Crop to Cup Coffee: Building Communities through Coffee

IPRO 333

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I. Abstract

The mission of IPRO 333 is to assist the Crop to Cup Company with the design and building of an enclosure for a temporary storage facility within the vicinity of their largest producing farming zone for robusta coffee in the Mbale region of Uganda. The sponsor, along with the team, has decided that the best method for addressing the local and global needs of the farmers is to present the research and design personally. Therefore, IPRO 333 will be fundraising to help finance the forthcoming trip to Uganda to present to the farming communities.

As a result, the IPRO 333 team has been entrusted with the design of a structure that will serve as a secure coffee storage facility for the farmers. The structure will also include a public space allowing farmers to weigh, sell, pulp, and dry their coffee.

The Research and Design Phase of the project has many considerations; taking into account the local customs of the Ugandan farmers, their ideas of security, the effectiveness of locally available materials for building, conditions at the site that may decrease the coffee's value (e.g. pests and climate) and the socio-economic impact of Crop to Cup's 2011 Plan. This will require in depth research of the culture and site which will lead to a series of designs most suitable and agreeable to the sponsor and the farmers. A systematic understanding of the production methods of coffee will yield a more efficient and suitable design. In addition, an ongoing relationship with the farmers, mediated by the sponsor through the form of emails will allow the team a greater understanding of the farming community's needs.

The Fundraising Phase of the project consists of promotion and sales of Crop to Cup Coffee to increase market exposure of the product as well as of the company's support of the Ugandan coffee farming community. These fundraising efforts will include sales of pre-packaged coffee as well as prepared coffee and other clothing items and donations at local farmers' markets within the vicinity. This provides for more awareness within the local community of the project and possibilities for collaboration and input from outside sources to enrich the team's own efforts.

This document serves as a foundation upon which to build and guide the team's objectives and expected outcomes. The document will be used in the following semesters as a reference during in-depth design phase for the storage facility. It includes an overview of the team information and strengths, project goals, background information, project methodology and, finally, the expected results. In addition, an itemized budget and breakdown of team member roles and responsibilities will be addressed within this document.

II. Team Information

The IPRO 333 member roster along with the members' individual strengths, needs and expectations are included in the appendices.

Team Purpose

The purpose the team has set forth is primarily to gain knowledge of socio-economic conditions in both Uganda and Chicago with respect to coffee. This obtained research will inform the design of a storage facility, called a *banda*, for the coffee farmers in Uganda. The storage facility needs to be built to benefit both the Ugandan farmers and Crop to Cup. The company hopes to see an increase in security for the farmers, profit per activity, overall farmer income, cultural awareness for consumers and a decrease in export and import time.

Team Objectives

- Becoming culturally aware of community in Bugisu regions of Uganda
- Researching ethical and social impact
- Forming/understanding relationships & politics with Ugandan farmers
- Investigate locally available construction materials
- Create Detailed Itinerary for trip to Uganda
- Determine site location in Uganda
- Create a plan to determine infrastructure, logistics, and business plan
- Develop a plan to engage our stake holders (CCCC)
- Develop communication with CCCC organization
- Conduct needs assessment from farmer's perspective immediately
- Advocating CCCC to American Culture through farmer's markets

III. Background

The Crop to Cup Coffee Company

The Crop to Cup Coffee (C2C) imports coffee from farms in East Africa. They travel to the farm, select the best farmers and form relationships with them. The

company takes pride in bringing customers closer to the coffee farmers and vice versa through the use of message boards, email, cameras, and video conferencing. C2C's mission is to connect the community of farmers and consumers in an attempt to allow them to better understand one other. The relationship C2C shares with its farmers are closer than that of the average coffee company. This allows for much higher traceability by tracking which beans are produced by which farmer. They offer biographies of the farmers they work closely with and give the consumer the opportunity to pose questions to the farmers on the C2C website. The farmers then are able to connect with the people who purchase their coffee beans.

