hub for sustainability educational practices, and identifies innovative new ways to make an education in sustainability available to all UBC students. Research and Partnerships proposes strategies that will help to secure UBC's reputation as a source of leading-edge sustainability research, building research programs that are fundamentally responsive to the needs of the broader community. Operations and Administration exemplifies UBC's commitment by demonstrating the integration of sustainability decision making and practices into all aspects of campus life and business. The SAS includes a separate section offering implementation recommendations and a summary of the Special Projects that we were directed to consider in our deliberations.

3. Teaching and Learning

The sustainability teaching and learning recommendations proposed here are based on the work of the Academic Programs Working Group–Vancouver (APWG-V) of the President's Advisory Council on Sustainability (PAC-S). The APWG-V consists of 16 faculty, student and staff members, under the

chairmanship of Peter Dauvergne and, more recently, Nicholas Coops. It has been working closely with faculty, staff, and students since September 2008 to evaluate undergraduate and graduate sustainability education, and identify innovative new areas of leadership for UBC. The following recommendations are based on the work of the APWG-V, and have been reviewed by the broader SAS Working Group.

TL1 Student Access to Sustainability Learning Opportunities

Goal: Enhance UBC's growing reputation in sustainability by providing students greater opportunities and accessibility to sustainability curriculum and research.

UBC is a world leader in many aspects of sustainability education and has invested significant resources to develop sustainability teaching and learning opportunities. An array of innovative and highly respected sustainability-oriented undergraduate programs exists at UBC, including the Global Resource System program in the Faculty of Land and Food Systems, and the Natural Resources Conservation program in the Faculty of Forestry on the UBC-V campus. At UBC-O, there exists a course that has a 'SUST' label in the Calendar (SUST 100), which has proven to be very popular as an elective for undergraduates.

Examples at the graduate level include programs offered by inter-disciplinary institutes on the UBC-V campus, such as the School of Community and Regional Planning (SCARP), which was the first dedicated planning school in Canada to pioneer an integrated approach to planning for sustainable development, and the Institute for Resources, Environment and Sustainability (IRES) graduate program, which focuses on issues of societal concern bridging the divide between natural science/technology and social science/humanities. A specialized theme on sustainability was recently approved for the Interdisciplinary Graduate Program at UBC Okanagan. A diverse selection of sustainability-oriented undergraduate and graduate courses offer students the opportunity to engage in sustainability learning, as do the opportunities to study and advance sustainability on campus through the SEEDS program, and the various not-for-credit sustainability education initiatives currently offered on campus (see Section 3, Recommendation TL3 Co-curricular opportunities).

Despite these programs and courses, UBC students currently do not have a clear understanding of the breadth of sustainability learning possibilities available to them. UBC should identify, effectively communicate, and encourage students to explore these opportunities throughout their time at UBC. To increase students' access to sustainability learning, and to connect and promote dialogue among those engaged in sustainability education initiatives, the academic community should build on the existing inventory developed by the Academic Programs Working Group to self-identify sustainability-oriented courses, programs and co-curricular initiatives. This inventory should then be effectively communicated to UBC students, faculty, staff, and the broader community via online resources (see Section 6, Recommendation I2 for suggestions on how to enhance communication) and in-person student advising, including development of a student-to-student peer sustainability learning mentorship.

To further improve student access to existing sustainability education opportunities, sustainability 'pathways' through every degree program (including professional programs such as Law and Medicine) should be created to assist students in navigating the range of sustainability learning opportunities (courses and co-curricular activities) offered by UBC. The definition of these pathways is critical for students, especially in the early years of their programs, who wish to participate in sustainability learning expenses, yet may not have clear ideas as to how to do so. Every pathway should include the opportunity for students to complete up to a minor in sustainability in their senior years. UBC-Okanagan will investigate the potential of creating an undergraduate sustainability degree.

Institutional changes for improving student access to sustainability education should also be considered by UBC. Faculties should reduce barriers for undergraduate students wanting to participate in existing sustainability education initiatives delivered outside of their disciplines, as well as provide incentives to increase the capacity of existing over-subscribed sustainability courses. The establishment of a fund to which student-faculty partners apply for small research grants would also encourage undergraduate students to conduct sustainability-oriented research. At the graduate level, UBC should consider establishing a fund to attract and retain top graduate students in the sustainability field. This fund would support graduate scholarships and graduate sustainability research, and could include provision of

graduate stipends to cover tuition for graduate students undertaking research related to sustainability and who cross more than one faculty. Also, UBC should improve opportunities for supervising, hiring, and/or teaching graduate students outside of home departments and Faculties.

Recommendation: Improve access to sustainability learning opportunities for every student who desires them, regardless of their degree program. This should be accomplished by effectively communicating these opportunities through online resources and student advising, and by **the creation of 'sustainability pathways' through every degree program** providing up to a minor in the study of sustainability. Institutional changes for improving student access to sustainability education, in collaboration with established Faculty structures and campus programs, should be explored.

TL2 Sustainability Curricula and Teaching Fellows

Goal: Achieve transformational changes in sustainability teaching and learning at UBC.

The current sustainability education initiatives at UBC provide a strong foundation but much more is necessary to achieve a transformational change.

A group of 'Sustainability Teaching Fellows', who are leaders in sustainability teaching and learning, should be created from across UBC. These Fellows would be appointed for periods of two to five years. The main responsibility of the Fellows, in collaboration with an advisory group of senior academics (e.g. Deans or Associate Deans) is the development of a plan for UBC-wide sustainability learning outcomes for undergraduate students both in the short and long term. The plan will outline achievable targets with specific time frames, including ways to increase links between teaching opportunities and operational sustainability at UBC. The Fellows will also be responsible for developing a strategic vision for sustainability education at UBC (1 and 5 year sustainability academic plans) that will identify priority sustainability areas/themes for curriculum development (courses, not programs).

A suite of new undergraduate courses (including expanded/retooled existing courses) that are available to all students should be developed on key sustainability subjects and themes. The Sustainability Teaching Fellows would work with existing programs and units to assess the current UBC-wide sustainability curriculum, identify gaps and propose themes for development of new courses. These should include both foundational, cross-cutting courses as well as upper level courses that address the sustainability needs of students within disciplines. They would provide an overview of sustainability issues, and cover key areas such as lifecycle analysis, systems thinking, ecosystem valuation, social justice, or the ethical dimensions of sustainability, as well as incorporating the two cross-cutting SAS themes (UBC as a living lab, and the University as an agent of change). A new subject code (for example, SUST) could be created for these interdisciplinary sustainability courses, which is recognized for credit by all Faculties. This would promote and encourage cross-disciplinary learning and increase the visibility of sustainability learning opportunities. If a new sustainability subject code is adopted, UBC must develop criteria to identify sustainability courses beyond simple self-identification.

UBC Okanagan will establish an institutional commitment to leadership in sustainability curricula, teaching, learning, research, and scholarship. Discussions have taken place regarding a common experience for all undergraduate students that would feature sustainability alongside global citizenship; such transformational innovations to teaching and learning should be encouraged.

At the graduate level, to meet the responsibility of training future leaders in sustainability, UBC should not only continue to encourage the development and delivery of exceptional graduate curricula on sustainability, but also provide support for the development of course and programs that bridge Faculties, disciplines and departments. The Sustainability Teaching Fellows would work with the academic community to coordinate and catalyze graduate sustainability curricula that cross disciplinary boundaries. At UBC-O, the Senate's recently approved Sustainability Theme within the Interdisciplinary Graduate Studies Program will be promoted and expanded upon.

Individual faculty with expertise and interests in sustainability education should be identified and encouraged to continue to develop innovative pedagogical approaches to sustainability curricula, and UBC should support professional development programs that train sustainability educators in these approaches. UBC should recognize and reward these faculty members, for example through the creation of a Sustainability Teaching and Learning award. This might be financial, through a personal or research based stipend; or alternatively, non-financial through awards and University-wide recognition.

