



# Water for Tasinifu 23/24

Project Report by Solar Chapter Canada





## Community Testimony

"With water flowing through our village, life has become lighter and brighter. **Our farmers' work is eased**, and we now have the means for **clean, healthy washrooms and fresh, clean clothes**. As we celebrate this new chapter, we're excited to decorate our homes and surroundings with beautiful plants. We are filled with joy and gratitude for this transformative gift."

**Elionora Nesi**  
**Tasinifu Villager**



# Project Description

Water For Tasinifu - Final Report



# Project Background



**4628**

Residents



**982**

Families



**97% work as  
Farmers**



Tasinifu is a remote village in the Mutis District, TTU Regency, East Nusa Tenggara, covering 552.5 hectares with 4,628 residents from 982 families. Most villagers work in agriculture, producing corn, peanuts, teak, and mahogany, and some raise pigs, cows, goats, and chickens. While many residents have limited education, the village has 9 early childhood schools, 7 elementary schools, 1 middle school, and 1 high school according to our survey.

Currently, the residents are facing a crisis: **the supply of clean water is insufficient** to meet their daily needs. The productivity of agriculture and animal husbandry, as well as their level of education, is highly dependent on the accessibility of clean water.

# Problem Statement



## 1. Location

The considerable distance separating Tasinifu Village from the Mutis River (the primary water source) along with the rugged terrain, poses frequent hazards to residents during water retrieval. In order to access water, Tasinifu residents must trek a challenging 1.3 km distance, navigating a slippery downhill path with a 115 m elevation drop to reach the Mutis River.

## 3. Limited Access

Most Tasinifu residents are engaged in farming and animal husbandry for a living. However, their daily earnings often fall short of affording water from nearby villages. With 35 liters priced at Rp 5,000.00, and their average monthly income standing at just Rp 210,000.00, purchasing water poses a significant financial challenge for them.

## 2. Water Needs

Typically, each individual residing in Tasinifu Village necessitates a minimum of 60 liters of water per day. Nevertheless, due to transportation constraints, they can only carry between 15 to 30 liters per journey from the river. To adequately meet their water requirements, inhabitants must undertake two trips, amounting to a total of 3 to 4 hours per day.

## 4. Water Quality

The rainwater gathered in the villagers' tanks frequently harbors microbial contamination, rendering it unsuitable for drinking. The state of the rainwater collection systems, coupled with inadequate sanitation measures, intensifies the pressing need for Tasinifu's residents to secure reliable access to safe and clean water sources.

# Our Solution

## Community-Led Solar Pumping System

### Blended Financing

The project is jointly financed by **village funds (Dana Desa)**, which **contribute 42%**, and **private company sponsorships**. Expansion and maintenance costs are covered by a monthly community fund (iuran)

### Project Development & Implementation

We have an end to end approach to implement our solar-powered pump solutions, from project assessment, design and engineering, to the final implementation and monitoring.

### Community Involvement Program

Engage the community in all project phases through **four socialization programs: project design, MoU signing, pre- and post-implementation. A capacity-building program after implementation** trains community members in maintenance for sustainability.



# Our Direct Impact in Tasinifu



## 1,115 Villagers

now have access to clean water just 3 minutes away from their homes.



## 3-4 Hours

saved daily per person by eliminating two round trips to fetch water.



## 2 Primary Schools

have faucets in front of their buildings, so children no longer need to bring jerrycans to school.



