

# Full Belly Times

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## Universal Nut Sheller Solves Malawi Cholera Problem

Tim Strong is a Peace Corps Volunteer in the village of Chilombo. The village development team was very concerned about the high incidence of cholera in their village. The team was discussing the problem with Tim and asking him if he could help them formulate some possible solutions. A well was their best hope, but how could they conceivably afford the cost of drilling a well deep enough to reach clean water?



A couple of days later during a meeting with Brian Connors, the Peace Corps Assistant Country Director, Tim related the concerns of the villagers. Brian suggested that Tim take a Universal Nut Sheller back to his village to show the development team and to see if there might be a way to utilize the UNS to resolve the water problem. While Tim was demonstrating the UNS to the development

team, a farmer from the area came by.

The farmer, seeing the UNS in action, asked if the villagers could shell some peanuts for him. They agreed on a price and he brought them 3 tons of peanuts. **The village shelled them in three days!** The farmer could not believe it and asked if they could shell 6 more tons. They said yes, and a week later the peanuts were shelled.

Seeing the potential to perhaps make enough money to fund a new well, the villagers moved the UNS on a bike through the rivers to three other villages where they shelled another 21 tons of peanuts. The village raised enough money to pay for half the well and received a matching grant that covered the cost of the well. Clean water is a reality now for the village of Chilombo.

**SAVE THE DATE - February 21, 2009**  
7th Annual Full Belly Fundraiser  
Coastline Convention Center

**Full Belly Family Fun(d) Day**  
Saturday, September 13  
11am-3pm  
Hugh MacRae Park  
Picnic Shelter #2

**BBQ/Fried Chicken plate \$8 - Children's Games**  
Displays, Music & Fun

## Ming's Magic High Tech creates Low Tech

Magic and excitement have been brewing all summer in the Full Belly workshop.

For nine weeks, Ming Leong, a rising MIT senior, served as an intern with Full Belly staffers, Jock Brandis & Jeff Rose. Ming worked her Magic by utilizing cutting edge technology to create and modify Full Belly-style simple low tech devices.



Ming is enrolled in MIT's "D" Lab, a project design studio course under the auspices of Dr. Alison Hynd and MIT's Edgerton Center. "D" Lab (Development, Design & Dissemination) students work on projects aimed at helping communities in the developing

world. Several years ago course coordinator/instructor Amy Smith recruited Jock as a mentor for students in the Lab. Students work on campus and also take their inventions straight into their clients' communities for testing and refinement, traveling anywhere in the world to work.

Recently FBP received a request from Brian Connors, Peace Corps Director in Malawi, who coordinated the construction and distribution of the Universal Nut Sheller throughout his region. He asked Jock to

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## Update from the Field - Mali Jatropha Project

We recently returned from Mali. Full Belly was invited to help find a key 'missing link' in the jatropha biodiesel project of Mali Biocarburant – a Dutch NGO partnered with 87 farmers' co-ops representing 1,025 farm families. What we got involved with was a project almost too good to be true.

Mali Biocarburant, provides jatropha seedlings free to the farmers. These are planted in areas where the soil is too poor for food crops or even grazing. Jatropha has a 20' tap root that makes it very drought resistant. After the food crops have been harvested in the fall, the farmers collect jatropha at their leisure. A truck is sent to each village with a high efficiency oil press on board, a filtering

system and a tank. The oil is pressed in the village and the farmers are paid on the spot by the litre. As an added bonus, the waste solid material that remains after pressing, the 'jatropha cake', is an excellent fertilizer. Farmers arrive with bags of whole nuts and leave with cash and sacks of fertilizer for their food crops. Because the jatropha plant is quite poisonous to insects, the fertilizer is also a bio-pesticide for grubs, locusts and termites.



The crude oil is brought back to the factory where it goes through a de-ester process to

make it into top grade diesel fuel. The two big oil companies, Shell and Total, fight for the chance to buy it and mix it into their delivery chain. Last year, with the plants still small and yields low, 1 million litres of oil were sold and each farming family got an average of \$200US in extra income, an income boost of about 50% and about \$1 million stayed in the country. Mali

Biocarburant expects this harvest to double those numbers and plans to set up 3 more factories in Mali. Next year they are expanding the business model to 4 neighboring

African countries.

**So where does Full Belly fit in?** It was the perfect system except where the low tech village met the high tech oil press. To husk the jatropha, the villagers threw the jatropha pods on the ground and flailed them with sticks. It was slow, but even worse, when they scooped up the seeds, they also scooped up sand and gravel that severely damaged the oil press. Husking by hand was out of the question. FBP arrived with molds and made several modified Universal Nut Shellers. The simplest hand turned machine husked 252kg per hour without the product touching the ground. That means one

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## Volunteer Spotlight

The Spotlight for this issue shines on a very special volunteer who has been with Full Belly since its inception and has devoted countless hours of time, expertise, and hard work to the project.

