



Water for humanity... Bringing water to the world

A Joint Initiative between the Rotary Clubs of Oakville, Ontario, Canada and Zenon Environmental to Install Water Purification Systems in Developing Countries

Water for Humanity is in its 5th year of project work in addressing the needs of people living in Third World countries who do not have access to safe drinking water.

Since 2003, the committee has initiated 5 projects totally just under \$1.5 million (U.S.) in 3 countries on two different continents that will help bring relief to over 100,000 people living in more than 200 communities.

Project Summary

\$475,000 - Tzaneen (Completed Feb 2006)

\$100,000 - Ghana #1

209,250 - Ghana #2

107,300 - Bolivia #1

550,000 - Bolivia #2 (est)

\$966,550 - Total (pending and/or underway)

\$1,441,550 - Total Project Work

All of this was initially accomplished through the leverage of the Oakville Rotary Clubs working together with Zenon Environmental Inc (now part of GE). Since then, *Water for Humanity* has received donations from individuals and corporations and the financial support of many other Rotary Clubs as well. The various Matching Grant programs offered by RI and CRCID have also made it possible to increase all of these donations over three times.

Project Funding Summary

\$ 56,073 – Rotary Clubs of Oakville (5)
75,030 – Other Rotary Clubs (18)
2,000 – Host Rotary Clubs
4,050 - Corporations
1,600 – Interact Club
2,885 – Individual Rotarian
\$141,638 – Total Contributions (pledged and/or raised)

\$ 82,000 – DDF(Districts 7080,7040, 7070& 6320)
108,650 – RI (TRF)
239,247 – CRCID
\$429,897 – Total Matched Funding (confirmed & estimated)

\$350,000 - GE/Zenon (estm in-kind \$ value)
\$921,535 – Total Project Funding

The following are debriefing notes from my trip to Bolivia in April with Jim Imrie from GE/Zenon.

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Loading the plane

Town of Concepcion



Water for Humanity Rotary/GE Bolivia Trip April 13 – 18, 2008

By David Angas

The water needs of the municipalities we visited in Santa Cruz province are becoming more acute due to the rapid population growth (3% CAGR) from the surrounding communities.

In many areas there is not enough potable water for the existing population and where there might be sufficient water, the quality of that water is below WHO standards.

We found a consensus among the various levels of government of the need to improve things but no real direction on how to do it.

The local water co-ops have been running things for many years but do not have the resources or technical expertise to make the changes that are necessary. In cases where outside help has been provided, the positive impact on the community has been very evident.

There is a close working relationship between the water co-ops and the municipal government and a general respect for the work they are doing within the community.

What appears to be missing however is a long term plan for sustainable urban development in the towns we visited.

Close proximity to the Brazilian border in the case of St. Jose de Chiquitos and the music festivals in Concepcion, St. Ignasius and St. Miguel are leading to a huge growth in Art and Cultural tourism that is putting another strain on the existing infrastructure.

There is also no differentiation in the water rates between residence and commercial users or a capital cost recovery system in place for the businesses that cater to the tourist industry such as hotel tax or some other form of levy.

There is clearly funding available from the various levels of government for this work but it is difficult to determine exactly how much is there.

The mayors have a difficult job in sensitively balancing the need for improved water and sewage systems and the other needs of the community.

Some of the schools we visited in Concepcion had very inadequate toilet facilities and lacked the resources to improve them. One of the schools had over 800 children attending during the day in 3 shifts. The boys had a trough urinal and 2 flushing toilets and the girls had only 4 toilets. Construction on new washroom facilities had to be halted because the scarce funds had to be used to install a new roof on the school.





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We were told of the pending implementation of a "Clean hand" campaign being introduced in the schools by the Prefectura (Provincial Government) and we did see evidence of this effort in the communities as well. However, I see the need for a comprehensive educational awareness program on water conservation, sanitation and hygiene to be taught to the grade 2-3 children in much the same way it is being done in Tzaneen.

