

The Madagascar Water Project

Annex-1: Phase I Drilling Program

The Phase I Drilling Program was conducted in April 2015. It was the first program designed to accomplish the objectives established in the Madagascar Water Project Mission Statement. The program incorporated lessons learned from the Pilot Program, which included technical drilling improvements as well as lessons learned in establishing a presence within the communities.

A survey of the east coast of Madagascar indicated a need for wells in the areas surrounding Toamasina. It soon became apparent that the lack of water wells was due to geologic reasons, which did not provide easy access to subsurface aquifers.

Two areas were drilled in the Phase I Drilling Program. One well was drilled north of Toamasina and five wells were drilled in and around the village of Andovoranto. In addition to using improved drilling techniques, it was *The Madagascar Water Project's* first project that worked with the community to use accessible water to improve the sanitation and hygiene in the community.

Well 101: Ampandroantsiriry

A single well was drilled 10km north of Toamasina, with the objective to provide potable water in communities that are currently using untreated river water. The program identified several issues that needed to be addressed, including the following:

- Drilling to the depth limits of the equipment with significant problems such as hard formation and stuck pipe;
- Failure to find a suitable aquifer in the window between the top of the water table and basement rock.

After several attempts at different locations, a single successful well was drilled in 2015. The presence of adequate aquifers is spotty at best and significantly increases the costs due to a high dry hole rate. The project remains open for future development although measures to reduce the geologic risk must be developed before additional drilling is implemented.

A photo and the specifications of the Ampandroantsiriry-1 is shown below:

Needed

- Date: July, 2015
- Lat: Long:
- Time Drill & Complete: 9 Days (including dry holes)
- Depth: 9m
- Top of Water Table: 4m
- Completion Type: slotted 1m PVC well point.
- Initial Rate: 30 liters/min.
- Current Status: producing

Well 102: Andovoranto Project Well 1



- Date: April, 2015
- Lat: Long:
- Time to Drill & Complete: 4 Days
- Depth: 7.0m
- Top of Water Table: 4.5m
- Completion: slotted 1m PVC well point.
- Initial Rate: 30 liters/min.
- Current Status: Producing
- Number of Users: 50 Families

Well 103: Andovoranto Project Well 2



- Date: April, 2015
- Lat Long
- Time to Drill & Complete: 2.5 Days
- Depth: 5.0m
- Top of Water Table: 3.0m
- Completion: slotted 1m PVC well point
- Initial Rate: 30 liters/min.
- Current Status: Producing
- Number of Users: 100 Families

Well 104: Andovoranto Project Well 3



- Date: April, 2015
- Lat: Long:
- Time to Drill & Complete: 2.5 Days
- Depth: 4.0m
- Top of Water Table: 2.0m
- Completion: slotted 1m PVC well point.
- Initial Rate: 30 liters/min.
- Current Status: Producing
- Number of Users: 70 Families

Well 105: Andovoranto Project Well 4



- Date: April, 2015
- Lat: Long:
- Time to Drill & Complete: 1.5 Days
- Depth: 3.5m
- Top of Water Table: 1.5m
- Completion: slotted 1m PVC well point.
- Initial Rate: 30 liters/min.
- Current Status: producing
- Number of Users: Estimated 50+ Families

Well 106: Ambila Well-1



- Date: April, 2015
- Lat: Long:
- Time to Drill & Complete: 1.5 Days
- Depth: 7.0m
- Top of Water Table: 5.0m
- Completion: slotted 1m PVC well point.
- Initial Rate: 30 liters/min.
- Current Status: producing
- Number of Users: Estimated 100+ Families