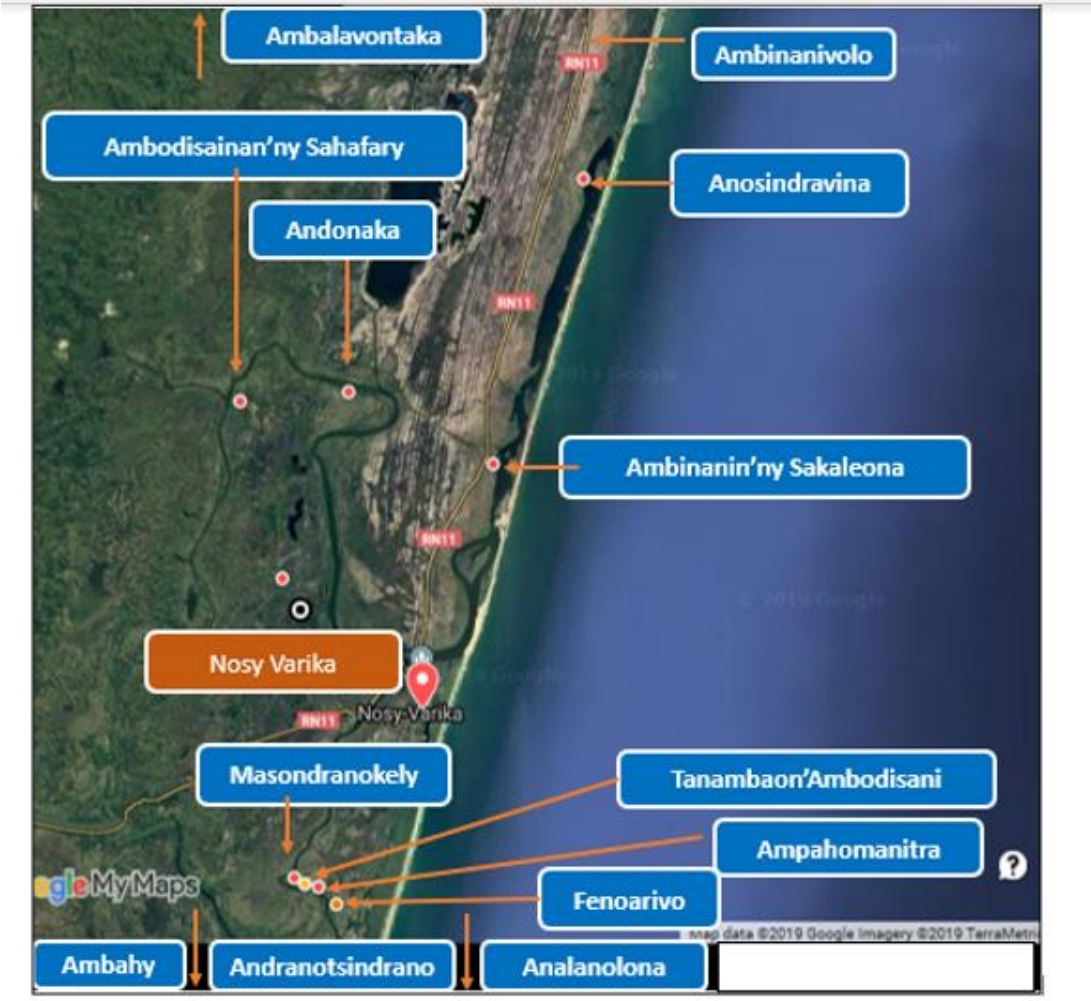
Village Well Program Phase II
Madagascar

Introduction: Village Well Program Phase II – Madagascar

The Village Well Program Phase II – Madagascar was conducted through a partnership of Water Charity and The Madagascar Water Project from August to November 2019. The Program drilled 22 shallow water wells in 14 rural villages along the east coast of Madagascar, providing clean water to an estimated 16,140 people. Water Charity provided full-funding for the program.

