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Building Regional Capacity for Sustainable Development through an ESD Project Inventory in RCE Saskatchewan, Canada

PETA WHITE AND ROGER PETRY

Peta White is a doctoral student in the Faculty of Education at the University of Regina. Email: white20p@uregina.ca. Roger Petry is with Luther College at the University of Regina (Assistant Professor of Philosophy) and Co-Coordinator of RCE Saskatchewan. Email: Roger.Petry@uregina.ca. See acknowledgments at end of article.

Abstract

The Regional Centre of Expertise on Education for Sustainable Development in Saskatchewan (RCE Saskatchewan, Canada) is part of the United Nations University RCE Initiative in support of the UN Decade of Education for Sustainable Development (2005-2014). With funding from the Government of Saskatchewan's Go Green fund, RCE Saskatchewan carried out research identifying Education for Sustainable Development (ESD) projects within six priority areas for sustainability in its Canadian prairie region. This ESD capacity assessment was conducted by eight post-secondary students from late 2007 to 2009 and resulted in a searchable database and visual representation (map) of these ESD projects along with ongoing documentation of project milestones and processes. The database has become a useful tool assisting networking of Saskatchewan ESD providers, researchers and participants. This paper describes the importance of the inventory in advancing the RCE, the project conception and management, the processes utilized for its successful completion (including descriptions of the technology utilized), the project findings and their implications. It concludes that for an RCE with minimal resources, an ESD project inventory employing student researchers within a higher education setting using Free/Open Source technologies is a cost-effective way of advancing the networking and capacity-building goals of an RCE.
Keywords: education for sustainable development (ESD) inventory, ESD capacity assessment, RCE Saskatchewan

The Regional Centre of Expertise on Education for Sustainable Development in Saskatchewan (RCE Saskatchewan) created an online ESD project inventory by employing student researchers within a higher education setting and using Free/Open Source technologies. The inventory cost-effectively advances the networking and capacity-building goals of the RCE. The project was funded through the Government of Saskatchewan's Green Initiative/Go Green Fund (Ministry of Environment, 2009) and managed by Luther College at the University of Regina.

Eight post-secondary students were employed from 2007 to 2009 to conduct a survey of ESD Projects in six sustainable development (SD) theme areas. They recorded 226 ESD projects in the RCE Saskatchewan region via an online survey to produce an online database and interactive visual representation (map). Two other students were employed through funding from the Saskatchewan Ministry of Education and the Saskatchewan Outdoor and Environmental Education Association in 2010 to facilitate the smooth transition of the data to a visual representation. This research project and the resulting data have great potential for capacity building within the RCE Saskatchewan region. It is also a useful case study for other RCE’s interested in similar research projects.

RCE SASKATCHEWAN AND THE NEED FOR AN ESD INVENTORY

The Regional Centre of Expertise on Education for Sustainable Development in Saskatchewan (RCE Saskatchewan) was officially acknowledged by the United Nations University in January 2007. Education for sustainable development (ESD) programs in RCE Saskatchewan are understood to be locally relevant, culturally appropriate and concerned with integrating the environmental, social and economic dimensions of sustainability (RCE Saskatchewan, 2006, p 5). The goal of the RCE is transformative education that promotes sustainable lifestyles and livelihoods in the region while sharing knowledge and insights with other RCEs around the world. In doing so, RCE
Saskatchewan has sought to build innovative platforms to share information and experiences and to promote dialogue among regional/local stakeholders through sustainability partnerships (RCE Saskatchewan, 2009, p 1). These stakeholders include eight higher education partners in the region including two universities, five colleges and one technical institute involved in the RCE. From early on, the RCE made use of a content management system to advance regional collaboration electronically (see www.saskrce.ca).

As outlined in the original RCE Saskatchewan proposal to the UN University, the Saskatchewan prairie region faces significant interdependent sustainable development (SD) challenges:

Saskatchewan is confronted by significant ecological pressures associated with climate change and from primary resource extraction and production including a history of intensive land use. It faces social challenges due to poverty and vulnerability especially among First Nations peoples as well as a long history of migration of population from rural to urban areas and outside the region. Economic pressures include a long-standing depressed rural economy, a historic lack of industrial development, and significant exposure to fluctuations in global prices for exports. In terms of sustaining infrastructure, the region needs to address both declining infrastructure in inner city neighbourhoods and rural communities as well as transportation networks connecting the region. Sustainable alternatives that simultaneously can address and respond to these pressures are needed, especially those able to promote sustainable livelihoods that take advantage of local opportunities. (RCE Saskatchewan, 2006, p 3-4)

