THE WORLD URBAN FORUM 2006

Vancouver Working Group Discussion Paper

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Turning Ideas into Action

In preparation for the 2006 United Nations World Urban Forum (WUF), the Vancouver Working Group (VWG) was created as a partnership of public and private agencies and civil society. It was mandated to initiate a series of research inquiries resulting in the *Vancouver Working Group Discussion Papers for the World Urban Forum.* These papers were prepared by members of the VWG with relevant experience and well-developed resources. It is hoped that these papers will contribute to the development of a thematic framework for WUF 2006 by articulating the concept and content of urban sustainability.

WUF will focus on urbanization as an all-encompassing global phenomenon and attempt to recommend effective actions to achieve a sustainable process of global urban transformation by balancing social, economic, environmental and political goals: *Turning Ideas into Action.*

The Vancouver Working Group Discussion Papers for the World Urban Forum are open-ended segments of a conceptual whole. Each of them will strive towards sustainability thereby transforming urban life into a productive, inclusive and environmentally balanced range of activities. These segments taken together will characterize sustainable human settlements. Sustainable urbanization can only be achieved through a mosaic of sustainable components that will add up to more than the sum of their parts.

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ACKNOWLEDGEMENTS

These papers continue the international dialogue on human settlements that began with the first UN Human Settlements Conference in Vancouver in 1976. They provide an initial analysis of diverse aspects of the current urban situation and create a basis for an informed discussion and development of ideas and relevant issues leading up to WUF 2006.

The purpose of the Forum is to engage people worldwide in discussions about urban issues and to stimulate significant change across generations in the field of sustainable urban development. The United Nations has challenged Canada to develop a more interactive and participatory Forum. Consultation, dialogue and conclusions formed prior to and during the World Urban Forum will also contribute to Canada's urban agenda and will help to create a long-term legacy of knowledge and action around sustainability issues in Canada and the World.

The papers contributed to Canadian efforts in Barcelona at the 2004 WUF. Ministers and Canadian officials held informal consultations with domestic and international stakeholders while in Spain. The WUF 2006 Secretariat will take into consideration all input received from interested stakeholders to ensure that Canada meets the challenge from UN Habitat in making the WUF 2006 more interactive and participatory.

These papers have been developed with the financial support of Western Economic Diversification Canada. The views expressed herein are solely those of the authors of this paper and do not necessarily reflect the official position of the Government of Canada.

The Learning City theme is currently being developed by partners at Simon Fraser University (SFU) and the University of British Columbia (UBC), including John Munro and Moura Quayle. We thank Mark Roseland from SFU and Heather Scholefield from UBC for additional assistance. At the Great Northern Way Campus, we thank Gerry Moss, Bruce Clayman, Herman Mah, the Academic Committee, as well as John Robinson from UBC and Marshall Heinekey from BCIT. Thanks are additionally due to Terri Evans at SFU for a helpful review of the draft, to Céline Arcand and Margot Lacroix for translation. Finally, we would like to thank all survey respondents for their participation, commitment, and perseverance in envisioning sustainable campuses in the sustainable city.

FOREWORD

This paper is part of *Turning Ideas into Action,* a themed series created in preparation for the 2006 World Urban Forum. Together, this series forms a mosaic that sheds light on a common focus: the city. On a global scale, cities have become the dominant form of human settlement, socially, economically, environmentally and politically. The papers begin to examine how cities can continue to be dynamic and inclusive places in which to live and thrive. By illustrating explorations of the city with powerful stories of promising practices, the papers emphasize the assets from which cities draw their strength, and highlight dynamic participatory processes in action. Research for each paper draws on extensive experience in planning and managing cities. Selected lessons provide knowledge to achieve locally relevant solutions and supportive policies at the regional, national and global levels. They demonstrate the complexities of how cities evolve and transform, and challenge assumptions that are often taken for granted. Finally, the papers encourage the reader to view the world from different perspectives and discover successful and innovative solutions appropriate to their relevant conditions.

WUF 2006 will build on Canada's historic leadership in bringing the UN Conference on Human Settlements to Vancouver in 1976. It will also benefit from Canadian experience in improving human settlements at home and abroad. The 1976 UN meeting pioneered a participatory process of member nations and NGO's, and created a worldwide focus for human settlements issues through the establishment of the UN Centre for Human Settlements in Nairobi, now known as UN-HABITAT. WUF 2006 is part of an historic trajectory of UN Conferences and represents the 30th anniversary of HABITAT '76. These papers are intended to initiate an informed dialogue on the scope and scale of the evolving urban agenda through *Turning Ideas into Action* locally, regionally, nationally and across the world.

This paper is one of a series of discussion papers prepared in anticipation of the World Urban Forum 2006.

The papers in this series include:

The Capable City

The International Centre for Sustainable Cities

This paper examines non-traditional forms of governance with an emphasis on consensus that has emerged in a Canadian context and responds to three questions. Are there models of cooperation across jurisdictions that might provide lessons for city regions that do not require mergers? Are there models for management of global common goods – such as watersheds, that do not involve legislative powers? Are there models based on consensus and voluntary agreements across sectors that show promise for influencing decision making related to sustainability? Three Canadian cases are presented: the Greater Vancouver Regional District; the Fraser Basin Council; and the National Round Table on the Environment and Economy. The models are assessed using UN-HABITAT's criteria for good governance. The findings, along with pertinent literature and experience on governance and capacity building, yield observations and recommendations about their application to other cities.

The Ideal City

Department of Art History, Visual Art and Theory, University of British Columbia

This paper explores the history and force of ideal city planning and the related literary and visual genres of Utopian -- and Dystopian -- speculation. The Ideal City represents a highly significant aspect of human thought and endeavour, usually conceived in response to actual problems as well as intended to effect substantive improvement in the daily social lives of individual citizens. Linked to a thematic knowledge resource intended to establish an interactive website, this paper reviews the main constituents of the Ideal City tradition, examines its impact on the design of urban settlement, including across Canada and in Vancouver, and indicates how such conceptual approaches to the building of a better civic environment and society can contribute to the creation of more sustainable, habitable and civilized cities in the 21st century.

The Learning City

Simon Fraser University

The learning city is a city that approaches sustainable development as an ongoing educational process. This paper focuses particularly on the role of universities and colleges in the learning city, examining the different dimensions of sustainability education and best practices from British Columbia, across Canada and internationally. Lessons from this are applied to envisioning a new Centre for the Learning City in Vancouver's new Great Northern Way Campus.

The Livable City

The International Centre for Sustainable Cities

This paper is a case study of the Greater Vancouver Regional District (GVRD) in Canada, the host region for the World Urban Forum 2006. Drawing on the literature on livable cities and the region's efforts to bring this concept into practice, the paper poses two central questions: What key factors affect the livability of a city and how does livability relate to sustainability? Livability is defined as "quality of life" as experienced by the residents within a city or region, and the paper concentrates on a case study of

planning for Greater Vancouver including the Livable Region Strategic Plan, the Sustainable Region Initiative, and the cities^{PLUS} 100-year vision for the GVRD. The paper provides lessons for other cities and regions, and concludes that for Greater Vancouver, livability, sustainability and resiliency are three intertwined elements that together will define the quality of life of current and future residents.

The Planning City

The Canadian Institute of Planners

This paper looks at sustainability as a dynamic, continuous process of sharing and exchanging knowledge and experiences, and of learning through action. It contributes to this learning process by reviewing key trends and challenges that confront those responsible for planning cities in Canada and overseas. Examples of urban planning innovations and experimentations are drawn from a sample of cities and taken from the perspective of the urban planner who is usually a central actor in efforts to articulate, plan for and implement urban sustainability. The paper concludes with key findings, and offers direction about processes, structures and methods that could enhance the effort to achieve urban sustainability.

The Resilient City

Ministry of Community, Aboriginal and Women's Services, Government of British Columbia

This paper explores the resiliency of small Canadian communities dependent upon single resource industries by examining how they have coped with the economic and social pressures arising from the closure of their industries. It summarizes how they have managed their transition from communities existing to serve resource exploitation exclusively to communities based on a different, broader economy and suggests lessons from the Canadian experience that may be transferable to resource-based communities around the world.

The Secure City

Liu Institute for Global Issues, UBC

This paper focuses on three key issues: traditional pillars of urban security, threats and forces shaping cities in the 21st Century, and a research agenda to explore relationships between adaptive security, preventive security and human security. Action is called for to advance current concepts of capacity building, resilient design and adaptive planning. Integrated risk assessment that is responsive to community needs for prevention and precaution is recommended, and an enhanced role for individual responsibility and community participation to expand social capital is advocated. The Secure City sets a context for Canada's emerging national urban agenda and a policy framework for global strategies to improve human security in cities throughout the world.

The Youth Friendly City

The Environmental Youth Alliance

This paper explores what opportunities exist for the greater recognition of the rights and needs of children and youth in urban settings through a significantly enhanced role in urban governance and community building. By enabling children and youth to participate fully in their own development and environment, this paper demonstrates the potential among youth for building capacity, and for becoming insightful resources in developing strong and thriving local neighbourhoods and cities.

Executive Summary

The learning city is a city that approaches sustainable development as an ongoing educational process. This kind of learning is an essential social function of the city. Although social learning needs to occur throughout the city, the urban institution best suited for reinvigorating the learning city is the school. With this in mind, we focus particularly on the role of universities and colleges in the learning city. This working paper discusses four critical dimensions of the learning city in which universities and colleges around the world are actively innovating. Presented also are project profiles from 16 institutions, five located in British Columbia, five elsewhere throughout Canada, and six in the United States and Europe. Each project profiled represents learning in at least one of four critical dimensions: partnering, serving, designing, and teaching. The projects are far from a comprehensive set but give an idea of the range of innovations toward the learning city occurring in many parts of the world. In Vancouver, these are precisely the lessons needed in the visioning and planning of a new Learning City project based at the Great Northern Way Campus (GNWC). The GNWC is a campus, currently under development, that belongs to four major institutions in Vancouver, including two research universities, Simon Fraser University (SFU) and the University of British Columbia (UBC), the British Columbia Institute of Technology (BCIT), and the Emily Carr institute of Art and Design (ECIAD). The GNWC offers the Vancouver region an important opportunity to further the vision and practice of the learning city in the direction of sustainable development, an opportunity that is explored at the end of this working paper.

Contents

Introduction

The goal of the sustainable city is not an ultimate end but a process of urban change. Our ability to move this change in more sustainable directions depends fundamentally on our ability to learn: from our past successes and mistakes, from our neighbours next door and around the world, and from the more-than-human world that supports our cities. Learning for the sustainable city means new lessons in topics from engineering to business management to poetry and semiotics; but it also means lessons in personal and professional collaboration, integration of different ideas and issues, making decisions and allocating resources to implement them. These are not lessons for particular individuals, whether trained experts, decision makers, or isolated philosophers. Learning for the sustainable city operates at a higher level than that of the individual, at the level of social learning. Social learning is the education we get in conjunction with our communities, as a factor of economic conditions, and by the grace of our environment - and is a key factor in the democratic and sustainable development of our cities. Learning is a democratic and sustainability necessity and thus an essential social function of the city.

Every realm, institution, and relationship within city life holds the potential and indeed the mandate for social learning in the call toward urban sustainability. In fact, the promise of a sustainable city within a democratic society is that of citizens engaged together in a lifelong, continuous, public education. This education must occur “in the laboratory, in the judge’s chamber, in the business manager’s office, in the politician’s and the economist’s studies - in short, anywhere that problems arise and decisions are made” (Blanco 1994, 35).

Although all institutions within the city are ultimately responsible for social learning about sustainable development, educational institutions may be the best place to start assessing the status of social learning and the sustainable city. Educational and social philosophers like John Dewey and Jane Addams noted that the school is the only modern social institution designed to facilitate experimentation (Westbrook 1991). Schools have to experiment - they are where the majority of our professionals prepare for their work running and recreating the remainder of our society’s institutions. Many of those at work to promote sustainable development through the United Nations and other frameworks have looked to academia to be “one of the most perceptive” realms of society and “one of the first to sound the alarm” on unsustainable trends (Corcoran et al. 1998, 6, Orr 1994). As the Sierra Youth Coalition (2001, 1) points out, the “phrase and concept of education for sustainable development is mentioned over 600 times throughout Agenda 21.” Alas, UNESCO noted in 1996 that “education is the forgotten priority of Rio” (Corcoran et al. 2002, 102). Education, sustainably conceived, should enable us to think of ourselves no longer as mere individuals in pursuit of personal achievement but as full participants and members of the city and the greater good we can create. It is with this philosophy of education, and its application within institutions of higher learning, that this preparatory paper on “the learning city” is concerned.

The following pages report on the results of a survey undertaken from December 2003-March 2004 into the state of sustainability in higher education in British Columbia, across Canada, and around the world.[1] Through reading about, corresponding with, and talking to proponents of sustainability efforts underway at universities and colleges at a range of scales, resource commitments, and duration, we have gathered here snapshots of some of the world's most inspiring and sustainable learning city efforts. Some of these snapshots will be familiar to many readers, such as efforts at the University of British Columbia, renowned for breakthrough research on sustainability. Others will be less familiar to Canadians, like initiatives at the Technological University of Catalonia, Spain, and a coalition of universities in South Carolina.

Projects catalogued in this preparatory paper also represent institutions' variable emphases on different issues within the all-encompassing challenge of sustainable cities. We group these different emphases in four critical dimensions: partnership-building within the university system and with government, NGOs and industry; improving service, which includes service to nontraditional students, community outreach, and lifelong learning; improving design through infrastructural innovations in "green" university systems and institutional innovation in human resource management policies; and teaching innovations in all relevant curricula. Different institutions have started with different dimensions, leveraging interpersonal synergies and opportunities as they exist. Like all sustainable development efforts, we find that examples within these dimensions are often connected. Indeed, the more efforts are intertwined in different dimensions, the more they create the synergistic outcome of embracing the moral obligation of higher education to work toward sustainable cities. At the same time, initiatives that approach all four dimensions in an integrated manner are difficult to find. Few universities have undertaken systemic change and fewer governments have made it a priority.

The preparatory paper benefits from much good work already done in this area, such as April A. Smith and the UCLA Student Environmental Action Coalition's 1993 report *Campus Ecology,* which sparked a change in attitude in environmental, institutional, and social accountability within colleges and universities in North America, and Environment Canada's (2002) *Framework for Environmental Learning in Canada* which followed two years of consultation with 5,500 citizens. Many nongovernmental organizations have also provided significant groundwork for this project, including the Sierra Youth Coalition, the (US) National Council for Science and the Environment, and Second Nature, along with many others. In 2000, four such organizations, the Association of University Leaders for a Sustainable Future, COPERNICUS-Campus, the International Association of Universities, and the United Nations Educational, Scientific and Cultural Organization (UNESCO), formed a Global Higher Education for Sustainability Partnership, representing over 1000 universities, in hopes of further motivating change by working in concert. [2] Based on the consensus represented by voluntary agreements like Chapter 36 of Agenda 21, entitled "Education, Public Awareness and Training" and a suite of visionary declarations, [3] this coalition is convinced that "if the leaders of major disciplines and

institutions do not make sustainability a central academic and organizational focus, it will be impossible to create a just, equitable, and sustainable future" (Corcoran et al. 2002, 100).

