Sustain 3A03 Course Report | Fall 2013

McMaster University
OFFICE OF SUSTAINABILITY

A Letter from the Director

In September 2013, McMaster offered its newest course within the Sustainability Future Program, Sustain 3A03 – Societal Tools for Systemic Sustainable Change. Students from 5 faculties and Arts & Science in levels three and above engaged in interdisciplinary, community-based, student-led, and experiential education related to sustainability.

Led by Dr. Michael Mikulak, with support from Teaching Assistants Brandon Barliak (Engineering) and Connie Chung (Arts & Science), students had the opportunity to examine the concept of sustainability by focusing on specific case studies and examples in relation to larger questions of power, knowledge, and human and non-human agency. Lectures, tutorials and assignments were focused on developing a truly interdisciplinary conversation that considers the different techniques and tools society has at its disposal for addressing the environmental crisis.

To compliment their theoretical knowledge of sustainability, students undertook an experiential learning project. During the first week of classes, 36 students formed 12 project groups based on their individual interests in sustainability. Students had the opportunity to work with a community member to provide them with additional support and guidance related to their chosen project. To offer this support and ensure students had the opportunity to work with members of the McMaster and broader community, 9 individuals formally took on the role of Community Project Champion by offering their time, resources and expert knowledge to assist students in achieving their project goals. Additionally, countless member of the community participated in events and workshops, provided support and offered mentorship. The tremendous degree of collaboration is illustrated in each project's Collaborators section.

As you read this report, you will notice that the breadth of student interests related to sustainability are far reaching. Projects extend from the creation of a working model of a 3D Un-printer, to the development of a Hamilton-based social impact bond, and to the establishment of a program to aid in the preservation of Hamilton's cultural heritage buildings.

I hope you enjoy reading this report as much as I have enjoyed my experience in working with the individuals who have created it.

Kate Whalen
Senior Manager, University Sustainability &
Director, Sustainable Future Program

Due to confidential nature of some projects and in working with sensitive populations, only a sample of all projects is reported on within this report.

McMaster University
OFFICE OF SUSTAINABILITY

Vision

McMaster has developed the Sustainable Future Program for students interested in learning more about sustainability while having the opportunity to engage in experiential learning through developing and implementing a real-world sustainability initiative. The Sustainable Future Program (SFP) aims to build reciprocal relationships between students, community members and McMaster University to engage all parties in the journey towards a sustainable future.

Guiding Principles

The guiding principles of the Sustainable Future Program are as follows

- Teach students about sustainability from an interdisciplinary perspective.
- Provide the opportunity for self-directed, interdisciplinary and experiential learning.
- Support student learning within the University and local community.
- Engage undergraduate students in taking part in meaningful, experiential research.
- Foster opportunities for students to place local knowledge and local action within a global context.

Table of Contents

Sustain 3A03 - Societal Tools for Systemic Sustainable Change

2013 Sustain 3A03 Class

Cultural Heritage Project

Student Authors: Scott Dawson, Gabriela Gepilano and Holly Thomson

Overview

For our Sustain 3A03 experiential learning project, our group chose to facilitate the research of historic buildings in coordination with members of our community to enhance efforts underway with the goal to preserve heritage buildings within our city. We believe that heritage buildings are an integral component to what gives Hamilton it's unique sense of community, history, and diversity.

Objectives

1. Research and report on best practice in heritage site criteria
2. Generate criteria to evaluate possible heritage buildings
3. Develop a neighbourhood context statement in collaboration with the Ainslie-Wood Westdale community
4. Asses the 12 properties identified as possibly significant in Ainslie-Wood Westdale
5. Host a neighbourhood information session in the Ainslie-Wood Westdale neighbourhood