C2C currently implements their "20, 5, 10" program, in which farmers receive 20 percent over market price for their coffee, 5 percent of their coffee's selling price in coffee consuming communities, and 10 percent of company profits. The program is designed to reward farmers for producing high quality coffee, provides funds to help gain international recognition for their communities' artists, support for community projects and training in technology.

C2C is now preparing to implement a new plan in 2011 called "Whole Crop" in which they will commit to purchasing 100 percent of the coffee produced from the farmers they currently work with, in two regions of Uganda, Gibuzaale and Kapchowra. They plan to buy the coffee at an above-market price along with committing to pay a premium to individual farmers based on coffee quality. An important part of this plan is building a storage facility for this larger amount of beans, compared to the 14 percent they currently purchase.

Current Issues

In preparation for "Whole Crop", the community storage facility that will allow the farmers to sell their entire crop at the Crop to Cup price needs to be designed and understood as a concept by the farmers. Also, because the farmers are not used to selling their coffee all at once many issues arises, such as the question

about whether the farmers would want to be paid in full for their coffee and store the money versus the current system where they store some of their coffee at a time to sell when desired. Another option could be that they set up a sort of banking system where C2C would pay the farmers for their beans in monthly or weekly installments.

C2C has determined that a small storage facility *banda* must be designed to accommodate farmers' security and storage needs. In addition to this requirement of secure storage, the *banda* will also include a public office allowing farmers to weigh, sell, pulp, and dry their coffee. The *banda's* goal is to increase security with respect to the farmers' chief source of income along with fostering a sense of community among all farmers who use the public space.

Technological Considerations

The coffee production process begins with the cherries that are handpicked from the coffee tree. Though mechanical means are available, they are not as effective. The cherries can be processed either as wet or dry. In wet processing, the outer skin is removed from the bean, and all the cherries that remain with pulp on them are placed in tanks to ferment where natural enzymes will dissolve the pulp on the coffee beans. Afterwards, the beans are washed and dried. Dry processing is the oldest method of processing coffee, in which the coffee cherries are washed and spread out to dry in the sun for a few weeks. After the beans are dry, the pulp on the beans will ferment. Fermentation affects the beans' flavor. Finally, after the coffee beans have dried completely, whatever dry outer layer that still exists on the bean is removed. A pulping machine is sometimes also used to aid the removal of the outer skin in both processes.

Previous Attempts

Communal storage has been used throughout history in many different models in many different situations, all being beneficial to the societies that utilized

the methods. There are three major models that have some importance to the project at hand.

The ancient model of agriculture is one of community farming and community storage. In this model, the community farms the land regardless of ownership and the fruits of the labor are seen as a product of the community and not the specific farmer. Most ancient peasantry through feudalism used some form of this model. Community farming lasted in Britain until the enclosure movement, which is where private farms were surrounded with fences to stop open grazing of cattle. Often, the farmers would store the crops in the same location, with the most famous being the biblical story of grain storage in Egypt.

The Grange of the Order of Patrons of Husbandry was the next major model of communal storage. This movement started with the creation of a fraternity of farmers who suffered devaluation of crops after the Second World War. The purpose of the fraternity was to provide a stronger counterforce against the market forces. The farmers who joined the organization stored their crop at the facilities known as granges, which is a derivation of granaries. The communal storage helped the farmers of the granges sell their crops at higher prices than in the normal market.

The Cooperative Business Model of farmers that grew since the 1920's is basically a non-fraternal organization that bases itself off the Grange Model by providing farmers within the cooperative access to new markets and gives them some price control. They also offer access to tools that farmers may not be able to access when acting alone. This model is the one most closely relatable to Crop to Cup. The company will be purchasing all the coffee beans from the farmers, instead of a share of their produced coffee, and bringing them to a new market with connections to the consumers that are buying their coffee. The storage facility is one of the benefits of Crop to Cup's "Whole Crop" plan, as well as the complete sell of their crops at premium prices.

