

2011-2016 Strategic Plan

Environmental Sustainability
Research Centre

Introduction

Contemporary environmental challenges are characterized by complexity, uncertainty and conflict. Meeting these challenges requires novel perspectives and innovative academic approaches. The linkages between social and ecological systems are emphasized in such integrative perspective. Sustainability science, similar to health science, is a field that aims to facilitate the “transition towards sustainability” and is “...defined by the problems it addresses rather than by the disciplines it employs” (Clark, 2007, 1737). Sustainability is re-cast and understood as an evolutionary or transition process, rather than an end point.



The Environmental Sustainability Research Centre at Brock University (ESRC, formerly known as the Brock Environmental Sustainability Research Unit) is an innovative institutional response to environmental challenges at local through international scales. It encourages transdisciplinarity by creating a platform for collaboration and ultimately enriches the research culture at Brock University. The *ESRC Strategic Plan 2011-2016* sets forth the direction of ESRC during its initial five years of operation. It was developed through a collaborative process of assessing the contextual considerations within and beyond Brock University, developing of a vision and direction, and formulating a corresponding organizational structure, functions, and activity plan. A retreat provided the required space and time for all ESRC members to engage in a strategic planning process that forms the basis of this document.

The *ESRC Strategic Plan 2011-2016* begins by positioning ESRC in relation to its operating context and setting forth its guiding mission, goals, and core values. The thematic areas of ESRC are then described. Specific activities are documented and these plans detail how ESRC will move forward over the next five years. It will be reviewed and ratified at each AGM. A companion document (*BESRU Organization Profile 2011*) identifies the individuals and organizations involved as well as the operating rules and procedures.

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Context & Organizational Description

ESRC is shaped by a number of recent developments at Brock University, within Ontario's post-secondary sector, and more broadly.

First, is *Brock's 2014 Academic Plan and the strategic planning process to achieve it*. As Brock moves towards its 50th anniversary, guiding directions are given across the University by the priorities set forth in the *2014 Academic Plan for Knowledge, Engagement and Transformation*. Second, throughout the Brock campus, there are presently several initiatives related to sustainability and the environment operating independently. Third, is a growing commitment to sustainability across Ontario's post-secondary sector. Many other post-secondary institutions are pursuing responses to environmental challenges. In November, 2009, the Executive Heads of Ontario universities created and presented to the Ontario government a sustainability pledge, "...reinforcing our commitment to the environment and future well-being of the province". Brock is one of the signatories of this pledge. Fourth, the importance of environmental issues is being recognized internationally, nationally and regionally. The magnitude of these challenges and the need for innovative responses has been made clear from global to local initiatives. Brock University is uniquely located on the Niagara Escarpment which was formally and internationally recognized in 1990 with the designation of the Niagara Escarpment Biosphere Reserve (UNESCO) – one of a small handful of Canadian universities to find itself in such a location.



Clearly, environmental concerns have moved to the forefront in the Niagara Region, the nation as a whole, and throughout the world. Also cognizant of Brock's overarching vision for 2014 and current related initiatives operating in isolation, ESRC was formed in 2011 to realize tremendous professional and institutional opportunities for collaboration as well as synergies for research related to the environment, sustainability, and resilience. Developing and growing expertise in this critical area now is vital and can lead to future successes.

Mission/Goal:

“ ESRC pursues *innovative* and *transdisciplinary* research concerning the **environment**, **sustainability**, and **social-ecological resilience**.

Ultimately, it **aspires** to contribute to facilitating society's transition towards → **sustainability** ”

Objectives

The following objectives guide the direction, operation, and activities of ESRC

1. To encourage transdisciplinary, integrative, and environmentally oriented research by faculty, librarians, and students.
2. To cultivate and mobilize networks at local through international scales that foster generation of innovative knowledge and make possible information dissemination about the environment.
3. To engage with communities of practitioners and policy makers to foster knowledge impacts at local through international levels about the environment.
4. To afford educational opportunities and enrich dialogue about the environment and sustainability.



Core Values

ESRC upholds and promotes the following core values which give foundation to its quality, character, and vibrancy.

Sustainability

ESRC espouses the principles of sustainability science and encourages thinking and actions consistent with the imperative of reconciling environmental, social, and economic priorities for current and future generations.