Reporting

The City of Hamilton currently has a list of over 6000 buildings that may have cultural or heritage significance.[1] It is important to preserve heritage buildings, since the City of Hamilton is undergoing much growth and revitalization. It is also a more sustainable practice, as far fewer resources are needed to construct new properties. The City hopes to engage local neighbourhood associations to help analyze the properties in their district, based upon neighbourhood specific criteria and that would be relevant for the possible designation of heritage status. Buildings that meet the criteria would be placed on a register. If a demolition permit is applied for and the building is on the register, it is made public knowledge. A context statement was developed for the Ainslie-Wood Westdale community by using the Beasley neighbourhood as a template. Amendments were made to existing criteria in order to evaluate properties in this specific neighbourhood. Twelve properties in Ainslie-Wood Westdale recommended by the city were surveyed and 7 of them were recommend to be placed on the register. A community information session was held at the Westdale Public Library on December 4 2013 with 23 people attending. Speakers at the event included Councillor Brian McHattie, Gord Beck of the McMaster Maps Library, Ian Ker-Wilson from the City of Hamilton, and a heritage architecture expert, Megan Hobson. Our group members Gabriela Gepilano and Scott Dawson also gave a short presentation while Holly Thomson hosted the event. Topics discussed included: how to recommend and assess possible significant properties, how histories of properties can be determined with the current resources available to the Westdale community, and a brief overview of architectural gems in the neighbourhood. The atmosphere of the event was very positive, with many community members engaged in a stimulating discussion on the matter. The Ainslie-Wood Westdale Community Association and the City of Hamilton was provided with written documents so that processes and lessons learned can be utilized and tailored for other neighbourhoods throughout the city.

Collaborators: Brian McHattie: Councillor of Ward 1, City of Hamilton & Project Champion, Kenneth Ockenden: Westdale Heritage Coordinator and member of AWWCA, Mary-Louise Piggot: Active member of the AWWCA, Gord Beck: Map Specialist, McMaster Maps Library & Event Guest Speaker, Ian Ker-Wilson: Culture Division, City of Hamilton & Event Guest Speaker and Megan Hobson: Heritage Consultant & Event Guest Speaker.

Electronics Waste Program

Student Authors: Aliya Satani and Carolyn Willems

Overview

The rapid pace at which technology is advancing has resulted in a culture where electronics are continuously becoming outdated and obsolete. In response to this trend, campus wide electronic waste (E-waste) collections take place twice annually. Emphasis is placed on educating and informing students and faculty on the importance of electronic waste recycling and how to properly do so on campus.

Objectives

1. Increase awareness of current electronic waste management and diversion strategies on campus.
2. Educate and promote the importance of responsible electronic waste management through social media and other educational pathways.
3. Identify areas where new e-waste initiatives can be implemented.

Reporting

Since 2009, the electronics recycling program at McMaster has been continually expanding. There are currently 23 permanent collection sites at various locations on campus. In addition, collection events are held semi-annually.

The 2013 fall E-waste Collection Reuse and Recycle event was held in conjunction with McMaster's annual Sustainability Day on October 17th. A total of 4,285 lbs. of e-waste was diverted and generated $340 of revenue based on this collection total. Additionally, a savings of $260 was made possible by avoiding costs for waste haulage and landfill fees.

As well as engaging with students, faculty, and staff at McMaster's annual Sustainability Day a Twitter and Facebook page have been established, to sustain communication in regards to future collection events and the broader collection initiatives. Through our E-mazing Race activity held during Sustainability Day, we were not only able to connect with members of the campus community using our new social media platforms, but also educate about the importance of proper E-waste disposal on their campus. Future E-waste initiatives can build on the success of the 2013 E-waste campaign by further educating individuals about the process of E-waste recycling and by sparking awareness about the social issues surrounding improper E-waste dumping in other parts of the world.

Through consultation with Niagara E-waste and McMaster's Facility Services Department, a need for better signage for on campus collection sites was identified. Improved signage of the collection sites was designed and implemented for the permanent collection sites on campus.

Dropping off some E-waste during Sustainability Day

Collaborators: We would like to thank the following individuals and groups with whom we have worked to plan, implement and expand the E-waste program: McMaster's Facility Services Department; Ryan Dear from Niagara E Waste; Carlos Figueira, the director of McMaster Custodial, Grounds, Logistics and Mail Services; Melissa Gallina from the Graduate Undergraduate Collaboration for Experiential Learning (GUCEL) and Zeinab Rahal from the Office of Sustainability. Support for communication and promotion with MACgreen and with Lavinia Ghinea, Hani Ramzan and Peter Fenlon from the Sustain Race 2013 planning team, enabled us to spread awareness about the E-waste program at McMaster. We would also like to thank the student volunteers that helped with the E-waste collection and E-mazing Race game on Sustainability Day 2013.