The Phase II Program is a continuation of the Water Charity – Madagascar Water Project Partnership established in 2018 with the Village Well Program Phase I – Madagascar Program, which drilled 13 water wells in 8 villages that provide clean water to an estimated 15,065 people. The Partnership is now responsible for providing clean water to over 31,000 people in 22 rural villages in eastern Madagascar.

Sustainability is ensured through a support program conducted by the Madagascar Water Project, which provides ongoing guidance on water management and periodic maintenance checks on each well.



The Village Well Program Phase II Madagascar drilled 22 water wells in the 14 rural villages noted above.

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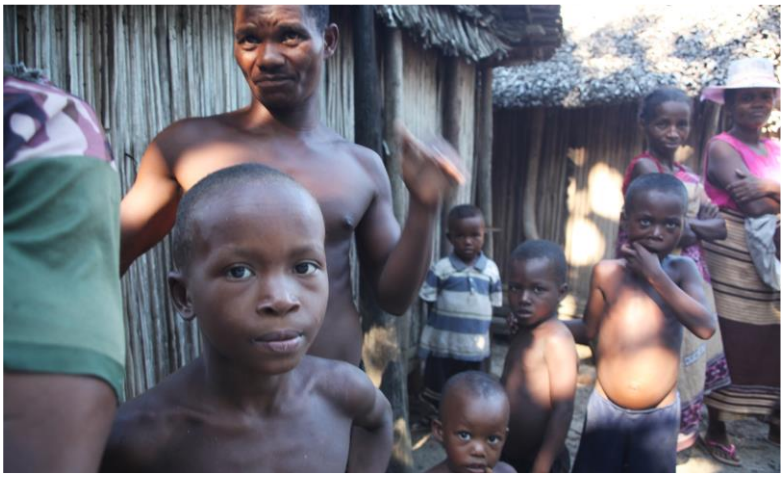
Program Overview

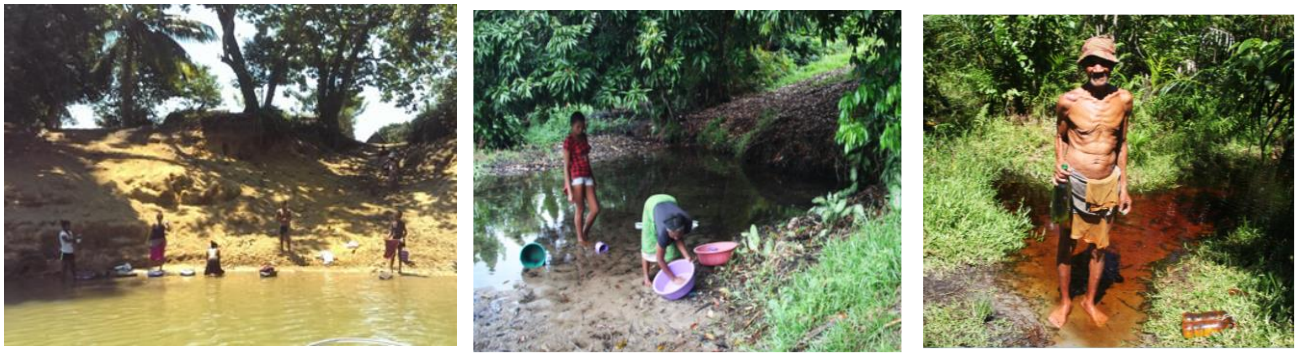
Living and Health Standards: The program was conducted in one of the most remote and inaccessible areas along the east coast of Madagascar, in the Madagascar Regions of Antsinanana and Fianarantsoa. The remnants of National Route RN-11, which hasn't been used in fifty years, provided limited access to a few villages using a 4WD vehicle. Most villages were accessible only by boat using the Pangalana Channel and the Sakaleona River.

Madagascar ranks among the poorest countries in the 2019 Multidimensional Poverty Index, which is a balanced assessment of health, education, and standard of living. This study places Madagascar second from bottom in the world, with 71% of the population living below the national poverty line. Only South Sudan ranks lower.



Widespread poverty is the norm, medical facilities are nearly non-existent, and schools are few and far between. Malnutrition is widespread and starvation is evident in some areas. Most people make their living fishing in the Pangalana and farming. Much of it is subsistence rice farming with the lucky few growing cloves and vanilla. There is a small industry making baskets and other things from locally grown reeds. The area was included in a large water well program in 2006, although most of the wells are now broken and many villages were passed over.