Transdisciplinarity

UBC researcher John Robinson (2008) describes sustainability science as the “paradigm case” for applying transdisciplinary thinking, and this ‘transdisciplinary ethos’ is encouraged by the cooperative engagement of Associates and Affiliates from a range of disciplines across the university and beyond (horizontally). ESRC as a research entity represents the type of ‘transdisciplinary space’ necessary to develop new capacities for tackling complex systems problems and facilitate transformative societal and political change. The reach of this collaboration is extended by our research relations and involvement with actors (First Nations, governmental and non-governmental organizations, networks) outside the University from local to international scales (vertically).



Collegiality

ESRC champions collaboration and the synergies afforded by working together with transparency, cooperation, respect and inclusiveness - the core organizing principles underpinning the development of ESRC. We have employed the analogy of a sandbox to best describe how ESRC members have deployed a variety of “transdisciplinary tools” (Giroux and Searls-Giroux, 2004; Mitchell, 2011) and created an institutional space where others can now contribute. The sandbox is an apt metaphor since it also represents the type of space where many of us as younger individuals first learned how to work together collaboratively to accomplish a novel result. ESRC members each bring their own intellectual and scholarly gifts, acumen, and experiences, and through our interactions, we collaboratively construct imaginative outcomes previously unknown.

Central Thematic Areas

In following the broadest spirit of contemporary sustainability science, ESRC's approach is trans disciplinary, integrative, and focused on pressing social-ecological challenges. Attention is initially directed towards the following series of thematic areas. These themes resonate at a variety of scales across diverse geographical locations – from the Niagara Region to the international context. By bringing expertise from Brock University and beyond around these key thematic areas, ESRC will generate novel insights through integration of various disciplines, mobilization of knowledge, and building of capacity.

Water resources innovation and resilience

The value of water and the manner in which it is governed are important concerns world-wide. Economic and institution theories illuminate values associated with water and opportunities for influencing behavioural change. While technological solutions remain an important aspect of water management, it is widely acknowledged that solutions to conditions of increasing complexity and uncertainty will be found in the realm of governance. Understanding and encouraging resilience (i.e. amount of change that is tolerable to remain in the same state, capability for self-organization, ability to enhance adaptive capacity and learning) is thus required to address water challenges. The challenges are similar for all biota. Quality and quantity are fundamental and can be addressed in terms of socio-ecological impacts and future conditions (especially in face of climate change).



Meanings and measurement of sustainability

The relationships between humans and the natural world need to be questioned and the manifestation of human-environment interactions captured. Problematizing 'environmental challenges' and understanding the response of human agents necessitates critically questioning dominant narratives, pervasive ontologies, and entrenched attitudes and actions. Creativity (e.g., drama, visual arts, spoken word, poetry, writing) is both a means to ask these questions as well as a manifestation of spirit and joy. Capturing and incorporating aspects of the environment into research endeavours is rapidly changing with digital technologies. These include geospatial data (geographic information in its digital form), mapping of the biophysical environment, and digital information management.

Climate change, adaptation and transformation

Environmental change is occurring at an unprecedented rate. As we enter the Anthropocene, understanding (modeling) potential future conditions and the associated impacts on ecological and social systems is imperative. Responding to present and potential changes requires forethought and systemic adjustments to ameliorate adverse impacts and take advantage of potential opportunities. Consideration is also required to the underlying conditions and drivers of change, as failure to critically assess these may result in maladaptation. Transformability or transformative capacity is thus often required to re-position systems on desirable trajectories.

Science and public policy

Environmental science and public policy have a critical relationship in the pursuit of more sustainable socio-economic practices since social-ecological systems emphasize the integrated and connected nature of ecological and human systems. It is therefore imperative to understand the biophysical world in innovative ways, the influences upon it from humans, and the causes of individual behaviours and societal practices that are no longer sustainable. Responses codified in policy and/or made actionable through social programs and our own pedagogies offer novel points through which to examine and explore the collective priorities of institutional (formal and informal) agendas. ESRC's and Brock's location within a UNESCO World Biosphere Reserve invites and compels us to explore these intersections among and between sustainable human and social development more fully than ever before in our institution's history.



Social justice, development, and health

All people have a human right to a healthy environment in which to live, work, and play experiencing opportunities to participate in realizing this principle is a key expression of this birthright. In reality this is not the experience of many making vigilant questioning as to the exercise, distribution, and manifestations of power relations and resources essential if we are to aspire for more egalitarian and democratic societies. The social context and choices of individuals/organizations/states is thus called into question with criticality and purpose. Activities such as tourism and immigration, for example, come packaged with great potentiality and challenges, especially in an increasingly globalized world. Broad determinants of public health are taking center stage as marginalized populations shoulder a disproportionate amount of environmental costs and vulnerabilities.



