

Undergraduate Research Symposium May 17, 2013 Mary Gates Hall

Online Proceedings

1B

NUTRIENT CYCLES: CHANGING PERCEPTIONS OF WATER, AGRICULTURE, AND WASTE

Session Moderator: Michael Kucher, School of Interdisciplinary Arts and Sciences
171 MGH

1:15 PM to 2:45 PM

* Note: Titles in order of presentation.

Substance and Symbol: The Ethics of Water Use and Development in Oman

Sarah Elizabeth (Sarah) Boone, Senior, International Studies
Mary Gates Scholar

Mentor: Sara Curran, International Studies

This research analyzes interviews and census data to explore the varying ethical perceptions of water use in Oman. For many populations living in the hyper-arid Arabian Peninsula, cultural and religious values have always required that people strictly limit their water use. Today after one generation of intense urbanization, Omanis still maintain these values of conservation, however they have also come to glorify water-intensive, urban lifestyles. Given this apparent contradiction, why has “development” been able to frame urban water use so positively, while contradictory perceptions of ethical water use remain intact? I argue that people do not change their water usage based on actual scarcity or ability to consume, but rather based on the symbolism that their surrounding community attaches to their resource use. In urban and rural Oman competing symbols have been introduced that support two very different water ethics. To reduce cognitive dissonance, Omanis compartmentalize each ethic in relation to different community settings and go through a process of switching their ethical codes when traveling between the countryside and urban centers. For much of the Middle East and other regions around the world, water scarcity is increasing dramatically, while urbanization and population expansion has produced increasing demand. Understanding how peoples’ perceptions of water are formed will be essential for policy-makers as many regions of the world are beginning to face extreme water shortages and related socio-economic crises.

Green Spaces in Two Places

Vanessa Elizabeth (Vanessa) Corey, Senior, Anthropology

Mentor: Ann Anagnost, Anthropology, Department of Anthropology

Urban farming is on the rise, not only in cities across the United States, but also around the world. From backyard gardens to large-scale community projects, people are returning to the land. This research explores the causal agents and impacts of this movement in Seattle, while also exploring why the expansion of community gardens and large-scale urban farming efforts have failed to progress as rapidly in Seattle’s sister city of Tacoma. An in-depth comparison will focus on the South Park area of Seattle and the Hilltop area of Tacoma. While much has been written about the ways in which urban agriculture has benefitted Seattle through its community gardens and large-scale urban farms, very little exists about why the same movements have not flourished in Tacoma. This project will employ a range of ethnographic methods, such as participant observation, in-depth interviews, and archival investigation into city policies and historical records. The data gathered will be used to explore the multiple and complex factors that influence—both positively and negatively—community based urban agriculture (CBA) in the study areas.

Cultivating Care and Responsible Rehabilitation: A Case for the Sustainable Prison Farm

Sophie Jedeikin (Sophie) Hart, Senior, Environmental Studies

Mentor: Ann Anagnost, Anthropology, Department of Anthropology

Mentor: P. Sean McDonald, Program on the Environment

In Washington State, the number of incarcerated individuals has nearly tripled in the past three decades, and almost half of all current inmates are repeat offenders. At the same time, in response to recent budget cuts, the Washington State Department of Corrections (WADOC) closed two correctional facilities, decreased their staff, and cut funding for offender rehabilitation programs. This problem is not unique to the state of Washington. The United States has the highest incarceration

rate of any country- about 1 in every 100 citizens are currently behind bars- and bloated correctional facilities throughout the nation are feeling the impact of the economic recession. Now more than ever, it is apparent that we need to seek new, innovative approaches to imprisonment and rehabilitation. This study examines the potential of prison gardening projects to help address this need. I focus on the Sustainability in Prisons Project (SPP) in Washington, but include evidence from similar projects happening throughout America and abroad. My methods include first-hand observations of SPP's gardening activities at Cedar Creek Corrections Center, interviews with program directors, and a literature review of comparable case studies and existing science on the benefits of human-nature interactions. I find that prison gardening projects in correctional facilities offer financial benefits to the state, shrink the environmental footprints of facilities, and create positive experiences for the staff and inmates. I conclude with a discussion on these benefits, including possible areas for further development of gardening programs in prisons and suggestions for future research.

Public Perception and Knowledge Assessment on Biosolids Application

*Jiyeon Hong, Senior, Community, Environment, & Planning
Mentor: Sally Brown, SEFS*

Biosolids are the treated sludge from wastewater treatment. Despite many scientific studies and tests that prove the environmental benefits and sustainable features of biosolids applications, there still exists ignorance, hesitation and aversion to utilizing recycled biosolids in society. In 2012, King County launched "Loop," the county's biosolids product brand. Loop was launched to increase awareness and foster positive perception toward biosolids recycling and its application. In this project, I developed a survey to assess public perception and knowledge on biosolids and their land applications (e.g. compost, fertilizer, etc.). The survey questionnaire has been developed using authoritative surveys that have been conducted previously with similar purposes as references. In addition, I pretested the survey to ascertain how well the questionnaire works. Pretesting and administering the questionnaire to a small sample of students can validate the survey. My target audience is the general public, but for the purpose of this project using a sample of students was more than sufficient. Preliminary results from the pretests identified problems in formatting or confusing language in the questionnaire. These pretested survey questions can potentially be utilized in future studies, such as in acquiring baseline data to analyze how much influence "Loop" branding has on public knowledge and perception of biosolids in King County.