Recommendation: **Develop a respected, rewarded, and supported core of faculty** who are leaders in sustainability teaching and learning, and **develop a suite of undergraduate and graduate courses** to improve UBC's sustainability curriculum. These '**Sustainability Teaching Fellows'** will contribute to the development of sustainability themes and courses to help coordinate cross-faculty teaching of sustainability for all students.

TL3 Co-curricular Opportunities

Goal: Recognize multiple forms of sustainability teaching and learning

Co-curricular activities, such as not-for-credit courses, volunteering and community-based learning and service, are significant components of sustainability education, which can be of great value to students.

UBC should develop a plan to connect teaching and learning expertise to external communities by fostering mutually beneficial relationships and collaborations. Teaching and learning contributes to UBC being an 'agent of change' in the community through Community Service Learning (CSL) and Community Based Research (CBR). CSL and CBR can significantly enhance students' understanding of the concrete realities of sustainability issues and solutions, while contributing to community-based sustainability solutions, and strengthening connections between the university and the community. Possible avenues to explore include collaborating with UBC's Learning Exchange, and Community Service Learning programs, building on existing programs offered by the Sustainability Office and the Centre for Sustainable Food Systems at the UBC Farm for opportunities to strengthen community engagement, harnessing the leadership and innovation stimulated by UBC's life-long learning programs, and developing new programs that partner with the University Neighbourhood Association, UBC Properties Trust, local school boards and other organizations.

Advancing sustainability education at UBC requires support for undergraduate and graduate students to actively engage in these initiatives. The University should ensure that students can be informed of their full range of options for sustainability learning at UBC, and that mechanisms are in place to encourage and support that learning. The value of involvement in university-sponsored co-curricular sustainability activities should be demonstrated by creating a "sustainability education" designation on students' transcripts (based on completing a minimum number of co-curricular activities) and developing a Sustainability Certificate program that requires the completion of a minimum number of non-classroom sustainability activities. The UBC Learning Exchange, led by Margo Fryer (Vancouver) and Phil Bond (Okanagan), provides an established and highly successful example of a set of co-curricular learning activities that could be included in this certificate program.

Life in residence, clubs, and student organizations provide fertile ground to further enhance opportunities to gain sustainability knowledge outside the classroom. Existing signature sustainability programs, such as the UBC Farm's curricular and volunteer programs, the Residence Sustainability Coordinators program, and Tri-mentoring (a program which links students to sustainability professionals in the community), should be expanded to reach out to student communities not currently served by existing programs.

Recommendation: **Formalize recognition** of sustainability experiences **outside the classroom**. The creation of a **Sustainability Certificate program and a sustainability designation on students' transcripts** will help to establish the value of co-curricular learning, while resources should be devoted to increasing the availability and number of opportunities for UBC students to gain sustainability learning and leadership skills.

4. Research and Partnership

The Research and Partnerships recommendations presented here derive from the activities of the SAS Working Group, as well as prior thinking on developing the research program and partnerships for the Centre for Interactive Research on Sustainability (CIRS). Initial ideas and draft recommendations were developed and presented to the SAS Working Group, and several others, for review. In addition, a separate meeting of the external community partner members of the SAS Working Group was held that provided important input on partnership issues. In support of these activities, an inventory of sustainability-related research at UBC-V was carried out to better understand the current research environment.

RP1 Sustainability Projects and Research Fellows

Goal: Increase the number of interdisciplinary sustainability research projects at UBC funded by the flagship research programs of the major funding Councils and other funding programs.

Much sustainability research is highly interdisciplinary and applied. This means that the effort involved in assembling research teams, and writing complex and lengthy research proposals is substantial. For most faculty, especially those at the beginning of their careers, the opportunity costs of being involved in such activities are very high.

At the same time, the major funding Councils (SSHRC, NSERC, CIHR) and other important funding programs (Canada Foundation for Innovation, Networks of Centres of Excellence, many foundations) are increasingly receptive to, or even require, proposals that involve strong interdisciplinarity and partnerships with the non-academic community. This is particularly true of the 'flagship' funding programs of the funding Councils, such as SSHRC's Major Collaborative Research Initiatives and Community University Research Alliances programs, NSERC's Research Partnerships Programs, and CIHR's Partnerships for Health Improvement or Collaborative Health Research programs.

This suggests a strategic opportunity for UBC to increase the number of highly prestigious grant-funded projects in the sustainability field. Experience has shown that targeted support in team-building and proposal development is of particular help in improving the success rate of large grant proposals. We propose that UBC devote some limited resources to providing such support, by creating a category of part-time 'Sustainability Research Fellows". Their role would be to work with potential grant applicants and graduate students to identify key funding programs, articulate appropriate research questions, recruit research team members and partners, and support development of the research proposals themselves. The goal would be to significantly increase the number of major research grants in focussing on sustainability themes and issues.

Recommendation: Create five part-time 'Sustainability Research Fellow' positions. These Fellows will focus on **coordinating new research initiatives** of interest to the major Funding Councils, with a goal of increasing the number of flagship grants UBC obtains from the major funding Councils in the area of sustainability. Fellows will also provide strategic advice on sustainability research and partnership activities across campus, and look for opportunities to build both international and local community-based research partnerships.

RP2 Research on Campus as a Living Laboratory

Goal: Create research and partnership activities to support the operational transformation of both UBC campuses toward greater sustainability.

UBC is in the process of making significant operational changes that are intended to reduce greenhouse gas emissions and make the energy, water, food and waste systems on campus more sustainable (see section 6 of this report). Such changes offer unprecedented research opportunities for faculty, graduate students and undergraduates. Since such sustainability research is inherently applied, they also present

opportunities for developing partnerships intended to explore the potential for more widespread application of the technologies and practices involved. A particular opportunity may lie in working with our University Neighbourhood Association (which has just hired a new full-time Sustainability Coordinator). UBC-O will provide faculty members with internal grants for sustainability related research tied to research conducted on campus so as to foster the integration between academics and operations and the overall vision for the sustainability house (see Appendix C) as well as tied to research conducted within the community

Such applied research opportunities are very attractive to students: they allow the considerable expertise and knowledge of UBC faculty to contribute to campus operations, and they offer important opportunities to test and evaluate new theories, approaches, tools and technologies being developed by UBC researchers. Such work could take advantage of innovative research funding opportunities such as the Mathematics of Information Technology and Complex Systems (MITACS) program, and could align with the existing Social, Ecological, Economic Development Studies (SEEDS) program and the South Campus Farm programming.

Recommendation: Develop and coordinate with existing interdisciplinary research projects focusing on the technological, behavioural, economic, social and other aspects of UBC's ongoing operational sustainability projects. Possible candidates for such projects would be a campus-wide clean energy heating and micro-grid system (building on the existing Alternative Energy Services Project), South Campus as a model community (connecting to the ongoing work at the UBC Farm), working to develop a project with the University Neighbourhood Association, or UBC Okanagan exploiting its significant geothermal capacity to approach carbon neutrality.

RP3 Research on the University as an Agent of Change in the Community

Goal: Create research and partnership activities off campus

Significant opportunities exist for UBC researchers to work with communities, companies, NGOs and government agencies to contribute to the achievement of sustainability goals off-campus. Such partnerships work in both directions, allowing UBC researchers to add value to projects being developed elsewhere, and also providing opportunities for those researchers to learn from off-campus knowledge and practice. For students, such opportunities can lead to possible employment opportunities, and more importantly, add dimensions of immediate relevance to their university education.

It would be straightforward to build on existing partnerships and networks and identify communities undertaking sustainability projects off campus who would be interested in working with UBC researchers to add research to their projects that could not otherwise be undertaken. It might be desirable to work with a panel of advisors to identify such opportunities. Especially relevant are ongoing partnerships with the Metro Vancouver region, of which UBC-V is a part. The objectives would be to contribute to the identification and evaluation of such projects, to provide research opportunities for graduate and undergraduate students, and to advance scholarship on societal change towards sustainability.