Clean water in nearly non-existent. Villages use the Pangalana Channel and the Sakaleona River as their sole source of water. A rare few wells exist, but the large majority of people lack access to clean water. Water borne disease is common as are diseases related to poor hygiene and sanitation. The Plague and Malaria are pandemic and rival water-borne disease as the leading cause of early death.



Representative water sources in the Pangalana Channel, Sakaleona River, and surface water.

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Operations and Program Implementation:

The Madagascar Water Project Team worked out of the village of Nosy Varika. The Team consisted of an Operations and Logistics Coordinator, Community Liaison, Field Geologist and a 4-man Drilling Team. All materials were moved to Nosy Varika by commercial boat and deployed to individual sites with small boats and occasionally by road. Tools, materials and crew often finished the journey on foot.

Wells were drilled by hand-auger and hammered to a total depth of 7 – 9 meters. A stainless-steel well point (screen) was used for sand control, galvanized steel pipe connects it to a cast-iron pitcher pump that pulls water to the surface. The subsurface geology was not optimal for good aquifers so it was often necessary to drill two and even three holes to find water in good, permeable rock. Wells were successful when they flowed at a rate of 20 – 25 liters per minute with no limitations on volume.

The Community Liaison worked with village social and political leaders to obtain approvals for well locations and operations, organize Well Management Committees to manage the well, train Technicians to maintain and repair the pumps, and work with the village population to help improve the health, hygiene and sanitation practices in the village. The community aspect of the work is an on-going process that continues during the quarterly maintenance trips.

Program Results:

The Village Well Program Phase II – Madagascar achieved all its objectives. Twenty-two wells were drilled in 14 villages that now provide clean water to an estimated 16,140 people. Twenty-two Well Management Committees were organized, which included technicians that were trained to maintain and repair the pumps.

Accomplishments include the following**:**

- An estimated 16,140 people who previously lacked clean water now have clean, potable water.
- Fourteen rural villages that were vulnerable to water-borne diseases now have clean, accessible, community-based water systems.
- Twenty-two water wells were drilled inside vulnerable villages:
- Twenty-two Well Management Committees were organized to manage, maintain and provide community water services in an equitable manner. A contact list was assembled to facilitate good communication and provide support year-round.
- Technical training and spare parts were provided to each Well Management Committee.

The table below provides the details for each well. In most cases the Program wells are the only sources of clean water in the villages. There are still many villages in the area that have no source for clean water……..there's still much work to be done.

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Well Locations and Village Information

				Existing Water Sources		
Seq. No.	Well No.	Village	Population	Primary Source	Working Pumps	No. Beneficiaries
1	MWP 81	Fenoarivo	1075	Sakaleona River	1 in school	1000
2	MWP 82	Fenoarivo				
3	MWP 83	Masondranokely	690	Sakaleona River	0	690
4	MWP 84	Tanambaon'Ambodisanina	2000+	Sakaleona River	2	1500
5	MWP 85	Ampahomanitra	3500+	Sakaleona River	5	1500
6	MWP 86	Ampahomanitra				
7	MWP 87	Ampahomanitra				
8	MWP 88	Ambalavontaka	**5000+**	Pangalana	2 bucket wells	3000
9	MWP 89	Ambalavontaka				
10	MWP 90	Ambalavontaka				
11	MWP 91	Ambinanin'ny Sakaleona	4800	Sakaleona River	2	1200
12	MWP 92	Ambinanin'ny Sakaleona				
13	MWP 93	Ambinanivolo	400	Sakaleona River	0	400
14	MWP 94	Nosindravina	400	Sakaleona River	0	400
15	MWP 95	Ambodisainan'ny Sahafary	1700	Sakaleona River	0	1000
16	MWP 97	Andonaka	1350	Sakaleona River	2 bucket wells	1350
17	MWP 98	Andonaka				
18	MWP 99	Ambahy	5000+	Sakaleona River	6 bucket wells	2000
19	MWP100	Ambahy				
20	MWP101	Andranotsindrano	350	Sakaleona River	0	350
21	MWP102	Analanolona	900	Sakaleona River	0	750
22	MWP103	Vosy Varika	7000+	Pangalana	many bucket wells	1000
Total		**14 Villages**				**16140**
		22 Well Management Committees				**people**

