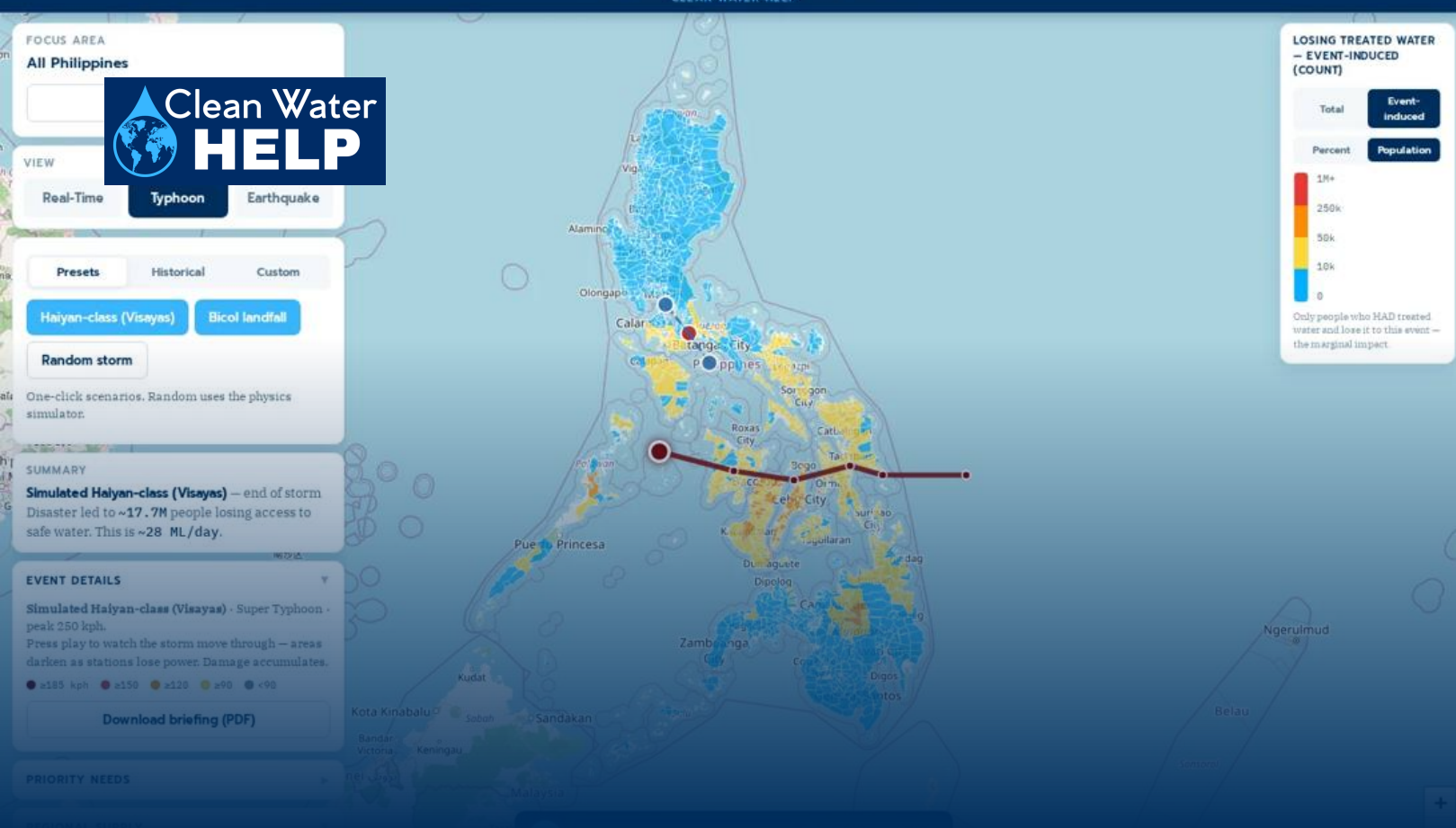




PROJECT REPORT · PHILIPPINES

Drinking Water After Typhoons and Earthquakes: The Philippines Drinking Water Explorer

A free, open-source prototype app that estimates which water refilling stations are likely to stop working after a disaster and which nearby stations can keep supplying responders. This report explains the problem, how the app works, its limits and the plan to test it.