Getting Your Greens

Student Authors: Nicholas Austin, Colin Delsey, Kamal Prasher and Matt Terry

Overview

In 2012, 39% of Ontarians reported that they consumed the recommended 5-10 servings of fruits and vegetables a day.[2] The average student diet often lacks nutritious and local food and many students are not aware of the resources at their disposal.[3] Students are eating cheaply priced, unhealthy food, often because they believe that they do not have the time or money to do otherwise.[4] Prices continue to increase for prepared food, whether it is healthy or not.[5] For our Sustain 3A03 experiential learning project, we decided to create a resource to help students make healthier, affordable, and sustainable food choices by empowering them with the skills and knowledge to prepare their own meals. Our goal was to create, test, and share recipes that focus on local, seasonal ingredients and provide students with opportunities to save money and learn how to prepare their own food.

Objectives

1. Promote local, healthier diets by providing easy access to recipes that utilize nutritious Canadian fruits and vegetables

2. Highlight the importance of consuming a variety of local fruits and vegetables, following recommended 5-10 servings per day

3. Educate McMaster students about cost-effective ways to "get your greens"

Reporting

To meet our objectives, we focused first on researching and highlighting the benefits of incorporating more fruit and vegetables into one's diet. We published this information in an engaging way through our blog by focusing on benefits such as experiencing an increase in energy, mental focus, and physical health.

To ensure we were presenting meal ideas that were realistic from a financial perspective, we identified resources that provide local produce at a reasonable price to satisfy a student budget. One key resource that was identified is the Good Food Box program, which is run through MAC Bread Bin, a service focused on anonymously providing food assistance to students.[6] Furthermore, we focused on food items that were locally available and cost effective when creating our online recipes.

By promoting local food and showing students how to prepare it, we hope that we have shared the importance of healthy eating and encouraged students to make a healthy diet a priority.

To inspire students to utilize the information we gathered, we created recipes and posted them online. We also encouraged students to post their own ideas on the Sustainable Future Program Facebook page. We promoted the contribution of healthy, easy recipes that focus on local fruits and or vegetables.

We uploaded twelve recipes to our blog, which had over 900 visitors within two months. If an even larger cohort of students utilized resources such as our blog, the impacts would be far-reaching. Increasing the number of diets that focus on local, seasonal produce would have positive impacts on our population and environment. These impacts would include a decreased dependence on imported and prepared foods, which would, in turn, reduce our carbon footprint through a reduction in waste and shipping. Additional impacts may include improved mental and physical health, and a stronger, more robust local economy.

Collaborators: Our project champions, Andrew Kamphuis and Jordan Weisz, from the Mac Farmstand were instrumental in providing guidance along the way and helping establish connections with the Mac Farmstand. MAC Bread Bin and the Farmstand supplied us with much of the produce that we used in our recipes. We would also like to thank Micaela Delsey for providing photographs for several of our recipes. We would also like to thank several online cooking blogs and the odd cookbook for inspiring some of our recipe ideas. Finally, we would like to thank the many visitors that read and contributed recipes and comments to our blog and Facebook page. Everything we achieved is thanks to you! Stay hungry, friends.

Links: - Blog: http://gettingyourgreens.blogspot.ca/

Growing the Garden

Student Authors: Lucia Jara, Scott MacDonald and Chelsi McNeill

Overview

Implemented in the summer of 2012, the McMaster Teaching & Community Garden (MTCG) was developed with the goal to incorporate a food-producing garden on McMaster's main campus that would provide a venue for teaching, learning, community engagement and local food production. For our Sustain 3A03 experiential learning project, our group chose to focus on increasing student engagement through active participation in planting workshops.

Objectives

1. Obtain superior knowledge of gardening and permaculture techniques
2. Identify plant species for which to focus educational workshops
3. Implement an efficient irrigation system
4. Educate staff, students, and community members about fall garden maintenance and plantings

