

SAIWI Trip Report: Kenya 2011  
May 12- June 14

Over the course of a month SAIWI planned to host two well drilling workshops for two communities in Kenya. The wells were expected to be ~30 ft deep through relatively soft sediment. In Reno we drill about 25ft in a day, so we expected these wells to be relatively quick and simple, but just in case, we decided to leave ~2 weeks for the completion of each well. With that much leeway it should be easy to complete, right???

May 15<sup>th</sup> - May 24<sup>th</sup>

Our first project was in western Kenya, just east of Kisumu. The orphanage lies outside of Kisumu in a town called Ahero and is home to 11 children who come from across the country.

We were originally told this well would be a community well, but upon arrival we found ourselves committed to a project that was utilizing a top-down approach that paid workers to drill the well. SAIWI was being used as a funding source and free labor. Far from ideal, it was frustrating to be contributing to this well and project that was not community-based. But, we were able to provide some much needed assistance and help train local farmers.



**Children playing with bubbles we brought**

The first day we went 7 feet through the topsoil and then hit a hard laterite formation. We were told the laterite formation would probably end around 15 feet, but once we got to 17ft and were still struggling through the hard rock we were told that we could expect the laterite layer to extend to about 50ft and the water table would be closer to 100ft versus the original quote of 30ft - good to know! This harder rock layer proved to be challenging for the sub-standard materials that we had, allowing us to drill only 1-3 feet a day. Although the rock was hard and drilling slow, the biggest time delays were a result of broken materials. Broken pipes and stripped threads cause the drill bit and attached pipes to fall into the hole – making retrieval difficult. Once the parts are “fished” from the hole, they then need to be brought into town and welded. Assuming the welder is available and the electricity is on the parts can be welded. As it turned out, we became very friendly with the welders in each town we visited!



**Left: Drilling. Center: Cooking lunch in the kitchen. Right: Fishing for a broken piece.**

So, after all of the delays we reached 37 feet in nine straight days of drilling. With our allotted resources for this project running low, we decided to leave a few days early so we could visit some past SAIWI projects and leave plenty of funds for our second site in Matuu. After nine days of working the drillers were all trained on the manual method and our host organization offered to cover the remaining funds for the well so we comfortable leaving this project and reenergizing for our next well drilling workshop.

This experience gave SAIWI an excellent opportunity to learn and grow as an organization. Although we tried to ask the right questions before committing to this project, we obviously didn't share the same values and approach to development. SAIWI students also got first-hand experience with the manual well drilling method and we got particularly good at troubleshooting. Our faculty advisor, who has used this method to drill over 25 wells throughout SE Asia, Africa and S. America has never seen pipes break, which became a daily occurrence. In addition, the community members learned how the process works and the technicians refined their manual well-drilling skills.

May 24<sup>th</sup> – May 27<sup>th</sup>

We took the long route to Mua Hills so we could visit wells that SAIWI had drilled on past trips and have a game drive through the Maasai Mara. In Robondo we toured the school, health clinic and town and saw the two wells that SAIWI had drilled in 2004/2005 as well as the rainwater harvesting system that was installed at the school, all of which were in working order. The next day we drove through the Maasai Mara. The landscape is unbelievable – vastly large. All of a sudden a six-ton elephant doesn't look so big. Considering we literally were driving through the park we had great luck and saw all the big game animals, including three lions, a lioness and four cubs. The following night we arrived in Mua Hills at Muthoka and Agatha's home. For those of you who have not met Muthoka and Agatha, I am sorry, you are missing out. Muthoka and Agatha grew up near one another in Kenya only to find themselves in the same program at UNR, which is where they met. As Kenya citizens, Muthoka and Agatha spend about a month each year at their home in Mua and help facilitate community development projects with a local Reno non-profit: International Development Missions (<http://www.intdevmissions.org/>) and SAIWI.



**Left: Maassai Mara National Park. Center: One of two wells SAIWI completed on past trips. Right: Simba!**

Reenergized after a night of being spoiled with solar showers and delicious food we headed into the industrial center of Nairobi to get the necessary materials before heading to Matuu. Sidenote: driving in Nairobi is an experience in and of itself- a city of over 3 million and not one traffic light, well not one that is used anyways.