WORKING PROTOTYPE

UPDATED

September 28, 2026

PARTNER

Seeking Philippine partners

PREPARED BY

Clean Water Help volunteers

WEB

cleanwaterhelp.org/projects/typhoon

Clean Water Help is a 100% volunteer-run 501(c)(3) nonprofit (EIN 99-0765687). Founders cover all operating costs, so 100% of public donations go to projects. Numbers are current as of September 28, 2026. Photos are shared by partners with permission; names of private individuals are withheld. impact@cleanwaterhelp.org

At a glance

SCOPE

Philippines, nationwide

STATUS

Working prototype

USERS

Disaster offices, responders, stations

COST

Free, open source

NEXT

Interviews and tabletop test

CWH ROLE

Built and maintains the app

46.2%

households use refilling stations

539

historical typhoons

Free

open source

2027

target pilot

1 Executive summary

KEY FINDING

Refilling stations are the main drinking water source for 46.2% of Philippine households. Our prototype estimates which stations are likely to lose power, utility water or their buildings after a typhoon or earthquake, and points responders to nearby stations likely still working. The estimates are not yet calibrated, so the app needs testing with the people who would use it before its numbers can be trusted.

The project began in March 2026 as an anticipatory-action tool with the Global Centre on Disaster Risk and Poverty, anticipating a wide range of disaster needs before storms land. In July 2026 we narrowed it to one question: where treated drinking water is likely to run out, estimated from how refilling stations lose power, utility water or their buildings, and where the nearest working supply is.

The prototype is online at philippines-typhoon-draft.web.app. It follows live storms, replays 539 historical typhoons and major earthquakes, estimates how many people lose treated water, and matches those areas with nearby supply. It is free and open source.

The plan for late 2026 is to interview station owners and local disaster offices, run a tabletop exercise, and name a Filipino co-lead, then run a pilot with one local government in 2027.

What happens next

1. Name a Filipino co-lead and a storm-duty volunteer.
2. Interview about 10 refilling-station owners and disaster risk reduction offices about what happened in recent storms.
3. Run a tabletop exercise using a past storm.
4. Fix reliability issues so the app stays up during heavy use.
5. Agree a pilot with one local government for 2027.

THE ISSUE TO WATCH

Trust in the numbers. Without calibration against real events, the model could overstate or understate outages and waste responders’ resources. Every output is labeled as an estimate until a local partner has tested it.

Key numbers and how solid they are

Each number is labeled by its basis: **MEASURED** counted or tested, **REPORTED** reported by a partner or a document, **RECORD** from our own payments, contracts and correspondence, **ESTIMATE** a calculation or assumption, **PLANNED** a plan or target, not yet done.