Reporting

To achieve our goal to educate about fall gardening, we undertook substantial research into gardening and permaculture techniques. We also chose to focus on best practice of planting, growing and harvesting of two plant species, garlic and ginger, for which we conducted educational workshops on. To enhance our workshops and further educate ourselves, we then engaged in practical application of the knowledge we obtained. First, we analyzed the soil of the MTCG and ran sunlight analysis to determine areas for improvement to soil health as well as optimal planting location. Through this process, we identified specific nutrient depletion for which we applied permaculture techniques of amending with compost and nutrient rich plant material. We hosted our first garden session on November 8th with 20 participants who had the opportunity to plant garlic in the MTCG as well as plant their own garlic in pots to take home. To further promote the MTCG, we presented information about the garden and our project at the Student Life Enhancement Fair, hosted by the Student Success Center. During this event, we engaged participants in learning about gardening through a hands-on activity where they could plant their own ginger. From the information obtained in our initial analysis, we were also able to research plant species and recommend an efficient garden design for implementation in spring 2014. Our design includes application of permaculture, companion planting and organic gardening practices. In coordination with the Office of Sustainability and Facility Services, we facilitated the implementation of an irrigation system, which will be installed in spring 2013. This irrigation system has the capability to tailor irrigation levels in various quadrants of the garden; can function on a timer, and includes a weather sensor to ensure that irrigation does not take place in instances of rain events.

Participants at the garlic workshop

Collaborators: The primary stakeholders consist of Carlos Figueira and Shawn Flemming, Facility Services Department, Grounds Division; Dr. Chad Harvey, Integrated Science Program; Kate Whalen, Office of Sustainability; and Karin Gordon, 2013 Director of Mac Farmstand. Integral support has been provided by volunteers from MACgreen, SUSTAIN 3A03, and the broader student body.

Less Waste, More Taste

Student Authors: Yaman Al-Nachwati and Brianna Smrke

Overview

According to a November 2010 report by the George Morris Centre, more than 40% of all food produced in Canada is wasted. As students of McMaster University, we have noticed significant food waste issues. Many campuses have Twitter accounts that inform students about available free food on campus. The University of Waterloo has also implemented a Twitter-linked "Easy Button" at one of their cafeterias that can be used to alert students about excess food. Implementing a similar, community-driven program at McMaster will help reduce food waste resulting from events on campus.

Objectives

1. Develop a communication process utilizing social media tools such as Facebook and Twitter to facilitate the food waste reduction program.
2. Design and implement the Facebook page and Twitter account to be used as an initial pilot.
3. Utilize the social media sites to put a spotlight on the issue of food waste at McMaster University.
4. Publicize the program and encourage event planners to think more carefully about estimating catering requirements as well as to utilize the social media sites to reduce waste if and when required.

Reporting

With the goal to develop, implement and popularize a sustainable, community-driven, food waste reduction program, we created Free Food for Mac, a program linked to both a Twitter account and Facebook page that can be used by event organizers to reduce the amount of wasted event catering. Our desired outcome is to make Free Food for Mac a platform that students will check daily to find out about free food and that event planners will use to advertise their events as well as to communicate about excess food.

Within two months of our launch date on September 24, we gained 322 combined followers on Twitter and Facebook and provided information about seven events. We followed up with the planners of three events and found that all potential food waste was eliminated at each event as a result of the Free Food for Mac program. In addition to use by event planners, the program has been used by students to alert others about free food on campus. The results from our pilot shows that Free Food for Mac is not only effective at reducing food waste on campus but is also operationally sustainable as a community-driven program.

Poster promoting FreeFoodForMac

Collaborators: Matt McCollow, and Jay Brodeur, Sherman Center for Digital Scholarship: provided advice about the feasibility of an easy button project at McMaster. Randy Kay, OPIRG[13], Coordinator of Volunteers: helped in popularizing the FreeFoodForMac platform among students and event planners. Ellen Xu, McMaster Breadbin: assisted in developing a plan for continued monitoring of the FreeFoodForMac Platform through the creation of a new Breadbin executive position.

Links:
- Facebook: www.facebook.com/FreeFoodForMac
- Twitter: www.twitter.com/FreeFoodForMac

Recycling Plastics: Construction of a 3D "Unprinter"

Student Authors: Kara Grace Hounsell, Matthew Le Feuve, Eric Phillips-Sheldon and Taha Shoaib

Overview

In the 1980s, the first 3D printer was invented as an additive technology that creates 3D prints through the successive layering of PLA[7] or ABS[8] plastics. Over the past 30 years, the practice of 3D printing has grown both at home and in industry. It is an opportune time now, before the widespread implementation of 3D printers, to consider the impact of 3D printing on social, environmental and economic sustainability. With guidance from our community project champion, Ben Keller, we have constructed a 3D "Unprinter". The Unprinter is capable of recycling printed PLA objects into filament, the raw material or "ink" for 3D printers. Our open-source document detailing our materials and process allows for the easy replication of this project, enabling users to recycle plastic into filament to reduce waste and make 3D printing more economically viable.

