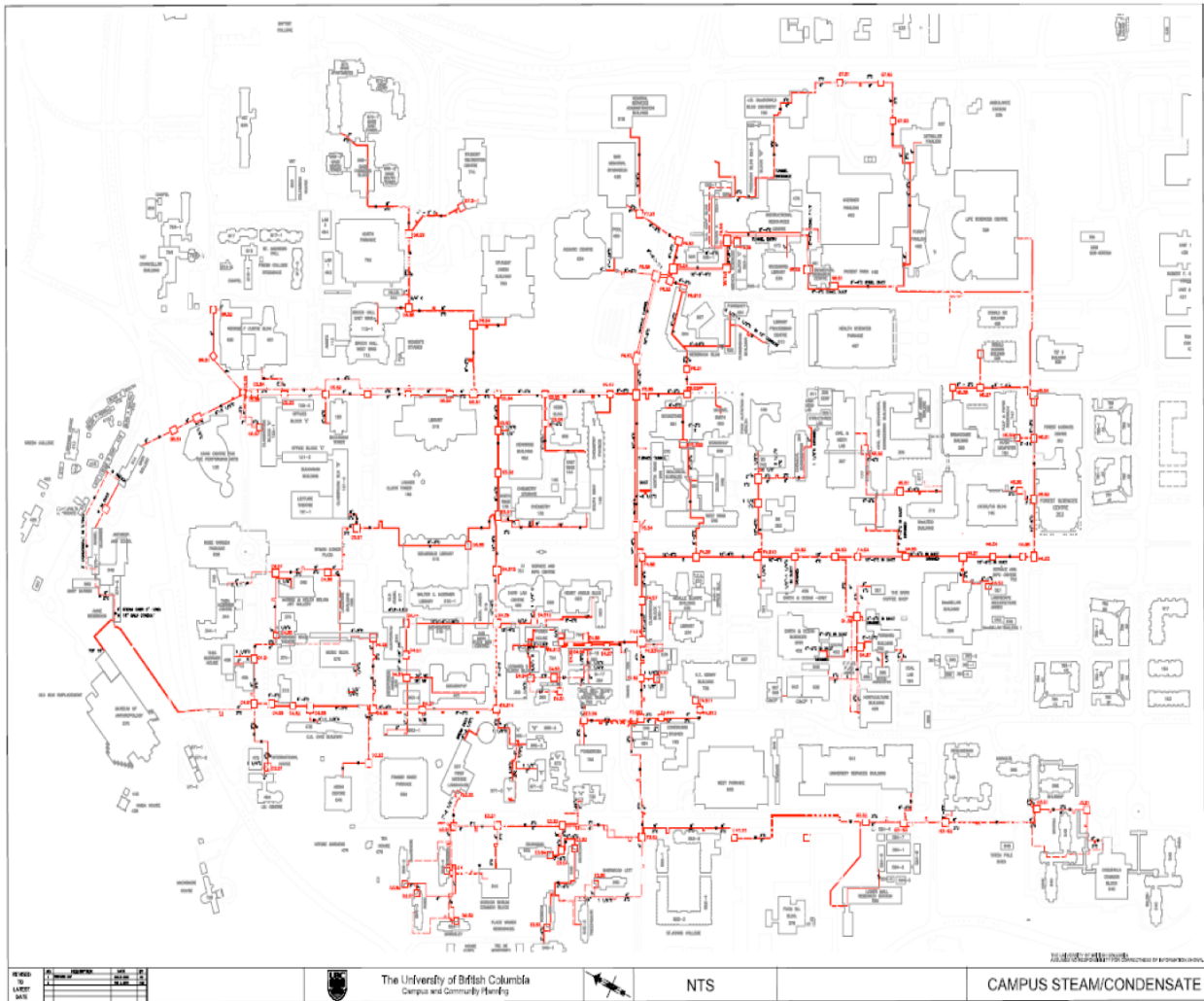


Exploring and Exemplifying Sustainability

UBC's Sustainability Academic Strategy

Draft Discussion Paper

Aug 18, 2009



UBC Vancouver's Steam Heating System: Treating both UBC's campuses as integrated energy, water and waste systems, with a goal of net positive energy and water, offers an unparalleled opportunity to link teaching and learning, research and partnerships, and operational activities through the Sustainability Academic Strategy

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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, 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 sustainability area. Fellows will also provide strategic advice on sustainability research and partnership activities across campus, and look for opportunities to build international research partnerships.