Ethical Considerations

The IPRO 333 team needs to take into account the nature of interactions with farmers who have over the years been promised many improvements but have yet to see those effects. The issue of trust becomes very important and the *banda's* design, which will house the farmers' primary source of income, must function as a place where the farmers are comfortable and not patronized in any way. The negotiations within the design process must be handles in such a way to reduce any improper behavior that can lead to mistrust. It is important to consider the socio-economic impact of C2C's "Whole Crop" plan on the farmers. The farmers are currently used to only receiving small amounts of capital at a time. Because C2C will be buying all of their coffee at once, the question arises about how the farmers will react to this new system. The IPRO 333 team must consider which system would be better for the Ugandan people. Thus, it must ensure that care is taken when speaking to farmers so as to not foster high expectations without being able to deliver results. The team must still be friendly, cooperate, and productive, and design the *banda* to be structurally sound, secure, and offer enough flexibility, so as to prevent injury, theft, or damaging C2C's reputation.

Societal Costs of the Problems

The major challenges facing coffee farmers in Uganda are the following:

1) Low production and productivity levels. Much the coffee tree population has surpassed its optimum production lifespan. Poorly managed and leached soils lead to low productivity. Robust and Arabica is 500 kg/ha and 750 kg/ha of clean and parchment coffee respectively
2) Infection of coffee by the coffee wilt disease, a disease that has impacted a large portion of the coffee tree population.
3) Inadequate management capacity. According to the Uganda Coffee Development Authority, inexperienced workers such as youth, women and farmers in new regions contribute to the lack of productivity.

4) Volatile world market. Coffee prices are unstable due to the liberalization of the coffee market. Ugandan coffee growers are now able to receive a larger share of the export price for their coffee. However, due to the volatile nature of coffee prices, fluctuations in price, both high and low, often translate quickly to the producer. These fluctuations can be hard on farmers.

IV. Team Values Statement

The IPRO 333 Team values clear communication between members, responsible actions, respect within the team and with others during fundraising events, attendance, punctuality, timely completion of all responsibilities, and most importantly, an optimistic outlook. Communication will be done through 'iGroups' for the duration of the semester. Each student is required to accomplish assigned tasks and take on certain leadership roles weekly. Classes are used for heated discussions and task completion so as to have all tasks completed before IPRO day.

Problems will be addressed openly among the group in a respectful manner, taking all views into consideration.

V. Work Breakdown Structure

To yield the most thorough research, the team will divide into subgroups, covering: Building, Community Impact, Logistics: Business, Logistics: Construction/Transportation

Team Structure			
Building	Community Impact	Logistics A	Logistics B
Becca, Laurel, Dia, Matt, Mark, Emily	Matt, Clay, Trey, Laurie, Mike	Vishal, Phillip	Ryan, Miriam, Clay, Trey, Mark, Laurie

Projected Semester Plan

Dates	Fundraising	logistics a	logistics b	building	culture
9/10/2010	bog fundraiser				
9/23/2010	continue Farmer's Markets	get Crop to Cup buisness timeline			
October 5-7, 2010	continue Farmer's Markets	finalize midterm	finalize midterm	finalize midterm	design stickers & give out to GG, pen pal letters, take pictures, Black Gold Screening
10/14/2010	continue Farmer's Markets		couple of schemes for site situations for all 4 buildings, prices of materials (options), transportation needs, road logistics, water access, Rwanda precedence	create list of questions for jake	kelly/jake evaluate our material, learn basics of language, talk to people who have travelled before, analyze daily lives, figure out needs of farmers, introduce Rwanda infrastructure to Ugandan farmers, find pictures of Rwanda
10/20/2010	continue Farmer's Markets	enpro presentation swap			
11/23/2010		finalize final	finalize final	finalize final	finalize final
12/3/2010		IPRO DAY	IPRO DAY	IPRO DAY	IPRO DAY

VI. Expected Deliverables

After teambuilding sessions during the first week, the team required a starting point for research, and invited the Crop to Cup CEO, Jake Elster, to give a thorough presentation of the company's mission and the expected role for IPRO 333. This period was followed by a question and answer section which was helpful to guide the future activities of the team.

