

WEFTA Trip  
Bolivia and Peru

November 11, 2006

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Scott McKittrick, Lou Harrington, and Peter Fant arrived in La Paz at 6:30 am.

Met Jason Gehrig, Braulio Rojas, Jaime (from Suma Jayma), and Bob and Julie Dunsmore for breakfast at the airport. Drove to Jason's house, met his wife Felicia and three kids; went to other volunteer house to stay.

Drove with Jason and Braulio to Hichuraya. Met with community, toured the system constructed with funding from WEFTA. The president of the Drinking Water Committee, Alfonso Cumara, explained that the water system was working well. They have plenty of water for 10 months out of the year and the other two they just have to be careful how much they use.

They have power in to the community and want to get flush toilets and showers. We are thinking this could mean a wet latrine (bucket poured after use) and the shower could be constructed with black plastic for solar heating. Showers could be constructed similar to the demonstration projects in Juli at a cost of around \$150 each. Assuming there would be 15 showers, this would cost about \$2,000 to \$3,000. Latrines might cost twice this much.

We had potatoes (11 different types) and sheep cheese for lunch, along with Dumpy Cola and Mango Cola.

Despite being a very small community, one guy told Lou of his father who lived there, his father's father, who had just passed away, and his father's father's father. Generations had lived in this small community.

### **Hichuraya**

**PROJECT:** Gravity fed water system completed March 2006, funded by WEFTA (\$10,705) and smaller donations from municipality and locals (3,200).

**FOLLOW-UP:** Community is requesting assistance with flush latrines and showers. Request that Suma Jayma evaluate and propose options along with estimated costs.

**FUNDING:** None at this time.

Drove to Laca Laca with Braulio and the mayor of the municipality of Calamarca, who has been very supportive of the water system projects in the area, stopped at Catholic Church to see unique display of very old paintings of the archangels.

In Laca Laca, they set off fireworks when we got there and came and dumped confetti on our heads. They had received some funding from government but had run out. They constructed a tank and started on a spring catchment. They think they need about \$8,300 to complete the project. Jason will send the formal proposal on to WEFTA as soon as he completes the translation.

We had boiled pork, more potatoes, more cola, and a small beer with a toast to Pachamama (Mother Earth).

### **Laca Laca**

**PROJECT:** Gravity fed water system. Construction has begun with funds from the municipality but enough only for the storage tank and possible spring catchment. Still need funding for distribution system and tap stands. Total estimated cost for distribution is \$8,300.

**FOLLOW-UP:** Suma Jayma has completed the proposal, and Jason is translating now and will forward it once he's done.

**FUNDING:** Approx. \$8,300, pending reception of final proposal.

We went to the Suma Jayma shop in Viacha and saw the great work they do. They fabricate pumps out of PVC pipe, leather, and metal tubing. They can install them for \$160 complete. They fabricate all the chain link fence here too.

We went back to Jason's house to hear a presentation from a group of 6 environmental minded professionals (AIPUR), led by Germán Aramayo, who are very concerned about the health of Lake Titicaca. Scott got their email and will correspond with them. It would be ideal if their story got picked up by National Geographic. With about \$5000 in funding, SMA could put someone on this to push it further and get something to start happening.

### **AIPUR (Lake Titicaca group)**

**PROJECT:** An NGO in El Alto called AIPUR is looking to work on water/river contamination issues in El Alto (landfill, inadequate wastewater treatment facility, slaughterhouse dumping of blood, industrial contamination (including wastes from Suez' Water Treatment Plant, etc) leading to contamination of Lake Titicaca.

**FOLLOW-UP:** Perhaps WEFTA could provide some technical assistance in the form of engineers reviewing proposed plans to remediate these contamination hot-spots, perhaps some financial assistance for such local efforts, etc. E-mail addresses were exchanged and follow up dialog will be required to explore how WEFTA could assist.

**FUNDING:** None at this time.

November 12, 2006

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Breakfast at Braulio's house with new Jason (another Maryknoll volunteer), old Jason, Lou, Scott, Pete, Braulio, and Jaime. Drive to Kerani

The Kerani project was funded mostly by WEFTA and Water for People, with additional support from the local municipality and the families of the community. Toured the community, ate potatoes and salty dried beef. System is working well and the community is very happy with it. Promised \$1,000 to \$3,000 for Suma Jayma to start on system designs for 3 communities near Kerani. They would like to install dry latrines.

There are three types. One totally dry, costs \$150. One that takes one bucket of water to flush, that costs \$300, one in between.