RP2 Research on Campus as a Living Laboratory

Recommendation: Develop 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 large-scale 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 should 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 and 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 *Inspirations & Aspirations Beyond 2010*, with an initial focus on climate-related goals and targets, and develop assessment tools to measure the impact of the program on resource consumption and asset management. This program would involve the active participation of students and faculty through research and teaching activities.

Implementation

I1 The University Sustainability Centre (TUSC)

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

The SAS initiative will foster new forms of sustainability learning and research, and associated 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. Our campuses provide a powerful opportunity to 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 our campuses 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.*”

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. 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 practices. 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. In addition, a diverse selection of sustainability-oriented undergraduate and graduate courses offer students the opportunity to engage in sustainability learning, as do 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 recommendations 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 should be created to assist undergraduate 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.

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, 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.

At UBC Okanagan, 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.

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, assessing existing programs offered by the Sustainability Office and the Centre for Sustainable Food Systems at the UBC Farm for opportunities to strengthen community engagement, 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 Social, Ecological, Economic Development Studies (SEEDS), 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, and 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 sustainability area. Fellows will also provide strategic advice on sustainability research and partnership activities across campus, and look for opportunities to build international 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).

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 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 also 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 major 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. 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 large-scale 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.

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, and which in turn built on the work of the previous Sustainability Advisory Committee (1998 – 2008), which has 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. Since November 2008, workshop sessions involving over 100 members of the campus community, followed by successive consultations focusing on the goals of the SAS mapped 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 city¹ 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. This project would also create new opportunities for research, and applied learning through the Social, Ecological, Economic Development Studies (SEEDS) and other programs, and sharing relevant findings beyond campus. The presence of a managed farm-forest landscape on South Campus in conjunction with a growing 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 presents specific recommendations to capture waste water and heat for the production of food, fibre, and fuel.

Because UBC is the single owner of all campus systems, the opportunity exists to implement and evaluate the technical and economic potential for such systems without being constrained by the complex legal and ownership issues that would be involved in a downtown urban environment. Such learning could potentially then be transferred to the more complex institutional environments off-campus.

Building on the Alternative Energy Sources 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, 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 project which demonstrates leading practice. This could also be applied in the University Neighbourhoods through UBC Properties Trust, and the University Neighbourhood Association.

Recommendation: Support innovation and projects that will advance the goal of becoming a **net positive energy and water campus**. This should 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

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.

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, at a minimum, a 33% GHG emission reduction by 2020 and a 2% reduction per year in energy consumption. 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 and 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 guides performance reporting. This plan will be updated early in 2010.

Inspirations and Aspirations Beyond 2010 (I&A II) will set comprehensive operational and administrative goals, targets and metrics for campus sustainability. It will provide a detailed framework for campus as a living lab, including innovation and learning opportunities, and will work to set shared goals and targets with our residential community through the University Neighbourhood Association.

This Plan will take into account standardized external benchmarks and metrics designed specifically for campuses, and will aspire to very high standards for energy, GHG emissions, water, green buildings, dining, transportation, land-use, biodiversity, infrastructure, and others. Comprehensive operational and administrative goals and targets that are informed by the highest level of external standards will be set, integrating 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 consumables management through behavioural and organizational change promoting resource conservation and cultural 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 such as heating controls and window shades rely as much on proper use by building occupants as on installation. Similarly, sustainability purchasing policies (paper choice) are only as effective as the daily purchasing choices of individuals across UBC's many business units. A considerable body of research suggests that behavioural change is an essential component of successful sustainability policies.

