

# RECONNAISSANCE TRIP

DISTRICT OF ANALALAVA

November 2023



## Mission objectives

- Identification and evaluation of exiting water infrastructure;
- Learn how existing water infrastructures can fail or go unserviceable;
- Location of vulnerable population with an urgent need for safe drinking water.
  
- Preparation for the 2024 drinking water supply project (pinpoint locations for drilling and installation of new water infrastructure, type and number of facilities to be installed, based on village structure and demographic size, etc....).

## Participants

Name & surname	Position
Frederick Rittelmeyer	General Manager
Hilaire RAZANADRAFELY	Project Manager
RANDRIAMANANTENA Luc Herve	Drilling Manager
MAHERISON Moise	Plumbing Supervisor

## Geographical scope of operating zone

Analalava is a coastal town and commune in north-western Madagascar over the Mozambique Channel a district in northern Madagascar. It is approximately 150 kilometers north of Mahajanga and a part of Sofia region and borders the districts of Ambanja in north east, Bealanana and Antsohihy in east and Boriziny (Port-Bergé) in south. The area is 4,380 km<sup>2</sup> has eleven commune. The population is estimated to be 22,713

The majority of the population of Analalava is Sakalava and Tsimihety, and given Analalava's geographical space covered by the sea, Sakalava people are very much accustomed to the sea. In addition to livestock breeding, farming and trading, they are mostly fishermen.

## Accessibility

The Analalava district is accessible by land from the RN 6 and then the RN 31A. It can also be reached by boat from Antsohihy.

There is an airstrip in the district that is still useable, but no regular flights are operated.

## Scouted villages during the mission:

ANALALAVA COMMUNE

Lat 14°38'5.67"S Long 47°44'51.06"E

The commune of analalava has a large water distribution structure donated by the Malagasy national government in 2014, but it failed unfortunately due to mismanagement.

## Technical details of the system

The urban commune of Analalava is divided into 15 Fokontany, but four (4) are served by the system.

The drinking water supply system for the town of Analalava comprises: a catchment structure (well) under the flow of the Analalava river, with a reinforcement wall on the right bank, a three-room (3) operating building (raw water pumping station, chlorination unit and office), a 110m<sup>3</sup> circular tank on the ground, PEHD pipes of various sizes (networks) and eighteen (18) standpipes with two taps.

The chlorination unit with injection at the inlet of the discharge pipe from the well to the reservoir consists of: a dosing pump (P=0.25KW), Q=25l/h, an electric agitator (P=0.37 KWA), and a 100l tank.

The distribution network, which distributes water throughout the agglomeration, consists of: PVC PN10 main pipe, diameter 110, length 710m; PEHD PN 12.5 secondary pipe, total length 7365m.

### Management of the system

From local source, the system initially managed by the commune functioned smoothly for a couple of months, then went out of service due to a lack of fuel to run the electrically powered submersible pump.

Then managed by a private company under agreement with the municipality, but suddenly faced an unexpected difficulty, resulting in the discontinuation of its activities on the ground.

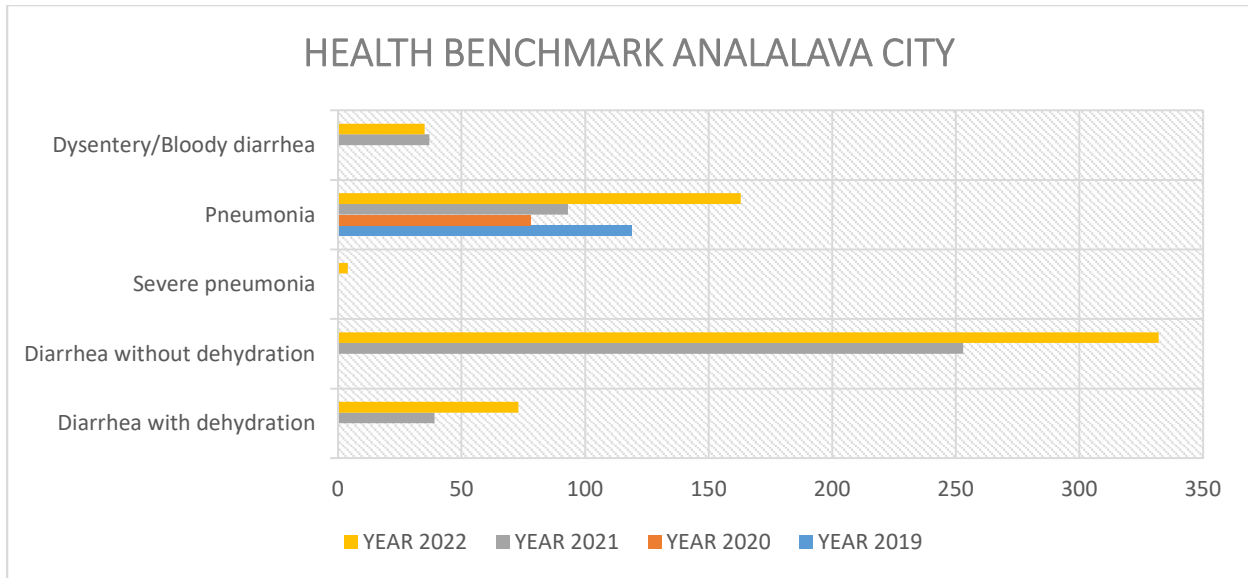
Since then, the infrastructure has remained inoperative, has gradually deteriorated and the local people have returned to their traditional water sources.

