

## **GG2347349**

### **Water Delivery System Re-design – Canton of Quiacquix, Guatemala**

On November 7, EWB presented their plan and cost estimate for completing the water system redesign in Quiacquix. As expected, the total cost for the entire community is greater than the amount of money committed to the project to date. EWB has logically analysed the needs of the community and presented the plan as two parts.

Branch 1 (Ramal in Spanish) covers the sectors called Paquiacquix, Pa Ojerkaybal, and Chaquiral, with a total of 324 families. The municipality of Totonicapán is currently constructing the flow line between the existing well and uphill previously unused tank. That will enable adequate water supply, but the current distribution system is in bad condition and EWB strongly recommends replacing it, which is the Branch 1 project.

Branch 2 serves the sector called Chuipachaj, with 184 families. It currently has a distribution network that is part of a larger system operated by the adjacent community of Chipuac. Although that system has somewhat better water supply, it is still not fully adequate for Chuipachaj needs. There are also stresses between the two communities over management of the system. In the long term it will be better for Chuipachaj to rely on the same well as the other 3 sectors of Quiacquix. However, that would require a new flow line and uphill tank solely to serve Chuipachaj. For that reason, Branch 2 is more expensive than Branch 1.

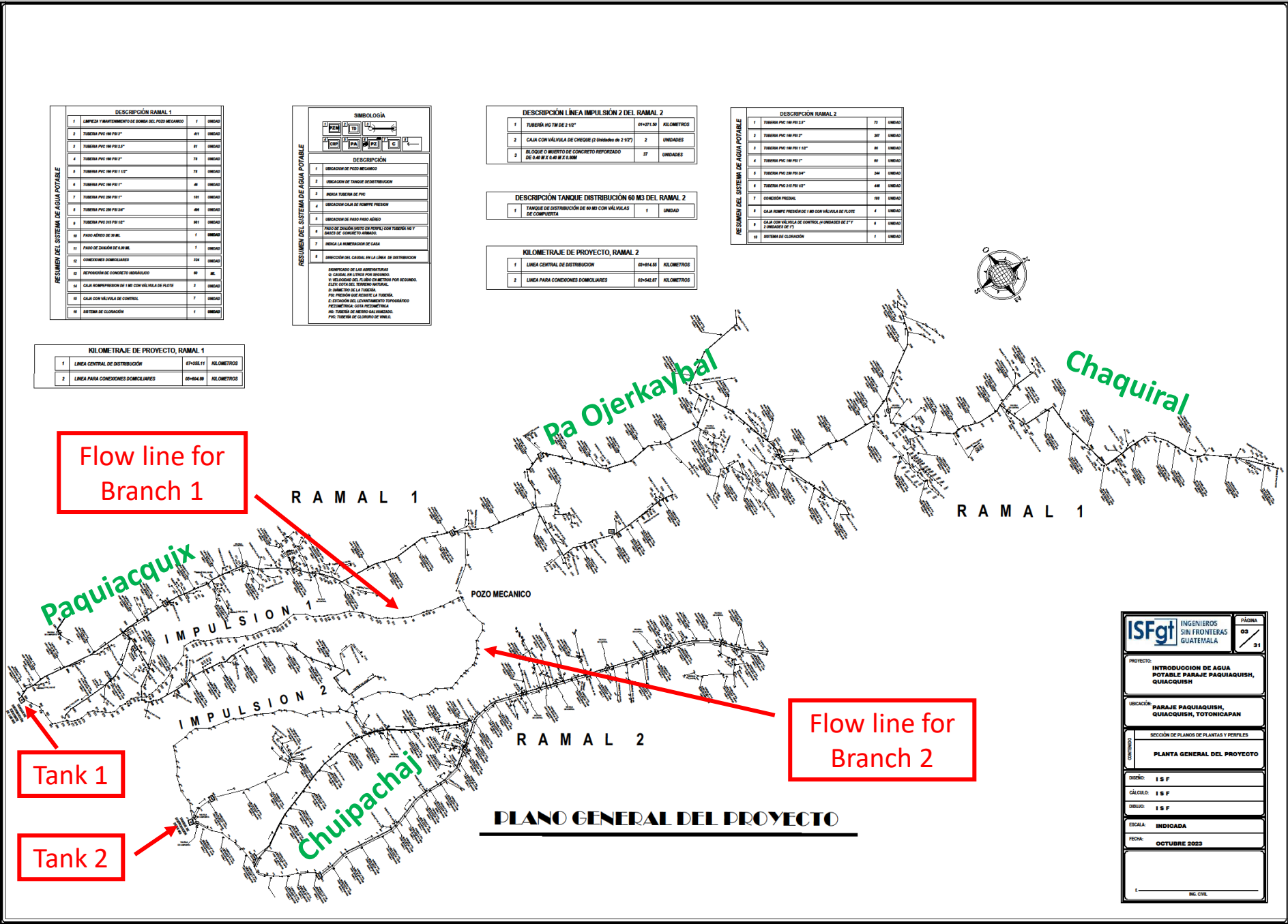
Therefore, with funds available, the global grant can only serve the 3 sectors of Branch 1.