In addition to contributing an additional notch of analysis, communication and international understanding to this movement for sustainability in higher education, the paper has two purposes. The first is to serve as a focal point for building intellectual capital with a view to fostering and propelling intensive international study and debate within the overarching theme of the Sustainable City at the 2006 World Urban Forum in Vancouver. The second related purpose is to assist in forging locally toward creating a new Learning City effort at Vancouver's emerging Great Northern Way Campus.[4] This new effort draws upon local, national, and international lessons in trying to create learning cities starting from institutes of higher learning. The Great Northern Way Campus (GNWC) is a joint venture of four major learning institutions in Vancouver: British Columbia Institute of Technology (BCIT), Emily Carr Institute of Art and Design (ECIAD), Simon Fraser University (SFU) and the University of British Columbia (UBC). With the support of all parties involved in this collaborative endeavour, ideas and energy are moving the Learning City toward establishment as a legacy of the 2006 World Urban Forum. The final pages of this preparatory paper provide an opportunity to present an initial vision for the Learning City at GNWC that offers chances for partnering, serving, designing, and teaching sustainable development in Vancouver.

Learning City Dimension 1: Partnering

The power of the vision of sustainability is, to a great extent, the power of integration, interaction, and interdependency. Colleges and universities that orient themselves toward the sustainable city effectively reposition themselves as interdependent partners in the city, rather than a series of insulated silos of higher learning. Effective partnerships are needed at all levels: between different sectors of the university, between the university and the urban community, other public agencies such as government, private enterprises, and between the urban university and rural outreach. A lack of common understanding and common purpose can divide applied researchers from pure or basic researchers, science from arts faculties at the same university, and stereotypes of "thinkers" versus "doers" throughout the city. Every kind of tie is important and each is difficult to achieve and maintain. Some have called the traditional lack of partnerships in the way campuses operate a case of the "stovepipe" model of the university in which isolated "stoves" of researchers create thin streams of smoke rather than building a fire with more heat together. Others refer to the sustainable city partnership challenge as the "sandbox" model — that is, the challenge of bringing different leaders and innovators to "play in the same sandbox" rather than stick to their private respective fields.

For the vision of the learning city to advance, collaboration must be emphasized above competition. Partnerships can serve college and university campuses at every level of

work and learning: from leveraging resources and expertise in the design of campus structures, facilities, and research projects, to consultation in program design and curriculum review, to teambuilding in instruction and cooperative and service learning opportunities.

The research arm of the campus is the one to which universities have given partnerships the most punch. Research centres, institutes, and projects related to specific technical and theoretical aspects of sustainable communities are on the rise. For example, the University of New Brunswick established, in 1994, an Environment and Sustainable Development Research Centre as a focal point for partnerships between different parts of the university, government, and the private sector (http://www.unb.ca/web/enviro/). The University of Regina's Centre for Sustainable Communities, established in April 2003, is also a multidisciplinary, partnership-based research venture linking social policy and infrastructural, eco-efficiency concerns (prod.www.uregina.ca/csc/). Researchers and research institutes, to push this trend further, have to grapple with the challenges of re-envisioning their roles as advocates for other realms of change within the university, and as partners within the city and at national and international scales of approaching sustainable cities. In the realm of instruction and curriculum development, partnerships can lead students to more stimulating learning experiences coping with real-world problems as parts of interdisciplinary groups both within and outside the university. Ties with other public, private, and civil society groups in the city beyond the campus teach students the skills and cooperative competencies they will need to contribute to building, maintaining and serving sustainable cities after graduation.

Learning City Dimension 2: Serving

Increasing education and educational opportunities is a key element in bringing more potential partners to the forums of urban sustainability discussions and decisions. Whom does the learning city serve? is a key question of justice with which campuses must grapple in efforts toward urban sustainability. Since a sustainable city is a city that must be constantly in-the-making, sustainable cities require a continuous stream of dedicated makers, planners, workers, and participants. In 1916, John Dewey spoke of this group as the "community of inquirers," assembled from all walks of life to work toward consensus on all propositions for change, drawing from diverse experiences and expertise, building intelligence within the group for the city at large. The community of inquirers should include all of us, in our home cities, contributing to both the means and ends of plans for the city through interactive processes that help each of us develop to our own individual potential. Also writing at the beginning of the 20th Century, Jane Addams (2002, 178) put the task this way: "We are gradually requiring of the educator that he [sic] shall free the powers of each man and connect him with the rest of life. We ask this not merely because it is the man's right to be thus connected, but because we have become convinced that the social order cannot afford to get along without his special contribution." Crucially, higher education needs to learn to reach beyond the traditional

student body to better include and serve the different needs of other important groups in the city, such as adults, senior citizens, new immigrants, Aboriginal people and other visible minorities, people at risk and people living in poverty. This includes providing educational opportunities to members of these groups that connect with their lived experiences, as well as providing service to these groups through innovative curriculum and research activities. On the issue of serving the learning city, colleges and universities also cannot neglect instructors' needs for opportunities to improve their knowledge and skills in incorporating the new framework of sustainability into their teaching, research, and service.

Learning Dimension 3: Designing

Within campus land use, architecture, landscaping, and engineering lies a "hidden curriculum." Everyone who looks at, rides through, or strolls around the campus is bound to take in lessons, often unintended, about the way the campus is laid out, tended, and managed, how it consumes and recycles energy and water and how it disposes of waste. In order for these lessons to be sustainable ones, the physical campus must present to its inhabitants and visitors an "institutional metabolism" that models ecological efficiency (Cortese 1999). Decreasing the throughput of nonrenewable energy and advancing renewable and responsible technologies can guide operations, purchasing, and investments; food, water, energy, and waste; building, landscaping, and transportation.

The increasing popularity of such "green" building, engineering, operations and investments is due in no small part to the fact that it often saves the school money. The National Wildlife Federation's Campus Ecology Program found that twenty-three sustainable infrastructure operations projects in fifteen colleges and universities across the US save $17 million annually (Eagan et al. 1998). Among many recent initiatives, the Association of Canadian Community Colleges (2000) has developed a set of guidelines for systematically implementing and financing energy efficiency projects, CO2 reduction, and energy action plans. Campuses are pursuing environmental audit and environmental assessment procedures, increasingly with the help of fine-tuned frameworks (Campus Consortium for Environmental Excellence 2000a, Campus Ecology Program 2001, Canada Office of Energy Efficiency 2000). Not only can such initiatives save money, they can produce energy and food, research and education opportunities, and enthusiasm. Oberlin College (http://www.oberlin.edu/ajlc/ajlcHome.html) broke ground on its vanguard "green" building in 1999. More an integrated building-landscape system than a simple building, it was designed collaboratively by students, faculty, and architecture and design professionals and is in a continual process of evolution, striving to consume less nonrenewable resources, better assimilate wastes, produce energy and food, and support better research in ecology and ecological design.

Such frameworks tend to focus on the physical materials balance and regulatory framework of the campus, and tracking these on a repeat basis, with the intent of

strategically focusing reform efforts. Often the assessments and audits themselves are collaborative within the college or university and with other interested partners. Mount Allison University (http://www.mta.ca/environment/) has conducted two comprehensive environment audits, in 1998 and 2000, with a Campus Environmental Policy passed in the interim. The audits cover 11 areas: buildings, energy, transportation, air quality, hazardous materials, solid waste, paper, food, water, finances, and environmental education. Campus sustainability assessments can be driven by state and other governmental strategies, as in the New Jersey Higher Education Partnership for Sustainability (http://www.njheps.org/), which has partnered with the State Greenhouse Gas Action Plan to accomplish a 3.5% reduction in state greenhouse gas emissions from 1990 levels by 2005.

The other hidden curriculum designed into the campus is found in the lessons of institutional policies and procedures that govern staff and faculty. How do university policies and procedures treat, evaluate, and reward the people who spend their formative or professional lives on campus? Answering this question in favour of the learning city can mean instilling aspects of "personal sustainability" for faculty and staff, such as increased job security for sessional lecturers, flexible schedules and work loads, and for students, alternative admission standards and grading systems. The task is to connect the daily processes of the campus with the sustainable learning missions of students, researchers, and instructors. Changing the curriculum to reposition the campus as a learning institution experimenting toward the sustainable city ultimately leads to changes in the institutional make-up of the campus itself. Since many campuses contain microcosms of the institutions in the surrounding city and region, institutional models on campus provide living experiments for urban sustainability in the institutions beyond the campus. These living experiments also help create markets and greater demand for sustainable and just goods, services, policies and procedures, proof that the institutions can operate effectively and the structures can achieve cost savings through eco-efficiency.

Learning City Dimension 4: Teaching

The primary output of universities and colleges is educated people who go on to affect the world in potentially powerful ways through their professional and personal lives. It is no stretch of the truth, therefore, to say that a university or college's main impact on urban sustainability comes from its curriculum. More than a set of syllabi, course listings, and credit points, a curriculum is a plan for attaining learning goals. For learning goals that are social and sustainable, the curriculum must be dynamic and interactive, incorporating, responding to, and anticipating changes within the university and the surrounding city. Linking with the partnership dimension, an interactive curriculum requires consultation with many different concerned groups, including students and educators but also employers, government, alumni, and others. Building consultative, reciprocal relationships with this wide range of partners in education helps to create the

allegiances that are required for a change of course in the way our cities develop, as well as a more solid consensus on the vision for learning goals - and a wider network of paths to take in achieving these goals. Within each city's vision for learning goals in sustainable development, the curriculum should reflect:

- An emphasis on ecological and systems thinking over mechanistic and fragmented thinking;
- Active, experiential learning and real-world problem solving in addition to the skills of a particular discipline; and
- Clarity of values regarding the larger role of the education system in achieving a sustainable city.

Curricula should lead to ecological literacy and both the tendency and the ability to study broadly across disciplines, as well as deeply in a single discipline and should revolve around finding common values and ethics in all disciplines. Clearly, a move toward campus-wide expansion of curricula demands a vision, which in most cases demands a strategic plan. The vision and plan must in turn be shared by faculty from the ecology department to the kinesiology lab, by the university administration, by students and by the university's wider network of interested parties, including businesses and community organizations. Curriculum expansion sometimes begins at the scale of a single course, from which it may build within and across different faculties and with other partners. Other times, curriculum change happens at the level of an entire faculty. Organizations like the World Resources Institute are at work to integrate environmental learning into the curriculum of business schools (http://business.wri.org/projects.cfm, Finlay et al. 2000). Others have begun the task of expanding curricula beginning with medical schools (http://www.ceem.org) and still others with schools of theology (http://www.crle.org/index.asp). In some cases, universities are recognizing the value of establishing sustainability as a curriculum theme throughout the institution. Sea to Sky University, slated to open in 2006 as Canada's first secular, private liberal arts college, will approach this through its trio of foci on environmental studies, Pacific Rim studies, and international relations throughout the curriculum (www.seatoskyu.ca). Incremental and systemic change can be pursued at the same time.

Project File: British Columbia
University of British Columbia

Partnering
- Volunteer sustainability coordinator program
- Sustainability circles
- Sustainability of UBC food System Collaborative Project

Designing
- ELECTrek
- ECOTrek
- Upass

Teaching
- Interfaculty Program in Sustainability Studies
- Land, Food and Community program

Sustainability at UBC

The University of British Columbia is a large research university, with over 35,000 students, 1,700 faculty and 7,300 staff. The university's commitment to sustainability was formalized in the university Sustainable Development Policy in 1997 which states "that the campus should adhere to sustainable practices in all of its actions and mandates" and that "all students who attend UBC should be educated about sustainability" (Moore et al. 2004). Using the institution's Trek 2000 vision statement as a guide for addressing the 'Place,' 'People,' and 'Process' elements of sustainability, UBC now phrases its responsibility and commitment this way:

> UBC is committed to providing a nurturing environment for our People and conserving the natural bounty of our Place, all while following an open and transparent decision-making Process that involves the entire campus population. Sustainability can be said to be functioning at an optimal level when decisions are informed and guided by equal measure of ecology, economy and society.
>
> (Campus Sustainability Office 2003)

In other words, UBC has begun the challenge of integrating the many diverse efforts on campus toward some aspect of sustainability in order to pursue strategic change. Many sustainability projects are ongoing at UBC. Information about projects not mentioned can be found at www.sustain.ubc.ca, www.agsci.ubc.ca, www.science.ubc.ca/envsc, www.rmes.ubc.ca, www.ires.ubc.ca and www.scarp.ubc.ca. This profile limits itself to a discussion of the following initiatives: the Campus Sustainability Office, the Interfaculty Program in Sustainability Studies, and the Land, Food and Community course series in the Agriculture Faculty.

Campus Sustainability Office (www.sustain.ubc.ca)

The CSO, established in 1998 to implement the Sustainable Development policy, coordinates planning, design and operations for sustainability on campus and helps coordinate staff, faculty, and student education as well. The CSO vision puts a twist on the classic Brundtland definition of sustainable development, giving future generations the power to judge: "To earn the respect of future generations for the ecological, social and economic legacy we create." (CSO 2003) In 2003, after a number of incremental projects to reduce energy and water consumption on campus, UBC began ECOTREK - a sweeping three year energy and water retrofit with new power saving technology. ECOTREK aims to reduce thousands of tonnes of CO2 emissions, to reduce energy consumption by 20%, and to save the campus $2.5 million annually. In addition to helping CSO meet its budget, savings from ECOTrek helps reduce the "debt clock" of UBC's deferred maintenance costs.

Various other initiatives help comprise the climate change reduction strategy at CSO. The office works with the Waste Management Department to reduce the solid waste sent to landfill, and with the Health, Safety and Environment and Utilities Department to reduce NOX emissions on campus. UBC (along with SFU) began a Universal Transit Pass (UPass) bus pass system to encourage student bus travel. Through the volunteer sustainability coordinator program, campus-wide volunteers agree to be trained in ways to reduce personal energy consumption. They also commit to spending two to four hours per month, during work time, to challenge and inspire their colleagues to make positive changes in energy use, waste generation, and transportation alternatives. The program has been growing in popularity, with 125 participants in 2002. As an incentive for participation, SCO began offering a $75,000 sustainability grant to departments with sustainability coordinators.

UBC sustainability circles attempt to create "social change by starting a conversation." These occasional university-wide discussion circles on sustainability-related topics bring together ideas for responding to persistent problems and means for participants to form new connections and relationships. One outcome of the sustainability circles has been a social sustainability task force, working for international outreach on sustainability issues and advancing sustainability education at UBC.

CSO has a full-time staff of three: a director, an energy manager and a communications manager, plus three part-time staff. The office makes its annual budget entirely through eco-efficiency cost savings. ELECTrek, the building retrofit precursor to ECOTrek, for example, cost $6.5 million but now saves UBC $600,000 per year. Natural Resources

Canada has supplemented CSO funding on projects and BC Hydro has been a major partner on numerous initiatives.

On the road to systematizing not just eco-efficiency but teaching for sustainability as well, one of CSO's next projects is to develop a set of indicators with which to assess the sustainability content of courses university-wide. This is a daunting challenge, but one in which the office has some substantial partners in the other student research and teaching-specific sustainability initiatives on campus, discussed below.

Interfaculty Program in Sustainability Studies

Currently in pilot phase, this program has been proposed by George Spiegelman, Janet Moore and Rob VanWynsberghe. It aims to offer a four-year 'Bachelor of Arts and Science' degree with a focus on sustainability, global citizenship, and ecological and social justice. Although some courses throughout UBC currently focus on sustainability, this program would be the first transdisciplinary opportunity for students to earn a broad-based degree immersed in sustainability studies.