Recommendation: Work in partnership with one or more communities in BC to **study the feasibility and consequences of sustainability projects** in those communities**.**

RP4 Sustainability Research Events

Goal: Create more opportunities for research-related sustainability networking and communication

A key means of building the sustainability research capability at UBC, and connecting it to teaching and operations, and the communities outside UBC is to raise the profile of sustainability research through a targeted series of events, symposia, public lectures, workshops, conferences, graduate student colloquia, etc. Such events can help to build a constituency and also a presence on sustainability issues, which will have resonance both on and off campus. At UBC Okanagan, the Barber School of Arts & Sciences has sponsored a Distinguished Lecture Series focused on the topic of a 'civil and sustainable society' that has garnered very strong community interest and is arguably one of the most effective outreach initiatives undertaken on that campus to date. UBC-O also plans to create a coordinated events and

educational strategy that delivers a steady stream of "experiential" opportunities related to sustainability, such special speakers, sustainability-related "topic weeks" and others.

Such events should build on the very extensive amount of sustainability-related research that takes place at UBC. For example, events could be successively hosted by existing interdisciplinary programs, centres and institutes at UBC active in the sustainability field. One possibility would be an annual or semi-annual sustainability conference at UBC.

Recommendation: Develop a **series of sustainability-related events and symposia** that create opportunities for **networking, partnership, and shared learning.**

5. Operations and Administration

The recommendations in this section were based on the work of the UBC-V Operations Working Group (OWG) of the President's Advisory Council on Sustainability (PAC-S), which was established in the spring of 2008, building on the work of the previous Sustainability Advisory Committee (1998 – 2008), which had guided the efforts of the UBC-V Sustainability Office. The OWG includes members from both UBC-V and UBC-O and is made up of staff, faculty, students and community representatives. The OWG aims to assess, evaluate and set strategic priorities to guide the development of a comprehensive and inclusive Vancouver campus, engage the campus community and align with comparable activities at the UBC-O campus. Over 100 operational stakeholders were involved in workshop sessions and consultations, mapping future directions and priorities for a sustainable campus. These in turn were clustered and prioritized to become the top 5 SAS recommendations.

OA1 Investing in Innovation and Demonstration

Goal: Work towards UBC-Vancouver becoming a net positive energy and water campus.

The UBC Executive has endorsed exploring the feasibility of becoming a net positive energy and water campus. This aspirational goal involves UBC producing more energy onsite than is consumed and returning water to the municipal system cleaner than when it was removed. As a first step, the university has commissioned the Alternative Energy Feasibility Study. This study and subsequent plans will identify opportunities to integrate energy, waste and water management systems and propose either a centralized or distributed heating and cooling system (or combination thereof). Studies specific to water and waste are also slated for development in the near future.

UBC-Vancouver is the size of a small city[1] with a unique regulatory environment. As such, UBC has the opportunity to pilot a municipal-scale energy, water and waste system. A clean energy urban microgrid demonstration project is a highly innovative opportunity to use our campus as a living lab for municipal-scale alternative energy systems. Such learning could potentially then be transferred to the more complex institutional environments off-campus to advance the role of the university as an agent of change in the community. This project would also create new opportunities for research, and applied learning through the Social, Ecological, Economic Development Studies (SEEDS) and other programs, to share relevant findings beyond campus. The presence of a managed farm-forest landscape on South Campus in conjunction with a growing residential community presents a notable and unique opportunity to explore both small-scale energy production and waste transformation at UBC-V. The South Campus Academic Plan proposes specific recommendations to capture waste water and heat for the production of food, fibre, and fuel.

Building on the Alternative Energy Sources Feasibility Study and the Vancouver Campus Plan (student housing hubs), UBC has the opportunity to develop an integrated clean energy heating and micro-grid system on the UBC-Vancouver campus. Such a system would include heating/cooling (cogeneration,

[1] With over 66,000 students, staff and faculty (PAIR, 2007/8), 8 million square feet of core buildings, plus five residential neighbourhoods, a working hospital, and other ancillaries.

distributed generation, etc.), electricity (smart meters, intelligent buildings, advanced controls, sensing and monitoring, etc.) and water/waste (water harvesting and remediation, heat recovery, ecosystem rehabilitation, etc.). Such a system should be developed in partnership with the province, industry and other partners, and would be a high-profile, leading-edge demonstration project. This could also be applied in the university's residential neighbourhoods through UBC Properties Trust and the University Neighbourhood Association, and could consider the adjacent community of Point Grey neighbourhoods.

Recommendation: Support innovation and projects that will advance the goal of becoming a **net positive energy and water campus.** This could include the implementation, within the next 3-5 years, of a **municipal scale micro-grid waste, water and energy project.**

OA2 Access to Funding for Sustainability Capital Projects

Goal: Build future financial security through resource conservation.

The university needs to continue to manage financial risk associated with rising energy costs and carbon pricing. Based on current information, new financial liabilities from the carbon pricing alone are estimated at $2.8 million in 2010 for UBC-Vancouver (buildings and ancillaries), rising to $3.9 million in 2012.

Past energy retrofit projects (ELECTrek and ECOTrek) eliminated an estimated $20 million from UBC's accumulated deferred maintenance debt through retrofits of core buildings. This project bundled short payback measures with long payback measures to achieve reductions in energy consumption (heat and power) of approximately 20% and reduced water consumption by 30%. The premise of ECOTrek was to re-invest these savings into future energy savings opportunities, with the UBC Sustainability Office identifying and preparing the business case for such projects.

To continue to manage the financial risk associated with resource use, the university is considering aggressive targets for greenhouse gas emissions reductions to be achieved through both demand-side and supply-side management. Strategies to achieve these and other goals have been identified in the Climate Action Plan (CAP).

Key opportunities to achieve further energy savings and reduce financial risk, include but are not limited to the following:

- The Alternative Energy Services Project (feasibility study in progress), which will propose options for a high profile, renewable energy retrofit of UBC's largest GHG emissions source: the natural gas fired steam plant.
- Alternative energy technologies and energy savings measures identified in the context of UBC ReNEW and new construction.
- The university's recent innovative move to improve asset management by connecting capital budgets with operating costs (lifecycle decision-making).
- Ongoing use of BC Hydro incentives to identify energy savings in ancillary buildings, core buildings, research intensive buildings, information technology, etc.
- Green standards for neighbourhoods and buildings.

Each of these areas offers the potential for developing research and teaching activities that would build on, and support, these initiatives.

UBC's ability to debt finance energy saving initiatives is limited by the Provincial government.
As a result, funding is often not available to support resource conservation projects. An effort should be made to ensure that moneys are available to fund these opportunities. To this end, UBC should collaborate with the BC government to increase access to financing for colleges and universities investing in clean energy infrastructure. In the meantime, the university will need to provide access to capital for sustainability premiums on capital projects through the creation of a Sustainable Campus Fund.

Recommendation: By 2010 the university should establish a **Sustainable Campus Fund** and develop related policy to **guide decision-making that includes lifecycle analysis in the selection of the best, highest value projects** for the university. UBC should work with the provincial government to find innovative ways to make it possible for UBC to be able **to invest in sustainability projects without being constrained by the provincial government debt capital cap**.

OA3 Meeting and Exceeding Third Party Benchmarks

Goal: Be an international leader in campus sustainability.

UBC has been at the forefront of sustainability planning, measuring and reporting on campus sustainability. *Inspirations & Aspirations (2006-2010)* sets UBC's sustainability goals and targets and has guided performance reporting. A new Sustainable Campus Plan is needed for 2010-2015, which will outline comprehensive operational targets and metrics for making our campus sustainable and inclusive. It will provide metrics for reporting on progress as well as provide a detailed framework for campus as a living lab and the role of campus operations in fostering community partnerships. The Plan will also work to build shared targets in collaboration with the University Neighbourhood Association.