The IPRO 333 Team Deliverables

Fundraisers to help pay for the trip to Uganda to meet with the farmers will continue throughout the summer. This is done for two reasons:

1) It will help promote Crop to Cup's activities, thus allowing consumers to be more aware of the situation farmers in Uganda are facing and hopefully support C2C in its activities

2) It will give opportunity for the IPRO 333 team to travel to Uganda in order to have personal interactions with the farmers, learning about their customs

and asking questions related to the project, conduct site surveys, and inspect locally available construction materials. The fundraisers require the team to obtain market reservations, go through training with respect to setting up and making coffee and a solid understanding of Crop to Cup's mission.

Development of questions and trip itinerary to ask during the interviews with the farmers with respect to the farmers' outlooks on safety, importance of coffee, strongly held ideals, opinions of the western world, what they think their coffee is used for in the United States. This research is to become more culturally aware, to help clarify incorrect perceptions and to have a better grasp on what is truly needed for the *banda* to be successful.

To prepare in-depth site surveys while still in the U.S. These surveys will include physical site information, climate and soil data and any natural occurring situations to inform the team.

To research locally available materials and methods of construction, material science, economic benefits of using locally available materials versus a pre-fabricated model.

Build relationships, via email, with the farmers to personally understand their needs, as well as facilitate the design process when meeting with the farmers in Uganda.

Design Proposals of various options resulting from the research completed. These proposals will be presented in the form of sketches, drawings, renderings and simple models.

Prepare travel information and book travel flights to Uganda during the semester.

Travel to Uganda and meet with the farmers. During this time the team will follow the planned itinerary and present ideas to the clients. Designs may need to be reworked and documented to reflect changes needed to be made.

Compile research and documentation and present succinctly in a book form to pass on to the next semester IPRO working on the Crop to Cup Coffee project.

Expected Results

The IPRO 333 team hopes to conclude the semester with full preparation for the trip to Uganda to meet with the farmers and present design proposals. The team visions this process to be a continuous reworking of designs to reflect changes requested by farmers and other issues that the team may recognize during their field research. These various designs and other new discoveries will need to be documented to allow the following IPRO class to be able to continue the process and move from a design phase to a building phase.

VII. Budget

The full budget will go towards supplies needed in the fundraising effort for the Ugandan trip. Fundraisers will be held at various Farmers' Markets in the Chicago land area and in other commercial locations if/when the opportunity arises. The costs involved are: application fees for Farmers Market events, acquiring tents, tables, development of posters and coffee accessories for sales (e.g. sleeves, lids, stirrers, and napkins); these initial costs will be paid via the IPRO Budget. Certain items will be sold at fundraising events and donations will be accepted and all extra funds raised will go back to Illinois Institute of Technology.

Items to be Sold at Fundraisers	
Item	Cost
Hot Coffee	$2
Cold Coffee	$3
Coffee w/ Horchata	$5
Coffee Beans (10oz)	$9
Coffee Beans (2lb)	$20
T-Shirts	$12

Projected Budget Proposal	Cost
Camera for farmers + Shipping	$200
Publicity and Raffles	$200
Modeling and Testing	$100
Total	$500

Fundraising Goal	
Travelers	8
Approx. Cost per Traveler	$2,000
Down Payment	$200
Amount to be Fundraised	$14,400

VIII. Designation of Roles

This team has decided to assign roles for each team member, some shared with others. Below are the roles (some invented, some existing) assigned and hope to be maintained throughout the semester, with some adjustments always assumed.