Objectives

1. Design and construct a pneumatic 3D Unprinter with the ability to melt used PLA plastic into 3D printer filament

2. Create an open-source document to facilitate easy replication of this project so that plastic may be recycled into filament worldwide

3. Disseminate results to the McMaster Faculty of Engineering and share insight into the project through a blog, updated weekly

Reporting

Through our own research, and with support from our project champion, our group created a working prototype. Our Unprinter is fully functioning and capable of melting down PLA plastic for use in 3D printers. Using easily obtainable materials, costing a total of $35. 65[9], the device can reach sufficiently high temperatures for melting the plastic. The liquefied plastic can then be extruded and cooled for use as 3D printer filament. The inclusion of a microcontroller, a system for grinding the plastic down before melting, and a spool for winding extruded filament could lead to widespread implementation of recycling filament pneumatically. We have recommended that the project be taken up by the local open-source community, such as Think Haus, where the majority of the construction of the prototype was completed.

The final document summarizes the procedure of construction and includes plans for design, as well as the materials used. The document provides step-by-step instructions as well as insights into the operation of the pneumatic system, images of the prototype throughout the construction process, and suggestions for improvement.

Over the course of the project, we made 15 posts on our blog describing our progress through images and descriptions. The blog functioned as an online lab book, allowing us to recall and access our results from week to week and also records our experiments with melting plastic prior to the adoption of a pneumatic system.

Extrusion of plastic filament from "Unprinter"

Collaborators: Tremendous support has been provided by Mr. Ben Keller, PhD candidate, Department of Physics and Astronomy. Think Haus has also provided considerable aid and resources throughout the project.

Links:
- Blog: http://unprinter.wordpress.com/
- Open Sourse Wiki: https://github.com/bwkeller/unprinter/wiki/Sustainability-3A03-Report:-Recycling-Filament-Pneumatically
- Video of Recycled Filament Extrusion: http://youtu.be/bl9zWh7cWMo

Small Scale Organic Farming

Student Authors: Stephen Clare, Christopher Galano, Ritika Goel and Spencer Imbrogno

Overview

Organic farming is growing in popularity as people are becoming increasingly concerned and aware of the source and quality of their food.[10] However, organic farming is often attacked as inefficient compared to conventional farming methods.[11] The goal of our Sustain 3A03 experiential learning project is to develop a tool that will enable more efficient, sustainable farming; specifically, we wanted to design a tool that would help with effective planning and farm management for long-term success. We wanted the tool to be useful for anyone, whether a veteran farmer or a beginner with a backyard garden, to encourage a socially, environmentally, and economically sustainable way to feed us all.

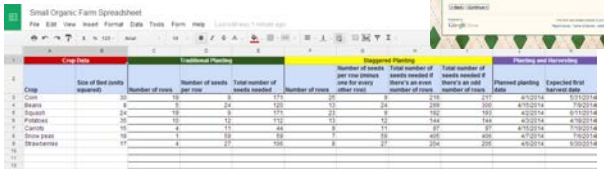
Objectives

1. Identify and understand the challenges, opportunities and best practices in small scale organic farming
2. Design and implement an interactive tool to support cost effective and efficient farm planning to allow farmers to make informed decisions
3. Enable the farmer to compile their data over multiple years and include specific observations
4. Provide a user manual to enable farmers to develop additional components that will meet their individual needs

Overview

We researched the various aspects of sustainable organic farming, such as crop diversity, crop rotation, and careful planning.The project evolved over time, and eventually narrowed to focus on the planning stages of organic farming, since we came to believe that it is at this early point in the process that we would best be able to offer suggestions to organic farmers. Working collaboratively, our group members each took a lead role in one of the various aspects of planning and project implementation, such as crop selection, projected yields, and data collection systems.

Our final product is a comprehensive package accessible online through Google Drive. The package comprises of a Small Organic Farm Form, a Small Organic Farm Spreadsheet, an AgSquared Form, an AgSquared Spreadsheet, and a User's Manual. The Small Organic Farm Form allows farmers to enter information from seed packets of any crop, along with either how many seeds they want or how much area they have. The responses are sent to the Small Organic Farm Spreadsheet where useful values are calculated and presented. The Small Organic Farm Spreadsheet provides the user with planning information, such as required area, number of seeds, number of rows, and time of expected first harvest. The Small Organic Farm Form and Small Organic Farm Spreadsheet can be used alone to facilitate farm planning. The AgSquared Form asks farm planning questions, which are then uploaded to the AgSquared Spreadsheet. The AgSquared Spreadsheet is compatible with an app, AgSquared, which allows farmers to further plan and manage their farm if they so choose. All the spreadsheets can be downloaded so that farmers can track progress over the years.