Measures implemented to ensure the sustainability of the operation include the following:

- Maintain a relationship with the villages and provide regular guidance to the Well Management Committees on water resource utilization and management and the wider community to improve health, hygiene and sanitation behavior and initiatives.
- Provide oversight and technical assistance to ensure the long-term service of the well.
- Empower the community to improve and help itself.

Key Performance Indicators that will be quantified and assessed to determine the impact of the program include the following:

- Quantify and track the incidence of water-borne disease and other diseases related to poor hygiene and sanitation.
- Quantify and track the number of people having better access to clean water. An estimated 90% of the population of each village now have improved access to clean water.
- Quantify and track the number of people who adopt improved health, hygiene and sanitation behaviors.
- Quantify and track school attendance and grades.
- Quantify and track quality of life indicators such as income, individual productivity, infant mortality and nourishment.

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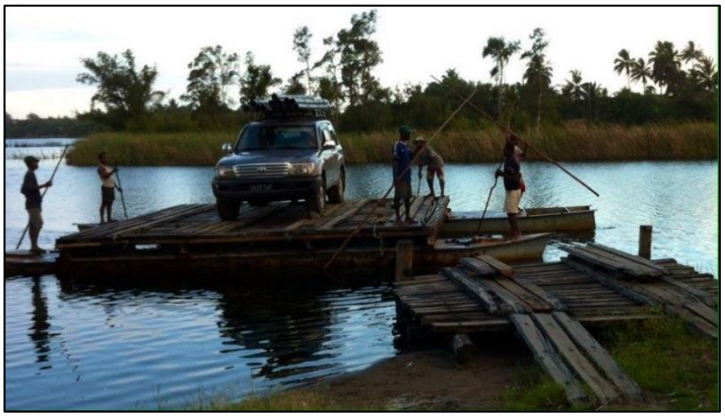
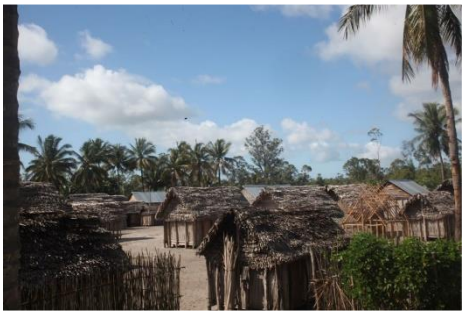
The work begins where the road ends:

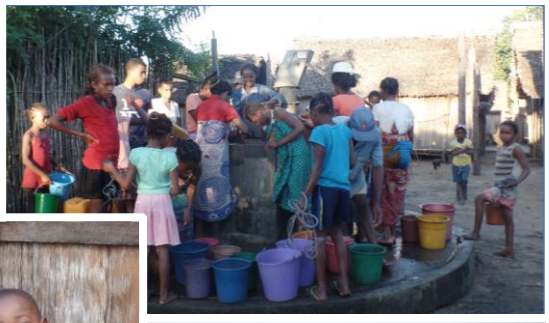
The east coast of Madagascar is beautiful. The weather is not much different than the US Gulf Coast, although it doesn't freeze. The program area is about 20 degrees south of the equator, so the seasons are flipped. Summer is hot & humid, and cyclones are common. Winter can be cold. The dry season runs between August to November, which is when the drilling programs are conducted.