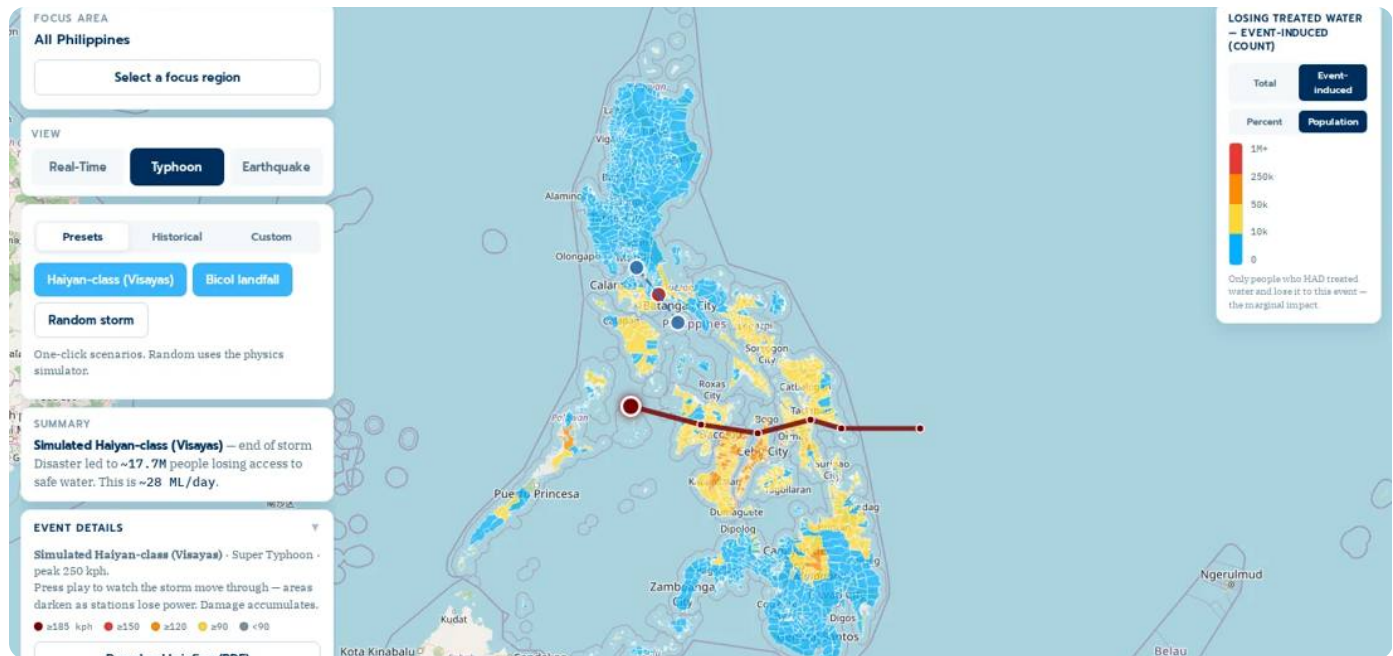
ITEM	VALUE	BASIS	SOURCE
Households using refilling stations as main drinking source	46.2%	REPORTED	PSA 2020 Census of Population and Housing
Historical typhoons available to replay	539	RECORD	App data (IBTrACS)
Supply-matching radius	100–500 km	RECORD	App settings
Cost to users	Free, open source	RECORD	CWH decision, May 1, 2026
Model calibration	Not yet done	RECORD	Path-forward review, Sep 23, 2026

2 Background and progress

Why refilling stations matter

Most Filipinos who buy drinking water get it from refilling stations: small, mostly family-run shops that treat tap or well water and sell it in 5-gallon jugs. After a typhoon or earthquake, stations fail for three main reasons: power loss, loss of the utility water they treat, and damage to the building. Treated water can disappear for days to weeks.

Relief water trucked from far away often arrives after the first days, when waterborne illness spreads fastest. Yet stations outside the damage zone are often still running and could produce more.



A simulated Haiyan-class typhoon in the prototype. Colors show estimated loss of treated water; outputs are uncalibrated estimates.

How the project evolved

The first version, built with the Global Centre on Disaster Risk and Poverty, mapped risks for water, food, shelter, power and health. In July 2026 a review found that other groups already forecast most of those needs. We refocused the app on drinking water, where CWH has expertise: estimating refilling-station outages and matching areas that lose treated water with nearby working supply.

