The University of British Columbia

Student Engagement

Seeds of Change: Bridging Academic and Operational Sustainability Efforts

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Profile

- Higher Education
- One of the top 20 public universities worldwide
- 61,113 total students
- 9,856 staff
- 5,334 faculty
- Urban setting

About the project

Summary

Over the past 16 years, the SEEDS (Social Ecological Economic Development Studies) Sustainability Program has created partnerships between students, faculty and staff to enable hundreds of innovative and impactful sustainability projects at The University of British Columbia and beyond. Student research projects engage the Campus as a Living Lab to research, test and apply solutions, share lessons learned and support the integration of academic and operational work on sustainability.

The SEEDS Program facilitates collaborations across units on campus, develops career capital through experiential learning, while contributing to the implementation of operational plans and producing measurable results.

Project partners

SEEDS participants always include a member of staff, a faculty member and one or more students for each project.

Program Level:
The Program has involved 6500 students, faculty and staff participants across 12 faculties and colleges, and produced 1300 published reports in over 180 courses to date.

2015-2016 Academic Year:

- 453 students, 53 faculty, and 85 staff engaged: 591 total participants involved
- 103 applied research projects managed
- 139 research reports published
- 39 courses with integrated projects

The results

The problem

Post-secondary institutions are often considered 'siloed' environments, where academia and operations often operate in relative isolation from one another. In these environments, there is a lack of integration between the sustainability knowledge and learning that takes place within the campus classrooms and the knowledge and learning that is possible steps outside the classroom doors. In other words, there is a

disconnect between the campus curriculum and the sustainability challenges that the campus itself is facing.

SEEDS is a response to these disconnects. The program provides a rare connection point between academic work at the university, the efforts of thousands of people who operate and run the institution, and the students, faculty, staff and residents who experience the campus every day. The SEEDS Program was initiated in 2000 as part of a strategic mandate which called for the "'Greening [of] the Campus".

The approach

Building on the theme of Campus as a Living laboratory, SEEDS helps unite campus operations and academics to find collaborative solutions to real-life sustainability issues on campus. The SEEDS Program employs a variety of approaches and methods to enable collaborative and applied action-orientated learning. The program builds upon the pedagogical foundations of: Participatory Action Research, Community-Based Action Research, Radical Incrementalism, Community Service-Learning, Experiential Education, Case Study, Best Practices and Volunteer Management in all stages of the process (i.e. planning, establishing, managing, evaluating).

Our goals

The SEEDS Sustainability Program is embedded in campus planning, directly supporting the University's strategies, operational plans and international commitments. Specifically, the Program seeks to:

1. Achieve university and department-level goals in environmental and social sustainability.
2. Develop strategies that will achieve the University's environmental and social sustainability goals in 15 thematic areas, including: climate, energy, water, waste, land, food, transportation, community, finance, buildings, materials, biodiversity, procurement, health, and wellbeing.
3. Enrich the student learning experience through providing opportunities for applied learning in sustainability.
4. Integrate operational and academic efforts in sustainability through projects and partnerships.

Obstacles and solutions

Obstacles	Solutions
Program Level	
• Limited staff time to focus on sustainability projects	• SEEDS projects are designed to enhance staff capacity by enabling staff to tap into campus research and have students develop implementable recommendations
• Institutional buy-in	• The SEEDS model aligns projects with existing and emerging campus plans, policies and strategies
• Different terminology between academia and operations	• Pre-planning with multiple check-ins before kick-off ensures a common understanding of the project
Ongoing Partnerships	
• Sustainability seen as an end-point	• Projects are designed to be iterative, building on previous projects, to reflect the fact that sustainability challenges are often evolving and complex • This approach also contributes to a "collective memory" within the University