Activity Plan

The activity plan sets forth specific measurable activities that strategically propel ESRC to achieve its mission and fulfill its goals. It consists of programs and projects. Programs are activities of an ongoing nature while projects typically are a one-time undertaking. The activity plan is structured according to ESRC's two main thrusts. The first (Table 1) outlines research activities. The second (Table 2) describes activities of network development, community engagement/outreach, and education. Each activity is identified according to its nature (program vs. project), the ESRC member leading it, and the theme(s) it supports. Leadership by ESRC members for each activity is complimented by assistance from the ESRC coordinator as well as ESRC student affiliates.

“Never doubt that a small group of thoughtful, committed citizens can change the world.

Indeed, it is the only thing that ever has.”

-Margaret Mead

Table 1: Activity Plan for Research and Research Development

Theme Abbreviations

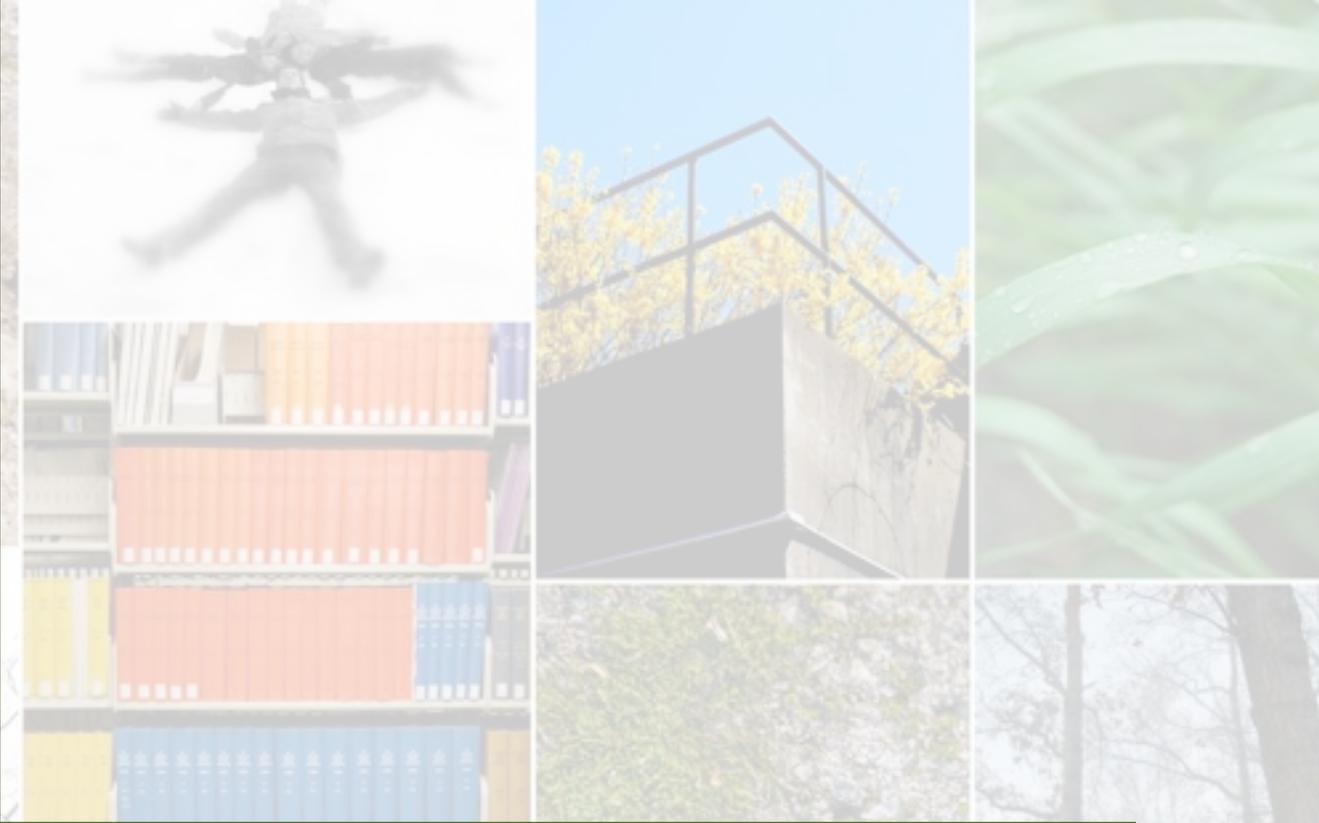
Water Resources Innovation and Resilience (**WRIR**); Meanings and Measurements of Sustainability (**MMS**); Climate Change, Adaptation and Transformation (**CCAT**); Science and Public Policy (**SPP**); and Social Justice, Development and Health (**SJDH**)