### Current status of the system

Device	Capacity	Unit	Current status
Catchment tank		1	In good shape might need small rehabilitation

Retention tank		1	In good shape, might need slight works
Holding tank		1	In good shape might need slight repair
Water treatment tank		1	In good shape ,might need slight touch-up
Submersible pump	Q= 12m <sup>3</sup> /h, triphase 380V P=6,5 KW with low water control	1	Unoperational need to be replaced
Genset	17 KVA	1	Looks good but need to be checked
Standpipe	Two taps standpipe	18	In good shape, may need small finishing and repairs
Pipe line		1	Still connected with few leaks to be fixed

Disease profile	YEAR			
	2019	2020	2021	2022
Diarrhea with dehydration	0	0	39	73
Diarrhea without dehydration	0	0	253	332
Severe pneumonia	0	0	0	4
Pneumonia	119	78	93	163
Dysentery/Bloody diarrhea	0	0	37	35



## Conclusion

Despite the traditional water sources used by the inhabitants to satisfy their water needs, which portability is uncertain, and given that the city is bordered by the ocean, the city's few public and private wells produce salty or brackish water

### OVARIKELY VILLAGE

Lat 14°39'2.50"S Long 47°44'32.50"E

A hamlet of Ovaribe village belongs to the commune of Analalava with 495 habitants located at 3.7Km from Analalava city to the north.

Most of inhabitant of the village are farmers and breeder (cattle, poultry, etc....).

The village has no water infrastructure yet and people has to spend 45mn to fetch water from a river which is dirty and muddy during the rainy season.

It is a one well type village and the geology structure seems to be easy to drill.

The village is accessible by road through the National road 31A and Analalava.

## Recommendation

To drill one (1) well equipped with hand pump

OVARIBE VILLAGE

Lat 14°39'57.10"S

Long 47°44'22.50"E

One of the 15 Fokontany villages in the Analalava commune, inhabited by 455 people.

The buildings are scattered, as the occupants are mainly farmers and prefer to build their houses close to their crops.

The village has no drinking water infrastructure, and depends on a river and a traditional water source to meet their water needs.

The Geological structure appears to be the same as that of the village of Ovarikely.

It is perhaps a village of one or two wells, as the houses are widely dispersed with a minimum distance of 10 meters between them.

## Recommendation



*Pic.Current water source used by the local at ovarikely village*

ANDROIIVY VILLAGE

Lat 14°42'28.40"S Long 47°44'35.20"E

A village of 675 inhabitants, 9 km from the northern town of Analalava, 40 minutes by car.

The best time to operate in the village is during the dry season, as some parts of the road are a little narrow and lateritic, and can be slippery during rainy season. Villagers are ready to contribute to the widening of the access road once the operation has started.

This is a good candidate for a water supply project, as there is no existing infrastructure and the locals get their water from a traditional source that is frightening and extremely dangerous, as large crocodiles live inside and constantly attack people.

A recent victim of crocodile bites was a child and a man: the child is dead and the man badly injured on his right leg.

The geological structure indicates that it is not very hard to reach fresh water in the village.

## Recommendation

Drill one (1) well equipped with a hand pump



*Pic. Current water source at Androiavy village*



*Pic. Part of road to Androiavy village*



ANDAVARAVY HAUT VILLAGE

Lat 14°43'12.00"S Long 47°52'42.00"E

This hamlet where farmers and fishermen live is a part of the municipality of Analalava, in the northeastern part of the commune.

It may seem small, but it is densely populated, with large households. The village's population is estimated at 250.

The village can be reached by boat from Analalava in two hours at a minimum speed of 20 km/h, but the tide has to be taken into account.

The best time to reach the village by boat is in the middle of the months (15/16/17) and before the end of the months (22/23/24), otherwise the river will dry up and the boat will get stuck on the riverbank.

The village of Andavaravy haut has no water infrastructure, and the inhabitants still rely on a traditional water source whose potability is unreliable.

They also have no nearby medical center, and must travel to Analalava for any medical emergencies.

The geological structure seems to be a little difficult for a drilling operation. It's a good candidate for the AK 60 drill.

## Recommendation

To drill one (1) well equipped with hand pump



*Pic.one house hold family at Andavaravy haut village*



*Pic.Overview of Andavaravina haut village*

ANDAVARAVY BAS VILLAGE

Lat 14°43'30.00"S Long 47°52'27.00"E

It is an integral part of the Analalava commune and has a population of around 300.