Small Organic Farm Form and Spreadsheet

Collaborators: We would like to thank our community project champion, Michael Mikulak, for his continued support and devotion to helping us learn about organic farming and engaging us to take part on his own farm so that we could have an incredible and truly experiential learning opportunity.

Social Impact Bonds

Student Authors: Madeline Lawler, Christopher Raptopoulos and Guang Zheng (Greg) Sun

Overview

The business world is changing to account for societal demands for a more sustainable economy aligned with environmental needs, resulting in a new field called social finance. For our Sustain 3A03 experiential learning project, our goal was to conduct research and gain a better understanding of innovative opportunities for funding projects that bring positive social change. The primary method we focused on is known as the social impact bond (SIB). With the support of impact investors and intermediaries, social projects can be funded to target social and environment problems while achieving economic growth. SIBs are one time investments from investors into a do-gooder company and if the project succeeds under predetermined metrics, the government will repay the principle investment plus additional returns.

Objectives

1. Develop an in depth understanding of relationships between sustainability and the economic impact of SIBs.

2. Educate the Sustain 3A03 class about the significance of SIBs and how they contribute to the triple bottom line.

3. Work to develop a specific idea for how a Social Impact Bond could be implemented in Hamilton.

Reporting

Collectively, the entire group showed genuine interest in the idea of social finance. This, coupled with limited knowledge in the subject, drove us to pursue research. In conducting our own research along with guidance provided by Ryan Nelson, our community project champion, we were able to learn a great deal about how financial models from our business courses can be applied to help fund projects focused on providing social benefits.

On October 22, we gave a one hour presentation to our Sustain 3A03 class on SIBs, which included a rich discussion between our group, our fellow classmates, the course instructor, and our project champion. Through the class discussion and feedback provided, it was evident that sharing the knowledge we obtained was of great value to our fellow classmates. Furthermore, we have analyzed two past implemented SIBs and generated three ideas of our own. While all three ideas have great potential, we chose to do further research into how a social impact bond could help fund a local community arts and education project.

The development team for the Social Impact Bond Project attending one of their regular meetings at the Mulberry Cafe. From back: Christopher, Madeline, Greg and Ryan.

Collaborators: Integral support was provided by Ryan Nelson. In addition, feedback and support from our fellow Sustain 3A03 classmates further contributed to our understanding of SIBs as they relate to a variety of other projects and applications.

Links: The following links provide some basic information about SIBs and their current status in Canada.
- http://socialfinance.ca/social-impact-bonds
- http://financeforgood.ca/

Sustainable Fashion

Student Author: Tsering Shrestha

Overview

As consumers, we are not aware of how our clothes are made or what impact they have on the environment. This is something that normally doesn't cross people's minds. It is imperative to be more aware of environmental impacts certain clothing materials have. Alternatively, the project I embarked on was creating awareness about sustainable clothing. The project's main objective was to raise awareness of sustainable clothing materials such as hemp and organic cotton to students at McMaster University and help students question some of the cheap fast clothing materials used today that harm the environment.

Objectives

1. Educate students about sustainable clothing materials.

2. Incorporate social media to influence students to choose more sustainable clothing when purchasing clothes.

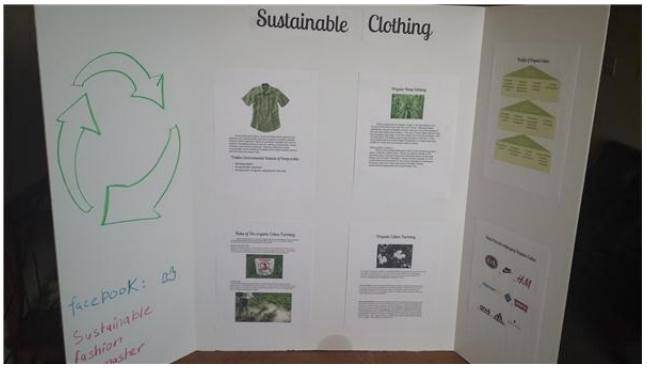
3. Develop a greater understanding of the scope of retail clothing markets and its impact on the environment through research.

