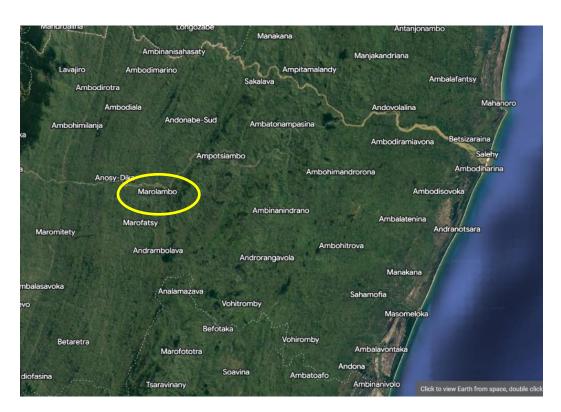
The Madagascar Water Project Water For Everyone -Madagascar

Engineering Design

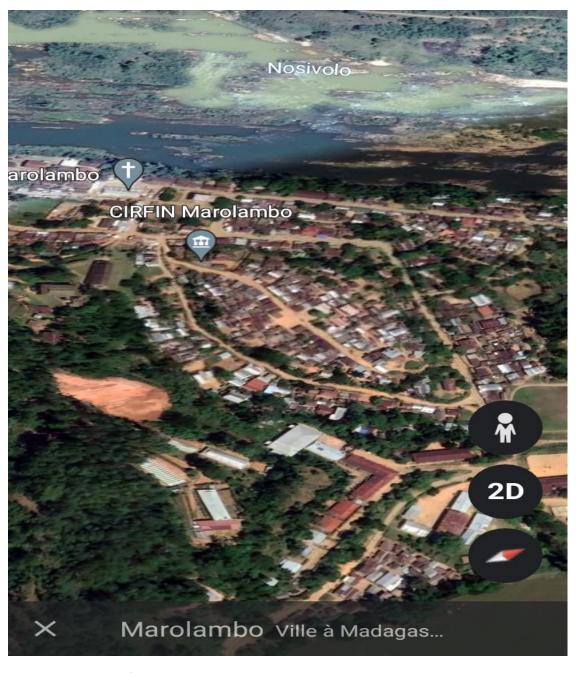
Rehabilitation of the Marolambo Municipal Water System



REHABILITATION WORKS OF AEPG IN MAROLAMBO URBAN COMMUNITY EASTERN REGION

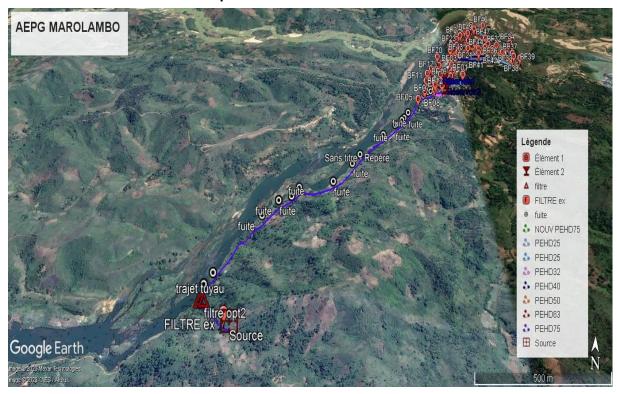
Client: MADAGASCAR WATER PROJECT

MAROLAMBO is a city and an urban commune located in the Antsinanana region (EST) of Madagascar (Tamatave province). The Commune is the headquarters of the district.



umber of population: 7,763 inhabitants 1,293 households

AEPG Marolambo network plan



EXISTING WORKS: 01 catchment, 01 filtration basin, 02 reservoirs, 37 fountains. **NEW CONSTRUCTION:** 47 Water Stations, 3391 meters of new pipeline, buried to 0.8 meters

TECHNICAL DESCRIPTION OF WORKS:

WORKS	GPS	CURRENT STATE	WORK TO DO	OBSERVATION
	coordinates			
Capture:	S20° 04' 02.6"			Basin slopes
01 source	E48° 07' 06.8"	Functional	Rehabilitation	not protected
01 Catchment box	Height: 489m			
Filtration basin:				
03 compartments	S20° 04'02.1"	functional	Rehabilitation	Always too full
Length: 3m20	E48° 07'05.9''			
Width: 1m80	Height: 480m			
Height: 1m20				
Reservoirs:				
R1: 75m3				Without inlet
Shape: cubic	S20°03'09.4''	functional	Rehabilitation	and outlet
Reinforced concrete	E48°07'44.6''			valves
R2: 35m3	Height: 450m			
Shape: cubic				
Reinforced concrete				

TRANSIT PIPELINE:



The total length of the supply pipe is 2,360 meters in PEHD D75 (75mm PVC). There were pipeline leaks detected during the field visit.

WORKS:

- Installation of shut-off valves: outlet capture, inlet and outlet filter, inlet and outlet of the two reservoirs.
- Replacement of pipe PEHD D75mm 300 meters.
- Installation of the fittings for the leaks (SR12 D75mm).
- Bury to 80cm depth and protect the visible pipes.
- Protection of visible pipes by Galva pipes, for difficult passages.