The inhabitants are very enthusiastic and have shown themselves ready to welcome and support any development project introduced in their village.

The village is accessible from Analalava by boat to Andavaravy haut, then by foot or zebu cart. The best working periods are during the dry season (May-October).

There is no public infrastructure within the village, except for a self-built school made of local materials.

As regards public health care, there is no hospital, but a paramaid looks after the inhabitants.

For serious cases that cannot be dealt with by the paramaid, villagers have to be transferred to Antsohihy, which is a very long and difficult journey to get better treatment.

There are no reliable water sources in the vicinity, so people rely on a river or potholes on the eastern side of the village.

### Recommendation

To drill one (1) well equipped with hand pump



*Pic. Current water source at Andavaravy bas village*

ANOVILAVA VILLAGE

Lat 14°45'6.00"S Long 47°52'28.00"E

Village with a population of 712 lying to the northeast of Analalava, reachable from the villages of Andavaravy and Anovilava both by foot and by zebu cart.

The villagers have mentioned that there is a drivable road that can be used during all dry seasons (May-October), subject to a few repairs. They are ready to fix the road if a water supply project comes forward to provide them access to water.

Like other villages, they have no water infrastructure or any reliable source of water. They have to rely on getting water from downstream, using potholes when the river runs dry.

There is no public health service in the village, and people have to get to Antsohihy for severe cases.

The geological structure does not allow the use of manually operated drilling tools; the AK60 is an appropriate equipment to drill a well in Anovilava, as it is sited in a higher elevation.

## Recommendation

To drill one (1) well equipped with submersible pump, water tank, and distribute water through stand posts.



*Pic. Current water source at Anovilava village*

AMBALAVARY VILLAGE

Lat 14°45'49.10"S Long 47°52'50.00"E

Part of the fifteen (15) Fokontany of the Analalava commune, located in the north, with 708 inhabitants, predominantly Sakalava and Tsimihety tribes.

Access from Analalava is by riverboat up to Andavaravy haut, then by cart through Anovilava.

Residents say that a road is available for vehicles, but is only practicable during the dry season. The road is in bad condition, but the locals are committed to repairing the rough spots if a project comes up.

A clean, well-organized village of farmers and herders.

The village has one well that produces sludgy water with low flow rates. Some of the people do not use the well, but instead collect water from another traditional source at some distance from the village.

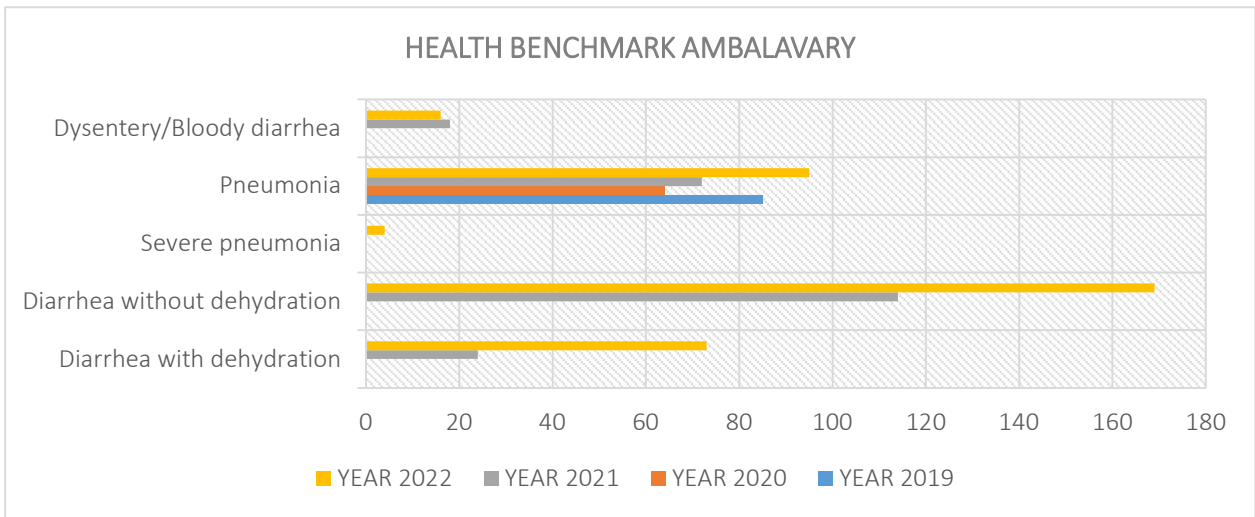
A basic health center is available, staffed by a single midwife.

The village is set on higher land, and the geological structure appears to be structurally complex, with altered pebbles and other hard formations that are difficult to get through.



*Pic. Current water source at Ambalavary village*

Disease profile	YEAR			
	2019	2020	2021	2022
Diarrhea with dehydration	0	0	24	73
Diarrhea without dehydration	0	0	114	169
Severe pneumonia	0	0	0	4
Pneumonia	85	64	72	95
Dysentery/Bloody diarrhea	0	0	18	16



## Recommendation

To drill one (1) well equipped with submersible pump, water tank and stand posts.