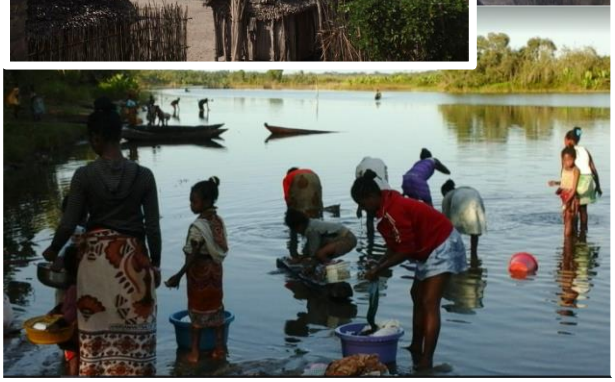


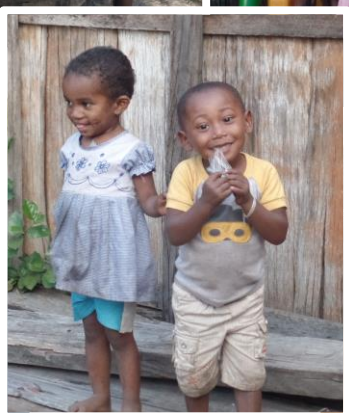
The villages are extremely remote, and the road south functionally ends at Mahanoro. Beyond there, car ferries, unpaved roads and no roads are the norm. The photos below are typical for a trip. It's beautiful but presents formidable logistical challenges.

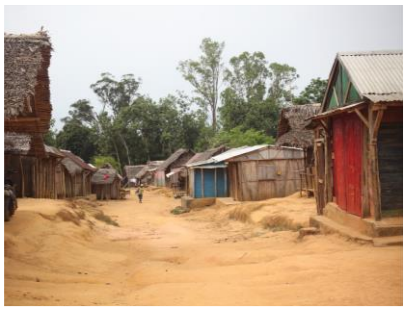
Beauty is in the eyes of the beholder. Some villages look like a great place to take a get-away-from-it-all vacation. Others, not so much. One thing they all have in common is they lack any source of clean water, getting their water from nearby waterways or holes dug in the ground. All lack electricity, most lack medical facilities and many lack schools. Water-borne disease affects everyone.











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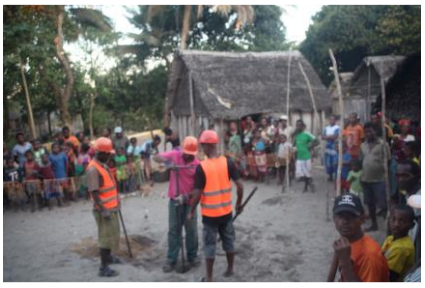
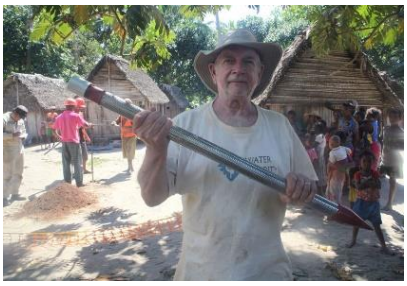
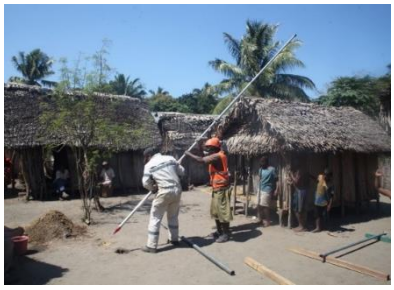
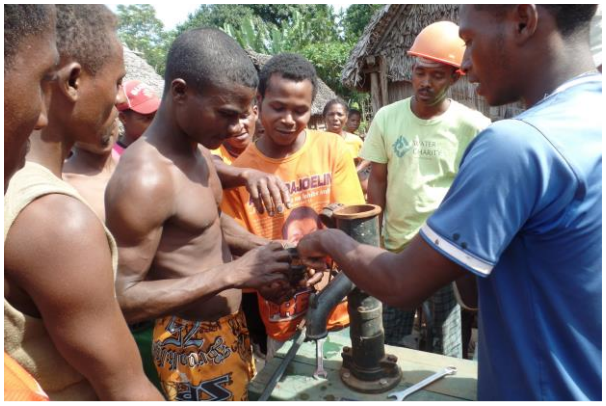
Most wells are drilled in half a day:

Drilling is done manually. A hand auger is used to drill to the top of the water table, which is commonly found at 4 – 6 meters depth. After the depth of the water is determined, the well assembly is built, run in the hole, and hammered three meters to total depth. A hand pump is used to test the well. Once good production is established, a table and slab are built to finish the well. The villagers then build an enclosure or roofed hut to house the well.