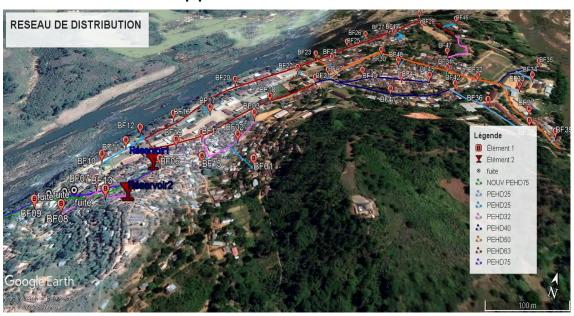
DISTRIBUTION SYSTEM: pipeline network 1



DISTRIBUTION SYSTEM: pipeline network 2



DISTRIBUTION SYSTEM: pipeline network 3



The total length of the distribution pipe is 3391 meters including:

PEHD D63mm: 1275 meters

HDPE D50mm: 665 meters

PEHD D40: 597ML

PEHD D32mm: 497 meters PEHD D25mm: 957 meters

WORKS SUMMARY:

- Replacement of all existing pipes.
- Bury 80cm deep.
- · Laying and connecting the pipes.
- Installation of isolation valves.
- Construction of 47 water fountains.
- Branches of 47 fountains.
- Place in water.

CONSTRUCTION AND COSTS

The charts below detail the material and labor costs, and the timeline of the project.

Composite Summary

RE-CONSTRUCTION	N OF WATER INFRASTRUCTU	IRE IN MAROLA	MB	0
	SCOPE OF WORK			
1-Rehabilitation of Dam + Filters	+ Reservoir			
2-Construction of 47 New Water	Stations + 22 Concrete Plumbii	ng Boxes + 47 Ma	nho	oles
3-Replacement & Installation of E	Entire Plumbing Infrastructure	From Dam to Ead	:h V	Vater Station
System Component	Materials	Cost (MGA)		Cost (USD)
		\$1=43		MGA
Dam	Valves & Accessories	209,000		47.61
	Cement & Materials	513,700	\$	117.02
Water Filters	Valves & Accessories	418,000	\$	95.22
	Cement & Materials	1,938,240	\$	441.51
Upstream Plumbing	Steel & PVC Pipe	10,179,250	\$	2,318.73
Filter & Holding Tanks	Valves & Accessories	1,216,000	\$	276.99
	Cement & Materials	3,367,500	\$	767.08
	PVC Pipe + Valves &			
Pipeline & Distribution Network	Accessories	31,018,450	\$	7,065.69
	Valves + Connectors &			
Water Stands & Valve Boxes	Accessories	4,408,950	\$	1,004.31
	Cement & Materials	8,993,200	\$	2,048.56
	Wood Fence	13,160,000	\$	2,997.72
Fence	Paint & Wood	3,000,000	\$	683.37
	Total Material Costs	78,422,290	\$	17,863.81
Other Cos	ts: Transportation, Labor, Accor	mmodations		
Mobilization & Demobilization	Materials	7,017,000	ć	1,598.40
WODINZACION & Demobilizacion	MWP & Moses Personnel	3,120,000		710.70
	Total Transportation Costs	10,137,000	\$	2,309.11
Labor & Salaries	Local Labor	14,400,000	\$	3,280.18
	MWP & Moses Personnel	18,950,000	\$	4,316.62
	Total labor Costs	33,350,000	\$	7,596.80
Accomodations: MWP & Moses	Room	10,800,000	\$	2,460.13
	Meals	8,228,000	\$	1,874.26
	Total Accommodation Costs	19,028,000	\$	4,334.39
	Estimated Project Cost	140,937,290	\$	32,104.11

Project Timeline

SCHEDULE STATION OF ALL PLUTES - RESERVOIR REPUBLIATION OF ALL PLUMBING INFRASTRUCTURE from David till Excell WATER DOSTREUTION SCHEDULE REPUBLIATION OF ALL PLUMBING INFRASTRUCTURE from David till Excell WATER DOSTREUTION SCHEDULE REPUBLIATION OF ALL PLUMBING INFRASTRUCTURE from David till Excell Water David till Excell WATER DOSTREUTION Republication Trans- Clean and Repair Republication Trans- Clean and Repair Republication Trans- Connect water stands with pipeline	REHISTALIZATION OF ALL PLUMBING INFRACTION OF AL	REHABILITATION OF WATER INFRASTRUCTURE IN MAROLAMBO SURFACE-SOURCED GRAVITY SYSTEM	
Schrödute Naridambo Organiz Facilities: Recervol; Hodding Tanks Construction of 47 water stands with pipeline	Science col co	SCOPE OF WORK REHABILATION OF DAM - FILTER - RESERVOIR NEW CONSTRUCTION OF 47 WATER STATIONS & MANHOLES - 22 CONCRETE VALVE BOXES RE-INSTALLATION OF ALL PLUMBING INFRASTRUCTURE from DAM till EACH WATER DISTRIBUTION	
State Stat	Marcianton Coganie Facilities: Reservoir, Marcianton Construction of wood fences Con	SCHEDNIE	
About Abou	Clean Layer		
Clean Upstream Clean and Repair Holding Tanks Holding Tanks Construction of pipelines Connect water stands with pipeline	Crean Lystream Clean and Repair Holding Tanks Installation of pipelines Construction of 47 water stands with pipeline Connect water stands with pipeline Construction of wood fences	02 03 04 05 06 07 08 09 010 011 012 013 014 015 016 017 018 019 020 021 023 024 025 026 027 028 039 030 031 032 033 034 035 036 037 038 039 040 041 042 043 044	
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		Construction of wood fences	
MWP Team on location	MWP Team on location	Demobilization	
MWP Team on location	MWP Team on location		П
MWP Team on location	MWP Team on location		П
MWP Team on location	MWP Team on location		
		MWPTeamon location	