## 42,800 Liters

water are produced every day using the solar-powered water pump



## 2 Public Facilities

A health center and military post get access to clean water



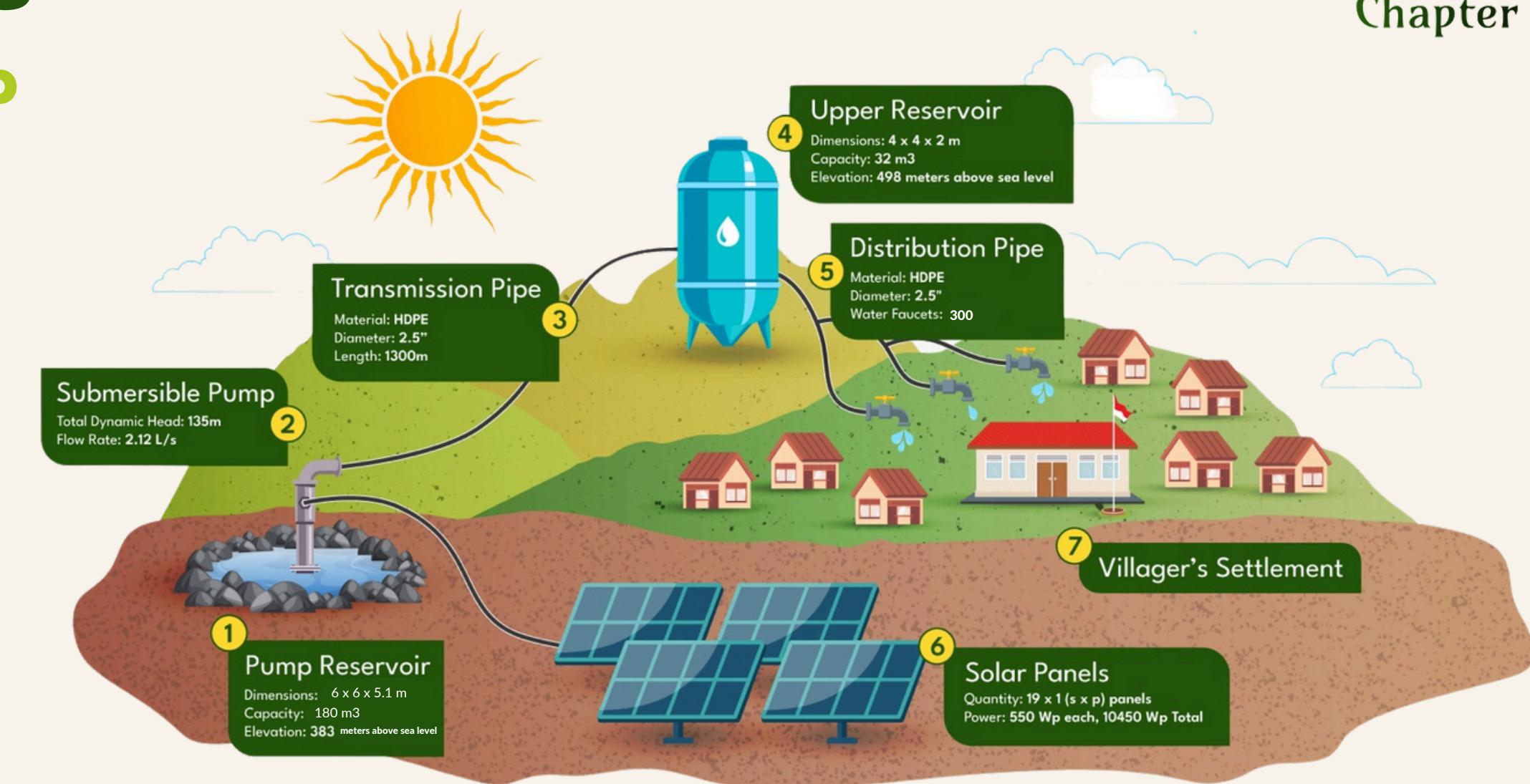
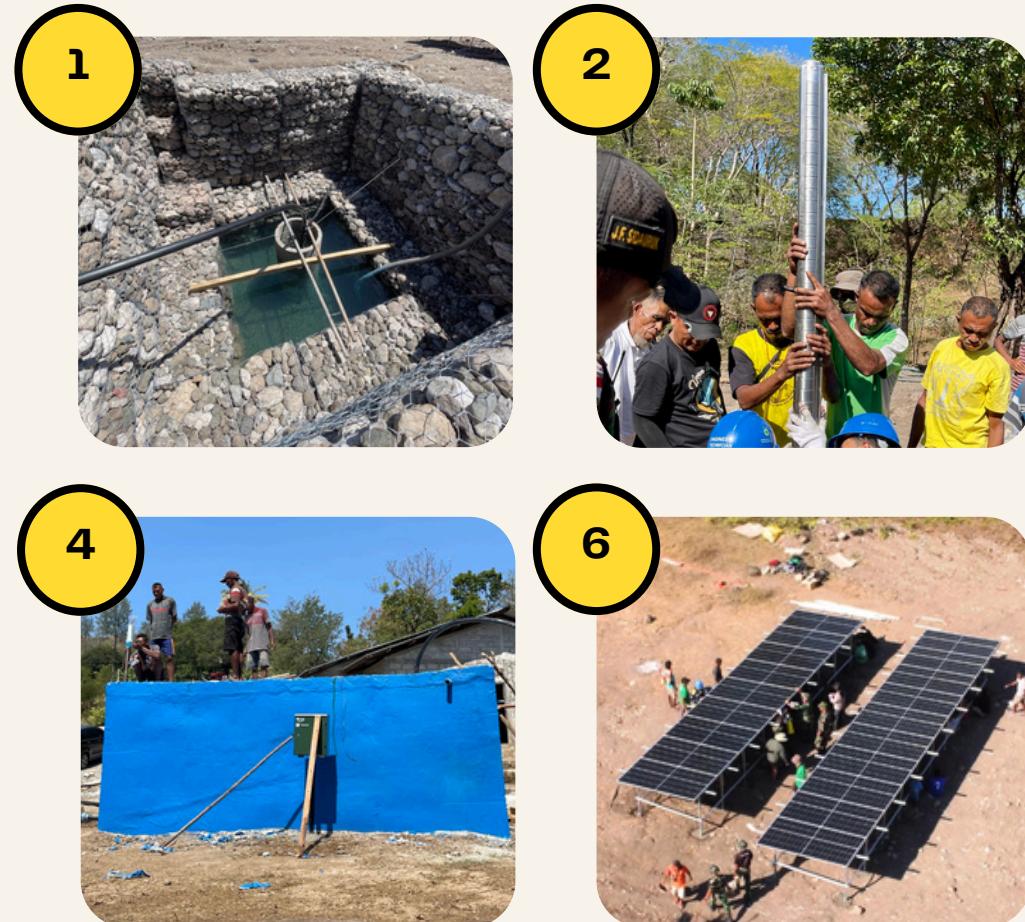
## 55 Liters

