

The Indian Thread

eMi² Newsletter, October 2005



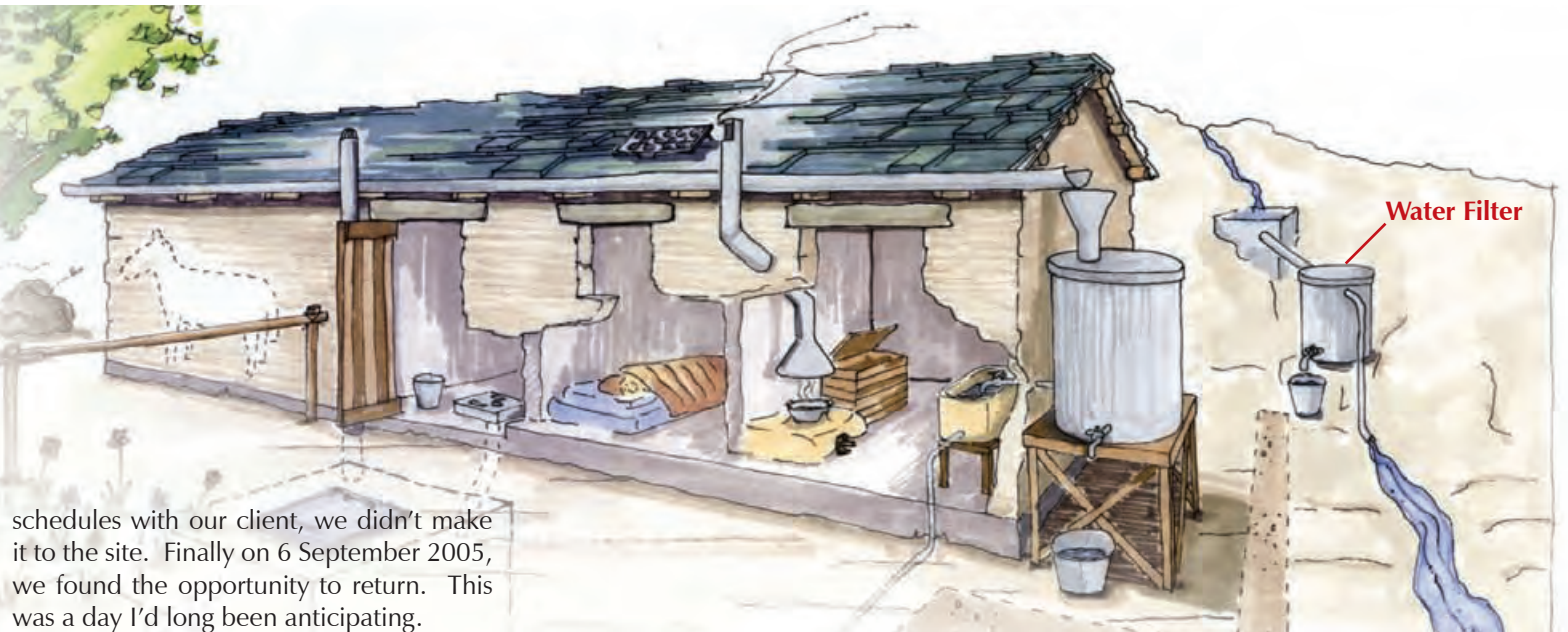
On a beautiful day in November 2004, I accompanied our client to a village home in the Garhwal Himalaya. He wanted to show us the living conditions of the people of this region. At that time we were assisting him by developing a brochure which illustrated solutions for development - communicating ideas such as rainwater collection, structural improvements to the homes in this high risk earthquake zone, basic sanitation, and solar powered electricity.

As we parked the vehicle I noticed that a stream was flowing across the road and down past the house of Subhash and



Brahmdevi, the couple we were visiting. Cows were walking through the water as I watched. I observed that the family collected their drinking water from this stream without any treatment. As we were served chai made from the water in the stream, I saw the perfect opportunity to try out one of the technologies we would later show on the brochure: a small sand filter housed in a bucket that I had designed to be constructed out of locally available parts. Biologically it is designed to be capable of removing up to 90% of pathogens found in surface water, a definite improvement on the water quality the family is currently using.

Back at our office I found a little time to work on the bucket filter with Ratan. A few weeks later we had all the parts ready to go at a cost of Rupees 150/- (or about USD 3). A lot of time passed and the filter sat in our hallway and eventually was relegated to the "go-down" (basement). With other projects going on around India and conflicting



schedules with our client, we didn't make it to the site. Finally on 6 September 2005, we found the opportunity to return. This was a day I'd long been anticipating.

Subhash mixed and placed concrete for a small pedestal next to the stream. Matt Correa (eMi² civil intern) and I assembled the filter. It consists of a sanitized plastic bucket with tap installed at the bottom. Gravel makes a 3" thick layer at the bottom, then a cloth is placed on top of the gravel. Clean sand fills the remaining depth, leaving room for an overflow pipe. A lid designed to keep out the light and to allow air circulation is installed on top with a garden hose serving as the inlet pipe in the lid. A wire mesh window screen is

wrapped around the end of the hose serving as the in-take and set firmly in place in the stream uphill from the filter.

After installation, water was soon coming slowly through the filter. The family immediately noticed the improved clarity of the water. It would actually take days for the biological membrane to grow on top of the sand and begin to remove pathogens. Brahmdevi collected water from the filter and boiled it to serve us chai and we enjoyed that together. We left that day with the promise to return in a few weeks and

check the performance of the filter. We are now working with a local pathologist to do some testing and evaluate this simple technology to determine if it is an effective technology for this region. If it goes well, our client will begin using the filter in the villages where he is working to communicate the One who gives "living water".

His,
Sarah Young, PE



Subhash building the platform



Gravel makes the bottom layer



Sand sieved for impurities



Filling the filter with water



Clean water!



Villager collecting clean water



NATHAN RUSSELL

Nathan is a true blue Texan and is “fix-in to” graduate with a degree in civil engineering next December from Texas A&M. He enjoys sports and the outdoors although he has grown fondly accustomed to the library-esque atmosphere of Oaklands. When he’s not devising his strategy for the next game of Settlers, he busies himself by getting acquainted with the town and people of Mussoorie. His favorite pastimes around Oaklands include developing his meager Hacky-sack skills, tracking monkeys and dreaming of barbeque brisket.



CHRIS ORBAN

A recent graduate in Physics, Chris has taken a year off to serve with eMi before starting grad school. Noticing the lack of need for buildings to withstand travel at 95% of the speed of light, he has instead applied his unique talents in electrical and wastewater design, database programming, surveying and wherever else he can lend a hand. (His favorite hobby is responding when people actually want to talk to Chris Roark!)



MATT CORREA

Of the three interns, Matt’s skills in procuring full meals and water bottles during two-minute train stops are unsurpassed. Taking time off from his junior year at Cal Poly, this is just one of many skills he’s developed in rounding out his civil engineering education. In his free time he enjoys jogging, avoiding the discussion of economics with Chris Orban and preparation of communal waffle batter.

Donations to eMi² can be sent to: Engineering Ministries International, 130 East Kiowa Suite 200 Colorado Springs, CO 80903
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