### **Kerani**

PROJECT: Largest water system for Suma Jayma to date, completed in April 2005. 132 families served, 2 schools, medical post, and common market area. The total cost was approximately \$25,000, WEFTA and Water for People supplying about \$11,000 each, and the rest by the municipality and locals.

FOLLOW-UP: Kerani community has asked for assistance with latrines throughout the community. Suma Jayma will evaluate and present options. Community representatives also requested, on behalf of the other three communities in their immediate area, that WEFTA/Suma Jayma consider similar water systems for them. Suma Jayma will prepare technical proposals for each of the three communities and WEFTA has committed to covering their costs (a maximum of \$1000 per community, or total maximum of \$3000).

FUNDING: Estimated \$2,000 to \$3,000 for studies.

Stopped in Chojñapata, the first project funded in Bolivia by Waterlines a few years ago. The portion of the system by the school was not on because someone had shut the valve, but it is normally running and there are no problems with it. It was raining so we beat it out of there. The locals we met with during our brief stay indicated that they were very happy with the system.

### **Chojñapata**

PROJECT: First Waterlines project in the area, completed in early 2003. Gravity fed water system, functioning well.

FOLLOW-UP: No special follow up was requested.

FUNDING: None at this time.

Ate trout at a roadside stop in Huarina, near the shore of Lake Titicaca, known for good lake trout, rode on ferry across small part of lake to Copacabana.

Met Father Ed Cookson, an American Maryknoll priest who has lived in the area for many years, had dinner with him, went to mass, stayed in a very nice room.

### **Villa El Carmen**

PROJECT: Gravity fed water system with total estimated cost of \$14,134, of which WEFTA is requested to supply \$8,817. We didn't have time to visit this project due to its remoteness. By all accounts from Braulio and Jason, this community is very worthy of such support and eager to get underway.

FOLLOW-UP: Find a donor for the project.

FUNDING: \$8,817.

### **Huacallaya**

PROJECT: Gravity fed water system with total estimated cost of \$13,007, of which WEFTA is requested to supply \$12,769. As was the case with Villa El

Carmen, we didn't have time to visit this project due to its remoteness. By all accounts from Braulio and Jason, this community is very worthy of such support and eager to get underway. They have completed the first two phases with support from the municipality and another local NGO 'Unitas'. The amount requested of WEFTA will complete the rest of the system.

FOLLOW-UP: Find a donor for the project.

FUNDING: \$12,769.

Braulio has requested that, of the three pending water systems, we prioritize them in the following manner: Laca Laca, Huacallaya and then Villa El Carmen.

November 13, 2006

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Father Jim Madden picked us up and drove us to Puno. Stopped along the way just outside Juli and toured community education area. Very interesting solar ideas including solar hot water heater that cost about \$150 to build and a solar pot cooker.

In Puno, went to lunch with Father Jim Madden. Met with Father Juan Valero, the director of VidaPeru, along with his staff, and Habitat group to tour system at Ciudad la Humanidad/Totorani, a few miles outside of Puno. Area needs topo survey and test pits constructed to determine slope and drainage of site and ground water conditions shallow and deep. With this information, could design a water system, a wastewater system, and a surface water drainage system. Also went to look at the escuelita. The school had no running water and no bathroom and no place to cook food. Kids urinate and defecate along the perimeter wall and their parents have to bring water to school. The director says the kids are way behind the kids in school down in Puno. The most urgent need at the school is for a hand pump well at the school and a place for the kids to bathe. They also are in need of more classrooms and a small kitchen and dining area to feed the children. They currently have two grades with their own teachers sharing a classroom and kitchen/dining area that is no more than a lean-to shack in a corner of the school yard. We mentioned that perhaps we could help with the water and sanitation needs, and can help put them in contact with other NGO's that could perhaps help with the school structures. We would work with a commission that would be made up of the school board, the principal and Padre Juan of VidaPeru.

For a rough guess, the topo and geohydro survey would cost about \$3,000, the Site Grading around \$5,000, the water system well head protection upgrades needed would cost \$5,000, and a WW system might cost \$20,000

### **Ciudad la Humanidad (Puno)**

PROJECT: Large Habitat for Humanity community of several hundred homes high above Puno, Peru. Problems and deficiencies consist of inadequate drainage at the site, complicated by a high water table and poor draining soils; total lack of proper sanitation whatsoever; inadequate wells in certain areas that run dry during the dry months and others that are contaminated; lack of any water or latrine facilities at the school; insufficient infrastructure at the school as far as classrooms, kitchen, dining area, sanitation, etc.