The pilot course currently offered, "Awareness and Action: Focus on Urban Sustainability," ran for the second time in summer 2004 based not at the UBC campus but at Science World and the Great Northern Way Campus just outside of downtown Vancouver. Bicycles are required for the course, which currently involves participatory, community-based research into the ongoing Central Valley Greenway Project, a corridor of protected open space running from Vancouver to its eastern suburbs (http://www.basinfutures.net/urbancourse). Future core course titles include "Seminar on Interdisciplinarity," "Sustainability: The British Columbia Focus," and "Global Citizenship". Each has either an experiential or service learning component. Epistomology and methodology courses, Sustainability Field Courses and exchange programs in sustainability research are also in the works.

The program views involved faculty members as "co-learners in this important discussion about our collective future." Courses will be team taught by two faculty members and developed with the help of teaching assistants and through additional consultation with experts in community service learning and inquiry-based learning. In addition, program start-up will be coordinated with a five-year research project, led by core program faculty, to monitor and assess the program's initial outcomes.

Land, Food and Community in The Agricultural Sciences Faculty

Over the past six years, UBC's Faculty of Agricultural Sciences has undergone a profound change in core values, curriculum, and pedagogy. As an outcome, the faculty has a new central focus on food policy, food security, and sustainable food systems. This change has redoubled sustainability efforts at the UBC farm, Centre for Landscape Research, Master of Landscape Architecture Program, and Global Resource Systems. In addition, a series of three core courses has been developed: the Land, Food and

Community series. Their aim is to give students a solid understanding of the ecological, social and economic sustainability of food systems at all levels.

A capstone fourth-year project within this series, established in 2001, is a community-based action research project: the Sustainability of UBC food system Collaborative Project. Now in its third year, the course-project is an interdisciplinary collaboration involving the UBC Campus Sustainability Office; Social, Economic and Ecological Development Studies; the Alma Matter Student Society Food Services; UBC Food Services; UBC Waste Management and UBC Farm. The course uses a "community-of-learners" and "problem-based learning" model to investigate food system sustainability at different scales.

The overall vision for this project, although still in development, includes a vision for community-based action research, reaching beyond UBC for partners, and no less than a transformation of the campus's entire food system, serving the university's 35,000 student body and 9,140 full-time staff and faculty. Project success might be measured in terms of the support received at the UBC farm and UBC food services, the degree of relocalization of the UBC food system, and a reduction in the UBC 'food'print. Faculty-wide curriculum changes aim for interdisciplinary integration of knowledge and its application to real problems; understanding the importance of different paradigms and theories of knowledge in addressing problems; ethical sensitivity; revaluing social and ecological responsibility; the ability to work in teams; validating personal experiences, interests and ideals; critical and creative thinking; and unleashing passions to learn and integrate knowledge beyond disciplinary boundaries.

The course has been popular with students, who rank it higher than average for an elective course. The collaborative and iterative approach to course design has improved the quality of partnerships at UBC and opened avenues for future collaboration. Project leader Professor Alejandro Rojas also says of the project's results: "We can say with some assurance that our students now know how to design an evaluation of the sustainability of the food system of a complex institution like UBC and have tools to articulate a vision of a sustainable system and strategies for the transition towards it which recognize barriers and opportunities to achieve those goals."

PROJECT SCALE

►Annual budget derived from eco-efficiency cost savings.

►3 full-time staff and 3 part-time staff in Campus Sustainability Office.

MEASURE OF SUCCESS

►Expanding programs like ELECTrek, ECOTrek, Sustainability Coordinators, Sustainability Circles, SEEDS, IFPSS, "Land, Food and Community"

Website: www.sustain.ubc.ca Sources: Alejandro Rojas, Professor in Agroecology Program, Faculty of Agricultural Sciences, UBC, interview 23 February 2004, Janet Moore, Ph.D. in Curriculum Studies UBC, and Rob VanWynsberghe, Assistant Professor in the Institute for Health Promotion Research UBC.

Project File: British Columbia

Designwest

Partnering

- Creating a collaborative space for diverse design professionals to tackle Sustainable Community

Serving

- The Design Centre in the downtown eastside will address the special design needs of residents

Designing

- Will meld classroom space, meeting space, and collaborative design research space

Society for the Promotion of Design & Innovation in BC

DesignWest is a Vancouver-based volunteer consortium of design aficionados. They include engineers, architects, urban planners, apparel and digital designers, graphic designers, set and theatre designers, and all are interested in promoting the social and environmental value of good design. Together, they are about twenty volunteers with a certain amount of time and almost no funding, but an explosion of ideas for using design to serve sustainable purposes. One problem they're addressing is that people in their diverse professions don't often have a locus to meet, discuss and integrate ideas, and work together. To fill this gap, DesignWest is creating a Vancouver Design Centre. Design Centres exist in other cities, and at their best, like Britain's Design Centre, serve as much more than places to display objects. The Vancouver Design Centre will also be an opportunity to bring design skills to the ground of community planning and action and create design-based results for the sustainable city.

One of the Design Centre's banner projects is called Sustainable Community Design. This effort takes on four big issues: housing and homelessness, youth at risk, literacy and health, and sustainable economies. It aims to tackle all these issues by creating space on the downtown east side to meld academic classes and professional meetings, service learning and collaborative design research with the downtown eastside community. Partners include the UBC Institute of Health Promotion Research and Faculty of Medicine and nonprofit groups like United We Can, the Britannia Community Center, and Ecotrust. United We Can has successfully created lasting employment for Downtown Eastside residents through a recycling program, bottle depot, neighbourhood cleaning initiatives, and bicycle repair and sales services. Taking a "conservation economy" approach, EcoTrust specializes in sustainable community economic development and the revitalization of resource-based communities. Additional future partners are on the horizon, as are potential sites for the space. Andrew Hamilton, who volunteers with DesignWest, wants to ensure the organization has a strong foundation before settling into

any particular building. Whether it is a question of locating temporarily or establishing full-time, however, DesignWest is committed to having a centre in place in 2004.

A new teaching model for the program has been proposed by a partner from UBC's Institute of Health Promotion Research, Rob VanWynsberghe. This teaching model is called "Promoting Lasting Attachments to Community and Environment" or PLACE. The model features community service learning. Drawing upon this engaged approach to learning, the model aims to contribute to public policy, flowing from hands-on research and direct consultation with neighbourhood residents. The model puts a particular emphasis on the non-medical determinants of health.

The teaching model fits into key aspects of the project, which involve congregating and building on the intellectual capacity of design professionals in the city to create the foundation of knowledge such that, when important design issues arise, consensus-based answers will emerge. In part, this intellectual capacity will grow from the ability to listen to and learn from people with special design needs, such as residents of the downtown eastside for example, people who need social housing that actually works to improve community disfunction, illiterate people who need understandable labels on their medication, people with addictions who need safeguards against double use of hypodermic needles. PLACE is the venue for medical and social science students who aim to work with at risk and poor populations to relate to these populations, increasing understanding and opportunities for empowerment on all sides.

PROJECT SCALE

►20 volunteers

►little existing funds

MEASURE OF SUCCESS

►Will establish Vancouver Design Centre in 2004

Source: Andrew Hamilton, DesignWest volunteer, interview 17 February 2004.

Project File: British Columbia

Nicola Valley Institute of Technology

Partnering

- Transfer opportunities with public universities, collaboration with government and First Nations agencies

Serving

- NVIT has a mainly First Nations staff and serves a student body that is 84% First Nations

Designing

- New cold climate green building also relfects traditional First Nations design

Teaching

- Curricula in wellness, governance, land and economic development, enhanced by unique First Nations values

Nicola Valley Institute of Technology

Located in Merritt, British Columbia, NVIT opened its doors as a publicly-funded, Aboriginal-governed, accredited post-secondary Provincial Institute in 1995. The institute was conceived in 1983 by the Coldwater, Shackan, Nooaitch, Upper Nicola, and Lower Nicola Bands of the Nicola Valley, with three instructors and thirteen students. Since its private beginnings, the campus has grown to span 4,519 square metres and features six programs and over 230 students, 84% of them First Nations. In 2001, construction of an award-winning "cold climate green building" was completed. The building was designed by Alfred Waugh in collaboration with First Nations to reflect many traditional design elements.

The institute provides quality post-secondary education to its First Nations student body in the fields of Wellness, Governance, Land, and Economic Development, all in an environment that promotes traditional ways. These fields are specific to the First Nations view of relevant and innovative credentials that will enable students to advance and pursue sustainable development. Promoting traditional ways in post-secondary education is what makes NVIT distinctive and gives the institute its sustainability focus. For instance, at NVIT: institutional governance lies with First Nations; educational programs and services reflect Aboriginal perspectives, values, and beliefs; elders are on campus to guide and support staff and students; the majority of staff is Aboriginal; free expression and practice of Aboriginal values and ways are encouraged; and programs may be delivered in communities. According to Verna Minnabarriet, Dean of Academic Affairs,

"NVIT believes in a holistic approach to education whereby the students' knowledge base is enhanced by those values unique to First Nations culture."

NVIT collaborates with a range of Aboriginal and governmental groups, as well as with public institutions. Students can transfer between major public universities in the province and can receive an Aboriginal Community Economic Development degree in conjunction with Simon Fraser University and a Bachelor of Social Work degree in conjunction with the University College of the Cariboo. Among the groups in collaboration with NVIT are: the Council for the Advancement of Native Development Officers (CANDO), First Nations Education Steering Committee (FNESC), Indigenous Adult & Higher Learning Association (IAHLA), National Association of Indigenous Institutes of Higher Learning (NAIIHL), and both provincial and federal government organizations and ministries.

PROJECT SCALE

►30-40 instructors

►3 managers

►15-20 support staff

►$9 million campus

MEASURE OF SUCCESS

►90% of NVIT students graduate, 84% of whom are First Nations

Website: www.nvit.bc.ca
Source: Verna Minnabarriet, Dean of Academic Affairs, interview 17 March 2004.

Project File: British Columbia

Royal Roads University

Partnering

- E-dialogues stimulate debate by diverse groups around sustainable development issues

Serving

- Promotes greater access to expert information for nonexperts and dispersed groups

Teaching

- E-classrooms are linked to the curriculum and graduate research

E-Dialogues for Sustainable Development

Royal Roads University (RRU) in Victoria was established as a provincial university in 1995 around four central themes: entrepreneurship and management; leadership; environmental sustainability; and conflict resolution. RRU's commitment to the highest sustainability standards is spelled out by the university's environmental stewardship policy and in a campus-wide environmental management system designed to improve the quality of the physical environment on campus, reduce impacts on the surrounding environment and contribute solutions to regional and global environmental concerns.

One of RRU's most innovative projects is called E-Dialogues for Sustainable Development. This project began in 2001 as a collaboration between RRU, the Government of Canada's Policy Research Initiative and the Public Policy Forum, an independent public policy research and dialogue centre. E-dialogues are a series of real-time electronic dialogues to stimulate public policy discussion among diverse sectors of Canadian society around critical sustainable development issues. The project will use and evaluate the e-dialogue media as a tool to change and enhance literacy around specific sustainable development issues and to determine whether substantive dialogues outside policy circles can inform the policy process.

The e-dialogues have a dual purpose. They are both a tool for data collection and a means to bring experts from across the country into the e-classroom. One type of e-classroom is used by policy makers, researchers, business leaders and young scholars and is linked to the curriculum and to graduate research. This group covers a wide range of sustainability topics such as Leadership and Sustainable Development, Social Capital, Climate Change, Eco-modelling, Sustainable Community Development, Cosmology and Education, and Spirituality and Sustainable Development. A second type of e-classroom engages a public forum focused on post-Kyoto Accord climate change dialogues, investigating

general information, the role of business, governing, and leadership. This public forum has been led by four experts and attracted over 6000 participants.

The key innovation in this project is in its exploration of the possibilities of information communications technology for dialogue and life-long learning. The e-dialogues are actively moderated by experts from the field and integrate interdisciplinary research opportunities and on-line dialogue experiences. One key finding to date is that Canadians may be very interested in policy issues but often are excluded from contributing to decisions because they don't know enough about issues, or can't access existing information. Canadians want to be informed but need access to expert information as well as forums for discussion. The e-dialogues project works to provide the wider public with access to expertise regardless of where a particular community is located and helps create new communities of interest that extend beyond the university classroom and beyond geographic limits.

PROJECT SCALE

►1/3 FTE project leader

►2 days/week research assistant

►Approxiamtely $150,000 since 2001 funding, in cash and in-kind contributions

►$9 million campus

MEASURE OF SUCCESS

►Participation in the 5 of the 6 targeted dialogues, numbered 970 and participation in the public forum was over 6000

Website: www.e-researchagenda.ca
Source: Ann Dale, Professor in Science, Technology and Environment Division, Royal Roads University, interview 4 February, 2004.

Project File: British Columbia

Simon Fraser University

Partnering

- Lasting partnerships exist around forest-based communities, with international partners in Mexico and the Ukraine, and throughout the sustainable and community economic development sectors

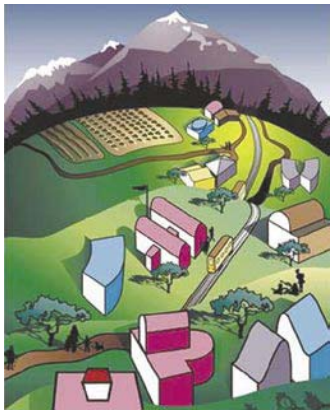
Serving

- Successful service projects include the Cooperative Auto Network, a student project that now has 1450 members, over 80 vehicles and operates in nine BC communities

Teaching

- Offers undergraduate, graduate, and professional courses

Centre for Sustainable Community Development



Simon Fraser University (SFU) has a range of teaching, training and research activities related to sustainability. The Urban Studies Program (www.sfu.ca/urban) offers graduate courses in urban sustainable development. The Centre for Coastal Studies (www.sfu.ca/coastalstudies) is a collaborative research centre that links social and natural science with local knowledge by focussing on the themes of marine conservation, sustainable coastal communities and economies and building resource management capacity (government, community, academic). The Learning Strategies Group (www.learningstrategies.ca), part of the Faculty of Business Administration, focuses on the educational and training needs of BC businesses in response to sustainable development. The SFU Community Trust (UniverCity.ca) is developing a sustainable residential community for up to 10,000 residents adjoining the main SFU campus. Finally, the Centre for Sustainable Community Development, has been working to encourage accountable, sustainable and appropriate community economic development (CED) in BC since it was founded in 1989 as the Community Economic Development Centre.

The goal of the CSCD is to provide research, training and advisory services to the sustainability sector in British Columbia and elsewhere, to stimulate the study and process of community sustainable development through academic programs in the classroom and via distance education, to collect and disseminate information about CSD, to partner on projects with communities and agencies, to respond to requests for assistance on CSD problems, to create professional development opportunities and

programs for CSD practitioners and to establish working relations with similar centres internationally.

The Centre is actively involved in community-based projects throughout the province and offers an undergraduate certificate and a post-baccalaureate diploma in community economic development (both are also available through distance education), graduate study, and a Professional CED Certificate Program. The academic requirements include a course on "Sustainable CED" and electives like "Sustainable Enterprise Development." Required professional program courses include "Developing Sustainable Communities." The Centre is also the BC Regional Coordinator of the national CED Technical Assistance Program (CEDTAP), based at Carleton University in Ottawa and funded by the McConnell Foundation. The Centre also works with a variety of international partners; major projects are currently underway in Mexico and Ukraine.

