Project Plan:
Community Water Initiatives in the Philippines

Prepared by: Clean Water Help
In Partnership with: Local Community Leaders in Mariveles, Tarlac, and Mindoro
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1. Executive Summary

This document outlines a plan for three targeted clean water initiatives in the Philippines, addressing distinct water security challenges in the communities of **Mariveles, Tarlac, and Mindoro**. While ultrafiltration (UF) technology is a cost-effective solution for the region's densely populated villages, each community's unique source water requires a tailored approach.

This plan details three specific, context-driven solutions:

1. **Mariveles:** An economic intervention to provide free, clean water to a community where the cost of purchased water forces a choice between hydration and food.
2. **Tarlac:** A technical intervention to treat a school's well water, which is contaminated with both bacteria and sulfide from local volcanic soil.
3. **Mindoro:** A foundational intervention to provide an indigenous community that currently lacks any access to treated water with a safe, reliable source.

By partnering with local community centers and leveraging a highly cost-effective and scalable filtration system, these projects will provide sustainable access to safe drinking water, dramatically improving public health and economic stability.

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2. Background: A Unified Approach for Diverse Needs

The core of our strategy in the Philippines is to identify a centralized community hub—such as a church, school, or town center—and a dedicated local member who can be trained in system maintenance and operation. This creates a sustainable model of community ownership. While each project is unique, they are all built upon a shared technical platform designed for reliability, low cost, and long-term value.

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3. Project Site Analysis & Proposed Solutions

Each community requires a solution tailored to its specific water source and socio-economic conditions.

3.1 Mariveles: Overcoming Economic Barriers

The Challenge: In this poor community, treated drinking water is available but must be purchased. This often limits the amount of clean drinking water a family buys and prevents children from having access to clean drinking water when they are not at home, such as at school and during the walk beack and forth. This high cost forces some residents, including children, to drink from non-potable sources when they must decide between buying clean water and food.

The Proposed Solution: A local church has agreed to serve as the community center for the project. We will install a three-stage filtration system to treat the church's non-potable city water supply. The system, featuring sediment, activated carbon, and ultrafiltration stages, will be housed inside the church with a durable, anti-microbial brass dispenser placed outside for 24/7 public access.

3.2 Tarlac: Tackling Biological and Chemical Contamination

The Challenge: In this poor mountain community, the local high school with about 300 students charges students 5 pesos per week for drinking water, a significant financial burden for families earning less than 1,000 pesos weekly. Additionally, the students often wait the entire break in order to get clean water due to the demand and the water often runs out before the end of the week. The school has a shallow well used for irrigation, but the water is not potable due to bacteria and a strong sulfide (rotten egg) smell from the region's volcanic soil.

The Proposed Solution:

Immediate: Subsidize the purchase of local, treated drinking water at a cost of ~$25-30/week. This is a significantly more expensive than the cost once a filtration system can be installed, however, there are some additional treatment hurdles (sulfide removal) that need to be addressed. Therefore, the purchase of clean drinking

Medium to Long-term:
This project requires a two-part treatment process.

- **Sulfide Removal:** A **Venturi aeration system** will be installed on the well pump. As water is pumped into a holding tank, the Venturi will draw in air, oxidizing the dissolved sulfide gas so it can be safely vented, eliminating the bad taste and smell.
- **Pathogen Removal:** After aeration, the water will be directed to the same standardized three-stage filtration system used in Mariveles to reliably remove bacteria and make the water safe to drink.

3.3 Mindoro: Providing Foundational Access

The Challenge: This indigenous community completely lacks access to treated drinking water. As a result, many community members suffer from diarrhea, stomach problems, and other chronic waterborne diseases. Mindoro was also recently devastated by the typhoon Opong in late September, 2025 and clean drinking water is in dire need. There is currently an immediate and longer term need for clean water that could have immense benefits for the local community – making everyday life easier by reducing or eliminating waterborne diseases and life potentially saving lives.

The Proposed Solutions:

Immediate: Pay for local, treated drinking water which will be a higher cost due to transportation and logistical hurdles. However, this drinking water serves an immediate need and may safe lives.

Medium to Long-term: The community has abundant surface water, which is unsafe but clear. This is the most straightforward intervention: a simple, robust ultrafiltration system will be installed at a central community center to provide the area's first reliable source of safe drinking water, drastically improving community health.

- The logistical challenges include the source of power for the pump system, which may require solar panels, a pre-treatment process to remove turbidity, extending the life of the more expensive UF filter, a storage tank for source water storage during the dry season, and a backup filtration system for emergencies, such as gravity membrane filters.

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4. Core Technology & System Design

The heart of each project is a standardized, reliable, and low-cost filtration train. This system is proven to be more practical than alternatives like Reverse Osmosis (which clogs easily and removes healthy minerals) or complex chemical dosing.

- **System Components:** The system consists of a **Sediment Pre-filter** to remove rust and sand, an **Activated Carbon Filter** to remove odors and tastes, and the core **Ultrafiltration (UF) Membrane** which physically blocks bacteria and viruses.
- **System Integrity:** A small booster pump ensures consistent pressure for optimal filtration. To prevent re-contamination, all piping and dispensers after the UF filter will be made from **anti-microbial brass**, which naturally inhibits bacterial growth.

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5. Budget and Impact Analysis (Per Site)

The standardized system design allows for remarkable cost-effectiveness and scalability. The following budget is representative for each of the three locations.

- **Initial Investment (Per Site):** The total estimated hardware and installation cost is approximately **$650**. A **$750 budget** is recommended to provide a safety factor for travel and unforeseen local expenses. This includes:
    - Filtration Components & Pump: ~$200
    - Local Plumber for Installation & Sourcing: ~$200
    - Travel Costs: ~$200
    - One Year of Consumable Filters: ~$50

- **Long-Term Sustainability:** Annual maintenance is limited to replacing consumable filters, with costs ranging from a best-case of **~$25 - $73/year**, depending on source water quality.
- **Community Impact (Per Site):** A single system is capable of supplying clean water for up to **480 people daily**, producing nearly **175,000 gallons per year**. The investment becomes extremely affordable over time, with the cost dropping to **$0.32 - $0.42** per person per year after five years of operation.

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6. Next Steps & Implementation Plan

The plan will be executed in a phased approach to ensure technical viability and community readiness.

Phase 1: Validation & Immediate Support (Tarlac)

- **Crucial First Step:** Before any construction in Tarlac, the well water must be **tested for heavy metals** and other potential contaminants that standard filtration cannot remove.
- **Interim Aid:** As a bridge solution, **$500 will be provided to the Tarlac high school** to purchase clean water from the local store for six months, immediately relieving the financial burden on students and families.

Phase 2: Implementation (All Sites)

- Engage and hire qualified local plumbers at each of the three sites for professional installation.
- Procure all filtration components, Venturi aerators, and necessary plumbing materials.
- Oversee system installation and provide comprehensive training to the designated community maintenance lead at each location.

Phase 3: Monitoring & Evaluation

- Establish a communication plan for regular follow-up with community leads.
- Conduct post-installation water quality testing to verify system performance and ensure public health is protected.

7. Contact Information

Clean Water Help:

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GoFundMe Donation Link:

- https://www.gofundme.com/f/philippines2025