**Melon Corsini**, a Returned Peace Corps Volunteer who served in Liberia, has graciously donated hundreds of hours each year, preparing and serving the delicious, international food at our annual fundraiser. She managed to work in the tiny kitchen at WHQR for our first couple of fundraisers, and still produced a beautiful feast for about 90 people.

This past year, at our *Feast Against Famine*, she, along with chef Jane Bace and many wonderful volunteers, produced an incredible meal for over 300 people.



Melon has taken many days off from her personal catering company to prepare the meals for our fundraisers. Other volunteers who have worked with Melon in her kitchen in Supply, as well as the kitchen at the fundraisers, always say how much fun they have had working with Melon and how much they would like to volunteer with her again the following year.

And it's not just the kitchen where Melon shines; she was also instrumental in introducing FBP to NC Women's Club, which this year has adopted us as a project to support.

She is a fantastic volunteer as well as a wonderful person with a huge heart. We are ever-thankful to have Melon as a Full Belly Volunteer!

## Letter from the Executive Director

The Full Belly Project opened our doors and hearts to the UNC Chapel Hill AP-PLIES internship program for the first time, and I am pleased to say that all involved had an incredible experience. We had a wonderful group of girls who worked on a variety of tasks for us. One group developed an interactive map so we can make better educated decisions on where and why we would select our next ventures abroad.

The Interactive Map provides each board member with basic facts and figures on the world's 20 poorest developing nations, as determined by the United Nations. It provides local crop figures for all the crops we currently work with. It also includes malnutrition rates that were provided at the regional level. All this information will be utilized by The FBP Board of Directors to plan future operations abroad.

We also had the good fortune of working with a Public Relations intern who obtained permission to use a song from the "Blood Diamond" soundtrack for promotional purposes. Keep a lookout for this powerful song on our website in the near future.

We have had a wonderful time hosting Ming Leong, our MIT Fellows student. Ming has worked all summer long on a new version of the Universal Nut Sheller. Read about her work in the article "Ming's Magic." She has been invaluable to the ongoing research and development aimed at improving our UNS.

All of these interns humble me with their energy and enthusiasm to help Full Belly continue to grow. I would like to thank them for their dedication and hard work. It is greatly appreciated.

*Jeff Rose*

### Ming cont

modify the Sheller to a three-quarter size and to make it lighter so it could be transported more easily by bicycle from village to village, giving more people the benefit of a single machine. Ming took this project and worked her magic-tying into MIT's sophisticated CAD programs to create the design, then constructed molds and a machine with the aid of Full Belly's 100 year-old low tech lathe. This mid-size design proved to be less expensive to produce, required less cement, and consolidated some of the sizing mechanism into its basic construction.

Throughout Ming's nine-week sojourn in Wilming-

ton, she also became a Cement Guru, cooking up "cement cakes" with various ingredients ranging from tapioca to Styrofoam to determine the best combinations to create machines designed for different situations. Not only did Ming, a computer whiz-kid, generously lend her computer expertise to her computer-challenged host family; she also applied her expertise to a sun-flower seed sheller, a soon-to-be cement water-pump, and other on-going projects in the shop. And in her "free time", when she wasn't at the beach (LOVES the beach!), Ming took Chinese lessons, joined a local craft group, and discovered Wilmington's Cinematique movie offerings. At the end of July she officially became a member of the "Full Belly Family" at a good-bye bash. Thank you, Ming, for all your help!

### Jatropha cont

UNS can process the total crop from about 1 hectare, (about 2 acres) in one day. The villagers all acted like they had just won the lottery. Without the UNS, the husking would have had to happen in the central factories, the value added and the fertilizer would have gone elsewhere, and the farmers would have little to show for their efforts. While we were there, delegations from all over Africa came to see, first hand, how this system works.

After husking jatropha, we adjusted the UNS and shelled the local shea nut crop at almost the same rate. Hence, one machine for two of the village's biggest cash crops.

The concept of the subsistence farmer is out-dated. Every farmer in the world is

somehow involved in the cash economy. We realize that people in the large semi-arid areas that can hardly produce food can feed their families by **earning** the cash it takes to **buy** food. If there were ever a crop that could hold back the Sahara Desert, it is jatropha. There will never be a surplus of vehicle/generator/water-pump fuel. A cheap, natural fertilizer that isn't petroleum based could be a big food breakthrough.

FBP's UNS has become far more than a nut sheller – it has become a major source of income for farmers all over West Africa.



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