The updated Sustainable Campus Plan will take into account standardized external benchmarks and metrics designed specifically for campuses and will aspire to the highest standards for energy, GHG emissions, water, waste, green buildings, dining, transportation, land-use, biodiversity, infrastructure, and community participation in sustainability practices. Comprehensive operational and administrative goals and targets will draw on the best thinking and aspirations of the UBC campus community- staff, faculty students, residents and external community. The university will also need to support corresponding infrastructure for performance management, including quality assurance.

Recommendation: By 2010, prepare a **comprehensive UBC Campus Sustainability Plan (2010-2015)** which sets targets **that meet or exceed the highest level of external standards and benchmarks.**

OA4 Supply Chain Management

Goal: Influence UBC's supply chain to gain economic, ecological and social returns for the university and the region.

UBC's Supply Management office has redefined value through a focus on sustainable purchasing, using a systematic approach to buying supplies and services that takes into account the best value for money (e.g. price, quality, availability, and functionality). Supply Management also considers ecological impacts of products through their lifecycle and integrates social and ethical aspects into procurement decisions (e.g. local jobs, working conditions, inclusiveness, and fair trade). Building on this work, UBC is extending sustainable purchasing across both campuses.

UBC's total economic impact amounts to $6.3 billion in local income and jobs. The opportunity exists to leverage UBC's purchasing power ($2.2 billion in direct, indirect, and induced local spending) to influence the supply chain to minimize resource use. By adopting a shared services model UBC can generate economies of scale, document trade-offs, and support BC's emerging green economy. Supply Management has begun to work with suppliers to improve the social, ecological and economic sustainability throughout the supply chain (product development, packaging and delivery).

Recommendation: The University and dedicated representatives should work with key suppliers to **build lifecycle-based sustainability targets and tracking mechanisms into all major contracts.**

OA5 Behaviour and Organizational Change

Goal: Enhanced asset and consumption management through behavioural and organizational change promoting resource conservation and a culture of sustainability.

Sustainability is fundamentally about changing the way individuals and organizations make decisions and act. Targeted organizational and behavioural change programs are as important to resource conservation as technological and policy changes. For example, the effectiveness of many green building design features (e.g. heating controls and window shades) rely as much on proper use by building occupants as on installation. Similarly, sustainability purchasing policies (e.g. paper choice) are only as effective as the daily purchasing choices of individuals across UBC's many business units and departments. A considerable body of research suggests that behavioural change is an essential component of successful sustainability policies.

Changing behaviour involves building individual awareness of required changes, commitment to action, and developing the tools, knowledge and incentives (or disincentives) to promote consistent action in the course of daily decisions and activities. At an organizational level, change involves building the capacity to make business practice consistent with resource conservation. Changing behaviour at the individual and organizational level provides a major opportunity to link the research and operational agendas, and an important opportunity for information sharing and interface with external communities. It also provides opportunities to further incorporate sustainability into courses and develop co-curricular or for-credit programs like UBC's Social, Ecological, and Economic Development Studies (SEEDS) program.

Surveys and anecdotal evidence show that UBC has engaged a small portion of the campus in change towards sustainability. There are also many campus target groups not yet effectively or fully engaged. There is an opportunity to work with the campus 'early adopters' or champions driving change within business units and faculties, in the context of forthcoming plans and targets (Climate Action Plan, Energy Management Plan, etc.) to encourage robust engagement and behaviours consistent with resource conservation.

Recommendation: By 2010, design and commence the implementation of a **targeted, campus-wide behavioural and organizational change program** that supports the resource conservation goals and targets outlined in the Campus Sustainability Plan (2010-2015). This will have an initial focus on climate-related goals and targets, and should involve the active participation of students and faculty through research and teaching activities.

6. Implementation

Achieving the goals and recommendations outlined in the previous three sections of this report will require some institutional change at UBC. During the deliberations of the SAS Working Group time was spent discussing various ideas for implementing the SAS recommendations. What follows are recommendations based on those deliberations.

I1 The University Sustainability Initiative (USI)

Goal: Create an institutional home for sustainability at UBC.

It is critical that there be a highly visible 'centre' for sustainability that serves as the physical and institutional home and connector for some key functions at UBC (e.g. clearinghouse, showcase, facilitator, inventory maintainer, window on sustainability activities at UBC, source of UBC Farm resources and links, etc.). Such a centre will foster integration across the university's academic and operational functions and incubate collaboration with external partners.

The University Sustainability Initiative (USI) would be located in the CIRS building and initially include four units: 1) Teaching & Learning, 2) Research, 3) Operations, and 4) some representation of the Okanagan Sustainability Institute (OSI). OSI would be primarily located on the UBC-O campus but would have a strong presence within the USI. Each of these units should have both operational and strategic roles within their respective areas while explicitly collaborating across the units. TUSC is intended to leverage existing

resources as much as possible, requiring modest staff budgets, and a limited budget for faculty stipends and buy-outs.

A description of the four USI units follows:

a) An organizational unit on Sustainability Teaching and Learning should be created within the USI. The unit's role should be to *coordinate* and *support development* of undergraduate and graduate teaching and learning initiatives on sustainability, both currently offered and new, at UBC-V. This unit would have staff for student advising, website management and administrative support. It would also have Sustainability Fellows (faculty members), in a part-time capacity and cross-appointed for two to five year terms, and an advisory group of senior academics (e.g. Deans or Associate Deans). The proposed unit would report to the VP Academic.

b) CIRS should be established as a research centre at UBC, with responsibility for managing the CIRS research program, the UBC-Pacific Institute for Climate Solutions (PICS) program, and acting as a strategic and informational hub and network node for sustainability research and partnerships. CIRS would house five Sustainability Research Fellows and the support staff needed to fulfill its functions. The proposed unit would report to the VP Research.

c) The Sustainability Office would remain the centre for operational sustainability within the USI. The office should maintain its role to guide, support and enable the realization of a comprehensive and inclusive sustainable campus, continue to enhance educational opportunities related to sustainability on campus, and promote the use of our campus as a living lab. The Sustainability Office should continue to deliver core programs (SEEDS, SC, Rez SC, REAP, Climate Action, Energy Management, etc) and strategic services (communications, sustainability planning and reporting, etc.) that work towards economic, environmental, social and intellectual returns to the University. The SO should continue to report to the VP Finance, Resources and Operations through Campus and Community Planning.

d) At UBC Okanagan the responsibility for sustainability planning and coordination falls to two entities: the Okanagan Sustainability Institute (OSI) and the Office of Workplace Health and Sustainability (OWHS). Whereas the OSI is a Senate-approved research centre driven by mostly academic pursuits in collaboration with community partners, the OWHS has primarily an operational/administrative mandate. The vision is to retain these two structural entities while striving to integrate their mandates into one coherent whole that weaves together the academic and operational pursuits so as to achieve the overall objectives of 'explore' and 'exemplify' encapsulated by the Campus as Living Laboratory theme. The specific form UBC Okanagan representation will take within USI has yet to be determined, but for now, the OSI will serve as a place-holder until the details are worked through.

Recommendation: UBC should create the University Sustainability Initiative (USI) with a full-time Director and appropriate levels of staff and budgetary support. The USI would be located in the CIRS building and initially include four units: 1) Teaching & Learning, 2) Research & Partnerships, 3) Campus Operations, and 4) the Okanagan Sustainability Institute.

I2 Showcasing Sustainability Activities

Goal: Enhanced communication on UBC's sustainability activities for students, staff, faculty and external communities

If UBC is to make sustainability a defining feature of its teaching, research and operations, there is a need to significantly upgrade the way in which such activities are communicated. UBC's current activities in sustainability teaching, research and operations are not well known on campus, or in the community. As it upgrades these activities, UBC should develop a strong and coordinated communication plan both on-campus and in the community that includes an integrated sustainability website with a "map" of sustainability projects and features on campus, a sustainability component to student orientation, increased coordination of messaging, community service learning, certificate programs, community events, etc.

