



The Atkins Family

Jason, Emily, Savannah,
Nathaniel, and Miriam

Serving in Guinea-Bissau with



May 2018

May In Guinea-Bissau:
The month fueled by
delicious mangoes!

Finishing Filters At Lightning Speed *by Jason*

One of my favorite kinds of work is automating, mechanizing, or streamlining a task that's being done by hand repeatedly. There's something immensely satisfying to me to know that my bit of initial work will save minutes or improve output every single time it's used, over and over again.

As you read last month, we are encouraged beyond words to know that the filter factory is now making water filters that are actually filtering out and killing bacteria! Now, the task ahead of us is one we've looked forward to reaching - rather than trying to figure out if we're able to make effective filters, we move on to figuring out how to make effective filters fast and cheap enough to blanket the country with them. Many improvements have already been made along the way, one of the biggest being the rework of the mortar mixer to allow mechanization of mixing the dense clay slugs instead of wearing out our workers doing it by hand. Now, we need to pick up the pace of improvement, organize our workflows, and start to get the factory operating like a well-oiled machine.



Pretty happy not to have to tackle that by hand with a hacksaw!

Below: Flywheel shaft ready to be cast into concrete.



This month's project toward that goal was a pottery wheel! The filters are made by putting a slug of clay into a hydraulic press to form them. Once they come out of the press, the walls of the filters need finishing to smooth them out, both for aesthetics and to toughen them up for the intense heat of the kiln, where they go after drying for a week.

Currently, the filters are finished by running the back of a soup spoon up and down, up and down, all around the outside of the filter. The process takes longer than it should, and also leaves vertical ridges in the outside wall of the filter. The professional way of finishing is to throw the filter onto a pottery wheel and pull a wet piece of sponge up the inside and outside wall while the filter is spinning. The whole process should take 15 seconds each and end up with a much smoother end result than the spoon method.

Unfortunately, there doesn't seem to be a commercial pottery supply place anywhere around (haha...), so it was time to head to the shop! I cut a scavenged van rear axle in half, cleaned it up, machined one of its gears flat, and had the beginning of the rotating element, complete with heavy bearings! The flywheel will be a sizable chunk of cast concrete, powered by a good kick.



Our housemate Jenna and I peeling and chopping the awesome local mangoes to fill the freezer!



Centering the concrete form before pouring the flywheel.

Finishing Filters (cont'd) by Jason

One of the big focuses of the rest of 2018 will be helping get the filter factory's production up to a level that will let us begin selling the filters throughout the country. It's been a long road, and there is still lots left to be done, but it's going to be very exciting to see the first filters finally available for sale to the public! Other countries where these filters are being produced have seen significant reductions in waterborne diseases, and the accompanying increase in general health. We pray for the day when this will be true for the people of Guinea-Bissau as well! We sincerely thank you for the support that allows us to be here to help with important work like this. It's a privilege to serve here in Guinea-Bissau (especially right now in the middle of mango season!)



It's always fun to get under the flaky, grubby rust to find the shiny, new-looking metal inside of scrap!

Old Made New

by Jason

Robert is a Ghanan who runs one of the bigger outdoor welding shops here in Canchungo. He pops by periodically to see what we're working on or to marvel at whatever new piece of equipment we've added. I have a soft spot for him because he does amazing work using a pretty basic setup.

One of the disadvantages he works under (along with most of the rest of Guinea-Bissau) is the lack of a power grid—he has to run his whole shop from a generator. Last year it broke, and I machined him a good-enough-to-get-by-for-now adapter to mate a different motor to his generator to get him running again. That part finally failed recently, but got him through the year until he could save some money to have it done right. It was a fun challenge to take scrap metal and make a new one that didn't have any welds to fail like the last one. I was pretty proud of the result, and he says it's been working well for several months, purring along.



Robert and his assistant at his shop.



The final cleanup passes with the two pieces married together.



Weathered a year and having been rewelded a couple of times, the old part is ready for retirement. The new, much more solid one, is ready for service!



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