**AMPASIPITILY**

Lat 14°19'3.60"S Long 47°45'7.70"E

Is a coastal large village, part of the Amboloboza commune in the Analalava district.

This beautiful village is inhabited by around 1086 villagers from 206 households who are fishermen and farmers.

The village of Ampasipitily has a few wells, but only one bucket well is currently used by the local population, as the remaining wells are no longer in use because they produce salty and brackish water or dry.

Other than these wells, the desperate villagers simply fetch stagnant water to meet their water needs.

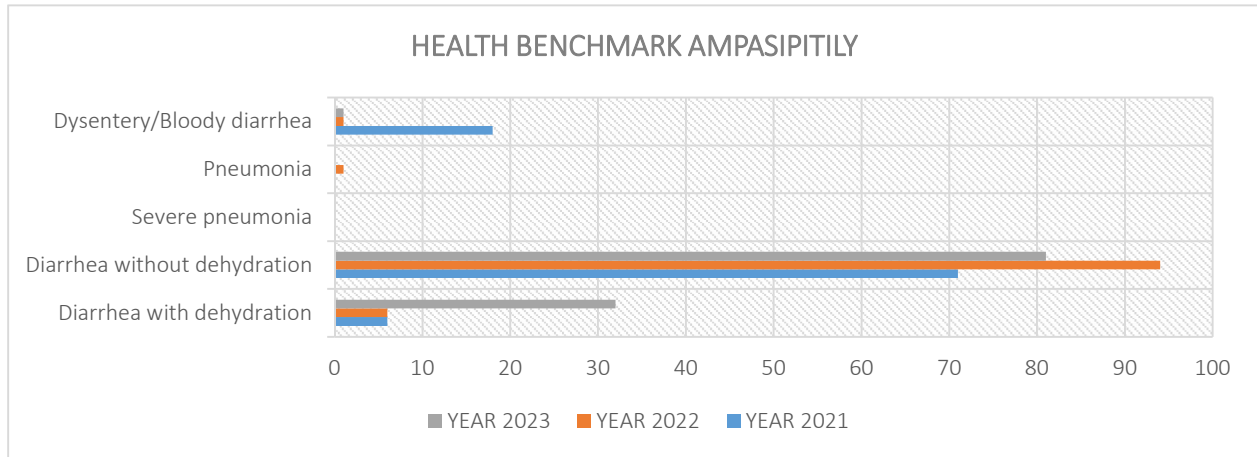
In terms of aquifers, there's a part where you can find fresh water and a part that only contains salt water, probably because the village is located only a few meters from the ocean.

The only way to enter Ampasipitily is by road via Amboloboza or Analalava or by boat from Antsohihy or Analalava.



*Pic. Current water source at Ampasipitily village*

Disease profile	Year		
	2021	2022	2023
Diarrhea with dehydration	6	6	32
Diarrhea without dehydration	71	94	81
Severe pneumonia	0	0	0
Pneumonia	0	1	0
Dysentery/Bloody diarrhea	18	1	1



## Recommendation

Use of AK 60 drilling rig to drill one (1) well equipped with Submersible pump, holding tank, water distribution infrastructure.

### AMBALAHONKO VILLAGE

Lat 14°27'22.30"S Long 47°42'22.00"E

Ambalahonko is a coastal village with a population of 500 divided into 145 households.

The village has two wells, one equipped with a hand pump at the northern end of the village and the other in the premises of a private FJKM religious school at the eastern end. The first well to the north of the village is no longer in service, while the bucket well located to the east still supplies fresh water at a very low recharge rate and is still used by the local population.

In addition to these two wells, there is a traditional well in the northern corner of the village, which is still used by the villagers.

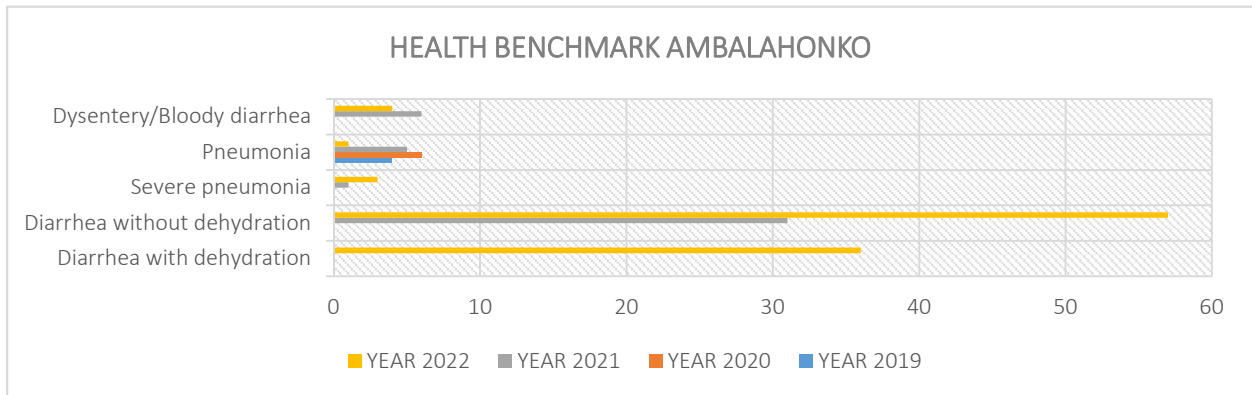
The village of Ambalahonko, like that of Ampasimpitily, is not easily accessible by road from Amboloboza, although it can be easily reached by boat from Antsohihy or Analalava.

