IPRO 322 Project Plan

Growing Water: 31st Street Eco-Boulevard and IIT Pavilion Prototype

Advisor: Martin Felsen

1.0 Abstract

1048 million gallons of water is used in Chicago everyday. Chicago replenishes almost none of it. Although there is no water shortage currently, many believe that water will be to the next century what oil is to this century: a huge commodity. Twenty percent of the world's potable water is contained in the Great Lakes. In order to be responsible consumers of this natural resource, Chicago is looking into different plans to return water to Lake Michigan. The purpose of Growing Water IPRO is to create a prototype of an Eco-boulevard on the IIT campus that will serve as an example of practices that could be implemented across the Chicago-land area to manage and naturally purify storm water and sewage water so it can be reintroduced to Lake Michigan. These Eco-boulevards will also serve as educational facilities to inform the community about the growing scarcity of water and how to conserve this precious resource.

2.0 Background

The project will be sponsored by IIT & donors to design and develop an area of land on the IIT campus that will utilize eco-friendly methods researched by the team. This IPRO consists of two challenges. The first challenge is to design and then construct an eco-friendly space where rainwater can be managed naturally and returned to Lake Michigan. The second challenge involves the design of a space that is accessible and provides educational and cultural benefits to the surrounding community.

An adequate amount of research must be compiled to determine viable locations where the eco-boulevards and living machines can be implemented. The eco-boulevards and living machines will serve as educational centers of water conservation and sustainable means of coexisting with our local ecological system. Utilizing case studies of how other communities have created eco-friendly spaces along with researched methods of green roofs, cisterns, permeable paving, natural landscaping and filter strips, a proper eco-boulevard with a habitable social space can be attained.

Case studies of the Parc de La Villette, in Paris, Cultuurpark Westergasfabriek in Amsterdam, Cheonggye Stream in South Korea and many others have proved that such a space can impact an urban area and convert it from a dead zone to a major social attraction for all. Sustainable technologies have been accepted with much success in the Chicago land area. Other than a slight increase in initial cost, there are no downsides to its implementation in design.

A need exists to increase awareness of water conservation. This will especially be the case when land owners of adjacent properties are confronted with the decision of approving construction. The initial cost of construction may be higher due to the implementation of green construction methods. However, the long term financial benefits of maintaining such a facility will offset the initial expenses. The social impact of such a space will turn an area devoid of social activity into a hub of activity that is located within walking range of a beach. The design of the eco-boulevard for IIT will be the basis for others in the city. Its impact will be invaluable to the surrounding residents as well as the citizens of Chicago.

Growing Water is a continuing IPRO. Last semester, the IPRO conducted a significant amount of the useful research, and created a educational website that will aid in the promotion of the prototype and can be used to investigate the impact of different living machines and eco-boulevard attractions.

3.0 Objectives
• To create publicity and awareness about the state of Chicago water
  and the need to start taking steps to preserving and restoring it.
• To build upon the catalog of sustainable methodologies and case studies.
• Select the best space for a prototype in the IIT community.
• Determine the best type of living machine or best management practice(BMP)
  to create inthe space selected.
• Collaborate with the Illinois Institute of Technology Sustainabiliity committee
  to create an Eco-Boulevard prototype on the IIT campus that incorporate living
  machines, BMP's, and social and cultural benefits.
• To establish a social program for the living machine Pavilions to create
  public interaction and education in association with the area selected.

4.0 Methodology
The first half of the semester will be devoted to selecting an ideal site for the prototype, researching the best BMP's and living machines that could be implemented at the site, and the possible social, cultural, and educational interactions that could be encouraged through the site. The team will be divided into four subgroups for this section.

Best management practices: Ecological
> • The objective of this subgroup is to investigate the ecological implications that best management practices (bmp's) will have, and to discover their potential impact in a design scheme. This group will focus only on bmp's that have a potential to be used on the chosen site within the IIT campus, and will help inform the final decision of which bmp's to implement on the actual site.

Best management practices: Cultural
> • Investigate the cultural implications that specific BMP's will have, and to discover their potential impact in a educational, social, and community sense. This group will focus only on BMP's that have a potential to be used on the chosen site within the IIT campus, and will help inform the final decision of which BMP's to implement on the actual site.

Site Analysis: Ecological
> • Develop a matrix containing criteria for sites to deploy experimental Best Management Practices, and analyze the potential sites in accordance with the matrix. This team is also responsible for proposing and researching more potential sites.

Site Analysis: Cultural
> • Develop a matrix containing cultural and social criteria for experimental

BMP site and analyze the potential sites in accordance with the matrix. This team is also responsible for proposing more potential sites and recommending which sites are best for the prototype deployment.