The RCE has initially sought to advance ESD using an approach that is: (1) regional, (2) strengths-based, and (3) institutional (RCE Saskatchewan 2006, p 6-7). An inventory of ESD projects was ideally suited to each of these elements. The inventory focused on the RCE’s geographic region which includes the province of Saskatchewan's two major cities of Regina and Saskatoon, and the rural corridor between them following the
province’s major highway (Highway 11 also known as ‘the Louis Riel Trail’). Its boundaries also mirror the Moist Mixed Grassland ecoregion in Saskatchewan and the agricultural and other livelihoods supported by this ecosystem (see Secoy, 2006). Following successful community economic development models (see Kretzmann and McKnight, 1993), the RCE Saskatchewan model relied on a strengths-based approach by focusing on issue areas for ESD in which regional actors were already engaged. Through its initial consultations, the RCE identified the following six sustainability issues of educational focus in the region and built them into its structure as Theme Area Working Groups:

- climate change
- health and healthy lifestyles
- farming and local food production, consumption and waste minimization
- reconnecting to natural prairie ecosystems
- supporting and bridging cultures for sustainable living and community building
- sustainable infrastructure including water and energy

Two cross-cutting themes were also identified that helped guide the inventory process:

- sustaining rural communities and
- regionally-appropriate educational approaches for ESD.

The strengths-based approach is conceptually at the basis of an ESD inventory as it seeks to identify existing regional ESD assets upon which productive networking can be built. The ESD project inventory identifies paths to sustainability that are already being explored to provide a structured basis for collaborative ESD research within the region and global collaboration with other RCE partners. Finally, the RCE’s institutional approach was supported by an ESD inventory that asked its organizational partners to identify their ESD projects.

**ESD PROJECT INVENTORY BACKGROUND AND PROCESS**

With funding from the Government of Saskatchewan's *Go Green Fund* (Ministry of Environment, 2009), post-secondary students were contracted as student researchers
to conduct an initial inventory of ESD projects. Each student was connected to one of the six RCE Saskatchewan theme area working groups with another student addressing the two cross-cutting themes. Students were supported and supervised by coordinators of their respective theme area working group along with the RCE's two overall co-coordinators.

For the purposes of the inventory, a 'project' was understood to encompass a program, project, event, activity, initiative or resource relevant to ESD. 'Education' was broadly understood and included formal, informal, and nonformal education (or as the UN defines it in *Agenda 21*: education, public awareness, and training). This inventory was to include only ESD projects, as opposed to projects with a focus purely on SD and no educational component. Where there was doubt, it was decided to be as inclusive as possible providing enough information to allow readers to make their own determination. A 'project' was later expanded to include “ESD researchers" and “schools facilitating ESD projects" as entries.

The intent of the inventory was to catalogue and document ESD projects to facilitate interaction among them. Thus the final questionnaire asked for contact information, content area, a brief description and whether there were any research options (See Table 1.)

<table>
<thead>
<tr>
<th>Table 1: ESD Project Inventory Questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project title</td>
</tr>
<tr>
<td>Date of survey completion</td>
</tr>
<tr>
<td>Contact person, email address, phone number, Second contact person (if applicable)</td>
</tr>
<tr>
<td>Location of project (city/town), address</td>
</tr>
<tr>
<td>ESD theme area (may select multiple theme areas): Bridging Sustainable Communities, Climate Change, Farming and Local Food Production, Health and Healthy Lifestyles, Natural Prairie Ecosystems, Sharing Productive Capital, Sustainable Local Business Initiatives, Supporting and Bridging Culture, Sustainable Infrastructure</td>
</tr>
<tr>
<td>Describe the project (upload a file if desired)</td>
</tr>
<tr>
<td>Describe the timing of your project (dates and length of time the project will operate)</td>
</tr>
<tr>
<td>Keywords (for searching the ESD Project Database)</td>
</tr>
<tr>
<td>What level of education does the project address (select from: elementary school, middle years school, high school, post-secondary institution, Public awareness,</td>
</tr>
</tbody>
</table>
The Inventory Process

Luther College at the University of Regina formally hired and paid the students on behalf of the RCE. All but one of the student researchers attended the University of Regina. Three were doctoral students, one was at the masters’ level, and six were undergraduate students. Students were paid according to the University of Regina rates of pay for the respective academic level; however, each position had the same amount of funding, and, as a result, some students had more time to complete their tasks.