The stationary roles are shown below:

- iGroups moderator – Ryan Bloom
- Agenda Maker – Trey Hurst, Philip Tam
- Secretary/Scribe – Dia Chatterjee, Miriam Schmid
- Farmer's Markets organizer – Mike Erie, Becca Waterloo
- Crop to Cup Liaison – Emily Esko, Vishal Patel
- Team Leader – Laurie Feldman, Becca Waterloo
- Farmer Liasion – Mark Swingler, Matt Abbott, Dia Chatterjee
- Professional Researcher – Clay Houser, Laurel Campbell

Appendix A: Group Contact Information

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Becca Waterloo [Architecture] oolretaw@gmail.com

Appendix B: Team Information & Skill Sets

Name	Strengths	Weaknesses	Expectations
Matthew Abbott	IPRO experience, design, problem solving, hard worker	Improve my organizational skills and checking the black hole that is my email more often	working with crop to cup while finding solutions that will help to meet everyone's goals, learning from the experience and being able to apply those lessons to future projects
Ryan Bloom	IPRO experience, flexibile, optimistic, creative, problem solving, presentation skills	working with another culture, focus, avoid distraction	staying focused, keeping our audience in mind, development of beneficial scheme for all parties involved, everyone participates
Laurel Campbell	Time management, adaptability, humor, research savvy, speed reader, efficient	Long term planning, technical details	everyone to communicate in a manner that allows us to develop the project to the fullest of its potential, enjoy the experience and contribute equally
Dia Chatterjee	Analytical, communication skills, organized, motivated, creative, team player	Impatient, workaholic, and task oriented	ensure that the team runs smoothly in the interest of the final deliverables and that as a group we remain accountable for our responsibilities
Michael Erie	Knowledgeable about the project, creative, problem solver	Focus, overcoming procrastination, keeping a cool head, avoid distraction	our project to be done by the end of the semester and ourselves ready to be in Uganda, ready to impress Jake
Emily Esko	Communicative, organized, versatile, hard worker, problem solver	Working with another culture. Impatient, occasionally prone to burnout.	address all aspects of our project, and avoid putting too much focus on one particular aspect, fully communicate with each other
Laurie Feldman	organized, communicative, creative, optimistic, mediator, efficient	focus, efficiency, cooperation	fill in the blanks left from the summer semester, not go off on tangents, and leaving the spring semester with a good starting point
Clay Houser	hard worker, dedicated to learning, motivated	improve communication skills, remaining patient	work on this project equally and evenly, everyone is to be held accountable for the work that they choose or are asked to take up.
Trey Hurst	IPRO experience, good with processing and organizing raw information.	procrastination, needs to respond promptly to emails.	team remains focused, united, and level headed. through proper planning there should be no reason for stress or burnouts
Vishal Patel	efficient, resourceful, mathematical & technical skills, excited, has Africa knowledge	Learn to voice my opinion, develop/improve on patience, develop a taste for coffee	have fun, learn new things while building a team, not calling it day after one task is done
Miriam Schmid	time management, team player, communication skills, problem solver, negotiator, adaptable	burnout, keeping focus, unpredictable procrastination	n/a
Mark Swingler	Attention to detail, creativity, presentation skills, achiever, responsibility, developer, focus	communication skills, working with a new culture, stay on task and prepaired	all of team sub groups working together cohesively towards a realistic sustainable solution to attempt to consider and satisfy all of the stakeholders and hopefully have a thorough solution by the time we go to visit the farmers
Philip Tam	Hard worker, team player, efficient	short attention span, management skills and communication in front of an audience	everyone get along and that the project will be completed with little to no faults, the rest of the team will be able to travel to Uganda during Winter Break
Becca Waterloo	time management, communication, creative, loud, efficiency, organization, willingness, natural leader	Procrastination, short attention span, burn-out, super senioritis	communication, making sure everyone's voices are heard, everyone gets the chance to be a leader, everyone knows their responsibilities and completes them on time, and get to Uganda.