Reporting

The project started off very ambitiously with objectives of educating the big retail-clothing industries by pursuing them to use more sustainable materials in the designs of their clothing. However, as the project progressed it was quite difficult to reach the big retailers, as several e-mails sent to them were not replied.

The focus then shifted in a different direction; to help promote sustainable clothing to local companies. However, this also resulted in no success. Most of the sustainable clothing stores were located in Toronto.

Finally the most feasible objective became to impact and educate students to help them become more aware of the positive impacts of buying sustainable clothing. The results were quite successful and got positive remarks from fellow students. Social media and an information booth were the tools used to generate awareness among students and it turned out to be successful. Using the information booth was helpful in directing them to like the Facebook page "Sustainable Fashion - McMaster" as it generated 21 likes.



Information board on sustainable clothing

Collaborators: The project was an individual generated project. Support from the Sustain 3A03 instructor and Teaching Assistants was provided to help determine possible next steps and generate ideas for project implementation.

The Plan "Bee" Initiative

Student Authors: Anna Iwanicki, Nashwa Khan, Mark Lee and Mark Westerink

Overview

In North America, honeybees are the most important natural pollinators to crops, with more than one third of crops pollinated by honeybees. Since 2006, a drastic decline of honeybee colonies has been seen in Canada, due to Colony Collapse Disorder.[12] In February 2013, the OPIRG[13] group, along with local beekeeper Brandi Lee-MacDonald, formed the Hamilton Urban Beekeepers (HUB) to help spread awareness about this crisis impacting the honeybee population. For the Sustain 3A03 experiential education project, The Plan "Bee" Initiative was started with the goal to build a sustainable honeybee education and awareness program at McMaster and extending to the broader community.

Objectives

1. Promote awareness of the campus beekeeping initiative, in affiliation with HUB.

2. Educate the McMaster community on the importance of honeybees in agriculture, as well as the current global crisis affecting its population.

Reporting

Promotional awareness and education was accomplished through two main initiatives: Campus Sustainability Day and High School Outreach Program. To help promote events, a Facebook page and Twitter account were developed, along with new updated posts on the HUB webpage.

McMaster's annual Campus Sustainability Day was held in October 2013, where our group displayed information about the McMaster honeybees, as well as the current crisis impacting the honeybees. We encouraged participation through a variety of engaging techniques including the following:

- An information board with pictures from the McMaster hive site
- Free handmade buttons
- Support campaign with a white board for participants to answer: "Why do you support bees?" Statements include: "It makes the world a sweeter place" and "They pollinate flowers that make our food"
- A raffle prize incentive of a free jar of honey for engaging with our booth
- Sale of local honey produced by the McMaster honeybees

Through this event, we were able to engage over 150 McMaster community members, including students, staff, and faculty members.

In collaboration with McMaster's Centre for Climate Change, our group visited two Hamilton high schools in late November to share our project. The presentation included general information on honeybees and a discussion on the value of honeybees in agriculture and the causes for the drastic population decline. Though these sessions, we broadened our reach beyond the McMaster community, educating over 60 students and teachers.

The Plan "Bee" team at Campus Sustainability Day. From left: Mark Lee, Mark Westerink, Nashwa Khan, Anna Iwanicki

Collaborators: This project was initiated through the support of Brandi Lee MacDonald & Amina Suhrwardy, who were the founding members of the HUB. Brandi is focused on maintaining the hives on campus and lends her expertise from her work at her own apiary, Three Bees Honey. Amina is representing OPIRG[13] and helped the group with expanding the current Hamilton Urban Beekeepers website. OPIRG[13] was helpful in providing funding for advertisement such as boards, pamphlets and buttons. The collaboration with McMaster's Sustainability Program was significant in promoting the group at Sustainability Day. The group was supported by Kate Whalen and Zeinab Rahal from McMaster's Office of Sustainability.

Links: - HUB Website: http://hamiltonurbanbeekeepers.com/

Sustain Race

Student Authors: Peter Fenlon, Lavinia Ghinea and Hani Ramzan

Overview

Hosted annually by the Office of Sustainability, Campus Sustainability Day celebrates advancements made toward developing a culture of Sustainability at McMaster University and within the broader community. By further developing this annual event, opportunity exists to enhance student and staff engagement as well as to offer new avenues to educate about sustainability.