Daily consumption of water per day per person



# Technical Aspects

## Solar-powered Water Pump



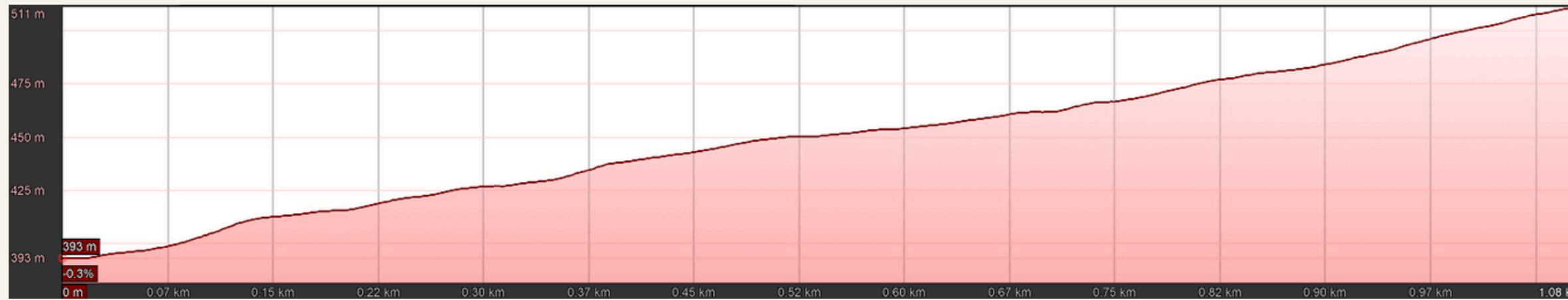
### Simplified Design Schematic Diagram

River water travels to the **pump reservoir** through diffusion. The water is pumped using a **solar-powered water pump** to the upper reservoir, the highest elevation point in the village of 115 meters. Then, water collected at the **upper reservoir** will be distributed by gravity to approximately **300 faucet points/water taps** via gravity across the settlement. This solution, meets the daily water needs of Tasinifu residents, allowing them to focus on education, community development and cultural preservation.

