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ENGINEERS WITHOUT BORDERS-USA
CARNEGIE MELLON UNIVERSITY
STUDENT CHAPTER

Project Spotlight: Coffee

It's time again for another Project Spotlight from the Engineers Without Borders chapter of Carnegie Mellon University! In this edition, we'll be giving you an inside peek into the Coffee Project, which only began last semester but has made leaps and bounds within a short amount of time.

The primary goal of the project is to find alternative ways for coffee farmers to supplement the income they earn from coffee beans. The farmers are forced to sell their coffee at very low prices due to external market forces. In order to help increase the farmers' standard of living, the project team has begun to research the possibility of using other parts of the coffee plant to generate profit.This added income is meant not only to boost the revenue of the farm but also to improve the pay of workers and their quality of life.

Coffee cherries are a natural byproduct of the coffee bean retrieval process that are usually discarded. However, the group has experimented with using the cherries to make alcohol, and has already made several batches of wine using the fruit and the juice of the cherry. This has been a difficult task because real coffee cherries cannot be imported very easily into the United States! Despite the differences in flavor and sugar content of coffee cherries vs. what the group is able to work with, the initial findings are still hopeful.

I was invited to try the samples that were available, and I was surprised by the fact that it was actually pretty good. The cherry juice was drier and had a much stronger alcoholic kick to it. The cherry fruits, on the other hand, produced a more mild, sweeter wine. A group member said, “Store bought wine is more smooth,” who had the luxury of having a professionally made wine bottle to sample as well. This is not to say that the engineers working on the project are not being scientific in their methods. On my visit to their “lab”, I was shown a slurry of measuring devices, pipes, funnels, and large jugs (below) that were all thoughtfully selected.

In the future, the group will continue to perfect the process, as well as look into other methods of income supplementation. One method that is currently being investigated involves composting the coffee cherries, but their high acidity makes composting them difficult. Regardless, the Coffee Project is well on its way to making a difference in coffee farming. Until next time!

Alcoa Grant for Zimbabwe Project

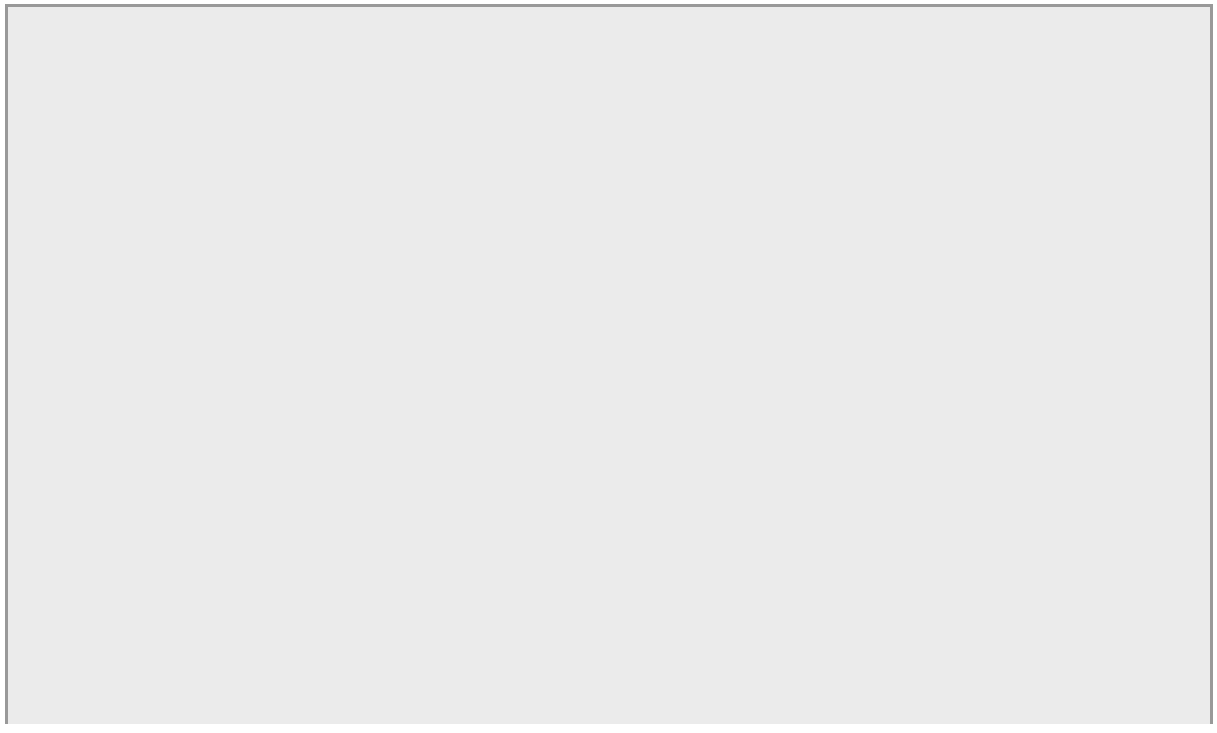
The Alcoa Foundation announced recently that Carnegie Mellon University Engineers Without Borders was selected alongside four other Engineers Without

Borders USA chapters to receive grant funding as part of the Creation of a Global Engineer Program. The program is designed to create and replicate the best practices of “learning through service programs” that develop skills in leadership, project management, communication, systems thinking and community and personal engagement. Carnegie Mellon University Engineers Without Borders will utilize its funding to support their energy project in Nyadire, Zimbabwe.

As a result, the team has been approved to perform an assessment trip in August. Three team members and advisor Matt Bovie will be traveling to Nyadire from August 15 to August 30 to meet the community members to understand their way of life, observe and map out the community, and take measurements of their current electrical supply. The research will be brought back to the team in August to begin designing a lighting system for the community next year.

The overarching goal of this program is to provide inexpensive and dependable electricity to the Nyadire community. The team will install exterior lighting systems to common outdoor paths which will increase safety and productivity of the community. Electricity is currently provided by the Zimbabwe Electrical Supply Authority, which is erratic and expensive. Frequently, electricity turns off and makes it incredibly difficult for civilians to walk around the complex after sunset.

General/Project Updates



This past month, the roof design group performed tests on their new roof prototype to assess if it’s waterproof, wind resistant, and durable in nature. The results were positive, and they are aiming to improve water tightness by creating a heated mold to shape the roof panels. In the future, they will also test how much weight the roof can hold since if must handle build up of plants and debris.

On April 4, EWB members returned to Emerald View Park in Mount Washington to pick up glass and trash, and clear undergrowth. They were preparing a plot of land for a herd of goats to graze on the park hills, a program run by Steel City Goats. Using goats for weed control eliminates the need for pesticides, fertilizes the soil, and safely removes poison ivy.

This semester, the fusing group designed and tested different models of mechanical connections between plastic strips and determined that having a thin runner through many wider strips is the strongest. Additionally, they began to brainstorm several basic ideas on how to automate the process of getting the runner through the strips and to test if zipties would be a good way to attach the sheeting to the frame underneath.

The latrines implementation team is traveling to Tingo Pucará May 15-24! The primary goal is to construct two public latrines. In their spare time, they will provide education on disease vectors and monitoring the existing water system.

A raging success that didn't receive the recognition it deserved in the last newsletter, Race to Zero pulled over 140 entrants into the 5K and One Mile Fun Run to support the joint efforts of UNICEF and EWB.

Thank you to everyone for this wonderful semester, and congratulations to all our graduates. See you in September!

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