Furthermore, UBC should conduct and regularly update a comprehensive inventory of existing sustainability curricula at UBC to promote the curricula, encourage collaboration and co-teaching, as well as to assess student access to existing sustainability courses and programs. A comprehensive and well-maintained website on sustainability teaching and learning opportunities across the University should provide a full course inventory of sustainability related courses and programs and provides a focus and portal to sustainability curricula and other related initiatives offered across campus.

Recommendation: UBC should **substantially upgrade its communication activities**, to showcase sustainability on campus and share UBC's sustainability story with the world.

I3 Changing Reward Systems

Goal: Incentivize excellence in sustainability research and teaching to build UBC's leadership capacity and facilitate the achievement of UBC's sustainability goals.

A critical element of a research-intensive university is the role that promotion and tenure play in encouraging and rewarding certain types of research contributions. Sustainability research and teaching cross traditional disciplinary boundaries to address problems of great significance to the broader community. Professional incentives, however, have not matched the demand for this work. In order to achieve the goals articulated in the preceding sections, UBC should recognize the value of inter-disciplinary sustainability research and teaching in order to facilitate the engagement of faculty in work pertaining to these critical issues. This requires the creation of rewards, incentives, and adjustments to UBC's tenure and promotion practices that reflect UBC's commitment to securing its position as a sustainability leader.

Recommendation: **Enhance support for staff, faculty and community** (e.g. alumni, First Nations, UNA) **to engage in sustainability leadership and practice** in teaching, research and campus sustainability. Explore opportunities to **embed sustainability into UBC's resources and infrastructure** over the longer term. This includes an **adjustment of peer review criteria** to account for the value of sustainability research, service and partnership activities and provide opportunities for self-identification as a sustainability researcher**.** Faculty members and graduate students should be rewarded if their commitments to sustainability education require significant inputs of time and other resources. Employee efforts should be reinforced through recognition and awards, training opportunities, and peer to peer networking and knowledge exchange.

7. Special Projects

The SAS Working Group was asked to consider three special projects during its deliberations. These were the UBC-V South Campus, the UBC-O Sustainability Institute and the UBC-V Centre for Interactive Research on Sustainability (CIRS).

7.1 UBC-V Centre for Interactive Research on Sustainability (CIRS)

In response to the global challenge of building a more sustainable society, the Centre for Interactive Research and Sustainability (CIRS) will be an internationally recognized centre that accelerates the adoption of sustainable building practices, sustainable urban development and policy and behavioural change in society. CIRS aspires be the most innovative and high performance building built to date in North America, with leading edge research in sustainable design, products, systems, participatory processes, and decision making.

In conjunction with a wide-ranging team of private sector, non-governmental organization, academic, and public partners, CIRS will launch Canada into a position of leadership in three inter-related realms of applied sustainability: 1) building design and operations; 2) visualization, simulation, and community engagement; and 3) partnerships and strategies for regional implementation. As a state-of-the-art "living laboratory", the CIRS building will allow researchers and building industry partners to undertake research

and assessment of current and future sustainable building systems and technologies. Advanced visualization, simulation and community engagement technologies and processes will support research on new approaches to interacting with citizens in exploring a sustainable future. Partners from private, public, and NGO sectors will share the research facility, working with dedicated CIRS researchers to identify areas in which British Columbia has a competitive edge in sustainable technologies and services and helping to commercialize these on the ground, creating a springboard to the export market.

As a living laboratory of sustainable design and practice, the CIRS *building* is the logical showcase and home for the UBC's Sustainability Academic Strategy. The four components of SAS described in section 6 above will be housed in the CIRS building, thus providing a single point of contact for UBC students, faculty staff and the external community across the Teaching and Learning, Research and Partnership and Operations/Administration components of the strategy.

Because of its strong focus on a wide-raging sustainability research agenda, which is already highly connected to multiple external partners in the community, the CIRS *research program* is the logical base on which to build the SAS research and partnerships function. We propose creating CIRS (now funded entirely out of soft money) as a research centre at UBC, with the responsibility to manage the SAS research and partnerships activities. As with the UBC-V Sustainability Office, and the proposed Academic Programs Office, CIRS will have a dual function: to manage its own programs and to help facilitate, and support sustainability research and partnerships across campus. The Research Fellows proposed above (see section 4) will be attached to this research and partnerships program.

Construction is expected to start on the CIRS building in August, 2009, with occupancy in the spring of 2011. This schedule will allow the building design to incorporate the SAS activities proposed here. While the CIRS building is under construction, these activities will need to be housed elsewhere.

7.2 UBC-V South Campus

The UBC Farm and its surrounding areas on South Campus will be a world-class academic resource and a central part of UBC's sustainability aspirations. The management of the working farm and forested areas and their connections with a growing residential community provides the foundation to achieve an academic vision that complements CIRS and contributes significantly towards SAS' recommendations, making the link between sustainable urban development and the stewardship of the rural areas and larger ecological regions that support urban populations. The UBC Farm and its surroundings are a globally relevant microcosm that will explore and exemplify sustainable ecosystem management and community development within the context of increasing urbanization.

Unique among on-campus facilities, the UBC Farm and its surrounding areas allow for field-scale primary production of food, fibre, and fuel, and provide a range of ecosystem services including support for on-campus biodiversity at the genetic, species, and community level. The South Campus offers, for example, opportunities to explore how managed terrestrial ecosystems can affect climate change, assimilate and transform waste energy and materials from urban areas, affect biodiversity, contribute towards community health and food security, or produce different forms of renewable energy. The discovery and reciprocal dissemination of new knowledge achievable through exploration and development of South Campus supports recommendations RP2 and RP3 in the SAS. With the integration of a growing residential community on South Campus and a thriving community engagement strategy already underway on the farm, the site can give UBC a competitive advantage with direct access to the kind of community partnerships that support flagship grants such as CURA, identified as a priority in recommendation RP1 of the SAS.

The proximity of the farm system to the main campus offers accessible experiential and transformational learning for students who are able to directly link sustainability theory with practical applications through field studies on site. The curricular and co-curricular learning on South Campus will provide students in the natural and physical sciences as well as the arts, social sciences, and humanities the opportunity to immerse themselves in the processes and practices of sustainability that come into focus at the intersection of land, food, and community. Student opportunities range from general exploration and analysis of the components and relationships that make up the farm-forest-community system to specific active research

projects on site. Student-directed projects at both the undergraduate and graduate level will actively contribute to the evolution of the site. The student experience on South Campus will support recommendations TL1 and TL3 in the SAS. Existing faculty members who become Associates of the South Campus centre will work in partnership with the "Sustainability Teaching Fellows" recommended in section TL2 to ensure that South Campus opportunities are clearly embedded in appropriate curricula.

The South Campus Academic Plan recommends specific goals for scholarship as well as physical development. The retention of the farm presents opportunities to bring innovative design to nearby future academic, community, and operational facilities, creating a vibrant rural-urban interface. One example may be a new residential college that immerses its students and fellows in farm-based sustainability practice. A set of management principles with quantifiable metrics will provide a holistic framework for activity on the site, striving for net-positive energy, net-positive potable water, net-negative solid waste, and net-negative carbon emissions, while maintaining and enhancing biodiversity, positive aesthetic qualities, and net agricultural productivity. By adhering to these principles, South Campus can contribute significantly towards the recommendations in section 5 (Operations and Administration) of the SAS.

South campus program activities and opportunities will be shared and supported in part through the Teaching and Learning unit of the USI in its CIRS offices, which will serve as a main-campus node to link South Campus with a range of cross-campus sustainability initiatives. The farm is envisioned to have physical links to CIRS as well, in supplying a range of foods for the building's inhabitants. Through making these connections, South Campus will add a key chapter to UBC's sustainability story.