**FOLLOW-UP:** A water supply at the school is urgent, as well as latrines for the children and area to wash up. The cost would be minimal and would have a large impact on activities at the school. The school board, principal and Father Juan Valero of VidaPeru will work on a proposal and present it to WEFTA. For other needs, WEFTA should identify required data to make recommendations on drainage, potable water system improvements, and sanitation system options.

**FUNDING:** Approx. \$2,000 to construct hand-pump well at school, latrines, and wash area. Water, wastewater and drainage problems will require further topo and hydrogeo investigations estimated at approx. \$3,000. Final improvements are estimated at approx. \$30,000.

November 14, 2006

Flew to Cusco from Juliaca. Met with Percy Silva and Carlos Marcelo of CrediVisión, an organization that provides microcredits / small loans to individuals or groups that most other lending institutions would not work with. The loans range from US\$30 to US\$30,000 but the huge majority of loans are in the order of about US\$500. Toured Urcos, great community of 34 homes. CrediVisión has helped the community members with small loans to purchase the land and subsequent loans to build their adobe homes. Community has water to the subdivision, wastewater just needs to run down the hill and connect into the larger system. Maybe \$2,000 project. (Note that I think the cost estimate provided by CrediVisión looked like it would be \$12K). Larger project is the treatment of the raw sewage that comes from the whole community and dumps into the headwaters of the Urubamba River. The community representative, a local pastor who initiated the project, will follow up with the local government planning division to get a copy of the plans that have been made for the zone, that he believes includes wastewater. Later we found out through Carlos Zanoni that a \$300 million cost estimate had been attached to clean up of all the WW currently being dumped into the Urubamba River. This might imply that Urcos is under consideration for WW treatment and we don't need to put it on our 'things to watch for' list.

The community was set up for campesinos that were coming in from the hills so their children would have be able to go to school in the town of Urcos, which is also the capital of the region.. A local pastor advertised for interested people to build sweat equity. They all built their own houses and will construct the WW collection system.

### **Urcos**

**PROJECT:** Needy families have united by initiative of local pastor to create a community of 34 homes. Each have requested and received small loans from CrediVisión to purchase their plots and build their homes. They have water and are requesting assistance from WEFTA for construction of wastewater collection system that will tie into Urcos municipal sewage system.

**FOLLOW-UP:** WEFTA will evaluate project prepared for the community, review proposed budget and look for funding to complete the collection system.

**FUNDING:** Estimated at \$2,000, pending review of final project.

November 15, 2006

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Lou and Pete visited the Habitat community of Illary, met with local engineer Carlos Zanoni and two members of the community (Dante and Guillermo) to discuss wastewater treatment options. Our first thought was to go to a simpler type of treatment since we haven't made good progress in getting the aerotor in country. We first thought about a recirculating sand filter, but on Nov 16, Scott and Pete visited the septic tank site and decided that the system was giving adequate treatment as it was. We talked about cleaning out their 'headworks' which apparently consists of a bar screen and a by-pass. They haven't ever cleaned it because they didn't know about it. They will now start cleaning it and this should solve their problem of having plastic clog up their drain line.

Part of the O&M will be to clean the bar screen regularly, clean plastics out of the S.T. and plastics out of the infiltration tank; check sludge depth once every 6 months and when it gets too full, we will fund a pump to empty the tank into a pit which will percolate back into the soil and dry out the sludge.

### **Urubamba**

**PROJECT:** Wastewater collection system for 84 Habitat for Humanity homes is complete. Larger portion empties into septic tank where solids are collected and effluent into a percolation pit that filters down through the gravel. Aerotor system option has been abandoned. Community will construct a similar, smaller scale system at the other site. The potable water system is inadequate for homes at higher elevations. The community has requested an elevated tank that would serve the entire community.

**FOLLOW-UP:** Carlos Zanoni will research cost of materials and help evaluate the cost of completing the wastewater treatment system as discussed. WEFTA, together with Carlos, needs to evaluate appropriate approach to address water system needs.

**FUNDING:** Estimated \$1,500 for smaller treatment system and upgrades, and approx. \$8,000 for water system, pending determination of final configuration.

After visiting the Illary site again, we drove with Linda up to the site of the Chichubamba project. Much of the waterline has been installed but the project has stalled out at the point where the waterline enters the property of the Chicón community. Evidently there are political issues at play here which have resulted in the neighboring community representatives not allowing access across their property. The Chichubamba representative that we spoke to indicated that they are hopeful that a regional authority with greater influence will intervene after the elections are completed, and grant the necessary permission to run the waterline along the road up to the spring site as initially planned.