Why do We Trash It? Identifying the Behavioral Challenges behind Improper Disposal of Recyclable and Compostable Waste

*Joel Nicolai (Joel) Kohlstedt, Senior, Environmental Studies
Mentor: Frederica Helmiere, Program on the Environment*

In conjunction with Sustainable Seattle, my project seeks to identify barriers to recycling and composting in Seattle in order to ultimately increase the amount of recycling and composting that takes place. My research questions attempt to address this in two parts. First, if Seattle residents participate in recycling and composting, what is preventing them from recycling and composting more? Second, what changes can be made by the government or policy makers in order to encourage more recycling and composting? To identify barriers, I have read past reports studying difficulties in implementing recycling, and also behavioral studies identifying which methods can lead to behavioral change. From this, I discerned that the ideal methodology would consist of conducting interviews of consumers and testing multiple waste infrastructure systems at Seattle Tower using different plans on each floor to determine obstructions to commercial recycling in Seattle. Next, to identify possible behavioral modifications for more renewable action, I will conduct consumer interviews as well as the Seattle Tower project, both of which are still in progress. Initial research suggests that common recycling problems for consumers are a lack of standardized labeling on packaging and products. The results of this study and recommendations about labeling will be posted on the Sustainable Seattle website, and the Seattle Tower will be given infrastructure recommendations for improved efficiency based on the results of what was most effective. Ideally the implications of this project will lead to increased recycling and composting rates in Seattle. This can lower the costs of waste disposal for the public, businesses, as well as the city. Recycling and composting is much more cost effective and environmentally responsible than hauling trash each day to a landfill, and therefore should be utilized as much as possible.

Urban Hunting and Gathering: Waste, Want, and Worth in Mexico City

*Wei Yan (Sharon) Ong, Senior, Economics
Mary Gates Scholar*

Mentor: Ann Anagnost, Anthropology, Department of Anthropology

How we discard speaks volumes about how we consume, which in turn speaks loudly about how we live and interact with the material world around us. Food waste is a special category of what we discard. It expresses our innermost beliefs and boundaries about aesthetics, health, and hygiene. Food scavengers, or *pepenadores* as they are known in Mexico, refer to the urban poor who pick through garbage in search of fresh produce either to consume on their own or to sell. My research begins with the basic question: what does it

mean to be a food scavenger in Mexico City? Specifically, it examines the relationships negotiated between waste, want, and worth in the context of the food scavenging economy at an organic dumpster at Mexico City's Central de Abastos – currently the world's largest wholesale food market. What do the *pepenadores* know about valuing food that we do not know? What unseen and unsung roles do they perform in the urban food distribution network today? Employing anthropological methods of participant-observation, my research hopes to lay the groundwork for further qualitative analyses of the capital-scarce, labor-rich livelihoods of the *pepenadores* in Mexico City. Given that scavenging is often shorthand for marginal status, understanding this informal economy can assist in destigmatizing the work and its actors. Furthermore, this research aims to better illuminate our relationships with time, people, and food through its study of the *pepenadores* as a unique, entrepreneurial, urban class of 'hunters and gatherers'.

The Trash Talks: Garbology, Waste Diversion Rates and Contamination Levels on UW Campus

Megan Jo (Megan) Rue, Sophomore, Anthropology

Amy L. (Amy) Mandin, Senior, Anthropology: Medical Anth & Global Hlth

Mentor: Jack Johnson, Anthropology

Mentor: Marcos Llobera, Anthropology

This project was aimed at helping UW Recycling identify inefficiencies in waste disposal and provide them with information that will assist in ascertaining their optimized waste diversion rate of 70% by 2020. Having a 70% diversion rate means that the UW would be sending 70% of its waste to recycling or compost facilities instead of a landfill. In turn, this means the University has less monetary investment in waste disposal practices while simultaneously making a beneficial and a substantial reduction in its environmental footprint. We hypothesized that individuals were not properly utilizing the trash, recycle and compost bins, and that upon evaluation of these bins we would find contamination that would allow us to identify inefficiencies. To test if waste was indeed being deposited incorrectly we chose to sort and examine trash, recycling, and compost from two locations over a five week period. During this time we documented the weights of pre-defined categories of waste and observed common trends in the waste stream. This revealed that compost was the main source of contamination in both the recycling and trash bins. The average trash and recycle bin compost contamination was 72% and 36%, respectively. However, the composition of the compost container showed that 93% of the materials in the bin were indeed compostable. These results align with our initial hypotheses. Furthermore, our study allowed us to identify possible causes for this behavior and to propose a series of measures to help mitigate it. We hope to expand this work with future efforts, including: educational outreach

through trash sorts, implementing programs that engage the community and further divert waste, experimenting with new bin labeling systems, using Geographic Information System for mapping of campus compost bins for better tracking, and introducing more compost bins throughout campus buildings.