The second half of the semester will focus on designing the IIT prototype and working with IIT to create the actual project on campus. Since the layout of the second half of the semester depends upon the cooperation that exists between the IIT campus and the team; much of the information is incomplete.

August 21- October 25
Research: 100 hours
– Research features of different BMP's
– Visit potential BMP sites
– Search more potential BMP sites on the IIT campus
– Create a cultural and ecological matrix for all feasible BMP/living machine/social scenarios for the chosen site.

October 26-November 16
Design: 200 hours
– Design and engineer a chosen site or sites in collaboration IIT
– Choose appropriate BMP for site

November 17-December 5
Presentation: 30 hours
– Work on IPRO day presentation
– Improve and add to www.growingwater.com informational and educational tool

All information will be properly documented for future use in iGroups. Appropriate information will also be added to the website: www.growingwater.com.

5.0 Project Budget
Growing Water IPRO did not include any costs into the budget at this time. Most costs will be financed by the Illinois Institute of Technology Sustainabiliity Committee.

6.0 Team Structure

NAME	Major	Skills & Strengths	Experience and Academic Interests	Team
Daniel Beissinger	Chemistry	Leadership, People skills,	Experience in Western American agriculture, riparian areas, and watershed management.	Site Evaluation: Ecological
Matthew Boder	Architecture	Design, Adobe Creative Suite, AutoCAD, 3d modeling	Music, Philosophy, History, Aesthetics	BMP: Cultural
Steven Booher	Architecture	AutoCAD, 3D modeling, Photoshop, Illustrator, InDesign, Construction Documents	Art and Architecture theory, rock climbing, the Large Hedron Collider	Site Evaluation: Ecological
Kristin Bryant	Psychology/Political Science	Proficient in MS Word, PowerPoint, and Adobe Photoshop, leadership experience; hardworking	Psychological/ Sociological Research, music, and reading	Site Evaluation: Cultural
Ewa Guzek	Architecture	AutoCAD, Adobe Photoshop + Illustrator, 3d modeling, research and design	Architecture, baking pastries, and little Siamese kitties	BMP: Ecological
David Horabik	Architecture	AutoCAD, Adobe Photoshop + Illustrator, 3d modeling, research and	Architecture, Music, Environment	Site Evaluation: Cultural

		design		
Natalia Klusek	Architecture	AutoCAD, 3d modeling, Adobe Photoshop + Illustrator, design, Microsoft Office, research	Arch Intern. Architecture , any field of Academia related directly/indirectly to Architecture	BMP: Cultural
Malgorzata (Margaret) Kochanek	Psychology/ Biology	Proficient in Microsoft Word, PowerPoint, Publisher, and Excel; experience in research, leadership, and teaching; previous IPRO experience	Dystrophin protein gene research, volunteer at medical center, Microbiology teaching assistant, Chemistry student teacher, Pharmacology, Music, Latin Dance	Site Evaluation: Ecological
Michael McCarthy	Architecture	AutoCAD, 3ds Max, Adobe Photoshop and Illustrator, Design	Architecture, Sustainability, Research	Site Evaluation: Ecological
Marcin Mejsak	Architecture	Computer Aid Design. Building Physical Models. Furniture Building. Swimming. Research.	Karaoke, inline skating, and cooking	BMP: Ecological
Ryan Oblenida	Electrical Engineering	Java Programming with teaching experience, heavy machinery and tool experience, Circuit modeling	Hip hop, break dancing, go-kart building, car maintenance, and home repair	Site Evaluation: Cultural

Carolina Slota	Architecture	CAD Drafting, 3d Studio Max, Adobe Photoshop & Illustrator, Design Skills, Research	Intern Architect, Architecture, Product Design, Philosophy, and Music	BMP: Cultural
Marco Veneziano		AutoCAD, Adobe Photoshop + Illustrator, 3d modeling, research and design	Architecture, and karaoke	BMP: Ecological

- Within the three subgroups, there is a team leader and tasks are assigned to the subsequent group members as necessary. The team leaders are as follows:

BMP: Ecological - Ewa Guzek
BMP: Cultural - Matthew Boder
Site Evaluation: Ecological – Malgorzata (Margaret) Kochanek
Site Evaluation: Cultural - Kristin Bryant

- Growing Water IPRO has decided that roles such as agenda maker, minute taker, time keeper, time sheet collector, and iGroups monitor will be done collectively. If there is an issue with any of the above processes, we will assign the task to an individual in the future.