# Technical Aspects



Aerial view of Transmission Route: **Initial Surveyed Distance: 1.3km;**  
**Implementation Actual Distance: 1.2km; Elevation difference: 115m**



Elevation Profile of Transmission Route: **Minimum Elevation: 383m; Maximum Elevation: 498m**

## The Piping Route

The **submersible pump**, located in the pump reservoir by the Mutis River, is powered by nearby solar panels.

Collaboration with local authorities and the community is key to smooth implementation.

We chose **HDPE (High-density polyethylene) pipes** for their durability, resistance to corrosion, and flexibility in following the terrain, reducing the need for additional pipe fittings.



# Technical Aspects

## Lower Reservoir and Transmission Pipes

### Lower Reservoir

- **Dimensions:** 6x6x5 m
  - Currently covered with water: 3x3x2.5 m
- **Maximum water volume:** 202 m<sup>3</sup>
- **Composition:** River rocks in gabions, steel cages for rock encapsulation, and concrete o-rings
- **Source of water:** Mutis river



### Transmission Pipes

- **Brand:** Vinilon
- **Diameter:** 75 mm - 2.5"
- **Nominal pressure:** PN 10 | 16
- **Rolls Used:** 6 rolls | 6 rolls
- **SDR:** 17 | 11
- **Length per roll:** 100 m
- **Material:** HDPE



# Technical Aspects

## Sustainability (Maintenance)

To ensure the sustainability of the water system, the Tasinifu technical team made an **educational poster** to remind the villagers of their **daily responsibilities to maintain the water pump and solar panels**. Basic instructions and troubleshooting protocols, as well as emergency contact numbers are also present.

To complement this poster, we also provided a **maintenance booklet** which has detailed information about the **water system and a maintenance checklist to document maintenance checks**.