May 28<sup>th</sup>- June 13<sup>th</sup>

We finally arrive in Matuu! Our gracious host, Peter, is a friend of Muthoka's. Peter's home has three separate buildings, two of which they have filled with beds for our stay. The tour is pretty simple, three buildings, a pen for the goat and cows and a pit latrine. When we arrive Peter exclaims that when we finish we will be able to choose which goat to slaughter for the celebration. At first I think, oh that will be tough, especially after living with them for the two weeks, but I quickly change my mind. The first night none of us sleep, a goat is not happy and is complaining all night long. Around 3 am I announce to my roommates, "I know which goat we're killing" to which another responds, "and I know which rooster will be the first to go." Despite the lack of sleep we were excited to start this well and we had a very productive first day. Half of the group went into town, which is a 45 minute drive down a road that would require 4-wheel drive in the US, but we are in Kenya, so you make do with what you have. Peter is able to keep from bottoming out most of the time, but the flat tire is almost inevitable with each trip. The other half of the group stays behind to begin setting up the drill rig, which we complete that day and begin drilling. So far so good!



**Our home for two weeks**

Unfortunately, drilling for water requires water, so once the drill rig is set up we must then collect a lot of water. The community's contribution to the project is fetching water, which is no small task. The riverbed has been dry for twenty years so the community has dug down to the water table in the riverbed and they fill their jerry cans from these watering holes. Not only is it important that the community be invested in the project for its sustainability, but we are also incredibly inefficient at fetching water. It takes us probably 2-3 times as long as the Kenyans and (at least when I did it) most of the water spills out by the time we can carry it back.



**Left: Collecting water. Center: Setting up the drill rig. Right: Carrying water to the drill site.**

On day two we are able to drill through the topsoil before hitting a hard sandstone layer. We drill down to 8 ft before we have our first piece of equipment break- the drill bit. Despite the drill bit sitting at the bottom of the 8 ft hole, we are feeling very confident that we'll finish this well in no time, especially since we have 14 days left and only 22 ft to go.

Although we tried to get stronger materials for this well, we still found the equipment to continually fail. Fishing the drill bit out of the hole on day 2 turned out to be one of eleven items that would have to be rescued from the hole. Based on the amount of time it takes to fish out the broken materials from the well, SAIWI should maybe reconsider labeling the trips as fishing trips, but that probably wouldn't draw the same funding...

We spend the next two weeks drilling, fishing, welding, drilling, fishing, and welding. At 4:30 pm on June 8<sup>th</sup> we realize the very tip of the drill bit has fallen off and is sitting at the bottom of the 26 ft hole - a "bit" of a problem! We spend the next couple hours trying to retrieve the bit, but without an edge to catch it on, we are unsuccessful. Darkness quickly forces us to give up for the night, although we know the suspended sediment in the well will settle overnight and bury the bit. We spend the next few days designing new fishing tools and trying a variety of methods to bypass the bit. Peter finds us a magnet that he got from a car speaker. We try over and over with magnet to no avail. During these 12-hour days under the hot sun we end up going a "bit" crazy; our alter egos come out and we create the "Drill Squad" and the bad puns just keep getting worse. Finally, on June 11<sup>th</sup> we are able to rescue the bit!



**Left: What the borehole saw when we expressed our frustration to it. Center: The tip of the bit that broke off. Right: I guess we were entertaining because this is the crowd we'd draw.**

On June 12<sup>th</sup> we awake and state "today is the day" although we have been saying this every morning for the past 14 days, on this day, it actually happens. After going through 1 ft of clay we finally hit the sand we've been waiting for and that begins to signify the top of the aquifer. The group decides it is in everyone's best interest to stop drilling at the top of the aquifer. The following day our plane leaves and Peter will be leaving for 3-weeks, so instead of drilling through the sand and risking the well collapsing over the next 3-weeks, we decide to accept the inevitable and stop drilling.

Having invested so much in this project, not only over the course of the 15 days, but over the past 2 years of planning and fundraising, it was hard to accept that we would not be there for the completion of the well. However, the community is committed to this well and they now have the

knowledge and materials to finish drilling. In addition, Nik, a peace corps volunteer stationed in Matuu who joined us for the 15 days, offered to assist Peter with completing the well when Peter returned. So knowing this definitely helped our SAIWI members with letting go and saying goodbye.

On July 13<sup>th</sup> we said our goodbyes and began our 40hr trip home. Smelling less than pleasant I felt bad for everyone we sat near on our flight home! Unfortunately, we were unable to see the completion of either well, but it was a great experience, not only for us but I believe for the two communities as well. We all learned a great deal and we were able to impart the well-drilling knowledge to others. This transfer of institutional knowledge may perhaps be the most successful and most beneficial part of this SAIWI trip.

We are extremely grateful for all the support we received, from both our donors in the US and from the Kenyan community – truly a remarkable experience!



**Group photo: Peter is holding the sign that says “thank you” in Swahili**

For more photos and a couple of videos you can visit:

[https://picasaweb.google.com/105182535789636228346/Kenya2011?feat=content\\_notification](https://picasaweb.google.com/105182535789636228346/Kenya2011?feat=content_notification)

Nik also has a post about his two weeks working with SAIWI on his blog,

<http://kenyabelieveit.wordpress.com/>