• Specialization of courses	• Projects are designed to be part of a larger series which takes place in multiple courses across faculties and colleges • This approach enables projects to be tackled by many disciplines, which is especially important in the absence of interdisciplinary courses
• Perception of sustainability as a challenge	• Projects are framed as opportunities, often with multiple co-benefits
Project Level	
1. No dedicated, campus-wide sustainability fund for student, faculty and staff projects	• Business students developed a business plan for a $1 million UBC Sustainability Revolving Fund to finance sustainability projects that result in an ongoing cost savings for the University • Savings from the projects are tracked and used to replenish the fund for the next round of investments • This fund supports the mobilization of grass-roots ideas from staff and faculty for projects that will improve efficiencies in their work
2. Lack of procedures for how to start a community garden on campus	• A planning student was engaged to create a community garden guideline tool and checklist to help groups on campus understand what commitments are required to build and maintain a community food garden • As a result, five campus gardens have been created since the tool was adopted
3. Potential to increase the sustainability of campus food procurement not being realized	• A series of projects were implemented to inform UBC's commitment as the first Fair Trade Certified Campus in Canada • Projects investigate and propose solutions to campus food providers on how they could increase the amount of Fair Trade, local, organic, campus farm, seasonal, OceanWise, healthy and low-carbon food products they offered • This initially led to procurement of the first farm-to-institution purchase (UBC Farm Squash Pizza), the first local and organic apple and first local and organic smoked tofu • Subsequently, additional items were procured such as the removal of seven threatened species and non-Fair Trade teas from menus, procurement of 100% cage free BC whole eggs, and the creation of food sustainability targets for the Alma Matter Society Lighter Footprint Strategy
4. Irrigation-related water-loss and ambitious water reduction targets	• A project was created to conduct an irrigation system inventory to reduce the amount of potable water used in irrigation • The project led to the installation of rain sensors resulting in water and economic savings for the university
5. Lack of knowledge about energy efficiency of campus building	• Civil engineering students conducted building envelope and life-cycle analyses, which provided rich data sets for 15 academic and residential buildings on campus to inform future campus building construction • Real-time energy use displays were installed in these 15 buildings, which use this data to show energy consumption relative to nearby buildings, and to encourage energy conservation • This building data was also used to inform development of new building energy standards for the Residential Environmental Assessment Program (REAP), a comprehensive, UBC-specific green building rating system for all residential construction
6. Lack of engagement with campus landscape and community	• A series of projects were created to increase social vibrancy, connectedness and place-making on campus • In partnership with School of Architecture and Landscape Architecture, faculty and students developed furniture made from a new sustainable building material - mushrooms • Creative Writing students developed six interactive installations across campus,

	which included fiction, nonfiction, poetry, and visual forms that contribute to social sustainability by engaging passers-by and encouraging interaction • Another series of projects was focused on indoor spaces, and resulted in installations in the new Alma Mater Society Nest building. These included: a pedal-powered charging station; a reflected-light art feature using paper pulp questioning the material's colloquial, everyday use; a waste art installation that is composed of repurposed waste materials which analyzes the relationship between material waste and the architectural design process; and a suspended 30-foot water feature with floating gardens that symbolizes the flow of water from our cities and farms, through the environment, and eventually into the ocean.
7. Waste contamination, especially in food scrap bins	• Projects were created with Psychology and Engineering students to develop and test various visual tactics to increase the accuracy of waste sorting, such as placement of 3D Waste Display Signage, mirrors, vegetation, games, waste counters on or in close proximity to bins • Another series of projects led to the Alma Mater Society (AMS) Nest building's in-vessel composting system, which converts food waste into soil for the rooftop garden and is the first closed loop composter at a building scale • Another involved designing and building the first campus waste scale that can classify waste collection into organic, landfill and recycling waste streams in real time, which provides real-time data on waste and diversion occurring in the AMS Nest building
8. Significant water bottle and landfill waste at events, and inconsistent food sourcing	• Developed projects with Land and Food System and Environmental Science students to investigate and develop strategies to reduce waste and enhance sustainable food purchasing • The project led to the development of Sustainable Food and Waste Guidelines for the Special Olympics Canada Summer Games which were scaled to other campus events • The guidelines will be used for UBC Food Services in providing meals to the athlete teams, for external food vendors selling food in UBC Athletics venues and non-UBC venues, as well as to potentially serve as a template for other UBC and Special Olympics events in the future
9. Bird collision rates on campus buildings	• A series of projects was created to generate campus wide estimates of the total number of bird collisions (including an identification of species most vulnerable), indicate whether seasonal differences exist, and make recommendations for prevention • The project informed the creation of Bird Friendly Design Guidelines for Buildings • Data obtained from the SEEDS bird collision study is also being used as part of a campus-wide biodiversity project, and used in a larger North American Project

Performance and results

Program Impacts

The SEEDS Sustainability Program plays an important role in supporting UBC's efforts to reduce energy use and GHG emissions, conserve water, create a healthier, zero-waste community, become a model of a sustainable food system, and much more. The outcomes of the majority of SEEDS projects are implemented or influence decision making around ecological, social and economic sustainability on campus.

Another significant outcome is the knowledge base contained in the open-access online SEEDS library. With over 1,300 research reports, the library provides an institutional resource and collective memory that supports the continuous improvement of campus, and serves as a potential resource for other institutions.

The following benefits have been identified for program participants:

- Students benefit from the program by earning course credit for their project, applying research skills in a real-world situation, and by gaining professional experience;
- Faculty members benefit from providing students with a hands-on experience to enrich their learning and integrating real-world sustainability challenges into the classroom;
- Staff benefit from access to current academic research and resources, and by having an opportunity to mentor students and collaborate with other departments.

The program has demonstrated continued success, with

- 100% of faculty rated their overall experience with SEEDS as "excellent" or "good";
- 96% of faculty either agreed or strongly agreed that SEEDS prepares students for a professional work environment;
- 81% of staff indicated that SEEDS supports efforts to increase sustainability in unit operations; and
- 78% of staff agreed that SEEDS provides valuable info/data that would assist them in their area of operations.