In December of 2003, the CEDC Steering Committee resolved to change the Centre's name to the Centre for Sustainable Community Development (CSCD). The CSCD will enhance the reach and relevancy of the university in sustainable development. SFU has several internationally acclaimed faculty and staff with expertise in sustainable development. However, these individuals are dispersed across the university and lack any formal institutional linkages or integrative resources. The transformation from the CEDC to the new Centre for Sustainable Community Development represents an ideal organizational unit in which to house a new sustainability emphasis within the university.

PROJECT SCALE

►1/2 time Director, 1/2 time program assistant, three 1/2 time project directors/coordinators, one full-time and two part-time research associates, 7 academic program instructors, and 8 professional program instructors.
►Over 200 seats were filled in CED academic program courses in Fall 2003 and Spring 2004. Over 220 seats were filled in the CED professional certificate program in 2003-2004.
►Funding comes from the Dean of Arts for academic programs, from tuition fees for professional programs, and from various granting agencies for research and development projects.

MEASURE OF SUCCESS

►The Centre measures success not only in terms of conventional indicators such as enrolments, research grants, and publications, but also in terms of innovative and lasting partnerships, projects and outcomes. An example of the former is a research project on CED for forest-based communities that has resulted in a book from UBC Press.

Website: www.sfu.ca/csdc
Source: Mark Roseland, Director of the Centre for Sustainability Community Development, interview 12 March 2004.

Project File: Canada
Sierra Youth Coalition

Partnering
- Works to increase sustainability performance of universities Canada-wide

Serving
- Campus Sustainability Assessment Framework supports solutions to problems with sustainability at all levels on campus, from a student-led base

Designing
- Audits design and infrastructure components of campus sustainability, among others

Teaching
- Has spurred creation of sustainability-related courses at several campuses

Greening the Ivory Towers Project

The Sierra Youth Coalition (SYC) began in 1996 as the youth arm of the Sierra Club of Canada. Its mission is to address globalization, consumption and climate change through grassroots action and a solutions-based approach of promoting education for sustainability. The SYC was actively engaged with the Canadian Secretariat of the 2002 World Summit on Sustainable Development to identify sustainability in education at all levels as a priority theme for discussion and action, nationally and internationally. As part of the work for sustainable campuses, the SYC launched the Greening the Ivory Towers Project (GITP), subtitled 'Academia to Action' in 2003. The goal of GITP is to increase the sustainability performance of universities nation-wide through improved understanding of their ecological and social impacts, and consequently to develop a more coordinated, focused and holistic action plan for improvements.

GITP participants developed Canada's first Campus Sustainability Assessment Framework, the purpose of which is, according to the SYC website: "to offer support, resources and assistance in developing solutions that address overarching structural problems in society, as well as striving to facilitate institutional lifestyle changes." SYC aims to encourage uptake of GITP as student-led collaborative initiatives by campuses across Canada; Concordia University is the first university to have completed the assessment framework. Completed assessment frameworks will be used to give a realistic image of the state of campus sustainability across Canada, compiled regionally and nationally in order to design improvements to social, environmental, and economic sustainability and responsibility. The assessment framework itself has ten subsections: knowledge, community, health and well-being, governance, economy and wealth, air, water, land, materials, and energy. The subsections are comprised of 35 elements.

Developing the GITP involved collaboration on many levels, between students, faculty, staff and support networks among students at various universities. The tool-kit and framework on which the project is based requires a multi-stakeholder approach in all aspects of the assessment. For example, collaboration is required between student groups and faculty in aligning the assessment framework with curriculum requirements for student credit. In addition, a large component of the project training workshop focuses on the detailed skills needed to bring together a multi-stakeholder campus committee with the mandate to address sustainability issues.

The major innovation of this project is that it actively engages the research mandate of the university to use the campus as a living laboratory for student assessment of social and ecological well-being. GITP is the first Canadian project to utilize a framework of sustainability indicators that attempts to give a true representation of the impact a university has in the political, social, economic and ecological reality it occupies. GITP goes beyond traditional environmental audits of energy efficiency and water conservation to include social aspects such as institutional governance, knowledge and health and well-being. By design, GITP will only be successful when students, faculty and staff are working together as a cohesive community toward a common goal. The SYC also offers support through the tool-kit, training workshops, staff support and specialized professional advice on demand.

In addition to enabling the assessment of the curriculum's focus on sustainability, GITP has opened the door for universities to develop a number of sustainability-related courses. For example, undergraduate commerce courses have been developed to assess the investment practices of the university for sustainability, biology classes have assessed the ecological health of campus lands, and engineering classes have assessed campus greenhouse gas emissions. At Royal Roads University, one upper-level, 8-month Environmental Management course has turned the GITP into the major class project.

PROJECT SCALE

►BC coordinator (20hrs/week)
►Ont. coordinator (40hrs/week)
►National Sustainable Campus coordinator (15hrs/week on this project)
►National SYC director (10hrs/week management)
►National database of success stories (12 weeks/full-time)
►13 campus student groups coordinating and conducting research for the project on their campus.

MEASURE OF SUCCESS

►Currently 13 schools participating in the project, of which one (Concordia) is complete. By completing the assessment, progress can be measured in the future against baseline data and sustainability goals.

Website: www.syc-cjs.org/gitp
Source: Kerri Klein, SYC British Columbia Coordinator, interview 2 March, 2004.

Project File: Canada
University of Toronto/York University

Partnering

- CURA funding enabled multi-stakeholder partnership for 5 years

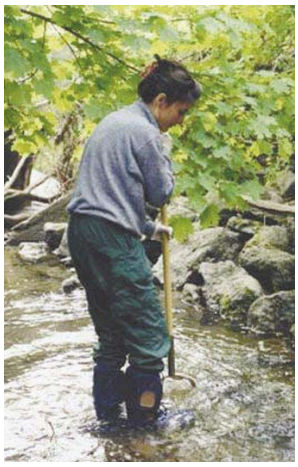
Serving

- Community groups act as catalysts to the process, including Sustainable Toronto Roundtable and sustainable budget process

Teaching

- Projects have included curriculum development, emphasizing experential learning

Sustainable Toronto



Sustainable Toronto, a collaboration among the University of Toronto (U of T), York University, and major local government and nongovernment partners, was created through SSHRC Community University Research Alliance funding in 2000. Its vision is adopted from the City of Toronto Environmental Plan and its mission is broad: "[to] promote community sustainability and facilitate the transition to a sustainable society by challenging and working with all sectors including governments, researchers, educators, businesses, non-profits and other community members."

The group aims to foster the application of sustainability practices by the joint efforts of university partners at the Environmental Studies Program of Innis College at U of T, the York University Centre for Applied Sustainability, partners at the City of Toronto, and community partners at the Canadian Institute for Environmental Law and Policy and the Toronto Environmental Alliance. According to project coordinator and Professor of Environmental Studies Beth Savan, Sustainable Toronto works from the understanding that meaningful societal change can only come about if it is community-led and government-supported. Community groups are thought of as catalysts, informed and supported by university partners and researchers and working in collaboration with the City. Building skills, improving the knowledge base, and connecting better with one another, together these groups can transform local governance and national governance. Through specific actions and synergistic ripple effects, the group wagers that a critical mass of people will see their power and responsibility to make the necessary changes to society to ensure its survival.

Sustainable Toronto builds the coalitions that connect community action with diverse groups of businesses, non-profits, governments, researchers, educators and concerned

individuals through participation in collaborative projects that promote community sustainability. Sustainable Toronto's triadic partnership model has multiple benefits: it builds legitimacy in the community groups involved, raises the universities' profiles in the city, and diversifies students' exposure to work and career paths. In retrospect, according to Savan, the partnership-forming process could have been more strategic in order to include social and economically-focused groups in addition to environmental groups. Still, a major outcome of the project has been the development of networks among groups involved, who have been able to articulate and work together on clear common goals.

Sustainable Toronto has developed a set of ten complementary projects, ranging from the small-scale, such as a single new integrative sustainability course or a single student research paper, to the much larger task of exploring the "hidden curriculum" of university practices and procedures (Savan & Bell 2002, 309). Experiential learning is the favored means for teaching sustainability, through student and volunteer placements with organizations and community-based research. These experiences are integrated into the curriculum.

Sustainable Toronto's original funding terminated in 2004. Funding searches continue, primarily in Ontario, for the future of the project. While recognizing this project, like any other, is "a drop in the bucket," Savan says one of the project's major outcomes was the creation of a Sustainable Toronto Roundtable, in partnership with the City, which provides a continuing focus on urban sustainability issues. Also, the sustainable budget process developed by Sustainable Toronto has affected the transparency of the city budget process. Some project partners have gotten serious about sustainability as well. U of T, for example, is considering making an institutional commitment to greenhouse gas reduction and has expressed interest in a university chair in sustainability. York University has introduced a Bachelor's Degree in Urban Sustainability within its Faculty of Environmental Studies (www.yorku.ca/fes/home.asp) and has developed a President's Task Force on Sustainability report. Sustainable Toronto provided "critical infrastructure and academic leadership" to the effort toward sustainable development education at the U of T and York, "bringing a dedicated collaborative team to the support of experiential learning initiatives" (Savan & Bell 2002, 318).

PROJECT SCALE

►$1 million over three years and 100 student participants.
►1.75 full time staff plus contribution of project direction by 5 partners who had staff buyouts from employers.

MEASURE OF SUCCESS

►Interest in Sustainable Toronto Roundtable and Sustainable Budget continues after funding ends; broader sustainability interests from U of T and York U; new ngo networks and common goals.

Website: www.sustainabletoronto.ca
Source: Beth Savan, Professor of Environmental Studies, University of Toronto, interview 1 March 2004. Photo credit Beth Savan.

Project File: Canada
WATGreen and University of Waterloo

Designing

- Landscape plan, management guidelines, regional creek plan, environmental design plans all under development

Teaching

- Working to develop campus-wide sustainability course offerings

WATgreen and University of Waterloo Sustainability Project (UWSP)

WATgreen, subtitled "greening the campus," was established in 1990 to assist the university in "transforming itself into a showcase of sustainability, a true ecosystem in harmony with its environment", by improving environmental quality while decreasing institutional operating costs, creating research and teaching opportunities in the process. At U of W, the opportunity for innovation here is related to the campus's existing success in innovation: "UW in the 21st century could do for the environment what it did for computers in the 20th century."

The program targets all of U of W's 30,000 students and 3,500 staff and faculty. Immediate goals at the level of design include the development of a landscape plan for the campus, landscape management guidelines, a plan for the regional creek, and guidelines for environmentally responsible design. At a curriculum level, the program builds from the unique experience of Canada's first Environment and Resource Studies Department at U of W, and has included the development of a new, experiential-learning based course, "Greening the Campus and Community" which students in all faculties are encouraged to take. An additional campus-wide campus sustainability course is also under development. At the partnership level, the program aims to broaden the involvement of all faculties and to provide a mechanism for students, staff and faculty to study and evaluate university systems for environmental improvement.

Among the project's results are the establishment of a committee that vets student projects and environmental issues facing the university, which to date has completed review of 238 projects. Project topics range from looking at excess water use in the biology lab, to recycling heat at the physical activities complex, waste and environmental audits, and a Climate Change Education and Awareness Campaign. In 2002, the Solar Technology Education Project (http://www.step.uwaterloo.ca/) began as a student volunteer project working to install a solar power demonstration project and the Yellow Bike (http://yellowbike.uwaterloo.ca/) bike-share program began to provide more transportation alternatives to students.

The UWSP office is run by student volunteers; the program itself operates with no funding from the university. Environmentally-oriented partners in this initiative are numerous, including the campus solar car project and the waste management division of regional government. Others involved include the Waterloo Public Interest Research Group, the local health department, the public school board and regional universities, and local corporations.

The Waste Management Coordinator, in place throughout the WATgreen's life, is the only staff for both WATgreen and UWSP programs. The coordinator, Patti Cook, has a slate of responsibilities that includes maintaining web pages, hiring and supervising students (about 80% of Cook's time), addressing waste management as well as all other campus environmental issues, and overseeing the activities of the WATgreen committee. With the assistance of a fourth-year student, measures of success for the program are currently under development (http://www.adm.uwaterloo.ca/infowast/watgreen/soer.pdf). Cook feels that work is moving forward adequately, given the limited resources at the group's disposal. Much more needs to be done. In particular, more participants need to be attracted to the WATgreen and UWSP efforts.

PROJECT SCALE

►1 full-time Waste Management Coordinator & overseer of WATgreen committee, and a "small" budget from the university and the Federation of Students as a Service of the Student Government.

MEASURE OF SUCCESS

►Currently under development. Includes one new course and the WATgreen committee that has vetted 238 campus projects for their relationship to sustainability.

Website: www.adm.uwaterloo.ca/infowast/watgreen
http://watserv1.uwaterloo.ca/~uwsp
Source: Patti Cook, Waste Management Coordinator and Co-Chair, WATgreen, interview 24 February 2004.

Project File: Canada

Sustainable Concordia Project

Partnering

- Piloted the SYC Greening the Ivory Tower project

Serving

- Works to engage and empower all campus community members

Sustainable Concordia Project

The Sustainable Concordia Project (SCP) began in July 2002 as an attempt to address all the components of sustainability at Concordia University, at the urging of the student union and a working group of the Quebec Public Interest Research Group. The first step of the project was the creation of an advisory committee made up of faculty, students, administration and staff. Attempts were made from the beginning to obtain broad representation among staff, administration, faculty and students, identifying strategic members of groups that would be most sympathetic to Sustainable Concordia. Shortly after the creation of SCP, the Sierra Youth Coalition (SYC) developed its Campus Sustainability Assessment Framework, giving the SCP more focus and specific direction. The SYC and SCP decided that Concordia would pilot the assessment framework.

The Sustainable Concordia Project aims to make Concordia a more sustainable university by empowering community members to actively and passionately engage sustainability issues. The project takes a multi-stakeholder approach within the campus community, working to establish mutual trust and understanding through dialogue and persistence, enabling effective communication and creative problem-solving. The SCP is committed to non-hierarchical, respectful exchanges. Through facilitating input and access to resources, the SCP acts as a nexus for campus community members to address challenges faced by the community, as a community.

The first goal of the project, recently completed, was to produce a campus sustainability assessment. The 390-page assessment is a comprehensive and detailed description of the sustainability status of a wide range of themes on campus. The assessment begins with an introduction to sustainability via the story of a hypothetical day in the life of a "sustainable" Concordia student. It then groups into ten chapters recommendations on how to improve campus sustainability in each of the ten subsections recommended by the Sierra Youth Coalition's assessment framework, profiled above. Recommendations are grouped into aspects of sustainability with either adequate progress, short- or long-term needs for change, and are called maintainable, preventive (long-term), or innovative (immediate) actions.

The next stage of the project involves developing implementation strategies for the recommendations and planning for the measurement of progress toward sustainability goals. To overcome the challenge of student graduation turnover, progress reporting will need to be done yearly.

The key feature of the SCP is its application of tangible applied learning about community sustainability via active course work and student volunteers. Over 100 student volunteers have worked on the assessment with support from many Concordia staff, administration and faculty. Over 60 students have done the work for course credit. This process has empowered students and raised awareness about how participants can interact in a collaborative community and influence the sustainability of the campus. This grassroots approach, that remains reflexive and adaptive to external, constantly changing stimuli, is unique. The project has always been about inclusiveness, as the process itself is seen as the most beneficial part of the project. Maintaining an open spirit of learning and inquiry among the many diverse participants is not easy but has been very rewarding.