Like other villages, Ambalahonko faces water scarcity during the dry season.



Pic. Current water source at Ambalahonko village

Disease profile	YEAR			
	2019	2020	2021	2022
Diarrhea with dehydration	0	0	0	36
Diarrhea without dehydration	0	0	31	57
Severe pneumonia	0	0	1	3
Pneumonia	4	6	5	1
Dysentery/Bloody diarrhea	0	0	6	4



## Recommendation

Use AK60 drilling rig to drill two (2) wells equipped with hand pump

AMPIHOARA VILLAGE

Lat 14°26'15.90"S Long 47°59'37.70"E

A village located between the communes of Befotaka-nord and Amboloboza, part of Befotaka-nord in the Analalava district.

The number of inhabitants is currently estimated to be 549.



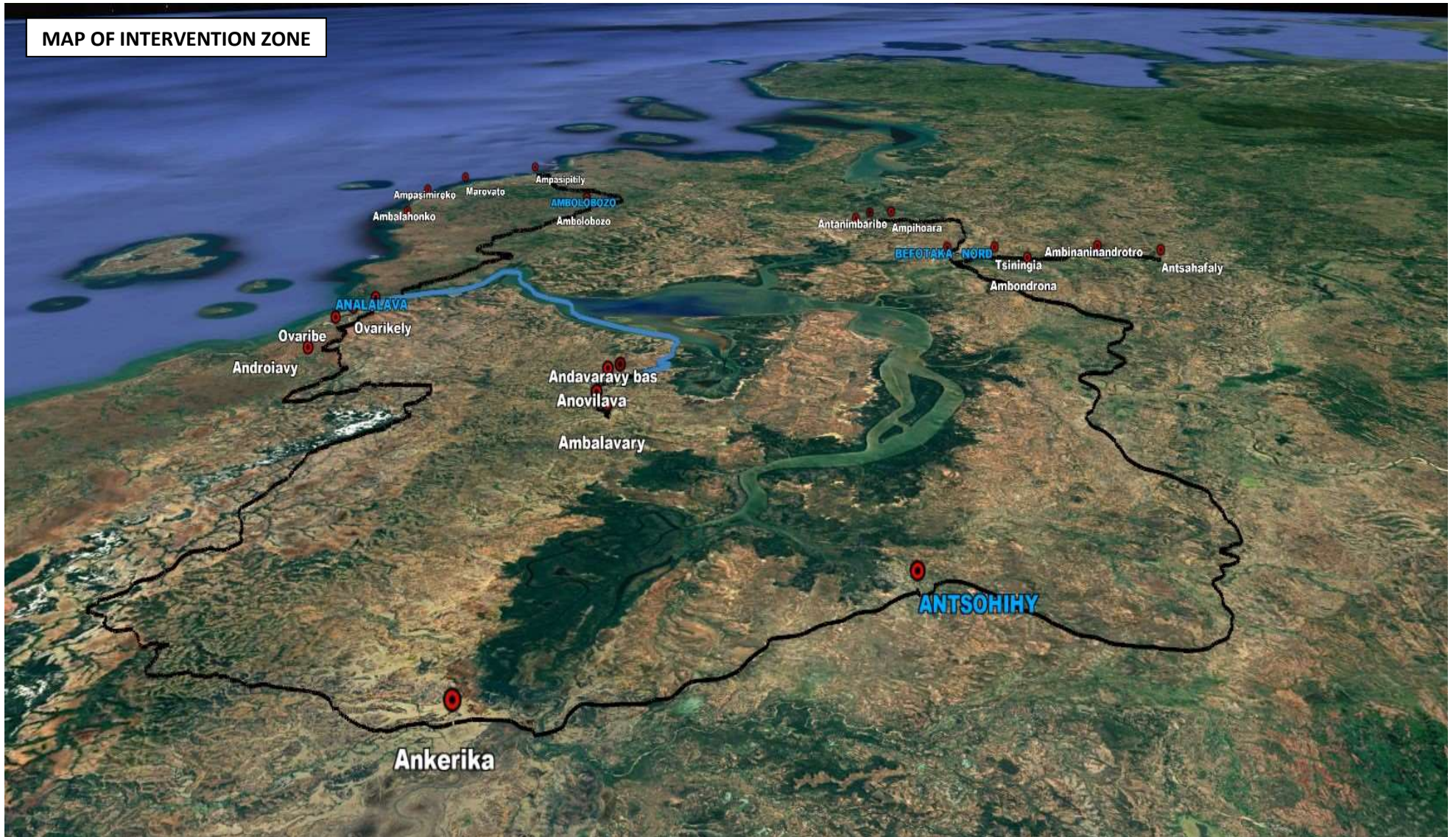
There's one single 12m-deep well at the entrance of the village, which the locals say is abandoned because it supplies brackish water.