The hospital in St. Jose de Chiquitos could use a GE Home Spring Unit and perhaps other communities as well where the water shows clear evidence of bacterial or viral contamination.

The observation has also been made that the services of an NGO such as *Engineers Without Borders* could be used for the sourcing of water supplies and the design of delivery systems.

FCBC has a very strong relationship with all of the stakeholders including the 2 main Rotary Clubs in Santa Cruz. Their mandate embraces promoting awareness of the need to conserve the bio-diversity of the environment and also addressing the needs of the people as well. They are conducting a land use management plan for the region with a focus on long term sustainability funded by the European Union Commission.

FCBC also works closely with Rotary as an NGO for its water projects in the area as well. Priorities must be established for the allocation of Water for Humanity funds in the current 3 year CRCID mandate.

A full budget, feasibility and engineering study must be completed for the proposed Concepcion filtration plant before any recommendation or decision can be made on whether we can proceed with this project.

Our initial findings have determined that the cost would be at least twice what we had originally estimated.

We also have to determine if we should participate in the proposed pump maintenance program sponsored by a US Rotary Club or initiate our own pump project as there is clearly a need for many more wells to be drilled in the communities as well.

I found the meetings with the various government officials to be cordial, open and transparent. There was a genuine recognition and appreciation of the work that Rotary has already done and the help that was being offered. There was also a candid sharing of the problems that existed in their communities regarding the scarcity and quality of water.



Concepcion

The project opportunity in Concepcion involves:

- Replacing the existing sand filtration Plant with a GE Membrane System
- Replacing the existing asbestos-cement water pipes with a PVC
- Connecting another 1,000 households that are currently relying on shallow wells

To accomplish this, we would have to more than double the current flow rate from the reservoir that would require a system roughly e capacity of what we installed in Tzaneen.

This would also involve increasing the size and changing the location of the intake pipe from the reservoir.

The pipeline infrastructure has to be replaced quickly as certain parts of it have already deteriorated with age which is adding another health risk factor to the water.

Sewage is another issue that will become more acute over time as the population continues to grow and demands a water waste management program.

A billing formula has to be found to fairly apportion the capital costs and running costs of the system between the residence who can afford to pay and those that cannot, and the commercial users such as the hotels and restaurants that cater to the growing tourist industry. We were informed that \$150,000 U.S. of government funding is available for this project. We understand that the estimate for replacing the cement-asbestos pipe is \$300,000.

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St. Jose de Chiquitos

Because of the dry season, it would not be economically feasible to install a GE Membrane Filtration system for the 1,000,000 litre/day flow rate from the stream. More efficient ways can probably be found to chlorinate the water which is now being mixed in a water tower with the clean water coming from a 500,000 litre/day well (San Francisco) located 12 km from town.

The aquifers in the area suggest that another well should be drilled to add to the water supply.

St. Miguel and St. Ignasius

There is a proposal for a well pump and maintenance program to be administered by FCBC that could address the needs of these townships. This would be done in conjunction with a number of well drilling programs sponsored by Rotary with help from the Prefectura of Santa Cruz.





Chiquitano Forest Conservation Foundation www.fcbc.org.bo

The Chiquitano Forest Conservation Foundation www.fcbc.org.bo was founded by Hermes Justiano 30 years. He has worked closely with a number of environmental funding groups such as the European Common Union towards the protection and long term sustainable development of the model forest for the benefit of the indigenous peoples living in the area.

The FCBC has the support of all levels of government and has a presence in each of the communities affected. It also works closely with the Rotary Clubs in Santa Cruz and acts as co-ordinator and project manager for all of the Rotary funded projects in the region as well.

Stan Rosenholt Chavez has been assigned this particular project and is extremely well suited for the task. He has lived and was educated in the U.S. and speaks English and Spanish fluently.

Both Hermes and Stan are Rotarians and each members of the one of two clubs in Santa Cruz.

