

Public Health Doesn't Just Happen

By: Capt Tracy Brannock, USAF and Kenneth Kartchner, LDSC

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“¡Gracias por ayudar a nuestros hijos!”

~ School Assistant Director, Oscar Acevedo



The Continuing Promise 2011, USNS COMFORT Preventive Medicine Team successfully connected a school to municipal water and sewage. A small group of four, led by Captain Tracy Brannock, United States Air Force Public Health Officer, assessed the



Manuel Pio Water Tank and Cistern

sanitation and hygiene practices of the students and staff at Esquela Manuel Pio de Zuniga y Ramirez in La Huaca, Peru. Municipal water was available in one section of the school but only for an average of 4 hours a day.

Because of the limited water supply to the

school, the administrators bucketed what water they could into 200-liter drums and set them along the sidewalks outside for the children to use—a situation which, while practical, resulted in higher risk for issues with sanitation and hygiene for the students. The children were seen using the drums continuously for drinking, partial bathing, and hand washing. These practices made it almost impossible to avoid contamination of the water supply. The Preventive Medicine Team collected water samples from three different locations at the school that yielded positive results for fecal coliforms indicating a presence of potentially harmful bacteria in the water.



Ken Kartchner, a member of Latter-day Saint Charities (LDSC), with experience in water and waste engineering, was a critical member of the team in providing expert guidance and recommendations regarding the construction efforts in this project. He quickly determined that Manuel Pio could utilize its current infrastructure to greatly improve sanitation and hygiene practices.

Mr. Kartchner conducted a system assessment and noted that the school was equipped with an elevated water tank and a pumping system from a large underground cistern connected to the municipal water supply. He also assessed that the municipal water reservoir and the regional water treatment plant effectively filtered and chlorinated water to the school. The availability of clean water was not the issue. The challenge that the school faced was their knowledge of the current infrastructure and how to appropriately utilize it.

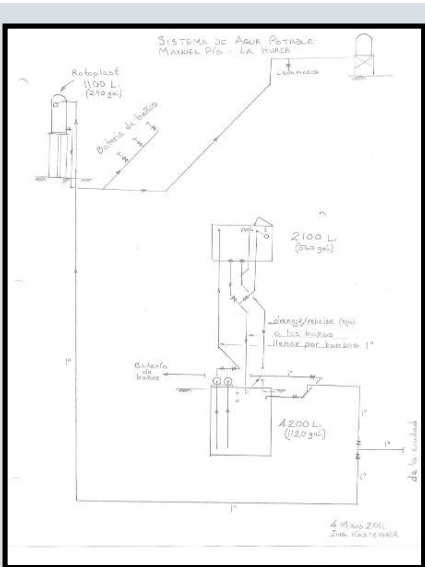
Mendives Ayala, Assistant Director, Oscar Acevedo Chorres and maintenance personnel to improve the local knowledge of optimal utilization of the system. The Preventive Medicine Team prepared a schematic of their existing system and showed them how the elevated tank could be filled 90% of the time without the expense of using pumps. The schematic also illustrated how the work of the Seabees fit into their existing system. The education on their system design, as well as working side-by-side with them on the cleaning of the water storage tank, provided them with critical knowledge of the importance of regular cleaning and chlorination of the tank and assurance that this would continue long after the team left. Cinco de Mayo, an easily remembered day, was chosen as the commemorative day for the annual cleaning of the reservoirs.

The Preventive Medicine Team worked closely with the U. S. Navy Seabees, Naval Mobile Construction Battalion 28 (Shreveport, LA), led by Ensign Tres Moreno, to coordinate the best design and plan to equip the entire school with potable water. The Seabees installed an 1100 liter gravity-fed water tank over one set of restrooms and connected it to the municipal water supply. The tank is capable of storing enough water to provide service to the restroom while the municipal water is not flowing. Further, they constructed and connected a hand washing station just a few steps from several classrooms, providing safe water for drinking and washing. The water safety was confirmed by post-construction tests which found no fecal coliforms.

Beyond the water project, the Preventive Medicine Team found that there was opportunity for assistance with the sewer system associated with the school, as well. The city recently completed the municipal sewerage system with oxidation lagoon treatment and a new collection system had been installed through the school. This system had not yet been connected to the sewer.

The Preventive Medicine Team met with the School Director, Jose

Not afraid of rolling their sleeves up, the Preventive



Water System Schematic



Capt Tracy Brannock, USAF, Cementing Sewage Piping



Raw Sewage Overflow at School



Sewage Piping Construction



Fresh Cement After Connecting the Pipes

Medicine Team worked with three volunteers from the Padres de Familias (PTA) to redirect the discharge from the bathroom to the new sewer system. Dozens of paint buckets of raw sewage needed to be bailed out of the junction boxes to facilitate the connections of the piping. After two days of work and with assistance from the Navy Seabees, the job was complete.

The efforts of the Preventive Medicine Team and the Navy Seabees resulted in Esquela Manuel Pio de Zuniga y Ramirez effectively using their municipal water supply and sanitary sewer system and improving hundreds of present, and thousands of future lives.

Such an opportunity like this is not complete without the opportunity to educate the community. Thus, while the water and sewage projects were being conducted, the Preventive Medicine Team and Chana Gwynette of EDGE Outreach conducted health education and dental hygiene classes at the school. Together they trained 15 teachers on germ prevention, proper hand washing procedures, the importance of wearing shoes, and leading by example by doing the same. Over 390 children were taught how to wash their hands, set up fly traps, and prevent the spread of germs. Days later, the children were observed singing songs and washing their hands as they had been taught, bringing smiles and assurance that their lives may continue to improve beyond the USNS Comfort's disappearance over the horizon.



Padres de Familias Volunteers



Chana Gwynette, EDGE Outreach, Teaching Hydration Education



Chana Gwynette, EDGE Outreach, Teaching Proper Hand Washing Procedures



The Preventive Medicine Team and Teachers and Staff of Manuel Pio

“Public Health” is neither the horse nor the cart. It is the carrot that has the potential to keep the horse pulling the cart to a more productive future.
 ~Kenneth Kartchner, 2011