Activity	Lead	Theme	Timeline				
			2011	2012	2013	2014	2015
Adaptation and Impacts Research (LOA)	B.May, R. Plummer	CCAT					
Assessing the Outcomes of Collaborative Water Governance: A Canadian Perspective	R. Plummer	WRIR					
Biological-based variation in perception of food- and beverage-relevant stimuli and implications for food/beverage behavior	G. Pickering	SPP					
Climate changes and plant responses	L. Vasseur	CCAT					
Creating a Next Generation Policy Delphi	R. Plummer	SPP					
Creating Networking and Social Learning Strategies in Canadian Biosphere Reserves	R. Plummer	SJDH					
Disturbance, invasive species and the threat of climate change	L. Vasseur	CCAT					
First Nations and Source Waters: Understanding Vulnerabilities and Building Capacity for Governance	R. Plummer	WRIR					
Fromm “Dam and Divert” to “Cap and Trade”: Water Policy Reform in Irrigation Economies	T. Heinmiller	WRIR					
Gestion intégrée et changement climatique des territoires du Golfe du St Laurent	L. Vasseur	CCAT					
Governance for Watershed-Based Source Water Protection in Canada: A National Evaluation	R. Plummer	WRIR					
Improving Water Governance Through Policy Transfer and Lesson Learning	R. Plummer	WRIR & SPP					
Long Point Biosphere Reserve Periodic Review	R. Mitchell	SPP					

Management of the Ecosystems based on the Communities - towards a durable exploitation of the Resources in Burkina Faso	L. Vasseur	SPP					
Managing Natural Resource Recreation for Resilient People, Communities, and Ecosystems	R. Plummer	CCAT					
Modeling Household water and energy retrofit decision-making	S. Renzetti, D. Dupont	WRIR					
Modeling Industrial Water Recirculation Decisions	S. Renzetti	WRIR					
More Value from the Same Water: Maximizing Water's Sustainable Contribution to the Canadian Economy	D. Dupont, S. Renzetti	WRIR					
Niagara Climate Change Project (Grants and Contributions Agreement)	B. May, K. Pickering, S. Purdy, R. Plummer	CCAT					
Response of plant communities to extreme events under climate change scenarios	L. Vasseur	CCAT					
The Pursuit of Excellence - Quality Enhancement from vineyard to vintage - The new, integrated grape and wine research programme for Ontario's Future	G. Pickering	SPP					
Using Google Earth to Visualize the Historic Welland Canals and its significance on tourism and environmental change	C. Beard	SPP					
Create a database of Niagara geospatial data for BESRU environmental research	C. Beard	SPP					
Water Regulations: Impact on First Nations Health Equity and Promotion	D. Dupont	WRIR					
Explaining Carbon Pricing Policy: Why Some Jurisdictions Price Carbon and Others Don't	D. Dupont, T. Heinmiller	SPP					

Table 2: Activity Plan for Network Development, Community Engagement/Outreach, and Education

Activity	Lead	Theme	Timeline				
			2011	2012	2013	2014	2015
BESRU Seminar Series	Selected at AGM	Selected at AGM					
BESRU Annual Conference/Event	Selected at AGM	Selected at AGM					
Science Cafe	L. Vasseur	Selected at AGM					
Honorary Doctorate Nomination	R. Mitchell	All					
GIS Day	C. Beard	A mechanism to highlight BESRU research and the use of geospatial data					
BESRU Membership	D. Dupont	All					
BESRU Communications	R. Mitchell	All					
Liaison with Government/ Organizations/Partners	R. Plummer	All					
UNESCO Chair Application	R. Mitchell	All					
Graduate Program in Sustainability	TBD	MMS					



**For our most current information,
please visit our website:**

<http://www.brocku.ca/environmental-sustainability-research-centre>