### **Chichubamba**

**PROJECT:** Gravity fed water system scoped out by and funded by donation from Scott Rogers to WEFTA. Awaiting to hear how access issue is resolved by local leadership.

**FOLLOW-UP:** No special follow up required at this point.

**FUNDING:** None at this time.

Later returned to Cusco, met Percy and Carlos of Credivision to pick up map and cost estimates for Urcos, then caught our flight to Lima.

Met with Fanny and Leoncio Farfan, CEO of Credivision and all the projects they have. Leoncio explained more about the work of Credivision in Peru and how they have partnered with other NGO's such as Habitat for Humanity International and World Vision to promote affordable means for home construction in the poorest areas of Lima and rural areas of the country also. The 'vision' centers around first assuring any home has a decent bathroom, and then small loans are given out to add on to the house room by room. The credits are always kept to a manageable size and new loans are given as soon as the previous one is paid off. Credivision Peru works with 65 'tambos' in the Cusco area that are communities or clusters of houses that have 5 to 15 members, many of which need water or WW service.

### **CrediVisión**

**PROJECT:** Microcredits are provided by CrediVisión to families hoping to construct decent homes. Loans are kept small and manageable. In many cases initial grants are provided to families to construct bathrooms with sink, toilet and shower, and then loans to add on to the house, room by room.

**FOLLOW-UP:** WEFTA will contact World Vision to inquire about experience working with CrediVisión and discuss with other WEFTA members the possibility of working in a similar fashion, perhaps in the 'tambos' around Cusco.

**FUNDING:** None at this time.

### November 16, 2006

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Fly to Chiclayo from Lima. Met with Ken Byron (head of school) and Victor Abad, president of Chiclayo water and wastewater association along with a few other board members. Toured system in detail, looked at cracked walls, broken foundations, daylighting effluent. Soils basically become non-useable when they get wet causing foundations to settle and other associated problems. Community has worked with an Italian company to get their waterlines repaired, but needs help with the wastewater system which doesn't exist at the moment. Cost estimate was around \$180K for complete system. They still need to purchase the land for the WW lagoons and the owner has raised his price from \$1,500 to \$3,000 dollars. According to Ken, this is still a fine price. WEFTA committed to help them find the money and to help them with an initial contribution that covered the cost of the pipe from the lagoons up to the community. This is about 1300 meters of pipe at a cost estimate of about \$18K.

### **Las Delicias (Reque)**

**PROJECT:** The potable water system is complete and operational, however there currently is only a provisional distribution system in place until a functional wastewater collection and treatment system is operational. WEFTA has committed to finding funding at least for the main trunk line that will tie the community into the proposed lagoon system.

FOLLOW-UP: WEFTA will prepare a commitment letter for the cost of the 8" line (approx. \$15,000), contingent on the community receiving funding for trenching and backfill, installation of manholes and purchase of the required land and construction of the lagoons. It is hoped that this can then be used as a tool to leverage for the rest of the required funding.

FUNDING: \$15,000 as initial installment to be used as leverage by community to find remaining funding for initial installation. According to the latest analysis, the total cost of project upon complete build-out will be approx. \$180,000, although much of that amount will be in the form of in-kind contributions from the locals.

November 17, 2006

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Toured Pucalá system for Bill Powers, of E-Tech International, verified needs. Community has 7,200 people and has not had running water or wastewater for five years. They turn on wells for 2 hours in the morning from 8 to 10 and they take turns filling up water jugs. Due to leaks and excessive demand, the water pressure isn't adequate to reach the faucets within the homes, so each homeowner has dug a pit in front of their house down to the service line coming from the street, and have cut into it and installed a valve so they can fill their buckets. For wastewater they have pits that they clean out and haul to a common septic system. Victor gave them a long talk on how they need to form their own JASS (kind of a Peruvian version of an MDWCA) and then approach the local and federal governments for funding and partnerships. Then they can seek international donations and local donations of labor to accomplish the work. We didn't promise anything except that we would pass the verification of conditions on to Bill Powers. They had an estimate of \$600K for the water system upgrades and \$400K for the WW system upgrades.

### **Pucalá**

PROJECT: Community water and wastewater system for population of approx. 7,200 is in a state of complete disrepair and must be completely reconstructed. Estimated cost is just over \$1,000,000.

FOLLOW-UP: WEFTA will prepare a summary report for Bill Powers of E-Tech International of what was observed during our visit, as requested by Bill. We can later discuss to what extent WEFTA may become involved in the project.

FUNDING: None at this time.

Fly home 18<sup>th</sup> on to the 19<sup>th</sup>.