There is no fee or cost override charged on any of the Rotary projects they are involved with aside from the reimbursements for direct costs.

Below are photos of some of the 1000's of species of birds and orchids that are native to Bolivia



Follow up

Since returning from our trip, I contacted Kevin Webb at CRCID and determined the following:

- Sustainable urban development fits in with CRCID's mandate
- CRCID funds can be used for training personal, travel and equipment
- On a hypothetical basis, CRCID will match funds contributed by GE which in turn will be applied towards of a filtration plant
- Protection of the environment, art & cultural development are all key components of CRCID's sustainable community development model

I also spoke to John Stairs, District Foundation Chair who advised that we should consider initiating our own RI (TRF) Grant Application for the Well Pump Maintenance Program.

- We would get better leverage with matching CRCID funds
- The process would be faster and less complicated



Recommendations

I will recommend to the Rotary Water for Humanity Committee that we proceed with the Well Pump Maintenance Program including funds towards a third well in San Jose de Chquitos and allocated \$10,000 from our budget for this purpose.

This will translate into a total of approximately \$38,250 with all of the matching funds available.

I will also recommend that we bid for the next round of funding from CRCID for a 3 year Program focus on similar water projects in Bolivia.

Depending on the decision taken by GE on the proposed water filtration plant in Concepcion, I would also recommend to our committee that we fund to the best of our a portion of the pipe infrastructure project.





We meet Tuesdays at 7:15 AM
 Holiday Inn
 590 Argus Road

Membership
 Ren Henderson
 ljhender@hendersonpartnersllp.
 ca



Find us at <http://oakvillerotary.org>

Trip Summary

Sunday, April 13th

Jim Imrie & I left Toronto at 9:30 am on Sunday, April 13th and arrived in Santa Cruz, Bolivia just before midnight the same day. We were greeted at the airport by Hermes Justiano and Stan Rosenholt Chavel from FCBC and escorted to our hotel.

Monday, April 14th

Following breakfast at 8:00 am the next morning, we spent some time at the FCBC offices for a brief orientation and then met with the government administration and engineering team responsible for water in the Santa Cruz Province. We then met with representatives from the two Rotary Clubs in Santa Cruz for lunch and left immediately afterwards for a 7 hour drive to Concepcion.

Tuesday, April 15th

We met with Water Co-op Board after breakfast and spent the morning touring the water plant at the reservoir to get a better understanding of what is currently in use and also on the future demands of the system.

We then met with the Town mayor and his council and heard more about the needs of the community and the challenges of delicately balancing the needs of the people and need to support the growing art & culture industry for economic growth.

We also visited a number of schools and the hospital later in the afternoon to gain a better understanding and insight of the people and the local environment. We visited the Cathedral and then had dinner that evening in a local restaurant before heading to bed .

Wednesday, April 16th

Jim & I compared notes the next morning at breakfast before leaving with Stan and Hermes by small plane to St. Ignasius where we met with the Major and his Executive Assistant. We then drove to St. Miguel about 40 km away where we again met with the Mayor and his Council Chair. We visited a number of outlining communities and saw the conditions of how the people lived in the area; the schools, a well and a delightful meeting with a few of the locals.

We also visited the Cathedral in St, Miguel and also had a chance to see some of the wood working shops before returning to St. Ignasius. for the night.

Thursday, April 17th

We left the next morning by plane for San Jose where we met with the Mayor and Council and also had a chance to visit the various water sources supplying the community.

This was a classic example of the very positive impact of a Rotary well project that was done in the area and the difference it made to the development t of the town.

Following a lunch sponsored by the mayor and council we left by plane again for the hour and a half flight back to Santa Cruz where we met Stan's parents before joining the local Rotarians for a fair well dinner.

Friday, April 18th

Jim & I were up early the next morning and left the hotel at 7:15am to catch our 9:00am flight home . We arrived back in Toronto just after midnight.