Sustainability is ensured:

Well Management Committees are organized in each community, for each well. Technicians are identified and trained, and the tools required to maintain and repair the pumps are provided. The Madagascar Water Project visits each well quarterly to provide guidance to the Committees and to make repairs as needed. The Project maintains a help line where each Committee can get technical assistance and spare parts as needed. Most communities require little help beyond the quarterly visits and more than 90% of all wells remain productive.

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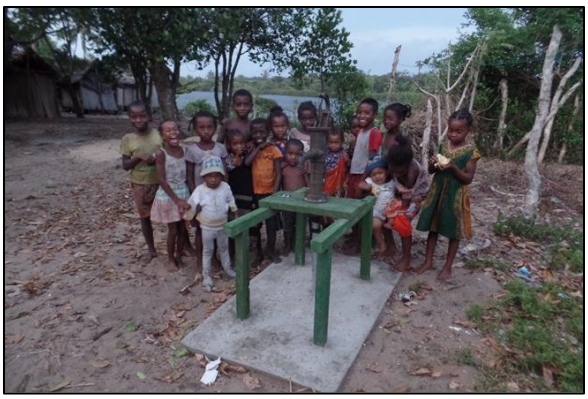
Let the Celebrations Begin:

Most villages have never had clean, potable, easily accessible water. For them it is a big step into the modern world as they know it. The goal is to begin the process for a better quality of life with better health. Healthy children will do better in school, healthy adults will produce more for their families, and fewer human and financial resources will be required to care for the sick.

The Villagers are very aware of the value of their wells. Wells drilled by the Madagascar Water Project five years ago are still treated with the same care and respect as if they were new.





The Madagascar Water Project – Water Charity Partnership engages in high-impact projects implemented over a relatively short period of time, with measurable results. Success can be quantified and duplicated. Failures can be identified and changed.

Madagascar remains one of the poorest and least developed countries on Earth. It's not a conflict area. There are no natural disasters, no earthquakes, no cyclones. However, there is a human crisis, hunger, disease and lack of opportunity.

Conditions can improve and clean water is a fundamental beginning. Providing this most basic need lays the groundwork for a path to a better quality of life. The work of the Partnership will continue, bringing clean water into more villages that wait patiently for this help.

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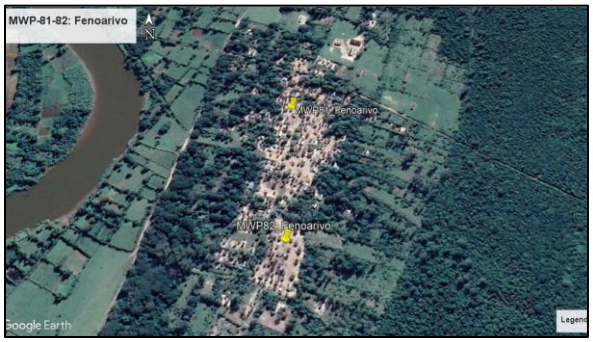
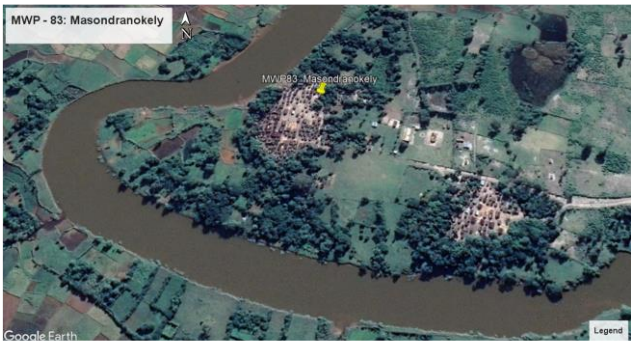
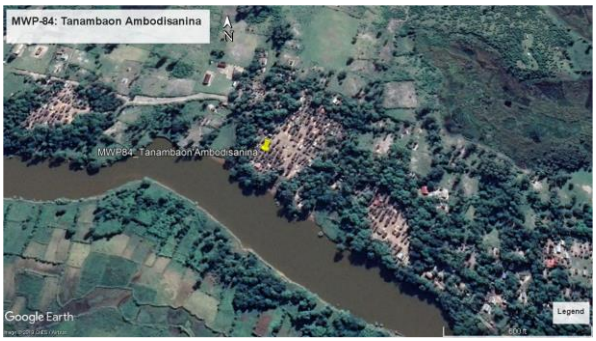
Appendix I: Finding Villages

