



In Partial Fulfillment of the Requirements for the Degree of

Master of Sustainability Solutions (MSUS)

Daniel Velez

Will present his Master's Culminating Experience Project

Compost Competition

Abstract

This project was a month-long compost competition at an apartment building in Phoenix, AZ that houses 194 residents. The project's main objective was to increase waste diversion. This was done through composting and improving zero-waste capacity. The compost competition included activities to change community behavior such as private and public commitments, a community barbecue, a movie night (which replaced a planned field trip), and a visioning meeting. By the end of the project, 22% of the tenants were composting. Over a year-long period, this equates to a diversion of, 6000 pounds from the landfill and 1.59 metric tons of Carbon Dioxide equivalent (MTCO₂E). The waste diversion increased from 28% to 38%. Tenant participation trended upwards during the project and as the social norm develops over time, more tenant participation is expected even after the competition is over. The six indicators that were used to determine the zero-waste capacity, collectively went up by 1.24 points on a five-point scale.

Thursday, April 27, 2017
9:30 a.m.
Wrigley Hall, 481

Faculty, students, and the public are invited.



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Andrea Levy

Will present her Master's Culminating Experience Project

Sole Purpose Flip Flops: Exploring Alternative Business Models and Sustainable Supply Chain Options

Abstract

Humans are directly dependent on the ocean's ecosystem services, specifically because it serves as a major carbon sink, which absorbs greenhouse gases and, in return, produces oxygen. However, ingestion of or entanglement in marine debris harms the individual organisms and larger ecosystems that conduct these service, negatively affecting humans and intensifying the effects of climate change. Sole Purpose Flip Flops is a lifestyle brand whose mission is to reduce the amount of ocean plastic by creating a unique from recycled marine debris. The objective of this project was to formulate sustainable, responsible and achievable options for the manufacturing of the flip flop. It focused on researching supply chain management practices relevant to Sole Purpose's mission and operations, including online identification of sourcing, contacting organizations, and speaking to experts of alternative business models. Participation in this project was a way to support an organization that is addressing the problem of pollution, and find means to alter the traditional, unsustainable business model of new and existing businesses. Recommendations for Sole Purpose were centered around a circular business model, including take back and recycling of the shoe. Findings presented a viable process to upcycle fishing nets, yet also proved that sourcing the nets regionally may be more challenging than expected.

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Kiki Hooton

Will present her Master's Culminating Experience Project

The Happiness Incubator: Using Transformational Sustainable Entrepreneurship to Merge Sustainability, Community Development, and Happiness

Abstract

Traditional business models rely on the increasing demand and consumption of human and natural resources, the activities of which contribute to a variety of sustainability problems. While existing businesses are identifying the need to reduce their impacts on these issues, there is a greater need for new business models that challenge a consumption based economy. Truly transformational sustainable enterprises would both seek to have sustainable business practices while also aiming to address sustainability issues at the core of their mission. One sustainability issue that society is challenged with is the state of happiness in the U.S. Communities that rank high in happiness are also sustainable communities: they eat and cook locally, have financial stability, have strong sense of community, and are active and have healthy environments. This project aimed to develop a transformational sustainable enterprise, known as The Happiness Incubator, the primary objective of which is to change the state of happiness in U.S. cities through community development. The project was completed in four phases: a literature review on the state of happiness, community development, and sustainability as well as a review on the current economic system; the development of a business idea using the Transformational Sustainable Enterprise framework; the creation of a business proposal using traditional startup tools; and the design of happiness workshops as experimental examples for The Happiness Incubator. Together, the four phases identify the sustainability problems at hand and the need for happiness services, which provide strong support for economic investment in this alternative enterprise.

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Amanda (Toohey) Jordan

Will present her Master's Culminating Experience Project

**An Intervention Manual for Implementing Water Savings Design
Strategies in Community Food Hubs: A case study of the IRC
aquaponics incubator**

Abstract

The International Rescue Committee (IRC) is a non-profit organization that prides itself in “responding to the world’s worst humanitarian crises”. Through its New Roots program, IRC is using an aquaponics urban garden incubator site “to train refugee farmers in aquaponics agriculture and good business practices in the United States.” The site is an example of the conversion of brownfields into “healthfields” and sustainability and resilience initiatives including the Year of Healthy Communities Program-2017, the Maricopa Food System Coalition, and other community health initiatives that involve major partners including the City of Phoenix.

Entering into the next development phase, IRC wants the site to be an opportunity for demonstrating some of the most innovative approaches to water reuse while contributing to a sustainable food network in the neighborhood and in the Phoenix Metropolitan Area. One component created to support this goal is an intervention manual identifying water-sensitive design strategies and ways to scale or transfer to other IRC sites. As such, my project identified and framed guidelines for the selected strategies to use in addition to steps for scaling, transferring, and creating a “location” where all of this information could be held for future reference. The manual content was created around each strategy which included identifying general legal practices in Phoenix related to each strategy, defining key terminologies, detailing water budgets, and research gaps to overcome.

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Rebecca Santiago

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The Role of Urban Infrastructure in Supporting Transit-Oriented Development

Abstract

Of the many challenges cities face, congestion and air quality are two interrelated issues that despite technological improvements in vehicle emissions standards and engine efficiency, continue to worsen. Of the strategies attempting to reduce automobile dependency, a popular approach adopted by cities is the concept of transit-oriented development (TOD). The strategy aims to better integrate land use and transportation planning, and is often characterized by a mix of land uses, high density, and proximity to quality public transit.

While practitioners and academics argue the economic and environmental benefits of TOD, there are several examples along the Valley Metro light rail corridor where the strategy appears to be failing to attract people, businesses, and ultimately transit riders. The purpose of this study is to explore how urban infrastructure characteristics, specifically transportation connectivity, urban design, and land use interact to support light rail ridership.

This study examines six TOD locations along the Valley Metro light rail line to gain insights on what elements of TOD lead to active areas and high ridership, or the lack thereof. Station areas are analyzed with a triple bottom line framework, utilizing U.S. Census and Maricopa Association of Governments (MAG) data for spatial, economic, and demographic analysis. Design elements are qualitatively evaluated using urban design principles emphasized in the literature and are the metric for social considerations in TOD planning. Findings are analyzed through a sustainability lens resulting in the formation of strategic solutions for improving TOD planning methods.

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Nicolas Ansara

Will present his Master's Culminating Experience Project

The Kosovo Sustainable Settlement Redevelopment Program

Abstract

South Africa has witnessed explosive growth in urban population in recent decades. The majority of urban growth has accumulated in densely populated informal settlements. In a post-apartheid South Africa these areas delivered poorly planned and constructed single unit housing that lack adequate and necessary services, leading to economic and social exclusion. In the context of poverty, basic hunger, poor health and sanitation, violence, environmental degradation, as well as fire risk and flooding are some of the core challenges facing sustainable settlement redevelopment.

How can you provide urban upgrading and redevelopment while meeting the needs of the community sustainably? The design of the Kosovo informal settlement redevelopment uses multiple planning principles, which include space and movement systems, appropriate building sizing, sustainable infrastructure design and planning, building efficiency, and effective land use. Health, safety and security, community education and opportunities, and sustainable resource use must also be considered.

Settlement land use can be developed for mixed-use opportunities, such as community gardening, education, and training advancements to optimize access for employment options.

The Kosovo Informal Settlement is a community that holds multiple opportunities for advancement in future sustainable planning if the proper leadership and redevelopment stages are introduced and carried out effectively.

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