



The Atkins Family

Ministering in Guinea-Bissau
www.jasonandemilyatkins.com
jatkins@myyfc.org
eatkins@myyfc.org



Putting things back together after a lightning strike and a kiln collapse

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Swapping out wiring and circuit boards in the solar power system

My trip to Guinea-Bissau, December 2-23, had two primary projects: the WAVS school's solar power system and the drinking water filter factory. God's grace was evident through the trip as a lot was accomplished without injury, sickness, or lost luggage. Emily and the kids stayed with her parents in Little Rock and our family was thankful to be able to be together for Christmas!

WAVS school's solar power system was hit by a crippling lightning strike a few months ago which disabled enough of the system's components that the school was forced to run a generator for all of their welding school's activity, and carefully limp the solar system along to supply the computer and language programs, as well as the administration. The school is accustomed to the solar power system providing 100% of its energy needs and supplying my shop as well. Working without it was incredibly expensive (fuel for the welder/generator is around \$20 per day, and the welding program only collects around \$450 per year in tuition). Fortunately, armed with some spare parts, I was able to spend three weekends in Canchungo to fix the



Jason helping to rebuild the kiln at the drinking water filter factory



The kiln during the rebuilding process - almost finished

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system. The time and parts were not enough to be able to restore the system to 100%, but were enough to allow the school to operate completely from the system until we return in March. It won't supply my shop (as it stands now), so we'll take more parts back with us to try to restore that functionality so I can start working as well.

The primary purpose of the trip was to help rebuild the kiln at the drinking water filter factory, fix a critical alignment problem in one of the main pieces of equipment, and assist with logistics for the potter, Kai, who also returned with me. I'm happy to report that we were able to get the kiln rebuilt (and reinforced to prevent the kind of failure that caused it to fall in the first place). The kiln originally failed during its first firing. The rebuilt kiln had successfully undergone three firing cycles by the time we left and showed no signs of distress, so it looks like it should last. (Kilns like this are apparently designed to be periodically rebuilt after every few hundred firing cycles.)

We were then able to fire the first few batches of filters. Kai was able to train us on the quality control steps necessary to ensure we're making effective filters. Rejects are recorded and destroyed on the spot. Unfortunately, this process revealed several problems with both the English-made press and the technique being used to form the filters. With the proper equipment at hand, it only took a few days of thinking, analyzing, cutting, and welding to correct the problem in the press. Its design has some inherent inaccuracy, but we're hopeful that the changes I made to it will allow it to make good filters. If it continues to be an issue, some re-engineering may be in its future.

Though not revolutionary, the trip was a solid step forward for the filter factory and a help for the school. The factory can now advance to its next step of determining a final "recipe" for its filter mix and begin a normal production routine. We're hopeful this small project can make a sizable impact on the health of Guinea-Bissau and be a useful instrument in the hands of the Church to show God's love in a practical way! We appreciate the generosity of our donors, allowing us to be available to help these kinds of projects!

Jaxon + Emily



The drinking water filter factory



Stacks of finished filters



This is what the inside of a 1,850 degree kiln looks like.



Water filter quality control testing in the dunk tank