Behaviour change involves building awareness of required changes (such as targets identified in policies and plans) and developing skills, knowledge and incentives (and disincentives) to promote consistent action in the course of daily decisions and activities. At an organizational level, change involves building capabilities for business practice consistent with resource conservation. All these issues are the subject of ongoing research at UBC and present a major opportunity to link the research and operational agendas. They also provide further opportunities for incorporation in courses and in co-curricular 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 currently effectively 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.) which require robust engagement and behaviours consistent with 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 *Inspirations & Aspirations Beyond 2010*, with an initial focus on climate-related goals and targets, and develop assessment tools to measure the impact of the program on resource consumption and asset management. This program would 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.

11 The University Sustainability Centre (TUSC)

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 for some key functions at UBC (e.g. clearinghouse, showcase, facilitator, inventory maintainer, window on sustainability activities at UBC, virtual home for the UBC Farm, etc.). Such a centre will foster integration across the university's academic and operational functions and incubate collaboration with external partners.

The UBC Sustainability Centre (TUSC) 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 TUSC. 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 TUSC units follows:

- a) An organizational unit on Sustainability Teaching and Learning should be created within TUSC. 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 be the centre for operational sustainability within the TUSC. The office should maintain its role to guide, support and enable the realization of a comprehensive and inclusive sustainable campus. 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 TUSC 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 Centre (TUSC)** with a full-time Director and appropriate levels of staff and budgetary support. TUSC would be located in the CIRS building and initially include four units: 1) Teaching & Learning, 2) Research and Partnerships, 3) 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 (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 to 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-ranging 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 4.1) 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 agro-ecosystem management and community development within the context of increasing urbanization.

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 3.1 and 3.3 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 3.2 to ensure that South Campus opportunities are clearly embedded in appropriate curricula.

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 4.2, 4.3, and 4.4 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 4.1 of the SAS.

The South Campus Academic Plan recommends specific goals for scholarship as well as physical development. Development of buildings and infrastructure for discovery, learning, and living will proceed in a way that preserves and enhances the agro-ecological system, showcasing how well-planned urban development can proceed without undermining the function of the ecosystems that sustain it. South Campus presents specific opportunities for the creation of a new residential college that immerses its students and fellows in sustainability practice on site, and the development of multi-functional facilities that serve academic, community, and operational needs that demonstrate the highest standards in sustainable design. 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. Through careful management of the landbase, it is biophysically feasible to achieve these aspirations within the boundaries of the main 24-ha site. By offering this potential to meet operational sustainability objectives of this type within a defined scope, South Campus can contribute significantly towards the recommendations in section 5 of the SAS.

South Campus will have a "virtual" home within TUSC as described in section 6 of the SAS. This will provide a point of networking and dissemination that is not specific to a single discipline, and will ensure that the South Campus is well-known as a key part of 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 late 2009 or early 2010.

7.3 UBC-O Sustainability Initiative

The UBC-O Sustainability Working Group, chaired by Dr. Alaa S. Abd-El Aziz, Provost-Okanagan, contributes to the advancement of sustainability strategies and initiatives on the UBC-O campus. The Working Group was established in the fall of 2008 and is developing a baseline inventory in sustainability operations and academics. The UBC-O Office of Workplace Health and Sustainability has been established to lead and facilitate sustainability efforts on the UBC-O campus as they pertain to operational issues.

The core of UBC-O's sustainability work will take place within the Okanagan Sustainability Institute (OSI). The OSI is an interdisciplinary, inter-faculty institute dedicated to basic and applied research, scholarship, and creative works relevant to issues of long-term sustainability. Membership derives from interested and actively engaged faculty and staff at UBC Okanagan, richly complemented by an array of partnerships that activate and leverage capacity and expertise beyond the University.

The recommendations made in other sections of this report are largely consistent with those being developed for the UBC-O campus by the UBC-O Sustainability Working Group.

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-Aug, 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, 2009
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 are being compiled and will be 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.

Once students return in September, community engagement is planned interactively through the SAS web site and a Campus Community Consultation will be held on September 16, 2009 to obtain feedback on the draft SAS report.

SAS Report Submission to Executive

On August 18, 2009, this draft Discussion Paper was presented to the UBC Executive.