Apart from this well, the villagers fetch water from a far-off source in the river.



*Pic. Abandoned bucket well at Ampihoara village*

Appendix





**DEMOGRAPHIC DATA**  
(Source: communes)

AREAS					POPULATION SIZE	POPULATION NUMBER											
Date	Region	District	Commune	Village	Urban	Adults			Children (Age 0-5)			Children (Age 6-18)			Percent (%)		
						Men	Women	Total	Boy	Girl	Total	Boy	Girl	Total	Children	Men	Women
Nov-23	Sofia	Analalava	Befotaka Nord	Befotaka Nord	3847	1066	1172	2238	298	389	687	452	470	922	41.82	27.71	30.47
Nov-23	Sofia	Analalava	Befotaka Nord	Tsiningia	1380	377	476	853	108	136	244	131	152	283	38.19	27.32	34.49
Nov-23	Sofia	Analalava	Befotaka Nord	Ambondrona	613	146	211	357	46	63	109	61	86	147	41.76	23.82	34.42
Nov-23	Sofia	Analalava	Befotaka Nord	Ambalantsotry	527	149	158	307	38	56	94	51	75	126	41.75	28.27	29.98
Nov-23	Sofia	Analalava	Befotaka Nord	Andrafiabe	397	101	131	232	28	42	70	36	59	95	41.56	25.44	33.00
Nov-23	Sofia	Analalava	Befotaka Nord	Antanimbaribe	879	226	286	512	64	92	156	93	118	211	41.75	25.71	32.54
Nov-23	Sofia	Analalava	Befotaka Nord	Ampohara	549	144	175	319	42	56	98	59	73	132	41.89	26.23	31.88
AREAS					POPULATION SIZE	POPULATION NUMBER											
Date	Region	District	Commune	Village	Urban	Adults			Children (Age 0-5)			Children (Age 6-18)			Percent (%)		
						Men	Women	Total	Boy	Girl	Total	Boy	Girl	Total	Children	Men	Women
Nov-23	Sofia	Analalava	Analalava	Tsaradokitra	592	63	85	148	59	69	128	152	164	316	75.00	10.64	14.36
Nov-23	Sofia	Analalava	Analalava	Ambodivoanio	470	41	57	98	50	51	101	108	163	271	79.15	8.72	12.13
Nov-23	Sofia	Analalava	Analalava	Doany	476	44	51	95	43	55	98	131	152	283	80.04	9.24	10.71
Nov-23	Sofia	Analalava	Analalava	Ambalarafimikivy	560	52	60	112	62	61	123	155	170	325	80.00	9.29	10.71
Nov-23	Sofia	Analalava	Analalava	Mahabo	540	38	52	90	57	86	143	140	167	307	83.33	7.04	9.63
Nov-23	Sofia	Analalava	Analalava	Andrafiatoka	486	40	41	81	52	56	108	121	176	297	83.33	8.23	8.44
Nov-23	Sofia	Analalava	Analalava	Antangerina	576	45	51	96	73	79	152	139	189	328	83.33	7.81	8.85
Nov-23	Sofia	Analalava	Analalava	Androiavy	675	60	75	135	49	99	148	137	255	392	80.00	8.89	11.11
Nov-23	Sofia	Analalava	Analalava	Tsamanara	520	49	55	104	44	63	107	128	181	309	80.00	9.42	10.58
Nov-23	Sofia	Analalava	Analalava	Tsarabanja	490	45	53	98	48	55	103	142	147	289	80.00	9.18	10.82
Nov-23	Sofia	Analalava	Analalava	Ovaribe	455	30	61	91	57	61	118	131	115	246	80.00	6.59	13.41
Nov-23	Sofia	Analalava	Analalava	Ovarikely	495	47	52	99	63	58	121	103	172	275	80.00	9.49	10.51
Nov-23	Sofia	Analalava	Analalava	Namakia	606	40	61	101	52	91	143	151	211	362	83.33	6.60	10.07
Nov-23	Sofia	Analalava	Analalava	Befitina	1010	210	219	429	123	163	286	261	34	295	57.52	20.79	21.68
Nov-23	Sofia	Analalava	Analalava	Anjialava	1233	196	215	411	118	144	262	248	312	560	66.67	15.90	17.44
Nov-23	Sofia	Analalava	Analalava	Central haut	855	65	93	158	108	124	232	213	252	465	81.52	7.60	10.88
Nov-23	Sofia	Analalava	Analalava	Central bas	585	61	69	130	52	68	120	145	190	335	77.78	10.43	11.79
Nov-23	Sofia	Analalava	Analalava	Ampasikely Nord	742	78	108	186	61	74	135	204	217	421	74.93	10.51	14.56
Nov-23	Sofia	Analalava	Analalava	Ampasikely sud	894	82	141	223	74	118	192	183	296	479	75.06	9.17	15.77