PROJECT SCALE

►$25,000 was raised in the first year to pay salaries of SCP co-ordinator and SCP auditor (both full-time students) and for publishing the assessment report. Over 100 student volunteers were involved in the development of the assessment.

MEASURE OF SUCCESS

►Success will be measured on the strength of the foundation of the SCP to ensure that the project continues beyond the transient university life span of students. The process-oriented approach requires yearly visioning and evaluation.

Wesite: http://web2.concordia.ca/sustainability/
Source: Melissa Garcia-Lamarca, Sustainable Concordia Project Co-ordinator, interview March 8, 2004.

Project File: Canada
Université de Sherbrooke

Partnering

- Broad-based contact network and steering committee comment on all new courses

Teaching

- Development of competencies in different areas is required for graduation

Environmental Training Centre and Environment and Sustainable Development Observatory

The University of Sherbrooke's Environmental Training Centre began in 1974, initially offering a Master of Environmental Studies program with the intent to prepare students for entry into the new array of environmental occupations. This program transformed into multidisciplinary environmental programming in 1994, following a major revision to update programming in keeping with rapid changes in the professional environmental fields at regulatory, administrative, and conceptual levels. Between 1994 and 2004, the Centre expanded its scope again to an interdisciplinary approach, demanding of students not simply study in more than one discipline (the multidisciplinary approach) but the development of competencies from different disciplines and their integration in research. This shift reflects the needs of employers for graduates with not only specific technical skills but also a degree of holism in the perspective they bring to problem-solving and an ability to see the contributions of different approaches. This major revision has expanded the Centre's draw to approximately 300-350 active students from fifty disciplines, from communications and geography to law and biology. The Centre now offers professional diplomas and "microprograms" from its campuses in Longueuil, Québec, Saguenay, and Gatineau and in private and government workplaces in addition to traditional masters and PhD degrees and new international masters degrees. The Centre's major innovation is its interdisciplinary approach to programming with the goal of applying sustainable development ideas to the professional world.

In addition to these curricular innovations, the Centre has an advanced collaborative system for program development. Because it is crucial to ensure continued relevance of programming to employers, the Centre works with a contact network of a thousand members, each of whom is given the opportunity to review all new and revised courses. Like the contact network, the program steering committee is drawn from not just members of each of the seven faculties involved but also representatives of all levels of government and of professional groups ranging from engineering and biotechnology to law and public administration. The Centre's instructors as well are drawn primarily from professional rather than traditional academic fields. This dynamic and integrated

connection with environmental and sustainable development work throughout Quebec and in Ottawa is key to the uniqueness of this initiative.

A new laboratory and institute for environment and sustainable development research at the Université de Sherbrooke and its partner Bishop's University, the Environment and Sustainable Development Observatory, was launched in 2003. At an administrative level, the Observatory will assist in the integration of the seven faculties involved in the Centre by centralizing the sustainable development-related research of all these faculties. Although the Observatory has an initial emphasis on research in the natural sciences, new collaborations are being planned to fully engage what director Olivier Thomas sees as the three pillars of sustainable development research: the natural and physical sciences, social sciences and humanities, and technological, economic, and industrial applications.

Like the Centre, the Observatory emphasizes inter- and transdisciplinarity in projects, mobilizing the required competencies to address practical and theoretical research issues throughout Quebec and in Ottawa. Its critical mass of 85 faculty researchers from both universities aids critically in this refashioning of the research endeavour. It also helps, according to Thomas, that the Observatory is located in the medium-sized city of Sherbrooke, which enables the centre to take a holistic approach without being overwhelmed by perpetual osmosis with the cultural, natural, economic and political fibre of the city. The Observatory's major innovation is its capacity to render the results of academic research into useful applications and in so doing to advance sustainable development on the ground.

Environmental Training Centre

PROJECT SCALE

►10 staff

►30-40 instructors

►300-350 students

MEASURE OF SUCCESS

►Student body growth rate of 20% per year.

►97% employment rate

►68% find employment prior to finishing masters degree.

Environment and Sustainable Development Observatory

PROJECT SCALE

►85 faculty researchers

►$10-15 Million annually

MEASURE OF SUCCESS

►Under development

Website: www.usherbrooke.ca/environnement/ www.usherbrooke.ca/observatoire/
Sources: Michel Monpetit, Director of Environmental Training Centre, interview 20 February 2004. Olivier Thomas, Director of Environment and Sustainable Development Observatory, interview 20 February 2004.

Project File: International

South Carolina Sustainable Universities Initiative

Partnering

- 3 major research universities in the state and 13 affiliate colleges

Serving

- Aims for spillover into government and municipal operations

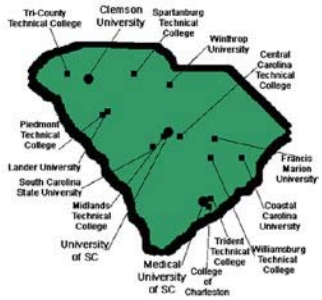
Designing

- Green building programs in university housing offices

Teaching

- Series of service learning and sustainability courses developed

South Carolina Sustainable Universities Initiative



Location of SUI Founding (dot) and Affiliate (square) members in South Carolina.

The South Carolina Sustainable Universities Initiative began in 1998 as a collaboration of the three major research universities in the state, Clemson, Medical University of South Carolina, and the University of South Carolina. The initiative has since added thirteen affiliate four-year and technical colleges. The initiative aims to include a comprehensive breadth of sustainability issues across entire campuses and university communities and, with luck, spillover into state government operations and the surrounding communities. It has been a breakthrough for the program to counterbalance a good deal of the traditional competition between schools for funding and students by providing a collaborative framework for interaction.

Integrating environmental and sustainability issues into curricula has proceeded best in English programs and in pediatric curricula at the Medical University. A series of courses has been developed incorporating service learning projects and sustainability. These projects range from issues of landscape design for native plant gardens and contemplation gardens at churches to engineering design problems on campus, to work with children on sustainability themes, to creating an educational video and resource booklet for incoming freshmen (http://www.sc.edu/fye/publications/index.html). Additionally, green building programs have been implemented with the university housing offices at several member universities.

The program is attempting to expand and solidify many of its loose connections with a range of partners, from the State Energy Office, Department of Health and Environmental Control, and Department of Commerce, local business and industry, and community groups. Although the program does produce annual reports, developing better means of assessing the program's effectiveness and progress is another of the areas for future development of the initiative.

Support from a private foundation has been critically important in the initiative's development. Not only has the funding enabled the program to buy equipment, fund pilot studies, and offer faculty salary support, it has provided legitimacy to the program with university administrators, who "pay attention" once they "hear that a foundation with business interests in South Carolina is concerned enough to put significant funding into sustainable development." Now that this initial funding has drawn to a close, and state government seems in a poor position to provide assistance in the immediate future, additional private funding will be necessary to keep the program going.

PROJECT SCALE

►"Very generous seed grant" from a private foundation; spent nearly $300,000 in 2002.

►1 full-time staff member, "very part time" communications manager, occasional part time administrative

assistance, coordination assistant.

►Each affiliate school has a designated SUI Fellow.

MEASURE OF SUCCESS

►Thirteen 4-year and technical institutions have joined.

►New courses developed, linked with community service learning; conferences and workshops offered, programs in "green" campus housing.

►Develops campus Environmental Management Systems.

Website: www.sc.edu/sustainableu
Source: Patricia L. Jerman, Program Manager, Sustainable Universities Initiative, interview 24 February 2004.

Project File: International
Stow College, Scotland

Teaching

- Embedding Sustainability curriculum program

Stow College Embedding Sustainability Project

Stow College is a Further Education College in the centre of Glasgow, currently serving 8000 students in developing vocational trades. The Strathclyde European Partnership, Scottish Qualifications Authority, Scottish Environmental Protection Agency, and the Scottish Further Education Funding Council have joined forces in 'Embedding Sustainability,' the college's attempt at comprehensive curriculum change to include knowledge and awareness of sustainability in all programs. The structure of funding from the European government provided the impetus for the project. European Structural Funds contribute about £165 million per year to economic development in Scotland. The European Commission now has embraced the social, environmental and economic integration element of sustainable development in specifying that further education colleges should "incorporate sustainable development issues" into "the content of training . . . wherever possible and appropriate" (Thomas & Faulk 2002, 8).

The Scottish Qualifications Authority has the responsibility of validating and accrediting all course frameworks according to criteria of student performance and competence. 'Embedding Sustainability' seizes the opportunity for building competencies related to sustainability into this accreditation process. In addition to these specifications, June Thomas, the Sustainable Development Coordinator, worked to produce templates for instructors, to help them adapt these requirements to personal teaching style and content. These templates may be applied along with their specifications to all 47 further education colleges in Scotland.

This dissemination and awareness-raising, which includes national publications and UK-wide associations, will take considerable work, but at least within Stow, Thomas has met "some slow success": increased awareness of sustainability among staff, the production of teaching material for use by an array of lecturers, and the involvement of a group of stakeholders to ensure implementation of the proposed new courses. At Stow, two new course units have been produced: 'Promoting Sustainability: The role of the individual' and 'Promoting Sustainability: the role of organizations.'

The major innovation of the project, however, has been the development of a methodology to engage staff and faculty in embedding sustainability into the further

education curriculum. This has involved measures of persuasion and time management skills, since the challenge of changing the practice of instructors school-wide has been difficult to facilitate. In addition, this is only one of Thomas's responsibilities as Sustainable Development Coordinator. Thomas has proposed that integration of sustainability ideas across the curriculum is possible, and that a commitment to embed sustainability into all courses should serve as a key awareness-raising mechanism. Work continues to expand the scope of Embedding Sustainability, with cross-college working groups as a helpful tool to give the project momentum.

PROJECT SCALE

►Coordinator working 1 day/week

►Financial support from Scottish Environmental Protection Agency

►Staff and support services from Strathclyde European Partnership

MEASURE OF SUCCESS

►Range of sustainable development units developed, one now accredited and delivered; other lecture material developed

►Currently moving beyond pilot to curriculum-wide phase

Website: www.stow.ac.uk
Source: June Thomas, Sustainable Development Coordinator, Stow College, interview 24 February 2004.

Project File: International

Technical University of Catalonia, Barcelona

Designing

- REAL Laboratory developed on former industrial land, using green technologies

Teaching

- School Curriculum Greening Plan to assess and design 'green' curriculum

Technical University of Catalonia, Barcelona

Technical University of Catalonia (UPC) includes 22 technical schools and faculties and a student body of 35,000 in and around Barcelona. For the past eight years, UPC has taken strategic and increasingly holistic attempts to introduce first environmental, now sustainability, elements into all aspects of the university, and to measure and improve upon the results of these attempts. In 1996, UPC approved its First Environmental Plan and created its first Environmental Plan Coordination Office with one paid staff member and a primary intent to "green the curriculum" for graduate and undergraduate education and secondary intents to establish environmental plans in research, university life, awareness-raising and coordination. For curriculum greening, projects pursued included the development of a manual for each school or faculty describing opportunities for studying environmental impacts in major student research projects.

Following this, from 1998-2000, 11 of 15 schools within the university produced a School Curriculum Greening Plan (SCGP), each of which established the profile of environmental knowledge the students ought to learn, designed an "optimal greened curriculum" as well as an action plan for its implementation. Department Greening Plans (DGP) within each school came next. These 23 completed plans expand the scope of the SCGP within departments to include ideas for "greening" research and other departmental actions.

While creation of SCGPs involved consultation with professional associations and alumni, DGPs were produced with intensive consultation with lecturers, staff, and students in specific departments. A "keywords method" was developed to estimate the environmental and sustainability-related content of courses across the curriculum, based on course descriptions.

Numerous other initiatives were part of the First Environmental Plan. The REAL (Research Laboratory for Environmental Excellence on the Castelldefels Campus) Laboratory emphasizes environmental research on the UPC campus, in transportation, green building, and limnology of the campus lagoon. A new course was developed, called "Environment and Technology, Environmental Education in Engineering," which is under consideration for being made mandatory across campus. Integrated Selective

Waste Collection Plans were established to decentralize the responsibility for waste management and efficiency improvements. A Virtual Resources Centre on Curriculum Greening in Technology (e-ambiT) provides online access to data developed in the planning process. Additionally, a volunteer coordination program, called Volunteer and Participation in Solidarity Program, has been developed.

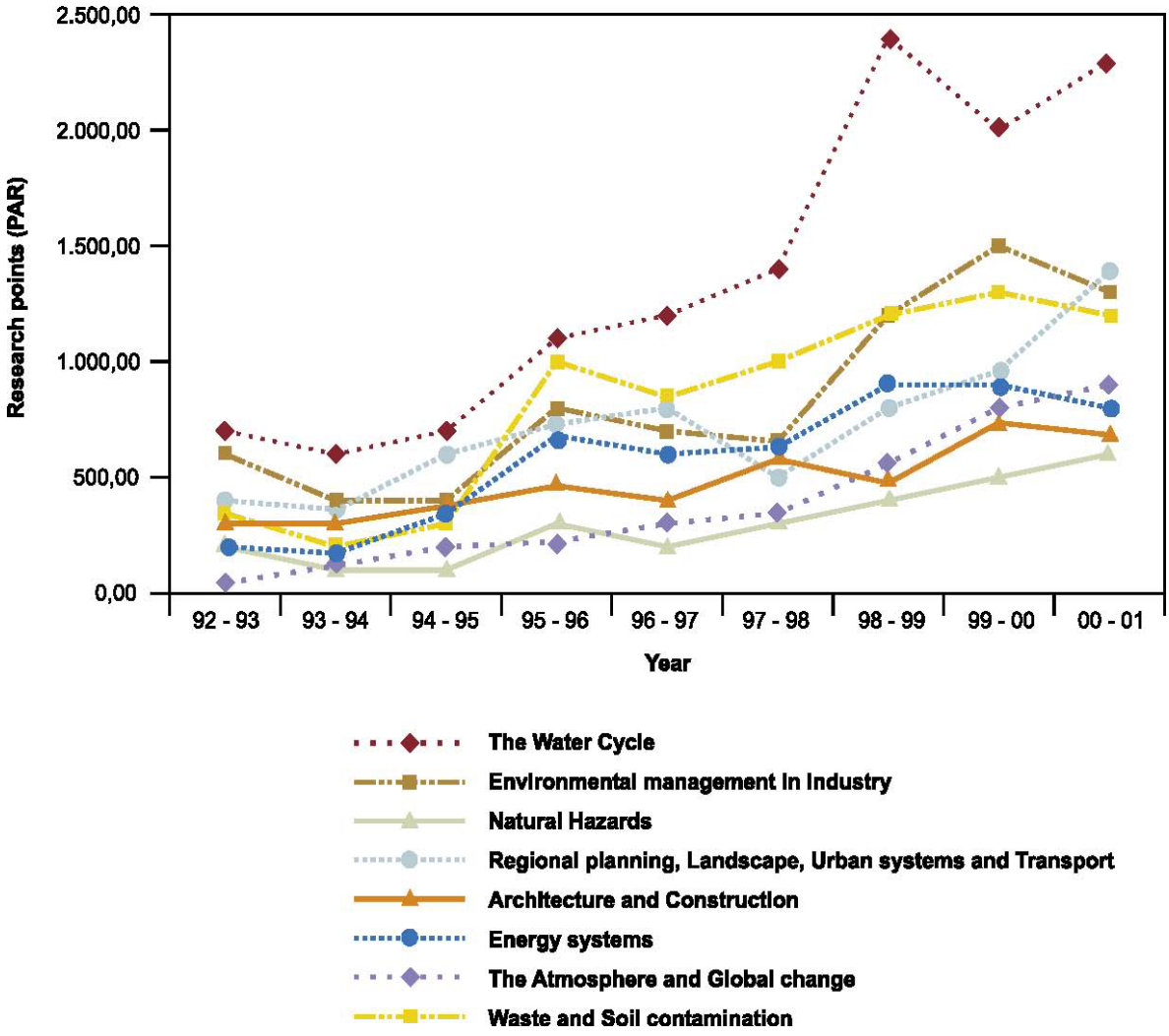
UPC's second environmental plan began in 2002 and will run through 2005. The new plan has multiple intents: to broaden the perspective on the environment at UPC to one of sustainability, to reduce the number of projects being pursued to prevent draining the energy of active participants, to better link projects throughout the university, have a better communications strategy, and improve the indicators of success.

