

Mali and Afriqpower Four Years later

By Richard Komp

Since I last left Mali, I have been working in other parts of Africa, including Rwanda. On my latest trip to Rwanda, I arranged to make a sidetrip to Mali to see just how Afriqpower and my orphan friends have been doing in the four years since I was last there helping them start up their solar cottage industry. Most of the orphans I worked with are still with Afriqpower and the company has gotten very big and professional. They are still manufacturing photovoltaic (PV) modules in quantity and have quite a good business designing and installing PV systems, although the bulk of their projects are community systems paid for by outside non-governmental organizations (NGOs).

I was met at the airport in Bamako by Afriqpower's driver and taken to the Italian Council, Lorianana's home. Afriqpower now shares a building with the Italian Consulate on the outskirts of Bamako, right next to where the Chinese are building a new expressway bridge across the Niger River.



Daniel Demble showing me the locally built PV grid-intertie backup power system on the roof of the Afriqpower headquarters. In the background is the bridge being built over the Niger River as Chinese foreign aid. I suspect that the Chinese are after Malian mineral resources, probably the rare earth elements needed in wind generators and electric cars.

Since I was only going to be in Mali less than two weeks, I spent most of my time traveling around to the different villages where Afriqpower has projects, both completed or in the process of being designed and installed. I went on an installation trip with the crews of orphans and the new interns that they are training, and was very impressed by their professionalism. In this one day trip, they installed two different systems: one at a women's birthing center and another at a mosque in a different nearby village. The two crews, traveling in the two SUVs owned by Afriqpower, went right to work on their separate projects and each member knew exactly what to do. They quickly mounted the 60 watt PV modules on the roofs and wired up the buildings for 12 volt solar electricity. A very neat job – they cut slots in the masonry walls for all the wires and used conduit and junction boxes throughout the work. When they were finished, they plastered up the holes and repainted everything so the wiring is totally hidden in 1st World middle-class standards.



Preparing the two 60 watt PV modules for installation on the women's birthing center.

While we were there we also checked out the solar powered well, health clinic solar electric and school lighting systems that had been installed earlier. The well was working perfectly, as was the special vaccine refrigerator in the health clinic, but the school electric system had a bad battery (although the other batteries and the rest of the school's PV system was functioning perfectly). It turns out that one of the teachers was in the habit of taking that one battery home to run his TV set in the evening and it never got recharged properly the next day. Daniel

Demble, the head of Afriqpower, explained that the school was going to have to pay for the new battery.

I also went on a couple of trips on my own, with just the Afriqpower driver. On one of these trips I visited a village we had visited in my second trip to Mali back in 2006. At that time, we had traveled with an Italian Rotary Club who promised to build a school and wire up all the community buildings in the village, as well as install a solar pumped water well.



One of the solar powered village wells that have been installed by Ji Duma (Loriana's NGO) and powered by an Afriqpower PV system. Ji Duma has installed about a dozen of these solar well systems by now.

All this work has been accomplished and I checked out the well and talked with the very dynamic woman who runs the birthing center in the village. One of the projects that Loriana and the birthing center women engage in is educating the village women on the dangers of female circumcision, which is still widely practiced in Mali. This work has already made a difference in these villages and I got to witness (from outside the window) one of these women's classes in progress. I also checked all the water faucets in the village and used my multimeter to verify that all the PV systems in the village were working properly. Everything was working just as it should and Mary Graham of the Practical Small Projects NGO has documented the substantial gain in academic achievement in the village children.

While I was there, the orphans asked me to teach them about light emitting diode (LED) lighting. One of the Afriqpower workers is an electronic genius and all I had to do is show him the circuit diagram of the LEDs and a simple electronic circuit to control the power to the diodes. Normally, people use special integrated circuits they buy from the 1st World for this purpose, but I showed him how to measure the voltage drop across each LED and then use Ohm's Law to calculate the circuit values. The next morning he had a bag of LEDs that he had bought at one of the street markets and two derelict TV chassis to rob for parts.



The Afriqpower electronic genius testing the working LED lantern light he just made.

He taught all the orphans how to build these LED lantern lights for either 6 or 12 volt battery lanterns and then had them all build their own LED lamps. The evening before I flew back to the US, we had a special *bon voyage* dinner at Lorian's home. When I walked into the dining room, the entire room was lit by six of these LED lamps running off of a 12 volt motorcycle battery. Even though the entire system was drawing only 4 ½ watts, the soft, warm glow was very pleasant and bright enough for dining at the large table set for 12 people. As a last project, I also worked out all the details of how to build a solar air conditioner to cool the Italian Consulate from the 105+ degree Malian heat. The plans were finished right down to the list of all the parts needed - another future Afriqpower offering.