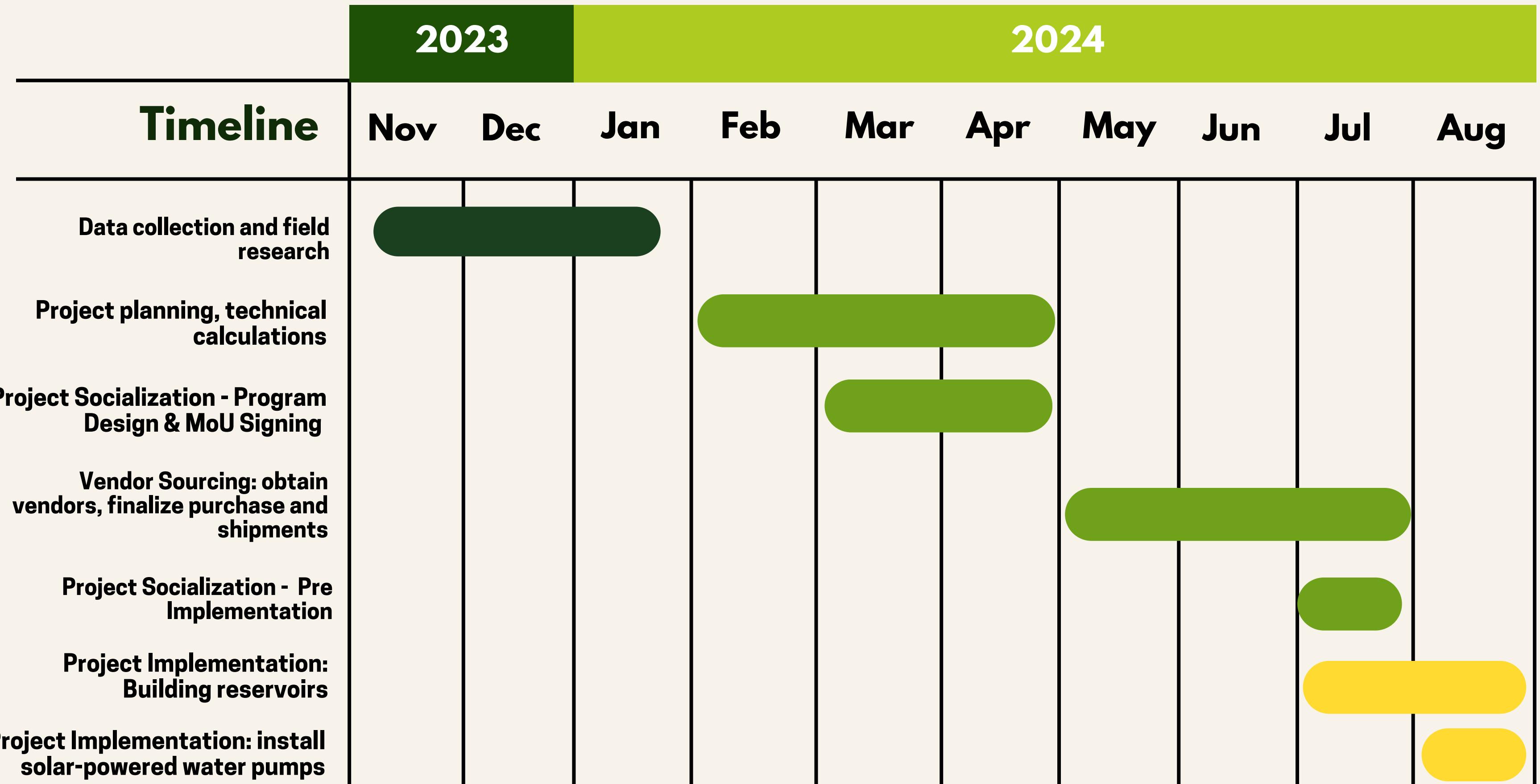




# Implementation Journey

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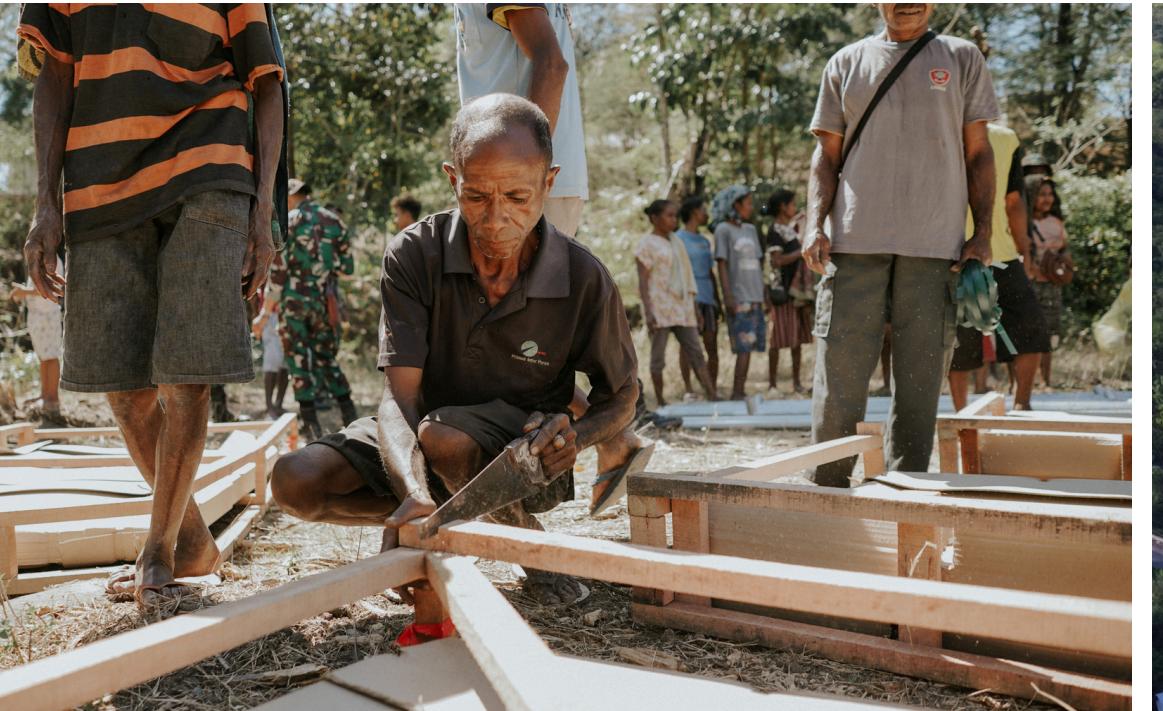
# Documentation

[Click here for the Implementation Documentation](#)





# TASINIFU VILLAGE



# MUTIS RIVER

# SC Canada 23/24





# SC Canada 23/24



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Loustrycia

**President**

Nicholas



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# Thank You

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