Staff at the Environmental Plan Coordination Office has increased to four full-time employees, one graduate and three undergraduate students, and an additional senior advisor. The Office has recognized the "keywords method" of environment and sustainability content assessment is imperfect and in 2000 additionally implemented a graduate survey, asking newly-employed students their impressions of UPC's success at curriculum greening.

In the 2003 assessment, UPC found that 30% of research done at the institution is strongly related to environment and sustainability. Recognizing this as an important but insufficient estimate of the contribution of UPC to a sustainability-based curriculum and sustainability-oriented results, the Environmental Plan Coordination Office has begun work to create a map of these and other research activities, with the intent of promoting interdisciplinarity and external connections and serving as a meeting place for researchers throughout the university.

As UPC proceeds down the path of developing defensible sustainability progress indicators at all levels of the university, it produces a level of statistical and graphical results of sustainability programming that few other initiatives have. It also faces the challenge of pushing forward the value system of the entire university: "Adding sustainability as a new requirement means changing the decision criteria in the whole process chain, and has many difficulties to overcome" (Ferrer-Balas et al. 2003, 5).

Website: www.upc.es/mediambient



UPC Research activity points in environmental research (related to contributions to books, journals, conferences, etc.) (Ferrer-Balas et al. 2003).

PROJECT SCALE

►Environmental Plan Coordination Office now has 4 full-time staff, 1 graduate student, 3 undergraduate, part-time senior faculty advisor

MEASURE OF SUCCESS

►EP2 has established 27 indicators, reported annually, to fix sustainability education priorities in education, research and doctoral programmes, university and campus life, and coordination and communication, eg. environmental research represents 30% of university research, 2 green buildings in development, and 16.5% of courses include environmental considerations

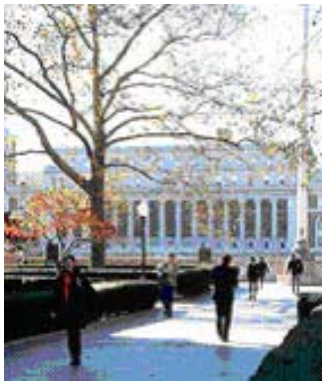
Project File: International

Columbia University

Teaching

- First PhD program in sustainable development, with science and policy training

Columbia University PhD Program in Sustainable Development



Columbia University's School of Public and International Affairs recently announced the launch of a new PhD program in sustainable development, the first of its kind. Six students selected in a global, highly competitive process, began the first semester of the five year program (on full scholarship) in Fall 2004. Spearheading this new program is Jeffrey Sachs, who came to Columbia from Harvard University to a large degree in order to implement this program, in conjunction with Columbia colleague Joseph Stiglitz. The program will grant a social science PhD that requires four graduate level natural sciences courses as well as integrative seminars in which students learn to look at policy issues with both scientific and social scientific eyes. It will benefit from the worldwide view and extensive professional and personal networks of the two eminent scholars at its head: Jeffrey Sachs, for example, spent over 20 years at Harvard University, and has consulted for the International Monetary Fund, the World Bank, the Organization for Economic Cooperation and Development, the World Health Organization, and US Congress. Joseph Stiglitz received the Nobel Family Prize in Economics for his work in the economics of information and has taught at many prominent universities and worked as Chief Economist at the World Bank.

The motivating concept behind the PhD program is expressed by Steven Cohen, Director of the Columbia School of International and Public Affairs Graduate Program in Earth Systems, Science, Policy and Management: "If sustainable development is to be a thriving field, the constraints to behaviour are ecological and physical and policy makers need to factor those constraints into their thinking. In this program, we want to train the translators, the people who can work with both the scientists and policy makers." Developing the knowledge base to fill the gaps between the changes that many see as crucial and the steps and research needed to make these changes are the program's key goals. Program developers expect a portion of graduates to work in government and international agencies such as the World Bank and a portion to work in academia, although currently, the sparse selection of interdisciplinary programs in higher education will limit this stream. Other graduates may work in policy think tank organizations.

Columbia's Earth Institute already has in place a Climate and Society masters degree that begins with a course sequence in environmental science and finishes with a policy-oriented course sequence, attempting to integrate the necessary scientific expertise with the equally necessary understanding of economic, social, and political processes in order to make improvements in decision-making. The PhD program will benefit from this experience, as well as the recent integration of the Lamont Earth Observatory in upstate New York into the Earth Institute. Though start-up funding for the program appears generous at about $12 million per year, it is Columbia's policy that all PhD students have five years of full financial support, so the program must continue to seek out external money from foundations and wealthy individuals in order to supplement funding streams from the profits of the masters programs and from the Columbia central administration.

PROJECT SCALE

►Approximately $12 million/year total costs.

►$750,000/year to run the program, including two new faculty hires.

►Approximately 6 students/year initially.

MEASURE OF SUCCESS

►Successful "translators" as graduates, new knowledge about sustainable development.

Website: www.sipa.columbia.edu/phd
Source: Steven Cohen, Director of Executive MBA Program and Graduate Program in Earth Systems, Science, Policy and Management, Columbia University SIPA, interview 23 February 2004.

Project File: International

Ball State University Council on the Environment

Serving

- Community outreach on eco-efficiency throughout Indiana

Designing

- Facilities reporting to community on eco-efficiency, campus ecological footprint analysis

Teaching

- Curriculum commitments to clustered minors in sustainability, faculty workshops

Ball State University Council on the Environment

In Muncie, Indiana, Ball State University's Greening of the Campus work began in 1991 with the appointment of members to Green Committee 1 by Provost Warren Vander Hill. His charge to the committee was "…to formulate recommendations which, if undertaken, might raise environmental consciousness in our student body, foster convictions in students regarding these issues, and empower them with understandings of how they might channel their awareness effectively to shape their future." The Green-1 Committee made some 35 recommendations, of which some 20 were implemented -- in whole or in part -- over the next several years.

In 1999 then university President John E. Worthen was persuaded to sign the Talloires Declaration, committing the university to advancing further its history of green initiatives. Subsequently the provost, convinced by the utility of the original Green-1 committee work, decided to reconstitute the group to assist in implementing the tenets of Talloires. In 2000, a new committee, Green-2, consisting of 94 faculty, student, staff, and community members, produced 186 recommendations, including a proposal for the designation of a permanent secretariat to facilitate the work needed to meet the challenges of the Talloires Declaration.

This secretariat task was assigned to the Center for Energy Research, Education and Service. Its work is guided by the also newly-created and more environmentally-specific Council on the Environment, whose mission is to "promote the sustainable use of natural resources and the protection of ecological systems that sustain life." The Council members include representatives from each faculty, department, the undergraduate and graduate student bodies, professional staff and community leaders from First Merchants Bank, Redtail Conservancy and the Cardinal Health System.

The Green-2 Committee also worked sustainability issues into the university strategic plan, which now states specifically: "Ball State University will promote a learning climate that values civility, diversity, multicultural awareness, appreciation of the arts, healthy and productive living, and environmental sustainability" with specific action elements to work toward this "learning climate." The COTE achieved adoption of the BSU sustainability statement, which includes elements of learning, collaboration, leadership, campus cohesion, and waste reduction, by top university administration (www.bsu.edu/sustainability).

Ball State's holistic systems approach to sustainability in the university includes commitments to eco-efficient facilities and green construction, curriculum commitments through the interdisciplinary and interdepartmental Clustered Minors in Environmentally Sustainability Practices Program, a biannual conference on Greening of the Campus, and faculty support for sustainability workshops and new course design. Students are currently working on developing a campus ecological footprint analysis, including an inventory and audit process for future analysis of progress.

General education in the community off-campus and facilitation of the citizenship function are the highest priorities needed for research, according to Green-2 co-chair Robert Koester. Progress in this direction includes: community based outreach addressing eco-efficiency and other topics that have touched well over 100 Indiana communities to date. The Center for Energy, Research, Education and Service is currently investigating ways to link citizen interest – including the interests of diverse faculty members — in broad sustainability issues with action, or ways that they can participate.

"The secret of our success," says Koester "is in getting the academic and facilities departments to sit down at the table and talk to one another. The spin-offs are remarkable. Our facilities staff now reports to the community on the university's energy use and recycling, and the deans of the colleges have just agreed to a common set of four environmental studies minors programs in which case studies and field research are conducted with the help of our facilities staffs" (quoted in Mansfield 1998, 29).

Even with support from the university's president and provost, Ball State's sustainability initiatives have had to be creative in funding their work, looking beyond on-campus funds to major foundations and to the state government.

PROJECT SCALE

►$25,000 per year from the Bracken Environmental Fund.

MEASURE OF SUCCESS

►Reporting on eco-efficiency on campus.

PROJECT SCALE

►$15,000 per year Provost Summer Stipend.

MEASURE OF SUCCESS

►New environmental studies minor Programs.

►GC2 staff commitment was 2000 person hours total.

►25% of faculty (235) have participated in 2 week summer workshop on sustainability.

Website: www.bsu.edu/cote
Source: Robert Koester, Co-Chair, Green Committee 2, Center for Energy Research, Education, Service, Ball State University, interview 3 March 2004.

Project File: International

Emory University Piedmont Project

Partnering

- Raises sustainability as an issue across disciplinary lines

Teaching

- Faculty and staff development activities with commitments to change courses

Emory University Piedmont Project

Established in 2000, Emory University's Piedmont Project aims for curriculum redevelopment and infrastructural and facilities development in line with sustainability. The project has four interrelated activities: a structured curriculum development program, a monthly "Faculty Green Lunch Group," faculty and staff development activities, and an effort to link on-campus student research to campus facilities management (Barlett & Eisen 2002).

To date, 56 faculty members and five administrators have participated in the Piedmont Project, which operates throughout the central arts and science disciplines, five professional schools and the affiliated two-year college. The Piedmont Project's major success is in the enthusiasm it has raised for environmental issues among a diverse range of faculty members, from Spanish to Music to Business and Nursing Departments, as well as the more usual suspects from Environmental Studies, Biology, Law and Public Health. Faculty participants' enthusiasm is the main gauge of the project's success. Project coordinator Peggy Barlett repeats some of the comments of participants that emphasize the value of the information communicated as well as the venue for communication itself:

"the best faculty development activity I've participated in at Emory."

"I learned a ton in there."

"It was an intellectual feast."

"[The discussion] was inspiring, informative, and joyful."

"The key things I took away from the workshop were a certain excitement about the future here at Emory, a sense of growing community, and an excellent awareness of specific resources (people) around the campus."

As part of participation in the Piedmont Project, faculty commit to changing one course however, 75% of participants report changing two or three of their courses to reflect the perspective they gained on sustainability. Moreover, 75% of participating faculty report that their teaching methods have changed toward experiential learning and interdisciplinary dialogue emphases, through fieldtrips, outdoor exercises, labs, writing assignments, and independent study options. Again, 75% believe their research has become more interdisciplinary as a result. Barlett's view on the key value of the project is this: "The quality of support for intellectual curiosity restores some of the intrinsic value of the academy, often lost in our pressures to publish and engage with a narrow, disciplinary audience."

The Piedmont Project owes some of its direction to faculty development workshops held at Northern Arizona University and simultaneous efforts at Emory University like the university-wide Environmental Mission Statement, adopted by the University Senate in 2001. With continued enthusiasm to raise funds for further conferences and workshops, the Piedmont Project intends to continue its work toward "establishing an environmentally literate culture and community" (Barlett & Eisen 2002, 75).

PROJECT SCALE

►$27,000/year program funding, including $1000 stipends for 20 faculty, and $7000/year for kick-off workshop.

►Part-time help from Science and Society program, volunteer faculty support.

MEASURE OF SUCCESS

►56 faculty and 5 administrators have participated.

►22 graduate and 69 undergraduate courses have changed as a result.

►53% of participants have published/presented work resulting from Piedmont experience.

Website: www.environment.emory.edu
Source: Peggy Barlett, Professor of Anthropology, Emory University, interview 24 February 2004. Photo Credit: Jack Oxford

Priorities and Challenges in Sustainability Education

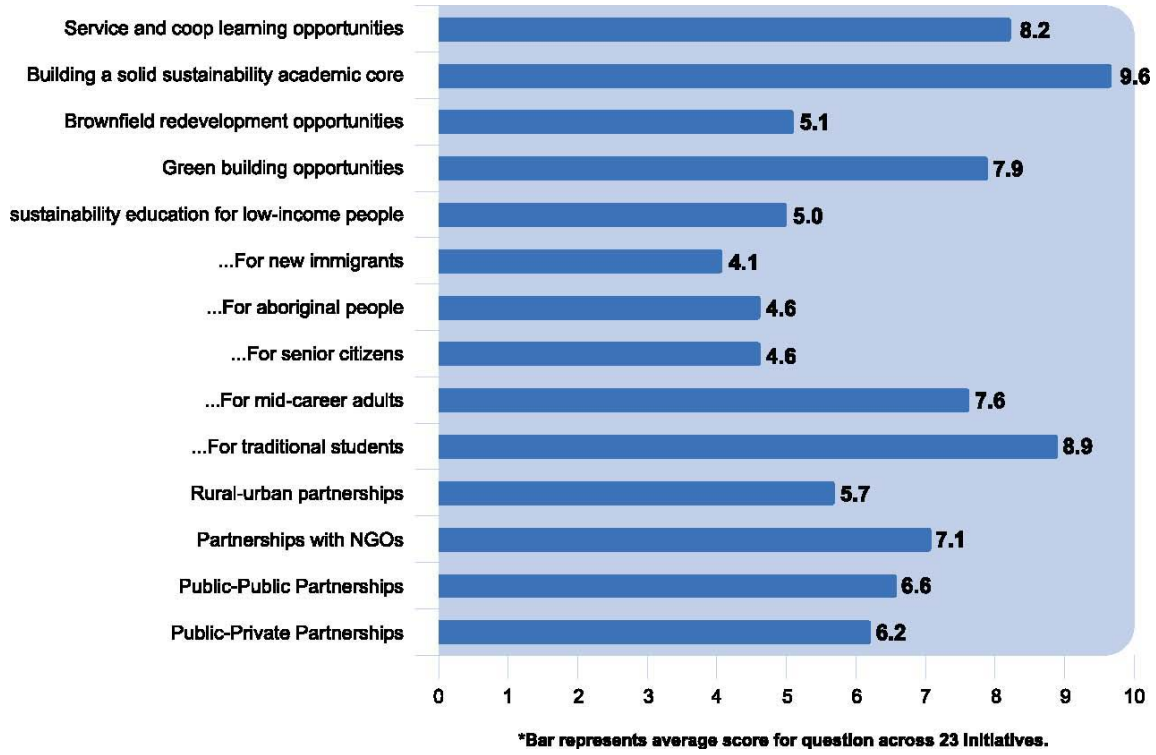
Nine research universities, two technological institutes, one college, two multi-university partnerships, one national student organization and one design centre have been profiled, representing the diversity of institutions that are actively engaging with the challenges of the learning city in the realm of higher education. To get a clearer sense of what's being emphasized in sustainability education across this diversity of efforts, representatives of 23 sustainability initiatives in higher education, including those profiled, were asked to score their programs' priorities in 14 different dimensions. Results of this scoring, where the least emphasized issues score 0 and the most emphasized issues score 10, are shown in the chart below. The average score given was 6.5, with a standard deviation of 1.7 points.