## MISSION REPORT

Nov-23	Sofia	Analalava	Analalava	Ampasikely Nord	742	78	108	186	61	74	135	204	217	421	74.93	10.51	14.56
Nov-23	Sofia	Analalava	Analalava	Ampasikely sud	894	82	141	223	74	118	192	183	296	479	75.06	9.17	15.77
Nov-23	Sofia	Analalava	Analalava	Fongony	957	144	175	319	103	113	216	207	215	422	66.67	15.05	18.29
Nov-23	Sofia	Analalava	Analalava	Ambalahonko	822	127	187	314	68	79	147	148	213	361	61.80	15.45	22.75
Nov-23	Sofia	Analalava	Analalava	Marotaola	1410	219	251	470	151	171	322	257	361	618	66.67	15.53	17.80
Nov-23	Sofia	Analalava	Analalava	Bevoay	773	88	105	193	75	115	190	177	213	390	75.03	11.38	13.58
Nov-23	Sofia	Analalava	Analalava	Marondambo	564	64	77	141	64	66	130	108	185	293	75.00	11.35	13.65
Nov-23	Sofia	Analalava	Analalava	Antsoha	708	92	85	177	91	111	202	153	176	329	75.00	12.99	12.01
Nov-23	Sofia	Analalava	Analalava	Ankarafamamy	772	107	147	254	72	118	190	101	227	328	67.10	13.86	19.04
Nov-23	Sofia	Analalava	Analalava	Ambarijeby Est	1086	231	307	538	91	117	208	152	188	340	50.46	21.27	28.27
Nov-23	Sofia	Analalava	Analalava	Ambalavary	708	106	130	236	60	82	142	159	171	330	66.67	14.97	18.36
Nov-23	Sofia	Analalava	Analalava	Bekirovaka	632	62	96	158	59	69	128	144	202	346	75.00	9.81	15.19
Nov-23	Sofia	Analalava	Analalava	Anovilava	712	97	81	178	82	92	174	151	209	360	75.00	13.62	11.38
Nov-23	Sofia	Analalava	Analalava	Andavaravy	552	44	48	92	57	65	122	140	198	338	83.33	7.97	8.70
Nov-23	Sofia	Analalava	Analalava	Antsatrana	757	101	152	253	71	79	150	147	207	354	66.58	13.34	20.08
<b>TOTAL</b>					<b>22713</b>	<b>2768</b>	<b>3440</b>	<b>6208</b>	<b>2289</b>	<b>2852</b>	<b>5141</b>	<b>5036</b>	<b>6328</b>	<b>11364</b>	<b>72.67</b>	<b>12.19</b>	<b>15.15</b>

**HEALTH BENCHMARK**  
(Source: SDSP)

Areas					Health benchmark Befotaka Nord																	
Date	Region	District	Commune	Village	Disease profile	Period	Origin	Statistical (total or water incident case)												Open defecation practice	Health center	
								2021				2022				2023					Type & status	Distance (km)
								0-5	6-18	Adult	Total	0-5	6-18	Adult	Total	0-5	6-18	Adult	Total			
Nov-23	Sofia	Analava	Befotaka-Nord	Befotaka-Nord	Paludism	Jan - May	other	65	36	26	127	75	50	30	155	75	55	41	171	56%	CSB II	5-10 Km
Nov-23	Sofia	Analava	Befotaka-Nord	Antsahafaly	Diarrhoe	Oct - Dec	infected water	32	11	9	52	38	20	40	98	39	19	39	97	85%	CSB I	10-20 Km
Nov-23	Sofia	Analava	Befotaka-Nord	Ambalantsotry	Bilharzie	Jan - Dec	unsafe water	18	39	12	69	23	39	18	80	24	40	25	89	95%	N/A	5-10 Km
Nov-23	Sofia	Analava	Befotaka-Nord	Ambondrona	Diarrhoe		infected water	22	15	11	48	20	21	22	63	22	23	30	75	97%	N/A	5-10 Km
Nov-23	Sofia	Analava	Befotaka-Nord	Ambinaninandrotro	Typho-malaria	Oct - May	infected water	12	20	13	45	15	19	19	53	16	22	25	63	85%	NA	10-20 Km
Nov-23	Sofia	Analava	Befotaka-Nord	Andrafiabe	Paludism		other	32	24	15	71	35	29	17	81	31	32	20	83	75%	PRIVATE	5-10 Km
Nov-23	Sofia	Analava	Befotaka-Nord	Ampohara	Diarrhoe		infected water	26	19	17	62	31	23	20	74	34	27	19	80	76%	N/A	10-20 Km
Nov-23	Sofia	Analava	Befotaka-Nord	Antanimbaribe	Bilharzie	Jan - Dec	unsafe water	23	27	19	69	29	29	30	88	29	31	33	93	70%	CSB I	10-20 Km