After general public consultations, the multi-faculty South Campus Academic Planning Committee will release the South Campus Academic Plan approximately one month after the SAS document. An implementation plan, making specific time-bound recommendations as well as an overall business strategy to support the recommendations, will follow in early 2010.

7.3 UBC-O Sustainability Initiative

UBC Okanagan will achieve its sustainability vision by creating a university culture that imparts the values of a civil and sustainable society and fosters an exceptional learning experience for its students, faculty, staff and the community. It will embrace and model sustainability as a core pillar of UBC Okanagan's Academic Strategic direction and will work collaboratively and innovatively to achieve its goals.

UBC Okanagan will take a fully integrated, interdisciplinary systems approach to explore and demonstrate sustainable living, teaching and research as "a living campus". It will be an incubator for new ideas and solutions and will prepare graduates to identify and overcome sustainability challenges of the future.

At UBC Okanagan, sustainability will be built within and integrated between three key areas:

1. ACADEMIC: curriculum, teaching, learning, research, publication and service
2. OPERATIONAL: operations and administration
3. COMMUNITY: community relations and partnerships on campus, locally, regionally and globally

The responsibility for sustainability planning and coordination falls to two entities: the Okanagan Sustainability Institute (OSI) and the Office of Workplace Health and Sustainability (OWHS). Whereas the OSI is a Senate-approved research centre driven by mostly academic pursuits in collaboration with community partners, the OWHS has primarily an operational and administrative mandate and works collaboratively with a variety of campus and community partners to move UBC Okanagan's sustainability agenda forward.

The vision is to retain these two structural entities while striving to integrate their mandates into one coherent whole that weaves together the academic and operational pursuits so as to achieve the overall objectives of 'explore' and 'exemplify' encapsulated by the "Living Campus" theme. While the OSI and the OWHS will form the overarching umbrella to realize UBC Okanagan's sustainability initiatives, all members of the campus community will have a role to play to achieve a sustainable campus culture and will work

collectively toward this vision. The Offices of the DVC and the Provost will provide leadership support of the OSI and the OWHS and will be joined by Faculties and AVPs working collaboratively with the OSI and the OWHS to ensure sustainability is successfully integrated into the UBCO campus culture.

With a strategic focus to integrate academic and operational sustainability on the Okanagan Campus, the concept of developing a “UBC Okanagan Sustainability House” has emerged, and it will become the hub of activity where many sustainability initiatives will be developed. It will be created to facilitate and enhance collaborative links between the academic and operational sectors at UBC Okanagan and the community to encourage collaboration, activities and research. The "Sustainability House" will provide a means to strategically position and drive sustainability as a key pillar of UBC Okanagan’s culture and exceptional experience by providing the project base for an interdisciplinary systems approach to sustainability that will be demonstrated at UBC Okanagan as “a living campus."

With the leadership direction and guidance of the Provost and the Associate Vice President Administration and Finance working together with the Director of the Okanagan Sustainability Institute and the Manager of the Office of Workplace Health and Sustainability, the Sustainability House will develop and evolve and will achieve the goals as set out in the UBC Okanagan Academic Plan and the UBC Okanagan Strategic Research Plan.

The UBC Okanagan Sustainability Discussion Paper (Appendix C) outlines specific recommendations from the Okanagan campus in the areas of curriculum, teaching and learning, research and scholarship and operations. These ideas have been developed in consultation with the UBC Okanagan Sustainability Working Group, the Academic Strategic Planning Working Group and Sustainability Sub-Theme Committee and with information generated from the UBC Okanagan SAS Town Hall meeting, UBC Okanagan staff, faculty and student sustainability survey responses and the initial draft sustainability academic and operational baseline and inventory information.

The discussion paper provides a high level overview of the direction that UBC Okanagan plans to take with respect to sustainability in the academic and operational areas, and will provide the foundation for the development of a more detailed operational plan.

8. Conclusions

UBC is committed to the pursuit of excellence in the academic realm, and seeks to engender global citizenship that advances a sustainable society. The Sustainability Academic Strategy will be a major component of the new UBC Strategic Plan (currently being developed) by identifying innovative and integrative means by which UBC can enhance its already significant presence in sustainability teaching, research and operations, and position UBC as a leader amongst its peers.

Recognizing current budget realities and the desirability of immediate action, every effort has been made to produce recommendations that are significant but also affordable and able to be implemented in the short term. These recommendations are intended therefore to move UBC significantly towards the goal of developing a globally significant presence in sustainability teaching, research and operations. But they are only the beginning. Should UBC decide to pursue this path, the recommendations provided herein would create a base of integrated activity that would pave the way to the implementation of more fundamental changes to UBC’s operations, research, and educational capacities. These more fundamental changes are likely to require more significant investments of funds (e.g. faculty positions, operational investments, new programs) than are proposed here.

Sustainability is a societal challenge, and so both learning and engagement are required to address it. We believe that the cross-cutting themes of Campus as a Living Lab and University as an Agent of Change will help to knit together the three core areas and facilitate implementation of SAS recommendations. Furthermore, the two overarching principles of the SAS, to explore and exemplify sustainability in multi-faceted ways, themselves represent the twin imperatives of academic and operational sustainability.

Finally, we believe that the Sustainability Academic Strategy is a proactive way for UBC to address current economic uncertainty, and the changing demographic and cultural context for universities in the decades ahead. Demonstrating and showcasing UBC's excellence in sustainability, promoting courses that are relevant and desirable to students, and encouraging research that will facilitate the work of governments and other partners represents a strategy to ensure that UBC is well poised not just to weather the current economic storm but also to take advantage of the recovery, and changes in the post-secondary context as they occur. Now more than ever, it is the right time to take these actions and to show strong leadership in a forward looking way.

Appendix A: Membership of the SAS Working Group

Chair

- Dr. John Robinson, Professor, Institute for Resources, Environment and Sustainability, UBC-V

Vice-Chairs

- Dr. Peter Dauvergne, Professor, Political Science, UBC-V
- Ms. Charlene Easton, Director, Sustainability, Campus and Community Planning, UBC-V

Academic Members

- Dr. Bernie Bauer, Associate Provost, UBC-O
- Dr. Erica Frank, Professor, Population and Public Health, UBC-V
- Dr. John Grace, Professor, Chemical and Biological Engineering, UBC-V
- Dr. Sarah Otto, Professor, Zoology, UBC-V

UBC Administration

- Mr. Geoff Atkins, Co-Chair, President's Advisory Council – Sustainability, and Leader of University Sustainability, UBC-V
- Ms. Leanne Bilodeau, Manager, Workplace Health and Sustainability, UBC-O
- Mr. Mark Bomford, Farm Program Coordinator, Faculty of Land and Food Systems, UBC-V
- Mr. Ian Cull, Associate Vice President, Students, UBC-O
- Dr. Margo Fryer, Director, UBC-Community Learning Initiative, UBC-V
- Dr. Nancy Knight, Associate Vice President, Campus & Community Planning, UBC-V

Students

- Mr. Michael Begg, PhD student, GSS representative, UBC-V
- Mr. Marlowe Sam, PhD student, UBC-O
- Mr. Anthony Smith, Undergraduate student, AMS representative, UBC-V

External Partners

- Ms. Anne Murray, Vice President, Community and Environmental Affairs, Vancouver Airport Authority
- Mr. Peter Robinson, CEO, David Suzuki Foundation
- Ms. Cheryl Slusarchuk, Co-President, Premier's Technology Council
- Mr. Milton Wong, Chairman of the Board, PMI Labs.

Appendix B: SAS Process and Consultation Activities (Mar-Oct, 2009)

Introduction

The Sustainability Academic Strategy (SAS) Working Group is consulting widely with the UBC-V and UBC-O communities and others to develop the draft recommendations by September 2009. The SAS process builds on the work of the SAS Working Group and three President's Advisory Council on Sustainability (PAC-S) Working Groups.