Objectives

1. Educate students and staff about Campus Sustainability Day
2. Engage students and staff in Campus Sustainability Day
3. Create a culture of sustainability on campus through education and engagement

THE SUSTAIN RACE

The Sustain Race logo

Reporting

With these goals in mind, we hosted an educational sustainability game, The Sustain Race, modelled after the television show The Amazing Race. Similar to the television show, we asked participants to actively partake in broad challenges across campus, for example, one of the challenges was to locate an empty tutorial room in one building on campus and turn off the lights. Once participants completed a variety of different challenges, they were given a chance to enter their name for a prize basket.

Following our sustainability challenge, we surveyed participants to measure how well our deliverables were achieved. We sought to engage 30 participants and ended up with a total of 42 participants within 29 teams taking part in the Sustain Race. These participants expressed their satisfaction with 70% saying the race was “more enjoyable than expected”.

We also wanted to educate participants on sustainability and found that 90% of participants reported an improved awareness of McMaster sustainability services, such as MACycle (the on-campus bicycle co-op) and the on-campus technology recycling initiative. In addition to improved awareness, all of the participants reported being more likely to use these services in the future. All of the Sustain Race participants also reported that they were more likely to incorporate sustainability in general into their lifestyle.

The Sustain Race was successful in engaging and educating McMaster students on the importance of sustainability. This success has been well received by the Office of Sustainability and, through ongoing support, the Sustain Race has been incorporated into future Campus Sustainability Day event planning.

Collaborators: Zeinab Rahal; Sustainability Coordinator and Project Champion has provided integral support and guidance throughout. Furthermore, the success of this initiative would not have been possible without the support from our student peers from the Sustain 3A03 class, such as E-waste group, and all the individuals and groups who took part in the Sustain Race Challenge.

Notes and Citations

[1] McHattie, Brian. Personal interview. 27 Sept. 2013.

[2] Statistics Canada. (2013). Fruit and vegetable consumption, 2012. Retrieved from http://www.statcan.gc.ca/pub/82-625-x/2013001/article/11837-eng.htm.

[3] McMaster University. (2013). Eating disorders and body image. Retrieved from http://wellness.mcmaster.ca/counselling/psychologicalcounselling/typesofmentalhealth/eatingdisorders.html.

[4] Hennessy, A. (2013, August 5). Canadian consumers cope with dramatic increase in food prices. Toronto Sun. Retrieved from http://www.torontosun.com/2013/08/05/canadian-consumers-cope-with-dramatic-increase-in-food-prices.

[5] Rollin, A.M. (2013). The increase in food prices between 2007 and 2012. Retrieved from http://www.statcan.gc.ca/pub/11-626-x/11-626-x2013027-eng.htm.

[6] McMaster Student Union. (2013). MAC Bread Bin. Retrieved from https://www.msumcmaster.ca/services-directory/14-mac-bread-bin.

[7] PLA, short for polylactic acid, is a type of plastic made from natural sources such as corn starch or sugar cane. Currently, PLA is used in a broad range of products, including biodegradable bags, medical implants, and diapers. Due to its natural source, PLA was chosen as the primary material.

[8] ABS, short for Acrylonitrile butadiene styrene, is a plastic produced through the polymerization of chemicals, and is widely used in objects such as small kitchen appliances, car parts, and carrying cases.

[9] This figure includes the cost of the hot plate and some hardware. It does not include the vacuum pump or air compressor, which were available through Think Haus.

[10] Guthman, J. (2003). Fast food/organic food: reflexive tastes and the making of "yuppie chow". Social & Cultural Geography, 4(1), 45-58.

[11] McKiernan, J. (2012, November 28). Seven key ways organic farming is superior to industrial agriculture. Retrieved from: http://www.naturalnews.com/038117_organic_farming_industrial_agriculture_comparison.html.

[12] Bartomeus, I., Park, M. G., Gibbs, J., Danforth, B. N., Lakso, A. N., & Winfree, R. (2013). Biodiversity ensures plant–pollinator torphenological synchrony against climate change. Ecology Letters, 16(11), 1331-1338.

[13] OPIRG stands fo Ontario Public Research Interest Group, a student-funded and student-directed non-profit organization.

To download a pdf version of this report please visit **http://sustainability.mcmaster.ca**

Designed by The Office of Sustainability