

Jason additional follow-up (feel free to include what's appropriate/leave out what's not in the combined country report Ramon. Thank you for compiling! Jason)

Follow-up comments/Ideas from Justin's trip report:

Suma Jayma has sent up a list of project priorities for community water systems and/or family hand pumps. Karen or Lou, could you send that out to us so that we could identify a specific project coming down the pipeline for fundraising with friends? Also, multiple community solicitations for zones without safe water to their homes were received during our visits, which with time will become project proposals. I'd like us to be able to provide the info Justin is requesting so that project-specific fundraising efforts can be made.

I would be glad to work with WEFTA and Suma Jayma folks to get a comprehensive list of projects completed together, including contributions from all entities (wefta, municipalities, families, in some cases other external sources/ngo's) as well a # of benefiting families. I have pretty good numbers in place from the Suma Jayma's start in 2000 through 2010 but have dropped the ball since. These could also be tied to a georeferenced map someday. I believe WEFTA has all projects it has funded available on the SMA server so that will be a great resource as well.

It appears WEFTA doesn't have a means available for electronic donations. Is there a good 3rd party service out there that doesn't scrape 10 or 20% off the top? Justin mentioned venmo.com which looks to be a low/free cost service provided by paypal. Could we arrange for that service to be available on the front page of the wefta website/facebook page in some kind of cybersecure manner?

Enjoyed the report! Especially recalling our first night of playing group chicken with the minibuses roaring by in La Paz. Move over ropes courses and backwards trust-building falls, we have a new team building program in place WEFTA can offer you!

My follow-up notes/suggestions from the Bolivia trip:

1. Help SJ convert hand level design to one with GPS points and contours using Autocad for community near Viacha (work with Jaime on this)
2. Key contacts with Viacha
 - a. Deybith Charles Mamani Rios, 591-772133314, edifacarte7@hotmail.com (architect on basic sanitation team of Viacha with tremendous interest and advanced study in water, specifically hydrogeology)
 - b. Richard Nina Escobar, 591-70568514, riconies@hotmail.com (participant in Justin's talk, member of Viacha basic sanitation team)
 - c. Marco Antonio Cussi Mamani, Antonio.lionblack@gmail.com (participant in Justin's talk, member of Viacha basic sanitation team)
 - d. Claudia (?), engineer and lead for Viacha basic sanitation team (most familiar with their wwtp)
 - e. Arquitecto Naldo – this is Suma Jayma's primary contact with Viacha; he's in charge of all rural public works projects for Viacha
3. Follow-up with Deybirth (and Jaime) on sending him info on:
 - a. NASA Grace – aquifer tracking/drought impact - https://www.nasa.gov/mission_pages/Grace/index.html

- b. NASA SMAP – soil moisture tracking - <https://smap.jpl.nasa.gov/>
 - c. Get from them the Bolivian government Lake Titicaca watershed contamination mitigation plan
4. Follow-up on critical equipment for well refurbishing/drilling (sent out by separate email)
 5. Justin’s input on Viacha’s WWTP (already discussed in his report) – a big hit that Viacha officials will very much appreciate!
 6. Justin’s / WEFTA’s input on proposed Lake Titicaca watershed contamination mitigation plan (in addition to WWTP’s which could be a great improvement, there is apparently a move by the govt to channelize the rivers. Viacha is positioned to incorporate some of these proposed river “improvements,” though not sure how much will really help – see pix below of what’s been installed in some parts of El Alto, similar to what was being described by Deybirth of the City of Viacha: basically installing rigid vertical walls with gabion like structures across the channels with vertical drops of a couple feet(?) Appeared very questionable as to how much actual waer quality benefit this would provide; again this could be another area where WEFTA could provide perhaps alternative approaches, recommendations that could have tremendous benefit.



Substantial funds have been authorized by the Bolivian and Peruvian governments to protect the Lake Titicaca watershed in early 2016, with plans to implement different phases by 2020 and 2025:

Bolivia y Perú firman un acuerdo para proteger el lago Titicaca

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Los ministros de Medio Ambiente de Bolivia y de Perú firmaron un acuerdo entre ambas naciones para poner fin a la contaminación del lago Titicaca. Los dos países que comparten el lago asignaron una inversión de unos 117 millones de dólares hasta 2020 y unos 400 millones de dólares para el 2025 destinados a la recuperación y protección del Titicaca, escribió este jueves la Agencia Boliviana de Información.

El Titicaca es el lago navegable más alto del mundo. Está ubicado entre el altiplano peruano-boliviano a unos 3.812 metros sobre el nivel del mar y tiene una superficie 8.372 kilómetros cuadrados.

7. Follow-up efforts to provide training by WEFTA for improved water well rehabilitation services (Scott Mckitrick is leading contacts with drillers in New Mexico)
8. First key steps for supporting Suma Jayma
 - a. See if WEFTA can fund another hand pumps project, partially funded by Spirit of Christ
 - b. See if WEFTA can financially support/round up donations for requested major equipment
 - c. Richard's work to see if we can get total station of suma Jayma capability for digital download
9. Other follow-ups
 - a. Work with Suma Jayma to develop gameplan for following up with rural zones soliciting additional drinking water projects identified during the visits
 - b. On visits to past systems, though I didn't make all the day's trips, the one system that I heard was having problems was in Palcoma Baja, where the tank level was near empty at all times. According to local officials, flow from spring into the tank was measured at 5 liters filled in 17 seconds, which equates to around 25,000 liters per day, which if providing 50 liters per person (and assuming 5 person per household (conservative in this dry area where many young have left for the city – 250 liters/day/family), these should be adequate for 100 families conservatively. Being that the number of beneficiaries is less than that, there is adequate supply. Either a leak exists, or as we've seen in the past in Karhuiza, there's a handful of users who are overconsuming (in Karuiza's case, they were filling small lagoons for their dairy cattle at night). This was pointed out to the community leaders of Palcoma Baja, and given that a couple communities are connected to the same source here, they seemed to acknowledge there was probably some folks using to water some of their fields. Would be good for SJ to follow up in the coming months with Comanche municipal officials to see if resolved.

- c. Continue autocad drawing in 3d of treatment lagoons. (for use in Pucarani, Chonchocoro jail). Also see how we can lend a hand with lift station and force main design for CalUma (Jaime will perform topo survey).

10. Other ideas

- a. WEFTA WWTP YOUTUBE VIDEOS!!

Listening to Justin talk with the lead sanitation engineer for Viacha, it only reinforced what would be expected. In an area where very little wastewater treatment exists, it's understandable that there is very limited knowledge of how various types of wwtp's function and should be operated.

I think a tremendous service that WEFTA could provide would be to develop a series of wastewater treatment alternative YOUTUBE videos, that could explain in Spanish basic concepts while video is playing in the background, with intermingled ppt slides (similar to the ones Justin prepared for the training session in Bolivia) providing additional key considerations. Perhaps we could identify a half dozen topic areas and provide this service, making it available on the WEFTA website. A huge need for improved understanding of wwtp's exists throughout Latin America. Would love to discuss further. In the meantime, search up oxidation ditch on youtube, and then think how we could adjust something like these to be of use for folks in Latin America!!

- 11. Great times: WEFTA Bolivia West Country Visit of July 2017!