- Sustainability Working Group (UBC-O)
- Academic Programs Working Group (UBC-V)
- Operations Working Group (UBC-V)

SAS Working Group Meetings

SAS Working Group Established	March 12, 2009
SASWG Meeting	April 9, 2009
SASWG Meeting	June 4, 2009
SASWG Meeting	July 16, 2009
SASWG Meeting	September 10, 2009
SASWG Meeting	October 15, 2009

SAS Activities

Town Hall Meeting UBC-V	April 8, 2009
Town Hall Meeting UBC-O	April 14, 2009
Governance Meeting	May 14, 2009
Academic Programs Working Group Meeting	May 20, 2009
Operations and Administration Meeting	May 26, 20009
Community Meeting	June 8, 2009
Teaching and Learning Meeting	June 9, 2009
Research and Partnership Meeting	June 12, 2009
Operations Working Group Meeting	June 30, 2009
South Campus Academic Plan	May - August, 2009
Web Site Electronic Engagement	May - September, 2009
Draft SAS Report Submitted to Executive	August 18, 2009
Community Consultation	September 16, 2009

SAS Web Site URL: www.sas.ubc.ca
The SAS web site is a resource featuring information and electronic engagement about the SAS process, activities and themes, SAS Working Group, relevant sustainability resources, a question of the week, SAS news, and upcoming events. The web site features 2.0 interactive web technology that allows readers to post comments and submit papers to the SASWG for consideration. As of June 15, 2009 the web site attracted 565 visits and had 1,907 page views. We expect this number to increase when classes resume in the fall 2009.

Teaching and Learning

The Academic Programs Working Group - Vancouver (APWG-V) and the PAC-S support teaching and learning activities. The APWG-V was chaired by Dr. Peter Dauvergne, Vice-Chair of the SAS Working Group, and is currently chaired by Dr. Nicholas Coops from the Forest Resources Management Department. Since September 2008, the APWG-V has been working with faculty, students and staff to improve undergraduate and graduate sustainability education at UBC. Membership of the APWG-V includes faculty, staff and students.

Inventories and other research prepared by the APWG-V and SWG-O inform teaching & learning recommendations for the Sustainability Academic Strategy (SAS). In 2009, the APWG-V, in collaboration with the Sustainability Office, consulted with UBC undergraduate students to understand their sustainability interests. *Sustainability Education at UBC: A Student Perspective*, outlined the findings of 635 respondents to an online student sustainability survey (see web site for more information).

A teaching and learning meeting held in May discussed proposed draft recommendations by the APWG-V. To this end, the working group developed a conceptual framework for categorizing sustainability courses based on the three pillar model of sustainability and the Sustainability Tracking, Assessment and Rating System (STARS). Academic offerings related to sustainability at UBC-V were compiled and made available in late 2009.

Students met to review the initial draft recommendations from the APWG-V in June. Participants brainstormed any missed opportunities or gaps within the recommendations.

Process for Generating Recommendations:
While some SAS recommendations received unanimous approval within the APWG-V, others were discussed and debated. The first draft of the teaching and learning recommendations was presented at the June 4th SASWG meeting. Once the initial recommendations were reviewed by a meeting with invited students, the draft recommendations went back to the APWG-V executive for revision before being reviewed by the SASWG.

Research and Partnerships

SAS conducted a sustainability research inventory (see http://www.sas.ubc.ca/wp-content/uploads/2009/06/SAS-RP-Inventory-Report-260709-_2_.pdf). The inventory consisted of accessing the Researcher Information Services (RISe) online system by the Office of Research Services (ORS), communicating with Associate Deans to help assess sustainability research strengths and gaps, speaking with key informants, and collecting secondary data from university departments and units.

Process for Generating Recommendations:
Research and partnerships held a meeting on June 12 to explore strategic priority areas, barriers and research gaps within sustainability research at UBC. The consultation had two goals:

- To develop recommendations to be included in the SAS, which fostered increased capacity for integrative, interdisciplinary sustainability research at UBC.
- To discuss and explore issues related to sustainability research, and to increase UBC's capacity for integrative, interdisciplinary sustainability research.

The session brought together a group of UBC faculty, staff, and students to discuss the specific strategies that could be employed to achieve these goals. Throughout the session, recurring ideas included:

- Addressing the challenges presented by non-linearity and surprises that will increasingly emerge as a result of climate change;
- The need for cultural change (and multiple interventions to stimulate it) in support of fundamentally inter-disciplinary and problem-focused sustainability research; and
- The insight that the division between research and operations is fundamentally unsustainable because theory requires integration and context in order to fully develop.

Discussions around these strategic areas informed the development of draft recommendations. The initial recommendations were refined and circulated to participants for comment and were reviewed by the SASWG.

Operations and Administration

The UBC-V Operations Working Group (OWG) of the President's Advisory Council on Sustainability (PAC-S) is chaired by Charlene Easton, Director of the UBC Sustainability Office. It builds on the work of the historical Sustainability Advisory Committee (1998 – 2008), which guided the efforts of the UBC-V

Sustainability Office. The OWG includes members from both UBC-V and UBC-O and is made up of staff, faculty, students and community representatives.

In November 2008, the UBC Sustainability Office designed a dialogue session with campus community partners to define the next generation of challenges for campus sustainability. The consultation conducted a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis of the Sustainability Office and sustainability on campus at UBC (see the full report on the SAS web site). The session was followed with an operations and administration meeting in May 2009 that helped prioritize future directions for a comprehensive and inclusive sustainable campus. The session generated materials from which SAS formulated a set of recommendations organized around ecological, social, economic, and institutional areas pertaining to operations and administration.

Process for Generating Recommendations:
Notes from the session were synthesized into preliminary recommendations by Sustainability Office staff and an OWG lead member for each theme area. Initial recommendations were circulated to OWG participants for comment via email. Draft recommendations then went to the SAS Working Group for review and comment.

Community Engagement

UBC launched the SAS by hosting two Town Hall meetings at UBC-Vancouver on April 8, 2009 and UBC-Okanagan on April 14, 2009. The SAS Town Halls attracted students, faculty, staff and community members who offered valuable ideas and input to the process.

A community meeting on June 8th with SASWG external community members further refined ideas and insights that informed recommendations for the SAS.

Community engagement was planned interactively through the SAS web site and a Campus Community Consultation was held on September 16, 2009 to obtain feedback on the draft SAS report. Representatives from faculty, staff, students, and community groups were present at the consultation. Comments were gathered and accounted for, where possible.

SAS Report Submission to Executive

On August 18, 2009, a complete draft SAS report was presented to the UBC Executive.