Project-level successes can be seen under the solutions tab in the table above.

The future

Lessons learned

Over the past 16 years of facilitating hundreds of projects we have identified that student success depends on projects which:

1. Are achievable in terms of student time and expertise;
2. Have staff and faculty commitment to the project;
3. Ensure mutual respect across the cultural divide between faculty and staff; and
4. Have good quality control and organization, including a clear agreement on the scope of the work, and a product that is something that can either be implemented or affect decision-making.

The success of the SEEDS Program has depended on:

1. **Proactive Stakeholder Relations and Engagement, including:**
    a. Positive relationships amongst multiple stakeholders, who otherwise may not find themselves at the same table;
    b. Institutional and stakeholder support of the program, gained through ensuring alignment with university and department-level plans, integration with reporting, and being a proof point for the university's deep commitment to sustainability;
    c. Inclusion of relevant community stakeholders in the early project planning phases, including the development of research questions;
    d. Disseminating research findings and recommendations in partnership within the community that the research affects.

2. **Robust Project Management and Communication, including:**
    a. A realistic project proposal that balances aspirations and feasibility, developed through the project proposal and kick-off meetings and early sign-off from the operational client;
    b. Upfront definition of roles and a clear project charter to mitigate conflict and scope creep;
    c. An understanding that perceived challenges translate to opportunities for further research;
    d. Team check-ins and group meetings to ensure timely and clear communication.

3. **Meaningful Acknowledgement and Evaluation, including:**
    a. Recognition of student, faculty, staff and community participants is essential to demonstrate appreciation, and build a community of champions;
    b. Follow-up and evaluation of the project one month following completion, and the program overall, helps ensure validity and quality and drive implementation.

Sharing your project

The successes generated by the SEEDS Sustainability Program have been shared broadly with the UBC campus community, and deeply with its research community. This has been instrumental in maintaining the profile of the program, inspiring new projects, and nurturing ongoing community capacity to develop both new and evolving sustainability solutions.

Each SEEDS project produces a research report that is disseminated through a number of mechanisms such as: a student presentation to the project team so that the project clients can have a meaningful discussion regarding the implementation potential of the project findings and recommendations; follow up meetings with the staff and academic clients to address further details regarding the implementation potential of the work if necessary, and to identify other research opportunities; distribution to campus-wide sustainability related committees which are composed of relevant operational and academic campus stakeholders and have regular meetings throughout the year; and uploading reports for completed projects to the online SEEDS library, which is both a repository and platform for generating future projects and collaborators; and an annual Sustainability Recognition Event.

Sharing Successes

The SEEDS Sustainability Program has a robust online presence through the UBC Sustainability website and social media, including Facebook, Twitter and Instagram. SEEDS is the most visited section of content of the website, with over 14,300 page views in the past year, including the SEEDS Library which is a digital repository of over 1,300 student reports.

Through these online platforms, SEEDS has celebrated the successes of a number of its individual projects such as Mushroom Furniture as a high performance and sustainable material, Real-time Energy Display in 15 buildings on campus, Choose Your Own Campus Adventure, and Strata-Sphere. It has also showcased program highlights from the past year, and recognized the students, faculty and staff involved.

Occasionally, a SEEDS project will also get a lot of interest externally, such as the Mushroom Furniture, which was covered by reputable regional and national media, including CTV News, the Vancouver Sun, The Province, and the Edmonton Journal.

Recognition

An Annual Sustainability Luncheon also helps to recognize SEEDS participants and projects and celebrate their contributions. The luncheon is held at the end of each academic year to recognize and show appreciation for participants, champions and supporters. It provides an opportunity for students, faculty and staff to celebrate around a table with sustainable food, campus farm flowers and the UBC sustainability community.

Students, faculty and staff are also recognized throughout the year with personalized letters from the SEEDS Program. These serve as a mechanism to recognize personal contributions, and also to recognize their contribution to the UBC vision that calls for the University to prepare students to become exceptional global citizens, promote the values of a civil and sustainable society, and conduct outstanding research.

More broadly, the SEEDS Sustainability Program received international recognition, including the 2015 Best Case Study Award from the Association for Advancement of Sustainability in Higher Education. Garnering interest from other higher education institutions, the Program has been replicated across several universities in North America and Europe.

What has it meant to your institution to be a GUPES Green Gown Award finalist?

"Winning a GUPES Green Gown Award helps demonstrate UBC's ongoing commitment and leadership in sustainability by spotlighting our SEEDS program on a global scale. This is a humbling recognition which will only strengthen our commitment to continue sharing our model and building partnerships with other institutions around the world."

Michael White, Associate Vice-President, Campus + Community Planning, The University of British Columbia

Further information

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