The first meeting of RCE student researchers was held in mid-December 2007. The coordinators of each theme area also met individually with their student researcher. In addition to their supervisory role, coordinators also provided students information about relevant ESD networks and projects to be contacted. Student researcher meetings were held each month with an agenda set a week in advance and posted on the RCE Saskatchewan website (www.saskrce.ca). Minutes were taken and similarly posted (see RCE Saskatchewan 2009b for copies of the minutes). These meetings kept student researchers on task to ensure project progress, and enabled shared awareness of emerging issues.

It became clear that there was a role for one of the student researchers to act as a group facilitator and secretary (collecting and posting agenda items, taking and posting minutes, and providing support to other student researchers). In her final student project report, the facilitator stated: “Having a person in a facilitation role is
essential. This has been my most significant learning from my involvement in this project.” (RCE Saskatchewan, 2009c p 12). Student researchers worked as a team to refine a common process. A standard questionnaire template was designed and, with the assistance of the RCE’s Technology Group, posted as an online survey tool for completion directly by the contact person of an ESD project.

The online survey (see http://www.saskrce.ca/esd-project-inventory) used a survey module available with the Drupal content management system (CMS), which was selected over other software (e.g., Survey Monkey) because Drupal is the same CMS used for the RCE Saskatchewan website and because it is licensed as Free/Open Source Software (F/OSS). This was in keeping with RCE Saskatchewan's own organizational commitment to using F/OSS where possible in order to “minimize costs, allow local control, and sharing of codified knowledge within the region and with other RCEs globally” (RCE Saskatchewan, 2006, p 62).

Student researchers discussed their data collection processes (e.g., e-mail, telephone calls and face-to-face meetings). They felt that ESD projects were easy enough to identify through various networks. However, the greatest challenge was the lack of response to students' initial contacts. Considerable time was wasted waiting for responses and often none were received. It was decided that the best practice was for student researchers to complete the survey based on information they found on websites or from questions asked directly of the contact person.

In March 2008, it was decided that individual student work plans would facilitate each student to have a clear pathway for success; their supervisor(s) would also be clear as to the expected work outcomes. These plans were submitted to the interim progress report to the Green Initiatives Fund at the end of March, 2008 (see RCE Saskatchewan, 2008). The student researchers working on the ESD project inventory each submitted final reports regarding their own project results, reflections and learnings from the project (see excerpts below). The contracts were concluded in December 2008.
Benefits Associated with Student Researchers

The students received a number of benefits from being employed for the project as an RCE Saskatchewan Student Researcher. The following accounts are drawn from the final reports submitted by each student researcher at the end of the project (see RCE Saskatchewan, 2009c).

One student noted how the project provided a deepened understanding of his SD issue, climate change, from a scientific and public policy perspective, as well as the important role ESD of many forms could play in mitigation and adaptation. The student stated:

As I started researching climate change ESD projects, I found the scientific evidence of anthropogenic climate change (compared to government action/policy) alarming, then depressing, and finally enraging. I was amazed by the high level of world-renowned climate change scientists within our tiny region and some of the research and programs they had worked on. In stark contrast to the trends of our federal and provincial economic activity, which was exponentially increasing our individual and regionally collective ecological footprint. At first I saw this as a failure of ESD, too focused on the formal aspect of climate change to have any real impact. I wondered how climate scientists were able to maintain silence and sanity while our economy and society was heading down such a suicidal path. Climate change encompasses so many different areas, it was hard to find an ESD program that's end result would not decrease anthropogenic climate change. (ibid, p 3-4)

A different student noted that the research experience not only raised her awareness of ESD projects, but also created an attitude of hopefulness that had motivated personal action towards SD in her own life:

While education on sustainable infrastructure has nothing to do with my film major per se, it is an important part of my life. I like to think that I am fairly environmentally conscious and this project, as well as the increased awareness
within the public right now, has really shifted my ways of thinking. For starters it makes me just plain happy to read about a project like Saskatoon’s Rivergreen Ecovillage. No, excited, optimistic, and closer to nature are better descriptions of how that project makes me feel. But I have also found other projects or organizations useful to me personally. In fact it was Saskatchewan Waste Reduction Council’s website that I went to in search of information about composting. They had contacts of people who sell (and deliver) compost bins ready to go with worms and bedding. I am now an official indoor composter. On a broader level the idea of sustainability has increased my awareness of steps I can take in my own life to live a more sustainable and eco-friendly life: I’ve switched to energy saving light bulbs, I use biodegradable cleaning and household products, I’ve started buying organic food, I’ve cut down on my water usage, I’ve gone vegetarian, and I am currently obsessed with switching all of my personal care products over to organic, paraben and phthalate free, vegetarian or vegan (biodegradable, fair trade, sustainable, recyclable, etc.) products that are good for my own health and for the environment as well. Those are just a few steps I’ve taken, and I think that overall my research has certainly had a positive impact on my life. (ibid., p 6)

Another student noted how participating in the project had led to a broadened understanding of the nature of SD in shaping the student's future academic study:

This project has helped me appreciate the role ESD has to play in nearly every aspect of life. As I am considering pursuing further education in the field of food security, working on this project has broadened my perspective with regards to sustainability. (ibid., p 7).

Students valued the ability to understand practical, regionally relevant examples within their chosen field of study. One student noted:

As I am finishing up my Bachelor of Arts majoring in Health Studies and
Women’s Studies, working with RCE has added another dimension to my knowledge of health. The projects that I have catalogued have provided me with real-world examples of how health education can be sustainable. I will draw on these experiences within my studies and future work. (ibid., p 8)

These quotations illustrate the tangible benefits to students of participation in the project inventory. They also highlight the benefits of having higher education partners as part of an RCE that enable access to a pool of capable students and manage the student hiring process. Student wages were affordable given the limited funding. At the same time, students were both conscientious and enthusiastic employees. The projects also advanced their respective scholarly and personal interests. The flexible nature of the inventory work was ideal as students could conduct the work according to their own time schedules.

**ESD PROJECT INVENTORY OUTCOMES**

As of June 2009, 226 ESD projects had been documented. This number has since increased as individuals and organisations continued to complete the online survey. Schools participating in ESD projects now have a vehicle for becoming more visible and more easily targeted by supporting agencies and organisations. The formal reporting to the Province of Saskatchewan’s Go Green fund has been useful in ensuring ongoing documentation of the project (with interim reports in March, 2008 and February 2009, and a final report in September, 2009).

The ESD project data has since been cleaned (e.g., repeated projects were removed, incomplete projects were completed) and is now in a searchable format. The data was exported from the Drupal database into an Excel spreadsheet format to allow for searches in many fields. The data was distributed to each theme area working group sorted by SD issue area at the beginning of June, 2009 (see [http://www.saskrce.ca/?q=node/1139](http://www.saskrce.ca/?q=node/1139)). Additionally, a comprehensive report and six theme-based reports were distributed in pdf format listing the essential elements of the ESD projects (see [http://www.saskrce.ca/?q=node/1140](http://www.saskrce.ca/?q=node/1140)). Finally, the data can also be
viewed as a visual representation (http://www.saskrce.ca/maps/sask-esd-projects). The use of Google Maps allows for the data to be represented by a coloured tag so that each different colour represents a different theme area (See Figure 1). Once a marker is selected, a small window pops up offering condensed ESD project details, including contact information (see Figure 2).

Figure 1: The google map for Regina, Saskatchewan

Figure 2: the google map with the project detail highlighted
The results of the ESD Project Inventory were released at an RCE Saskatchewan regional event in June 2009. This deadline motivated student researchers to get the data cleaned and transformed into reports and spurred working groups to delve into their data and add any missed projects. One student researcher noted:

I was very interested in the breadth of projects identified.... As I scanned the data I was constantly impressed with how many ESD initiatives are being conducted in and around Saskatchewan. I look forward to having this information presented in a way that makes searching easier. I intend to use this data to look for gaps and opportunities for further ESD work. (RCE Saskatchewan, 2009c, p 13)

Another student noted the efficient use of resources taking place through collaboration:

During my research, I noticed that all programs listed in my inventory were in strong partnerships with other agencies and there was very little duplication in effort and activities between agencies and their programs. All the agencies seemed to find their niche whether it was the target audience, type of material, or delivery approach that set them apart. (ibid., p 11)