# ISF (Engineers Without Borders) plan for Quiacquix water system


Branch 1 serves Paquiacquix, Pa Ojerkaybal and Chaquiral. The flow line is being installed by the municipality.

Branch 2 serving Chuipachaj is currently operated by the community of Chipuac, with a separate tank and water source.

Upgrading Branch 2 requires a separate new flow line and tank, and the total cost is greater than for all of Branch 1.







**Storage tank is at the top of  
this ridge in Paquiacquix  
~110 metres above the well  
and 1.3 km distant**

**Enclosure  
around deep  
water well**



| Project with ISF |  |                       |                      |
|------------------|--|-----------------------|----------------------|
|                  | Descripcion  | Total Quetzales       | Total dolares        |
| 1                | Costo total (Ramal 1)<br>(incluye capacitacion de O&M) | Q 1,263,115.95        | \$ 168,415.46        |
| 2                | Costo total Linea de bombeo 2                          | Q 428,877.12          | \$ 57,183.62         |
| 3                | Costo total Tanque de 60m3                             | Q 282,655.84          | \$ 37,687.45         |
| 4                | Costo total (Ramal 2)                                  | Q 639,795.19          | \$ 85,306.03         |
|                  | <b>Total construccion</b>                              | <b>Q 2,614,444.11</b> | <b>\$ 348,592.55</b> |

This shows the total construction cost for Branches 1 and 2, serving all 4 sectors. It does not include management and WASH training or M&E.

This shows the total cost of only Branch 1 for 3 sectors. This includes all the training costs and M&E.

It also shows the cash contribution of the community families. They also will contribute unskilled manual labour.

| Fase 1 con Talleres de Gobernanza y Higiene                    |                       |                      |          |                    |
|--|-----------------------|----------------------|----------|--------------------|
| Descripcion  | Total Quetzales       | Total dolares        | usuarios | aporte de conexión |
| Costo total Fase1 (Ramal 1)<br>incluye capacitaciones para O&M | Q 1,269,835.95        | \$ 169,311.46        |          |                    |
| Talleres de Gobernanza   | Q 25,000.00           | \$ 3,333.33          |          |                    |
| Talleres de Higiene  | Q 20,000.00           | \$ 2,666.67          |          |                    |
| Monitoreo y Evaluacion   | Q 20,000.00           | \$ 2,666.67          |          |                    |
| <b>Aporte comunitario</b>                                      | Q 259,200.00          | \$ 34,560.00         | 324      | 800                |
| <b>Aporte Rotarios</b>   | <b>Q 1,055,635.95</b> | <b>\$ 140,751.46</b> |          |                    |

The cost summary for Branch 1 in the previous slide includes funds for a proper pump/pressure test of the existing deep water well. Such a test is necessary to prove that the aquifer has sufficient volume to sustain flow in the long term.

That test will have to be done before submitting a global grant. Hence the cost of about Q40,000 or US\$5300 can be removed from the total cost of Branch 1. That leaves about \$135,400, while the funds committed are sufficient to cover that, at US\$136,000.

**The cost of the test will have to be covered by additional funds yet to be raised.**

Note that EWB has included an inflation factor in their cost estimate. Prices were determined from local vendors recently, and inflation appears to be less now than a year ago. It is unlikely that significant purchases would be made before mid 2024.

EWB advised that construction of Branch 1 could proceed during the rainy season in Guatemala with appropriate planning, as it is mostly in developed land. The rainy season is normally about mid-May to mid-November.

Branch 2 in future would be more difficult in the rainy season, as it includes much forest area for the flow lines and tank.

Municipality of Totonicapán has built a new blockhouse for the generator that runs the pump. The truck is delivering steel pipe for the flow line to the uphill tank in Paquiacquix. The last photo shows community members working on excavation and installation of the flow line.

