



The Atkins Family

Jason, Emily, Savannah,
Nathaniel, and Miriam

Serving in Guinea-Bissau,
West Africa

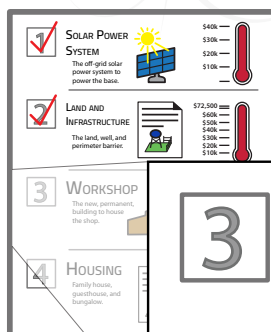
June 2020

The well is sealed, we pray
for safe drinking water for
ourselves and our
neighbors for a long time!

Powering Construction by Jason

The off-grid 16kw solar power system which was the first phase of our fundraising campaign arrived safely as part of the container in March. Though we don't yet have a place to mount the full system (it will go on the roof of the yet-to-be-built shop), it was a giant blessing to be able to install a small version of the system on top of the roof we built over the shipping container, which is

now providing power to run security lights and charge phones and tool batteries at the site. We're even able to do some sporadic welding, which is a huge help! Arranging for the basics: water, limited electricity, storage, and equipment (such as the cement mixer) to be all ready at the site is really helping all of the construction move forward smoothly and relatively quickly. We appreciate the blessing of equipment and funding to be able to undertake such a project, and look forward to it blessing many people in the future! Thank you so much for your part in this growth!

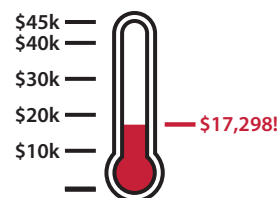


New Base Fundraising Progress

3

WORKSHOP

The new, permanent,
building to house
the shop.



Sealing The Deal by Jason

Though at several points it seemed like it would never end, I'm happy to announce that we have completed the process of sealing the hand dug well at our new base! Having the well dug was the first thing we did at the site, knowing that we'd need a lot of water for (mostly masonry) construction. Generally, hand dug wells are the go-to choice for getting water as cheaply as possible in Guinea-Bissau. Unfortunately, most of them aren't properly sealed, and end up contaminated. The well at the house where we currently live, for example, has more than 500x the U.S. acceptable level of E.coli. That's the reason the drinking water filter factory project is so important.



A misunderstanding caused us to have to dig a pair of access holes on either side of the well to retrieve gravel mistakenly placed too close to the surface. Once rectified, the access holes were filled in with dirt as the space 4" around the rings was filled with concrete.

However, we chose a hand dug well not because good water wasn't worth the price of a drilled well, but because our geologist was worried that only a few hundred feet back from a salt water river, we'd likely hit salt water before getting deep enough to make a good drilled well. So, we made the choice to spend some of the savings of a hand dug well compared to a drilled well to buy a pair of extra parcels of land just above grade of the well, to make sure no future construction could be close enough to contaminate the well with a pit latrine or the like. We still wanted a properly sealed well though, to make sure we'd be producing healthy water.

The process of sealing the well, I have learned, is mostly about making sure that no surface or shallow water can find a shortcut down to the depth where the well is pulling water, in our case about 35'. The well is lined with a stack of concrete rings, but in order to seal the well, we needed to make sure no water could leach down the outside of those rings without going through the sand and rock in the ground, bypassing the filtering it gets along the way.

After several weeks of work and 50 patient emails from the geologist coaching us every step of the way, we are done! The space between the concrete liner and the dug hole has now been painstakingly filled with washed gravel, bentonite, and concrete, and then capped with a slab and a lid, to make sure that any water that finds its way into the well has been properly filtered by the ground on the way down.

Sealing The Deal (cont'd) *by Jason*

With a general lack of science education teaching how diseases can be in water that looks clean and clear, I had the sense that several of the guys helping us do the work thought we were wasting time—after all, we had already had plentiful water from the well that looked clean. However, we've reached an important milestone! Though we'll continue testing to monitor it, this well is providing the first tap water we've had in Guinea-Bissau that doesn't have dangerous bacteria! Lab testing in California will hopefully confirm that there aren't any other chemicals present in the water that would make it unsafe to drink, so if everything checks out there, for the first time living here for 14 years, we'll have tap water that's safe to drink!

Thank you for helping provide the resources necessary to build a well that will provide safe, clean water to our family, guests, and neighbors (who have already been coming to get their drinking water)!



Most of the work was under the surface, but we ended up with a nice slab near where we hope to eventually build the guesthouse, so this could turn into a nice covered spot to hang out.



The (Hopefully Final) Pump Repair At The School *by Jason*

In other water-related news, I spent some time working on the WAVS school water system. It seems like it's been an annual appointment since we got out here, with the well/pump system breaking at least once a year. Each time the problem presents itself a little differently, but they all originate from the same root issue—the pump is in a hand dug well that wasn't properly constructed, so it's too shallow and murky. The saga has continued each year as we get it working again, trying to improve what we can (replacing a pump here, motor there, changing to a smaller, slower pump, constructing a well-within-a-well to help filtration, etc), only to have it eventually fail again.

I have high hopes for this round of fixes to be a permanent solution, though! WAVS recently had a fundraiser to drill borehole wells at both the current school in Canchungo and the new campus they're building in Bissau. Now that we're putting a repaired pump into a properly sealed, drilled well, hopefully it will be operating in a cleaner environment and provide water for a long time without needing attention!



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