Appendix C: UBC Okanagan Sustainability Initiatives Discussion Paper

UBC OKANAGAN SUSTAINABILITY INITIATIVES

DISCUSSION PAPER

Revised September 28, 2009

Submitted by the Provost
To
The Deputy Vice Chancellor

Okanagan Sustainability Initiatives

Discussion Paper

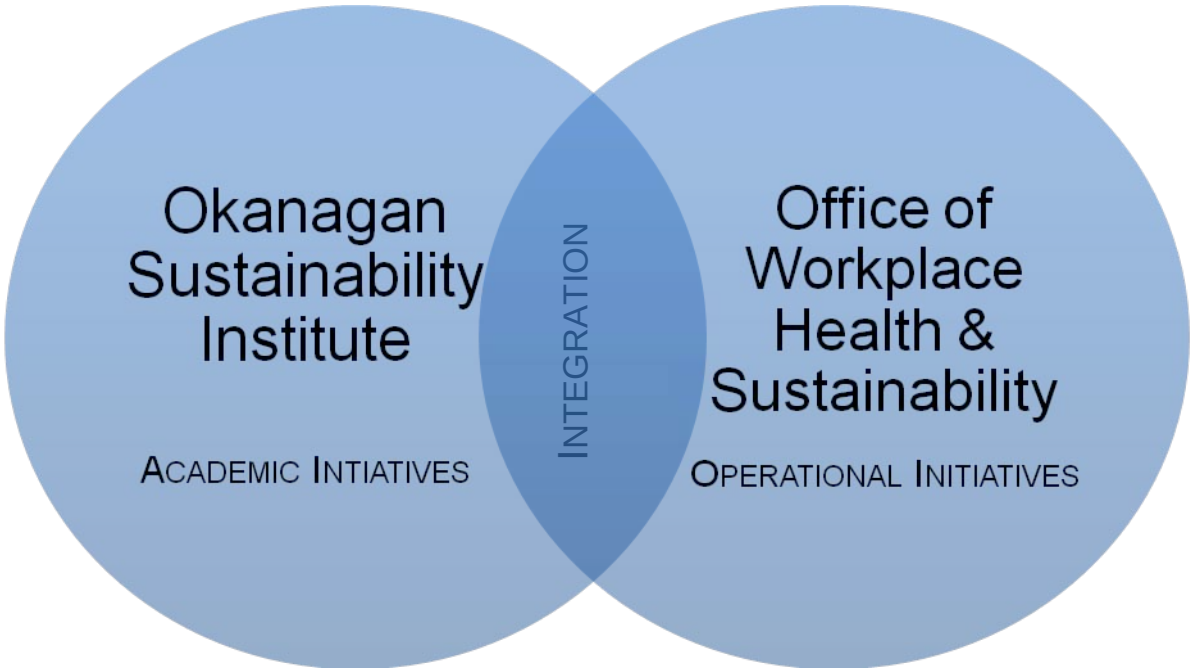
This discussion paper sets out the overarching vision, structural entities and 2009/2010 initiatives for sustainability on the Okanagan Campus.

1. Overarching Vision

UBC Okanagan will achieve its sustainability vision by creating a university culture that imparts the values of a civil and sustainable society and fosters an exceptional learning experience for its students, faculty, staff and the community. It will embrace and model sustainability as a core pillar of UBC Okanagan's Academic Strategic direction and will work collaboratively and innovatively to achieve it's goals.
UBC Okanagan will take a fully integrated interdisciplinary systems approach to explore and demonstrate sustainable living, teaching and research as "a living campus". It will be an incubator for new ideas and solutions and will prepare graduates to identify and overcome sustainability challenges of the future.
At UBC Okanagan, sustainability will be **built within and integrated between** three key areas:

1. **ACADEMIC:** curriculum, teaching, learning, research, publication and service
2. **OPERATIONAL:** Operations and administration
3. **COMMUNITY:** Community relations and partnerships on campus, locally, regionally and globally

2. Structural Entities



The responsibility for sustainability planning and coordination falls to two entities: the Okanagan Sustainability Institute (OSI) and the Office of Workplace Health and Sustainability (OWHS). Whereas the OSI is a Senate-approved research centre driven by mostly academic pursuits in collaboration with community partners, the OWHS has primarily an operational/administrative mandate.

The vision is to retain these two structural entities while striving to integrate their mandates into one coherent whole that weaves together the academic and operational pursuits so as to achieve the overall objectives of 'explore' and 'exemplify' encapsulated by the “Living Campus” theme.

While the OSI and the OWHS will form the overarching umbrella to realize UBC Okanagan’s sustainability initiatives, all members of the campus community will have a role to play to achieve a sustainable campus culture and will work collectively toward this vision. The Offices of the DVC and the Provost will provide leadership support of the OSI and the OWHS and will be joined by Faculties and AVP’s working collaboratively with the OSI and the OWHS to ensure sustainability is successfully integrated into the UBCO campus culture.

3. Initiatives

Academic Initiatives:

Curriculum, teaching and learning

- Establish an institutional commitment to leadership in sustainability in curriculum teaching and learning and research and scholarship.
- Promote and expand upon Senate’s recently approved Sustainability Theme within the Interdisciplinary Graduate Studies Program.
- Re-configure and build upon existing curriculum to investigate the potential of building an undergraduate interdisciplinary sustainability degree.
- Respond to compelling student interest in sustainability curricula by working toward creating a sustainability major or minor and match enrolment and resources through the integration of sustainability into the content of courses.
- Ensure strategic faculty recruitment practices to develop local expertise in sustainability teaching and research within a broad scope of disciplines to reflect the interdisciplinary nature of sustainability issues and to foster collaboration between disciplines to help meet these challenges.
- Provide faculty workshops to help incorporate sustainability into curriculum

Research and scholarship

- Establish a process to track sustainability related research in the Research Services Office and connect this to the communications and promotional functions in the University to make visible and raise the profile of the research in this area
- Increase awareness among faculty of primary national research funding agencies including sustainability criteria in their applications and as such some level of sustainability assessment is likely in many research projects that were recently funded or new funding applications
- Provide faculty members with internal grants for sustainability related research tied to research conducted on campus so as to foster the integration between academics and operations and the overall vision for the sustainability house as well as tied to research conducted within the community
- Build new sustainability research partnerships locally, regionally, and globally (OSI)

- Expand mandate of OSI to including the innovation and development of sustainability curriculum and opportunities for integration of sustainability teaching and research.

- Choose and implement 2 – 3 substantive sustainability research projects over the next fiscal year to serve as tangible indications of the OSI's commitment to sustainability

Operational Initiatives:

- Create clear goals and targets for sustainability performance from baselines and install the monitoring and reporting protocols to track and report on performance on an annual basis. Some areas include: transportation, buildings, energy efficiency, renewable energy, campus landscape, gardening, procurement and food strategies and ensuring compliance with GHG regulatory reporting and monitoring requirements.

- Ensure that all administrative departments and academic units are aligned with and adhering to sustainability principles and practices related to the overall sustainability vision for the campus

- Implement a communications initiative that demonstrates and educates all on campus to the presence of sustainability and its centrality to the values and reputation of the University.

- Create a coordinated events and educational strategy that delivers a steady stream of "experiential" opportunities related to sustainability, such special speakers, sustainability-related "topic weeks" and others. Implement an educational initiative (tours, signage, others) to educate students, staff, faculty and visitors on the innovative and sustainability oriented elements of the campus' buildings, landscapes and infrastructure.

Integrative Initiatives:

THE SUSTAINABILITY HOUSE

The Sustainability House will be the hub of activity where many initiatives will be developed. It will be created to facilitate and enhance collaborative links between the academic and operational sectors at UBC Okanagan and the community. It will strategically position and drive sustainability as a key pillar of UBC Okanagan's culture and exceptional experience and it will build a fully integrated interdisciplinary systems approach that models sustainability in the Okanagan as "a living campus".
The Sustainability House will welcome faculty, staff, students, community partners and national and international guests and visitors.
With the leadership direction and guidance of the Provost and the Associate Vice President Administration and Finance working together with the Director of the Okanagan Sustainability Institute and the Manager of the Office of Workplace Health and Sustainability, the Sustainability House will develop and evolve and will achieve the goals as set out in the UBC Okanagan Academic Plan and the UBC Okanagan Strategic Research Plan. It will:

- Bring together Academics and Operations under one umbrella to achieve integration of sustainability as a "living campus" and act as a model and incubator for transformative sustainability innovation and research and student engagement

- Demonstrate the University as a "living campus" through integration of teaching, research and operations and provide students with credits for their contributions/work (such as students projects around green house gas emissions, composting, solar and alternative energy feasibility studies, energy use mitigation strategies, organic gardens, etc.)

- Expand SEEDS Program to reflect community engagement on campus, locally, regionally and globally and build awareness of the program and incentives.

- Initiate ground/up grass roots approaches that enable every faculty/unit/department to contribute to a sustainable campus by taking on sustainability related project, task or behavior change to help build a campus culture of sustainability.

THE SUSTAINABILITY HOUSE INTEGRATIVE MODEL