Period name	Disease profile	CSB1 Ambalahonko	CSB1 Ambalavary	CSB1 Ampasimpitily	CSB2 Ambarijeby Atsimo	CSB2 Ambolobofo	CSB2 Analalava
2019	T4: Diarrhea with dehydration						
	T4: Diarrhea without dehydration						
	T4: Severe pneumonia						
	T4:- Pneumonia	4	85		47	3	21
2020	T4: Dysentery/Bloody diarrhea						
	T4: Diarrhea with dehydration						
	T4: Diarrhea without dehydration						
	T4: Severe pneumonia						
2021	T4:- Pneumonia	6	64		21	1	12
	T4: Dysentery/Bloody diarrhea						
	T4: Diarrhea with dehydration		24	6	19	20	
	T4: Diarrhea without dehydration	31	144	71	61	55	65
2022	T4: Severe pneumonia	1					
	T4:- Pneumonia	5	72		34		21
	T4: Dysentery/Bloody diarrhea	6	18	18	16	7	3
	T4: Diarrhea with dehydration	36	73	6	1	1	
2023	T4: Diarrhea without dehydration	57	169	94	89	93	97
	T4: Severe pneumonia	3	4				
	T4:- Pneumonia	1	95	1	64		38
	T4: Dysentery/Bloody diarrhea	4	16	1	18	3	
2023	T4: Diarrhea with dehydration	4	28	32	3		9
	T4: Diarrhea without dehydration	58	92	81	95	50	150
	T4: Severe pneumonia						1
	T4:- Pneumonia		23	2	35	16	5

Location Id	Fokontany	Commune	District	Lat/Long
Ambalahonko	Ambalahonko	Amboloboza	Analalava	S14 27 22.3 E47 42 22.0
Ambalavary	Ambalavary	Amboloboza	Analalava	S14 45 49.1 E47 52 50.0
Ampasipitily	Ampasipitily	Amboloboza	Analalava	S14 19 03.6 E47 45 07.7
Ampihoara	Ampihoara	Befotaka-Nord	Analalava	S14 26 15.9 E47 59 37.7
Ovaribe	Ovaribe	Analalava	Analalava	S14 39 57.1 E47 44 22.5
Ovarikely	Ovarikely	Analalava	Analalava	S14 39 02.5 E47 44 32.5
Androiavy	Androiavy	Analalava	Analalava	S14 42 28.4 E47 44 35.2
Andavaravy bas	Andavaravy ambany	Analalava	Analalava	S14 42 37.9 E48 52 37.2
Andavaravy haut	Andavaravy ambony	Analalava	Analalava	S14 43 30.2 E47 52 26.6
Anovilava	Anovilava	Analalava	Analalava	S14 42 06.3 E47 47 22.3
Antafiambaky	Antafiambaky	Analalava	Analalava	S14 36 22.1 E47 45 28.2
Marotomboay	Ampihoara	Befotaka-Nord	Analalava	S14 26 28.6 E47 58 52.2
Catchment area	Analalava	Analalava	Analalava	S14 38 08.8 E47 45 48.5
Reservoir	Analalava	Analalava	Analalava	S14 38 00.3 E47 45 48.5
BF 01	Analalava	Analalava	Analalava	S14 37 14.0 E47 45 13.0
BF 02	Analalava	Analalava	Analalava	S14 37 21.2 E47 45 10.7
BF 03	Analalava	Analalava	Analalava	S14 37 33.6 E47 45 04.7
BF 04	Analalava	Analalava	Analalava	S14 37 41.6 E47 45 01.2
BF 05	Analalava	Analalava	Analalava	S14 37 51.9 E47 44 56.3
BF 06	Analalava	Analalava	Analalava	S14 37 57.5 E47 44 50.7
BF 07	Analalava	Analalava	Analalava	S14 38 05.0 E47 44 52.6
BF 08	Analalava	Analalava	Analalava	S14 38 07.5 E47 44 48.2
BF 09	Analalava	Analalava	Analalava	S14 38 13.9 E47 44 52.0

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BF 10	Analalava	Analalava	Analalava	S14 38 15.3 E47 44 53.6
BF 11	Analalava	Analalava	Analalava	S14 38 23.0 E47 44 59.3
BF 12	Analalava	Analalava	Analalava	S14 38 14.3 E47 44 58.0
BF 14	Analalava	Analalava	Analalava	S14 38 06.4 E47 44 58.6
BF 15	Analalava	Analalava	Analalava	S14 38 04.4 E47 44 55.4
BF 16	Analalava	Analalava	Analalava	S14 38 03.8 E47 45 17.4
BF 17	Analalava	Analalava	Analalava	S14 37 45.7 E47 45 12.3
BF 18	Analalava	Analalava	Analalava	S14 37 38.3 E47 45 08.7