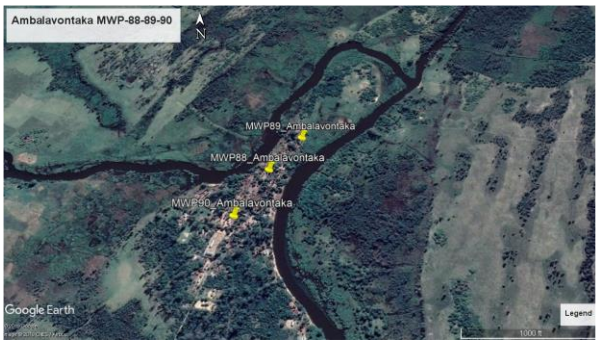
The villages included in the Program are not easy to find. Google Earth helps but many are not found until you get on the ground or in the water. Working with local officials and talking to people is another way to find these places. Many of these villages are passed over because they are hard to find. No one knows they are there.

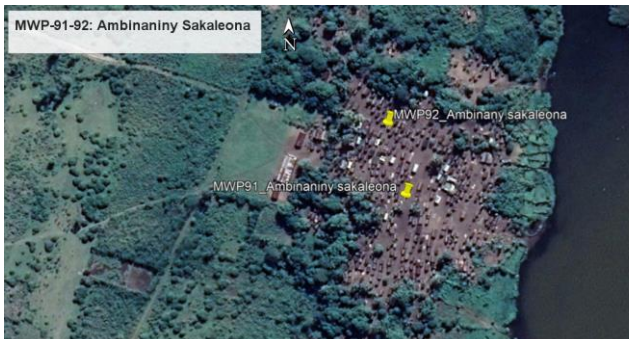
The Village Well Program Phase II Madagascar has provided clean water to the 14 villages shown below, home to over 16,000 people that now benefit from the wells drilled in the Program:

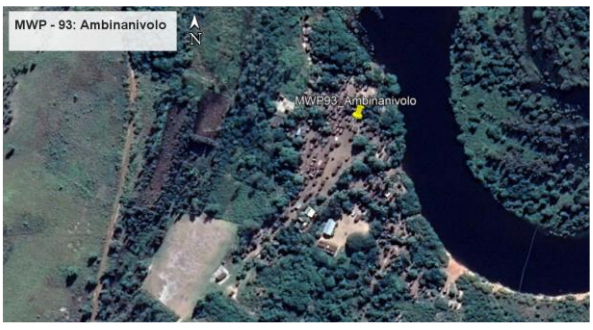


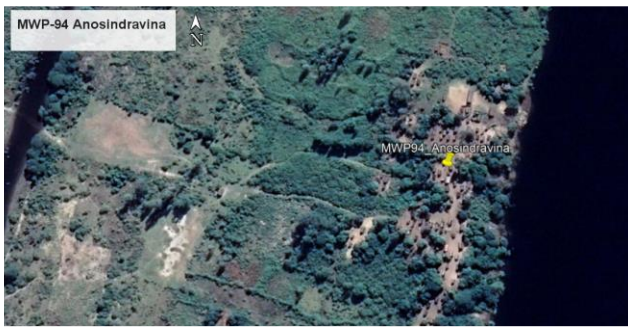












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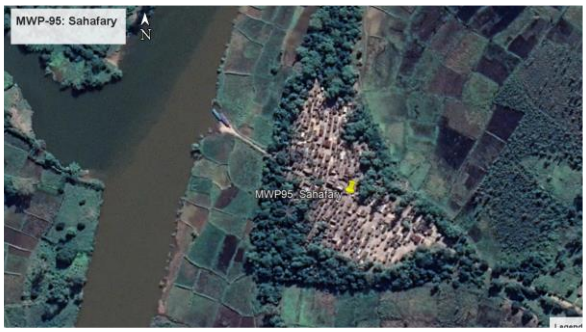