In the service dimension, respondents were asked about their emphases on service and cooperative learning opportunities, as well as on providing education opportunities for nontraditional students, both those traditionally underserved by higher education such as low-income people, new immigrants, aboriginal people, and those served by lifelong learning opportunities, like mid-career adults and senior citizens. In the teaching dimension, representatives scored two issues: building a solid sustainability academic core and sustainability education for traditional students. In the design dimension, people were asked to score brownfield redevelopment and green building opportunities. In the partnering dimension, respondents were asked how much their programs emphasized partnerships between rural and urban areas, between the campus and nongovernmental organizations, between government and other public agencies, and between public agencies and private businesses.

Important Issues in Sustainability and Higher Education

Not surprisingly, respondents uniformly scored teaching sustainability to traditional students highest (scores for 'building a solid sustainability academic core' in particular had the lowest standard deviation of 1.0). Some mentioned the critical importance of developing a knowledge base relating the science and method of sustainability to real-world applications, and developing models for 'franchising' this knowledge so it can be shared with other places. Working to balance the social and ecological aspects of sustainability and to build the capacity to envision sustainability through interdisciplinary dialogue and partnerships was also valued.

Developing service and cooperative learning opportunities scored next highest, although service to nontraditional bodies of students was not widely emphasized. The group of nontraditional students that seem to get the most attention are adults, served by lifelong learning opportunities and, when these adults are faculty, by professional development opportunities. At Emory University, grounding faculty in local sustainability issues is fundamental to building capacity.



For DesignWest, a major challenge in knowledge generation is transferring sustainability knowledge to the design professions and opening access to this knowledge more broadly. There was a wide range of scores for the importance of providing sustainability education opportunities to Aboriginal people (standard deviation 3.8); this issue scored high for a number of initiatives in Canada, like NVIT whose primary focus is a commitment to Aboriginal education, culture, and values, and low for initiatives elsewhere (five initiatives also scored this question as "not applicable"; these were not figured into the average).

In the design dimension, greater emphasis was placed on green building than on brownfield redevelopment. Of all the issues people were asked to score, they differed second most in their response to the importance of brownfield redevelopment (standard deviation of 3.5), reflecting, in part, the way this issue depends on site-specific opportunities. Interest in emphasizing particular design and engineering-related topics in sustainability like sustainable transportation, energy, information technology, and food systems and services additionally suggests the strength of the design dimension in sustainability in the sample.

Finally, partnering with NGOs, other public institutions like government agencies, and private businesses were seen to be of moderate importance. However, developing trans- and interdisciplinarity was rated as an additional critical value by several respondents, and the Sierra Youth Coalition emphasized the importance of integrating all community stakeholders into sustainability-oriented research and practice.

Although not all the initiatives profiled are aiming for the same level of comprehensiveness in their approach to sustainability, for most, integrating and equalizing the different dimensions of value - partnering, serving, designing, teaching — remains to be done. Reaching for sustainability on campus involves a far greater challenge than achieving eco-efficiency, a research or service learning partnership with the city, or new courses on sustainability. The greater challenge, upon which even these leading edge initiatives stand just at the cusp, is to grasp, address, and devise means to assess sustainable development processes in all ecological, economic, and social systems touched by the campus. Three aspects of this greater challenge are addressed below. These are: the challenge of collaboration and interdisciplinary work, the challenge of advancing new ideas in the face of institutional and professional inertia, and, as always, the challenge of securing the resources necessary to pursue new ideas. The unique opportunity that exists for pursuing the Learning City in the realm of post seconday education is summarized following this.

The Challenge of Collaborating Across Diverse Backgrounds

Nearly every initiative surveyed had some concern about collaboration, whether between different levels of the university hierarchy, different disciplines in the university, or partners off campus. Throughout the college or university hierarchy, initiatives need to convince and engage students, faculty, staff, and administrators in order to touch all dimensions of a sustainability effort. Many efforts originate with student groups, as was the case at Concordia and all initiatives inspired by the Sierra Youth Coalition. Student-led initiatives can meet special difficulties in communicating effectively with faculty and administrators. For the significant number of initiatives begun by interested faculty, like Emory's Piedmont Project and Ball State's Green Committee, the challenge of reaching through the levels of the university remains significant. Nicola Valley Institute of Technology has faced even greater challenges of communicating across cultures, both to government education officials about the utility of a college specializing in aboriginal education utilizing aboriginal norms and structures and to the First Nations population about the legitimacy of the effort.

Disciplinarization within faculties and among individual faculty members is also a big challenge for sustainability initiatives. Collaborative, interdisciplinary courses and research projects must be designed to work for students with different academic backgrounds and to be relevant to the diverse specializations of faculty involved. Faculty members trained to put most of their energy into specialization are now being asked to recognize, understand, and relate to the value of work done in vastly different specializations. At the Université de Sherbrooke, Professor Thomas reflects that this is a huge task: "The shift to inter- and transdisciplinary thinking is a broad mind-opening exercise that must be pursued, sometimes painfully, by all researchers involved." Making

personal contacts and targeting key participants across the spectrum of disciplines is critical to encouraging this mind-opening in the direction of sustainability, as is persistence. As sustainability begins to gain currency in government, among professional organizations, in different fields of research, and in the popular press, the challenge of recruiting diverse participants decreases.

Effective collaboration with off-campus groups and individuals has no tried-and-true methodology. Without responsibility and accountability for specific parts of the project, partners have trouble coming together and fair financial management becomes difficult. In the Sustainable Toronto project, Professor Savan reflects that a more strategic approach to partner selection, drawing out specific related interests of existing members, could have led to more lasting partnerships that encompassed better the range of interests of the group. Specifically, in Sustainable Toronto as in other projects profiled here, environmental aspects of sustainability are often emphasized over social and economic aspects. There is the danger of a 'founder effect' in this area, whereby projects that begin with primarily environmental concerns will be contained by these concerns and may never be able effectively to reach beyond them. However, the projects profiled here are not solely affiliated with environmental studies: the York Centre for Applied Sustainability, for example, is now part of the Schulich School of Business. Emory University's Piedmont Project, taking a different route, is coordinated by an anthropologist.

Communicating New Ideas and Coping with Inertia

Conveying the vision of sustainability through any one of the initiatives profiled here is difficult, 'envelope-pushing' work. Institutions, generally speaking, are averse to accepting new ideas wholesale because they require change; and generally, the larger and more complex an institution, the more change hurts. College and university institutions are no exception. Provincial and state governments were also cited by some as part of the challenge of overcoming institutional inertia, either for not including sustainability in government priorities or for a general lack of transparency in their educational and other funding priorities.

There are several aspects to the challenge of inertia. First is the question of communicating the need for change to decision makers whose first natural question is: "we've never done this before, so why should we do it now?" Initiatives aiming to change institutional priorities need to persuade all members of the university community, but initiatives aiming to change lower-level decision makers, including faculty, student, or other groups beyond the campus, need to be particularly focused to combat inertia.

Second is the challenge of pragmatically and strategically approaching the task of sustainability, given its novelty and overarching nature. In the Agricultural Sciences Faculty at UBC, Professor Rojas explains that although he personally has been working on sustainability issues for most of his academic life, "nobody in our Faculty had

designed and conducted a sustainability assessment of the entire food system of the university. The review of the literature provided us with important insights and ideas, but we basically started from scratch." Specific efforts need clear criteria to assess their progress and few are satisfied with the criteria they've established to date.

Third is the problem of the existing incentive structure on campus. Universities do not reward faculty for collaborative or inter-disciplinary work as such. Incentives, tenure, and promotions flow most easily to those who do not take such risks in teaching, research, and service; just the opposite, what is esteemed is further specialization within a discipline. Institutional safeguards and new reward mechanisms are needed that professionally protect and provide adequate incentives for faculty to 'step outside the box' of their disciplines. Some of the projects profiled have created such incentives in small ways through faculty stipends and contribution rewards. To achieve a new incentive structure more widely, high level administrative support is critical. The sustainability initiative at Ball State University garnered support from the university provost at an early stage, a move that was significant to the longevity and success of the work, virtually requiring deans and department chairs to support it. That said, the Ball State initiative still identifies "getting over the hierarchical system of the university" as a key goal.

Securing Resources to Pursue Sustainability

As with any new project, working sustainability into colleges and university campuses takes time and money in addition to institutional support. The projects profiled demonstrate wide variations in funding success for sustainability initiatives on campuses, from projects that are well-heeled by design or by lucky break to projects that are penniless and unstaffed. For many new initiatives, continuing funding is sorely needed in order to establish a track record of work and legitimacy. Due to the difficulty of communicating a relatively untested and ambitious goal like sustainable development, foundations often are reluctant to commit funds beyond seed money. When it comes to projects on campus, groups often face additional challenges of working with foundations that often feel this responsibility should lie with campus administration. For their part, campus administration may have difficulty placing the project in a specific funding category and coping with project requests for ongoing rather than one-time funding. In the 'green' or design end of sustainability in particular, initiatives have encountered misconceptions among funders of the true costs of eco-efficiency, which is often treated as a frill rather than a long-term investment, let alone a necessity. In the experience of Patricia Jerman at South Carolina University: "if first costs are too expensive, conservation won't be considered, even though it will save money in the long run." At this university like others, construction and operations costs have separate institutional budgets, so long-term cost savings often are not considered in new construction.

The challenge of funding plays out differently for different initiatives but is particularly important in initiatives focused on new curricula and research. For Columbia University's PhD program, a large amount of initial funding is crucial, because university policy requires all doctoral students to be funded for five years. For efforts bridging social and natural science sides of sustainability, equity of funding can be equally at issue. In Sherbrooke, it was noted that the discrepancy of funding levels required by social versus natural science research and study and the greater monetary value of the results of some natural science and engineering research compared to social science research can lead to problems. Rather than encouraging collaboration, this 'valuation gap' for different kinds of research often leads to conflict between research groups.

Dedicated time and adequate space can also be hard to come by. Many initiatives are waiting to ramp up their efforts by moving beyond being entirely volunteer-run to sustaining a staff member or two. Projects working directly with faculty, like Stow College's Embedding Sustainability project, have the additional challenge of coordinating busy people's schedules to ensure maximum outreach and wide-ranging effectiveness of the effort. Others have met difficulties recruiting qualified instructors. Concordia University's student-run project could secure a small amount of internal university funding for the first stage of the project, which had only a part-time office and ran out of the cafeteria for the rest of the day. More funding and space will need to be found to move toward the implementation phase of the project.

The Unique Opportunity of Higher Education for the Learning City

Written by Meg Holden, Janet Moore and Rob VanWynsbergh

- Reorient the classroom toward the local community.
- Reconcile the different currencies and reward systems in educational and other civic institutions.
- Negotiate practices and standards for cooperative and collaborative engagement.
- Rethink timing and duration of educational and civic outcomes within university policies and procedures.
- Recognize and debate the difference that different backgrounds and perspectives make.
- Seek out economies and integration among teaching, research and service roles of faculty members.
- Pedagogical transformation requires competency-based and cross-disciplinary approaches to learning.

Adapted from Moore 2004

A focus on higher education is not the only way toward the achievement of the learning city, but it is a necessary way. By reconceptualizing and framing higher education as a process of partnering, serving, designing and teaching for sustainable development, higher education can provide a logic to the larger task of integrating education with the tools and rewards necessary for making change. The goals of the learning city then are to advance sustainable development as a process undertaken by a widening circle of participants. Moreover, in the city's unfolding, education helps us take negotiated steps toward a broader common understanding of what urban sustainable development means and needs. Finally, through visioning, deepening understandings of and reconciling differences among visions, and striking out towards visions of our preferred futures, we need to learn to correct the systematic mistakes of our past and develop differently. This learning has begun but remains wanting in many places throughout our cities.

The projects profiled here, in addition to many sister efforts around the world, give testimony to the possibility of realigning the postsecondary classroom with the learning city in several important ways. First, the classroom can be reoriented toward the local community. Engaging classes with real-time community issues and with groups and institutions outside the educational system, taking the 'city as classroom,' makes space for educational institutions as full members of civil society. This process of closer alignment between education and other urban institutions is highly promising but it is not automatic. Members of postsecondary communities along with other groups within civil society, in moving toward acting as a united community of inquirers, need to work out differences in currencies and reward systems, practices and standards for engagement, timing and duration of projects, and different disciplinary and philosophical perspectives. Each of these challenges to the learning city is applicable beyond the realm of higher education.

Whereas the primary currencies of higher education are ideas, grades (for students) and research products (for faculty), the rewards of involvement in other sectors of civil society take different forms: like reputation, belonging, and strengthened personal and professional networks. To a great extent, academics committed to sustainable development understand that these reward systems can merge. This is a source of optimism in creating a program of activities for the Learning City. These activities will reflect the importance of networks and relationships, not just publications, to social change. In fact, the inclusion of others within civil society who are interested in being recognized as part of the knowledge-generating work traditionally 'owned' by academics will ensure that traditional research products (like published peer-reviewed writing and academic presentations) can be redefined in the context of higher education in the service of sustainable development. These new products will include new professional partnerships, networks, and service relationships. Even as learning city participants inside and outside educational institutions understand the value of the other's reward, however, challenges remain so long as professional judgement is passed on each according to the traditional, segmented expectations and lines of accountability.

The good news is that these reward systems already are converging to a greater extent in the realm of financial incentives for collaboration and cooperation. An increasing number of research grants, by which the value of academic ideas is often measured, are targeted at organized coalitions of academics and nonacademic 'community partners.' A strong example is the Canadian Community-University Research Alliance program. New jobs, too, by which the value of community work is often measured, often flow to civil society groups actively engaged in multisectoral work that includes academic as well as government and business participation.

Challenges to this reorientation of the classroom in line with local needs exist on a number of fronts other than different reward systems, providing a new frontier for learning city research. Practices and standards for cooperative engagement are often overlooked as a necessary piece of the negotiation that must happen when embarking on a new course, initiative, or research project. The failure to adequately and openly negotiate the rules for participation and communication, division of labour, sharing of information, and reaping rewards of a project, can compromise outcomes. Moreover, these practices and standards need to be negotiated with each specific partner in mind and at the table.