**NEXT STEPS AND IMPLICATIONS OF THE INVENTORY**

With additional funding provided by the Ministry of Education and the Saskatchewan Outdoor and Environmental Education Association (SOEEA), a second stage of this project was initiated in fall 2009. Student researchers were hired to re-enter the data into a new database after the survey form had been updated to work with the mapping tool. Additional development will include designing a search tool for the map that allows for project selection by types of educational organization and grade levels undertaking projects in particular theme areas. Projects will continue to be added from those acknowledged at the annual RCE Saskatchewan ESD Recognition Event (see [www.saskrce.ca/RecognitionProgram/](http://www.saskrce.ca/RecognitionProgram/)).
The regional ESD project inventory and mapping project provides a ready opportunity for RCE’s to build their networks at a regional scale, both formally and informally. Within the region, it provides an important opportunity for formal education organizations (schools and higher education institutions) to link through local projects. For schools, these linkages allow integration of community ESD projects into the student learning experience as well as shaping the provincial curriculum to incorporate these place-based, grounded learning opportunities. For research institutions, faculty and students can examine novel research questions emerging within the region associated with particular ESD projects. Part of the ESD project inventory process included asking local projects specifically to identify potential research opportunities associated with their ESD projects to facilitate this kind of partnership. As other RCE’s around the world develop ESD inventories, ESD projects in one region will be able to find grassroots projects in other RCE’s to learn from and collaborate with.

The ESD project inventory also has value to the viability of an RCE itself. For an RCE with minimal resources, an ESD project inventory employing student researchers within a higher education setting using Free/Open Source technologies is a cost-effective way of advancing the networking and capacity-building goals of an RCE. Specific impacts will become increasingly apparent as each theme area working group analyses the data for new opportunities to build regional social capital related to ESD, whether through building synergies between existing projects or advancing new projects where there are identifiable educational gaps.

A further tangible benefit is the opportunity to see educational strategies being employed in some areas (such as health and healthy lifestyles) that may be modified and transferred to other areas (such as farming and local food production). More generally, a grounded analysis from multiple ESD issue areas may elicit a theoretical understanding of educational approaches appropriate to the prairie region of Canada. Mapping the ESD projects at a regional scale will also assist in building a regional identity. Such an identity linked to sustainable livelihoods and their underlying ecosystem boundaries (as opposed to traditional political boundaries) will allow the
incubation of ideas appropriate to the regional scale and new forms of research and innovation.

The ESD project inventory modeled an iterative, self-determining process. It unfolded in a timely manner, addressing issues as they arose and developing processes to facilitate the many and varied challenges and opportunities. It is easy to see, with the benefit of hindsight, that many processes could have been simplified. However, it took time and negotiation to determine how best to proceed. Specific factors that aided successful completion of the inventory included: the leadership of RCE Saskatchewan, the student facilitator role, the online survey as part of the RCE Saskatchewan content management system, the eager and critical student researchers, financial support from the Government of Saskatchewan, the management of funds and hiring by Luther College, and the periodic reporting opportunities that kept the achievement of tangible deliverables in focus.

There were, inevitably, aspects of this process that were not as successful including: student researchers with varying time commitments and difficult schedules, lack of awareness of the RCE Saskatchewan by organisations and the general public, and the lack of responsiveness from contact people regarding their ESD projects. Each of these were managed through the duration of the inventory process; however they all consumed time that could have been otherwise employed.

**CONCLUSION**

The ESD projects identified through the ESD project inventory provide a strong capacity from which organisations in the region can draw to advance sustainability. From the perspective of government (whether the Canadian federal government, the Government of Saskatchewan or municipal governments within the RCE), there are substantial opportunities to make use of the inventory in developing policies related to ESD. Not only can the inventory assist the Saskatchewan Ministry of Education, the formal school system and higher education (as previously discussed), the inventory can also complement the new directions of other departments such as the Saskatchewan
Ministry of Environment. These goals include reduction or avoidance of greenhouse gas emissions, conservation of water supplies, maintenance or restoration of water quality, biodiversity conservation, reduction of waste, and, significantly, improvement in the understanding and acceptance of the need to address environmental issues (Ministry of Environment, 2009). The inventory will also benefit businesses seeking to develop new products and services to meet shifting demand occasioned by educational activities within the region. Nonprofit organisations are provided a window on a diverse range of activities from across a broad spectrum of projects to mobilize volunteers towards goals that jointly promote human quality of life and healthy ecosystems.

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References


RCE Saskatchewan. 2009c. RCE Saskatchewan Education for Sustainable Development Project Inventory: Student Researcher Final Reports.  