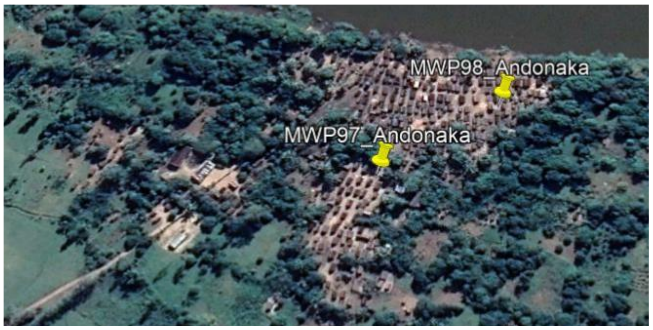

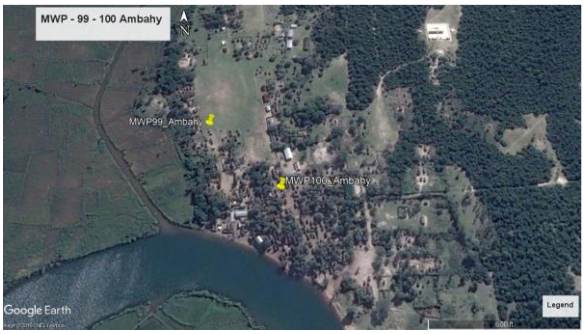

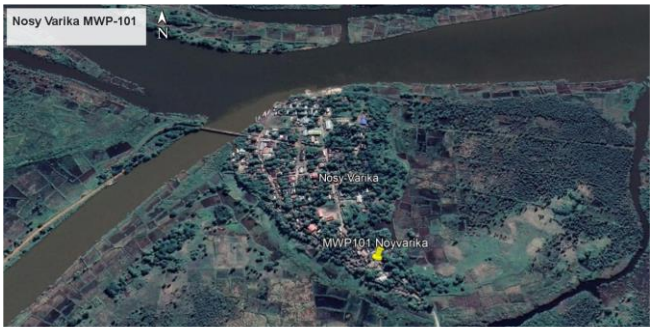

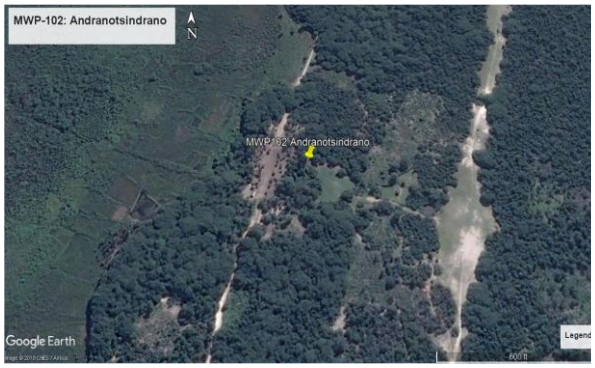

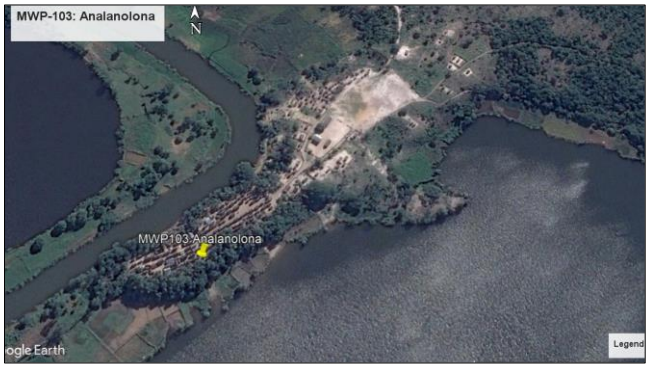

The Madagascar Water Project Team