The Learning City theme will develop partnerships, coalitions, and collaborations that extend beyond the 'friendship' or 'personal network model' in which classroom-community alliances build existing relationships among those who already straddle the divides. As Jane Addams (1964, 179) noted at the beginning of the last century, "because every human being is a creative agent . . . [w]e are not content to include all men [sic] in our hopes, but have become conscious that all men are hoping and are part of the same movement of which we are a part." For some non-traditional participants in the postsecondary classroom, the luxury of engaging with issues critical to their work as part of a group working openly, and often at a richer conceptual level than is explored outside the classroom, is inherently appealing. Other non-traditional participants will not automatically feel the same 'warm glow' of common work, particularly if their place of work – resource extraction industries or scandalized government agencies, for example -- scores low on the scale of public opinion. Different practices and standards need to be considered to draw even those who seem adverse to the learning city into the mix. The community of inquirers that the learning city works toward is both coherent and inclusive, both focused and open to different perspectives. Most of all, it is a community that is always in the making.

Intimately tied to the issue of accountability for practical, professional, and academic project results are the issues of the timing and duration of common projects. Clearly, complex local urban sustainability problems will not be solved over a semester, no matter how well-planned and collaboratively executed the course. Participants need to be aware of the sometimes radical, sometimes iterative, sometimes stagnant or even backwards pace of social change and head off discouragement and betrayed trust among groups with different timeframes and agendas. We can and should set our professional and citizens'

sights on longer-term projects and engagement, but unpredictable events are still the norm. The Learning City will aid this negotiation process by designing an iterative and step-wise approach to problems that is best suited to an unpredictable environment. This process will feature many built-in places (like community forums, for example) at which to pause, celebrate small successes, and reflect on relationships made and experiences had to date as part of the process of moving forward.

Part of what needs to be negotiated among all participants in the learning city classroom is the difference that disciplinary and philosophical perspectives make. Recognizing that we all come with biases and background beliefs, what can we do to cope with these in a way that leads to inclusion and the cumulative contributions of more perspectives and methods? One case in point is the turn toward systems theory approaches to sustainable development (Robèrt 2002). To teachers and learners with a natural science background, for instance, systems theory marks a major advance toward thinking and research with sustainable development, rather than business-as-usual, in mind. For those with a humanities or social science background, by contrast, systems theory has often been interpreted as a wrongheaded return to Whig theories of history and attempts at grandiose narratives, when detailed case studies of groups of people making small differences are more valuable contributions to sustainable development.

The attunement of the learning city classroom to welcoming and working out the points of agreement and contention among these two groups of people, and all those whose views fall somewhere in between, holds great potential. Moreover, even people holding different theories of change may still reach agreement on approaches to change. In this respect, the learning city classroom's most valuable lessons will come not in disciplinary or even interdisciplinary fields but in competencies like: communication across different disciplines, backgrounds and perspectives; translation of terms and ideas; strong facilitation; frameworks for conversation, listening, and conflict resolution; strategic planning, networks and negotiation; studies of personal and group power; and implementation and evaluation.

Faculty positions usually include three component jobs: teaching, research, and service (mainly to the educational institution itself) – with greater emphasis on teaching and research than on service. The evidence in this report points to the need to rethink these jobs for greater integration of the three functions so that the academy can serve as both architect and designer for partnerships based on the improvement of local conditions. Educational design for sustainable development in the city means a suite of programming oriented around current local problems that can be tackled, in part, as ongoing or iterative group research projects in collaboration with and service to others and to the city as a whole. Rich research as well as service opportunities can flow from teaching inside the model of the learning city. By architect we mean that the academy may create an enhanced physical space for fostering peer understanding of the value of this model. The goal is to make this non-traditional pedagogy a choice among faculty. This learning city model will value different kinds of learning and service by integrating the roles of the

teacher in teaching, research, and service. Creating efficiencies in these roles opens up space for the reconceptualization of the tasks of workers in other institutions of the learning city as equal contributors to the broader curriculum of the learning city.

Steps are under way toward reconceptualizing the tasks of higher education in line with the values of the learning city at Vancouver's new Great Northern Way Campus. These steps are described in the next, final section of this report.

Next Steps

Partnering

- Learning City education and research will be designed and carried out by the two research university partners, SFU and UBC, along with BCIT and ECIAD. Other civil society, government, and business groups will be added progressively to our community of inquirers

Serving

- Our favoured pedagogical and research model is the approach of learning and developing through service to communities, and evaluation based on pragmatic effects.

Designing

- Location at the Great Northern Way Campus, a former industrial site near downtown Vancouver, and ultimately in the new, green, Centre for Interactive Research on Sustainability.

Teaching

- New inter-institutional and transdisciplinary curriculum in urban sustainability education. Initial courses examine the regional Central Valley Greenway and the creation of the Centre for Interactive Research on Sustainability.

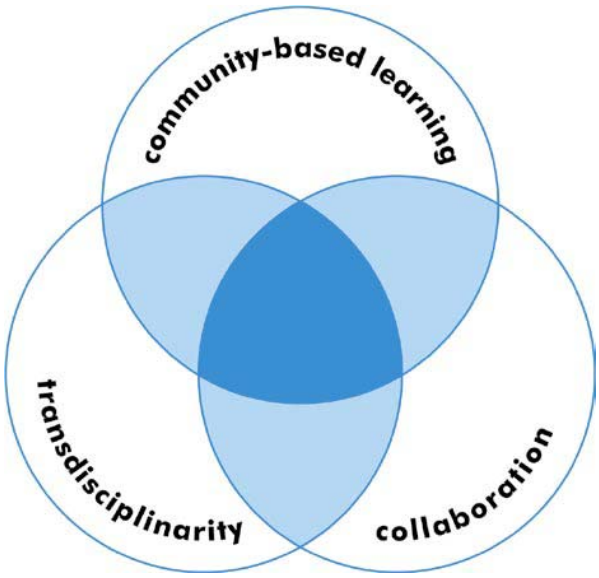
Envisioning the Learning City at the Great Northern Way Campus **(www.learningcity.gnwc.ca)**

Written by Meg Holden, Janet Moore, and Rob VanWynsberghe

The Great Northern Way Campus4 (GNWC) is a consortium of four public postsecondary institutions, sited on 7.5 hectares of gifted land in Vancouver's False Creek Flats neighbourhood. The former industrial inner-city site, along with its ownership by four large educational institutions, both invites and demands an orientation around the Learning City. The GNWC needs to address different approaches to learning, from technical to design-based to academic. The campus needs to develop new relationships with its surrounding communities. It also must accommodate the different habits, procedures and capacities of the four partner institutions and different local needs for education and urban policy and action.

To cope with and thrive in this new atmosphere, the GNWC has included a focus on urban sustainability in its inaugural academic vision. The strategic plan of the GNWC (2004, 7) is to create a centre of excellence focused on "the urban environment, within the context of a knowledge-based economy" and "a unique learning, research and entrepreneurial environment that will address sustainability issues, engage the larger community and create a dynamic setting for the ongoing implementation of solutions." This plan is predicated on mobilizing a growing constituency of learners through innovative programming and research partners, public and private sector funding, and advisory partners, all of whom share an interest in urban sustainability. The Learning City initiative aims to provide a central focus to the many disparate forces for urban sustainability in the region, to develop the most suitable sustainability education and training, and a research program concurrent with this experimental teaching and learning project.

The Learning City at GNWC is guided by three related and encompassing themes: collaboration, transdisciplinarity, and community-based learning. The GNWC provides an unprecedented opportunity for *collaboration* among four major learning institutions: British Columbia Institute of Technology, the Emily Carr Institute of Art and Design, Simon Fraser University, and the University of British Columbia. In a collaborative education model, knowledge is jointly constructed by instructors and students, favouring skills in facilitation, negotiation, mediation, and other group processes.



Bringing interested people from each institution and the local community at the Learning City will create a unique space for developing an inter-institutional as well as *transdisciplinary* approach to place-based problem solving. Rather than adhering to disciplinary boundaries, we envision working across, through and beyond these boundaries to merge teaching, student research, and community participation.

One pedagogical model supporting this integration is *community-based learning*, which combines service learning, experiential learning, lifelong learning and other related approaches in an effort to provide learners of all ages a means to identify and achieve what they wish to learn from any segment of the community (Owens 1994). While traditional community service learning pedagogy suggests that learning happens when students are engaged in serving their communities via projects, internships, or apprenticeships, we aim to experiment with this approach, asking students to engage in research on community-based problems, where the research becomes the community service (Savan and Sider 2004, Weinberg 2003).

Our pilot work toward the Learning City involves the formation of an organizational structure through which to pursue the creation of new collaborative, transdisciplinary, and community service learning-oriented educational opportunities in the field of urban sustainability. This curriculum committee will have undergraduate, graduate, continuing education, executive education, and teacher education sub-committees, each guided by leaders from different partner institutions. Each of the four partner institutions brings a different, complementary set of competencies to the Learning City:

ε British Columbia Institute of Technology offers cutting-edge education in technical realms of sustainable development including green building and alternative fuels development, through its School of Construction and the Environment and Centre for

Energy Systems Application. BCIT is supporting the development of the Learning City in kind, through the dedication of an instructional development specialist as well as a specialist in green building.

ε Emily Carr Institute of Art and Design offers design education for the sustainability sector along with outreach programming, such as the "Signals of Intent: Sustainability and Design" conference that took place in summer 2004. ECIAD, the smallest of the four institutions, has additionally dedicated a faculty member specializing in continuing education to Learning City programming.

ε Simon Fraser University has a wide range of research and educational programming related to sustainable development, offered out of the Urban Studies Program, the Centre for Sustainable Community Development, the Learning Strategies Group, the Centre for Coastal Studies, and others. The SFU Vice-President Academic Office and Dean of Arts Office have substantiated their support for the Learning City through fifteen months of financial support. This includes support for a postdoctoral researcher, graduate research assistants, and the incremental costs of inter-institutional course offerings, evaluation, and research development.

ε The University of British Columbia, already a leader in sustainable development research and education, is also leading the Centre for Interactive Research on Sustainability. Among the many on-going sustainability projects are the Campus Sustainability Office, the Interfaculty Program in Sustainability Studies, and the Sustainable Development Research Institute. Further support from UBC for the Learning City is expected.

Action and Awareness 2004. View the 2004 course video at www.basinfutures.net/urbancourse/action/video.htm. Credit: Janet Moore and the students of Action and Awareness 2004

Pilot courses have already been planned for the pilot phase of the Learning City. The first course, our flagship course, will be offered for the third summer in a row beginning June, 2005. The course, entitled "Action and Awareness: Focus on Urban Sustainability," will be offered at the undergraduate level as an intensive 30 hour per week course, open to students at all four institutions. In summer 2005, this course will enter its third iterative intervention into the design, partnership and outreach strategy, and policy and popular

links to urban sustainability themes of the Central Valley Greenway. The Central Valley Greenway is an urban multi-modal transportation and recreation corridor that runs near the GNWC, from downtown Vancouver through Burnaby to New Westminster.

The second course, to be offered for the first time during the fall semester 2005, will be a graduate seminar in the theory, design, and construction of green buildings. The course will focus on the case of designing, planning, and making best use of the Centre for Interactive Research on Sustainability, scheduled for substantial completion in early 2007. Both of these courses will set the bar for future educational offerings of the Learning City through their collaborative design and offering by a team of instructors with complementary qualifications; openness to students from a wide range of disciplinary backgrounds, and to the learning outcome expectations they bring with them; and situatedness in the real policy and action needs of the surrounding community.

Architect's drawing of the planned Centre for Interactive Research on Sustainability. Credit: Busby & Associates

The Learning City does more than provide a lasting public space and opportunity for skills- and capacity-building around critical issues of urban sustainability in Vancouver. The program of work also presents an important research moment for advancing our knowledge about the synergistic properties of an urban sustainability orientation in higher education. The Learning City research program can be distinguished, but not separated, from the Learning City curriculum. The research revolves around tracking, assessing, and contextualizing in theory and practice the impact of the Learning City approach to urban sustainability education at three scales: the classroom, the inter-institutional campus, and urban sustainability policy development. These can be considered as three complementary research projects.

At the scale of the classroom, we will seek to determine the difference the Learning City approach makes to student learning outcomes. We will assess and compare student understanding of major urban sustainable development concepts, satisfaction with the experimental courses, and commitment to personal and professional change against baseline groups at the partner institutions. At the scale of the inter-institutional education experiment, we will examine the impact of the Learning City approach on instructors and curriculum development team members who take the opportunity to expand the scope and reach of their teaching via GNWC. At the urban sustainability policy scale, we will investigate the Learning City approach as a novel partnership model for policy issue engagement and process development. Despite the turn by planning and policy researchers to learning as the only sure way toward lasting change in city management

and function, learning through higher education is a relatively untrodden path in planning and policy research (Watson 2002, Friedmann 2000). We will help develop the theory of learning as a means to urban policy change by tracking and evaluating the effects of Learning City classrooms on the real world problems and projects they address, and on the planning and policy professionals who contribute projects to the classrooms.

This research will be done through the iterative design of group and individual evaluations aimed at students, both in the Learning City and baseline groups at the four partner institutions; at educational professionals who take up the opportunity offered by the Learning City at the GNWC; and at local policy actors engaged in urban sustainability policy processes as well as in our curriculum. This tool will be implemented in a variety of ways, through a process that features convening Learning City evaluation forums three to four times per year. The result will be, on the one hand, hard results about the value of the Learning City approach to urban sustainability education from the perspective of different types of students, educators, and policy professionals, and the concomitant establishment of a local network of people and groups interested in iterative, collaborative, and engaged work in creating sustainability curricula.

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End Notes

1 The survey instrument, which took approximately 20 minutes to complete, was piloted with several initiatives involved with sustainability education for K-12 students. Of 65 initiatives contacted, the revised survey was administered by telephone or email to 39 initiatives and 23 surveys were completed, for a response rate of 59%. The results of 7 completed surveys were not able to be profiled in this report in the interest of brevity. Sampling followed a snowball methodology, beginning with the identification of a fairly comprehensive list of regional initiatives, an intensive Canada-wide scan of university-based initiatives, and a more selective search of international projects through international sustainability in higher education networks and publications. The sample therefore is biased toward better representation of institutions and initiatives close to our home of Vancouver. This was a function both of the survey design and the short time frame in which the survey was completed. As a result, many innovative international initiatives have been left out.

2 Roughly one-third of signatories to these organizations are from the Global South and one-fifth are from countries in the former Soviet Union and Warsaw Pact nations (Corcoran et al. 2002).

3 In chronological order, these declarations are:
Talloires (Secretariat of University Presidents for a Sustainable Future 1990) (http://www.ulsf.org/programs_talloires_td.html),
Halifax (1991) (http://www.unesco.org/iau/tfsd_halifax.html),
Kyoto (1993, http://www.unesco.org/iau/sd/position.html#THE%20KYOTO),
Swansea (1993) (http://www.unesco.org/iau/tfsd_swansea.html),
Blueprint for a Green Campus (Heinz Family Foundation 1995) (http://www.envirocitizen.org/blueprint/blueprint.pdf),
the Essex Principles (1995) (http://www.secondnature.org/history/writings/articles/essex_report.html),
University Charter for Sustainable Development (COPERNICUS 1997) (http://www.copernicus-campus.org/sites/charter_index1.html),
Thessaloniki (1997) (http://www.mio-ecsde.org/Thess/declar_en.htm),
and Lüneburg (2001) (http://www.ulsf.org/pub_declaration_spotvol51.htm).
UNESCO has additionally designated the decade 2005-2015 the decade of education for sustainable development (http://www.un.org/esa/sustdev/sdissues/education/edu.htm).

4 The name “Great Northern Way Campus” reflects the name of the street on which the campus is located rather than any thematic or strategic bent. It is a temporary name.