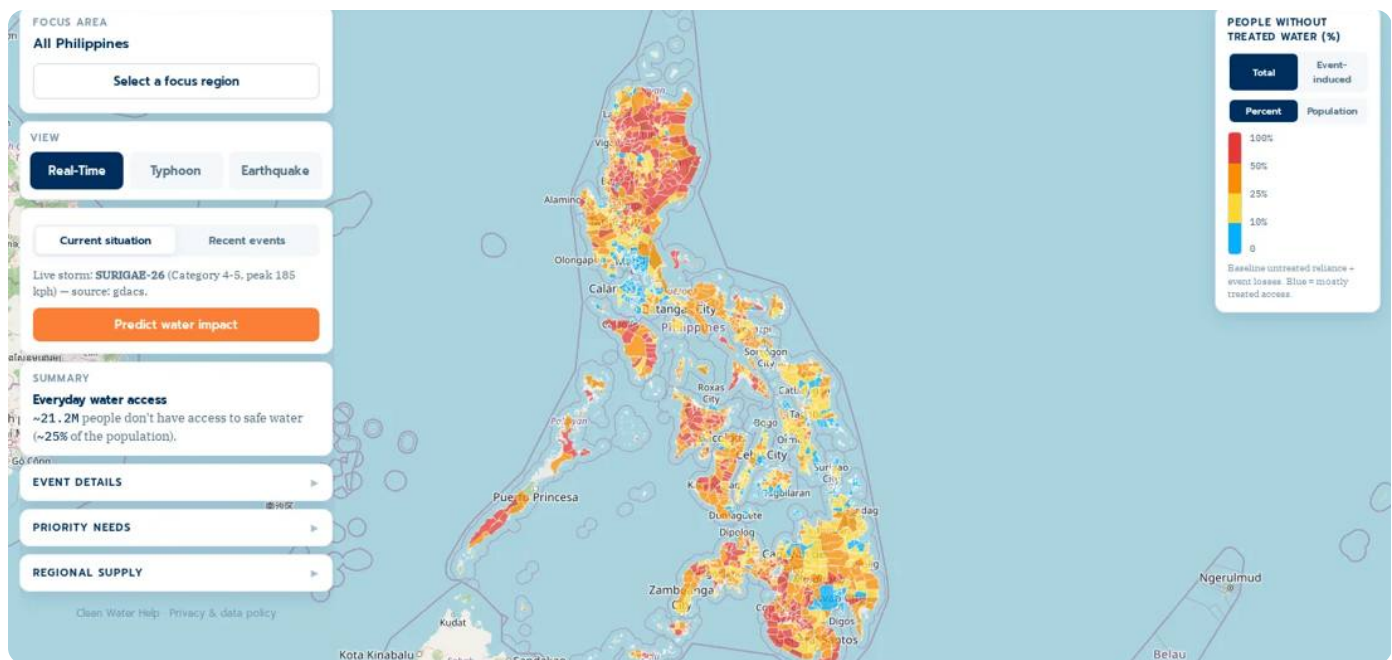
Timeline

Mar 7–17, 2026	Anticipatory-action pitch and platform design.
Mar 19, 2026	Code repository started.
Apr 2026	First typhoon risk map online.
May 1, 2026	Decision: free and open source.
May 17, 2026	Prototype shared with University of the Philippines experts; one agrees to advise.
Jun 8, 2026	Philippines team meeting: partner with universities and responders.
Jul 10–12, 2026	Rebuilt around refilling stations.
Sep 23, 2026	Path-forward review: interviews, tabletop exercise, pilot.
2027	<i>Pilot with one local government.</i>

3 Technical foundation

What the app does

- **Hazard layer:** live storm feeds, historical typhoon tracks, earthquake scenarios and custom scenarios.
- **Station operability:** estimates whether stations keep power, utility water input and their buildings.
- **People affected:** joins census and poverty data to estimate how many people lose treated water, shown as ranges.
- **Supply matching:** pairs each area losing water with areas likely still producing it within 100 to 500 km, labeled “candidate, verify by phone.”
- **Briefing:** one-page PDF for decision-makers.



Everyday view: where people rely on untreated water.

Design principles

- Focus on drinking water, where CWH has expertise.
- Never show a problem without a possible solution.
- No false precision: ranges, not single numbers.
- Filipino-led and Filipino-fronted.
- Privacy first: no station contact data collected by design.

Decisions and the options we set aside

DECISION	OPTIONS CONSIDERED	WHY
Focus on drinking water only	Estimate all disaster needs	Other groups already forecast housing, food and cash needs; CWH's expertise is drinking water.

DECISION	OPTIONS CONSIDERED	WHY
Free and open source	Licensed product	Agencies can adopt and adapt it without cost.
Test with people before promoting	Launch publicly now	Uncalibrated estimates could mislead responders.

Risks and how we respond

RISK	LEVEL	RESPONSE
Wrong estimates mislead responders	High	Label everything as estimates; tabletop testing; calibration with a partner.
No committed local owner	High	Name a Filipino co-lead; pilot with one local government.
App outage during storms	Medium	Reliability fixes and monitoring before storm season.
Privacy of station data	Medium	Collect no contact data without consent; follow the Data Privacy Act.

4 What we learned and what is still open

- **Narrow beats broad.** The app became more useful when it focused on one question: where treated drinking water is likely to run out.
- **Local partners first.** A tool for Philippine responders has to be shaped and owned by them.

Open questions

- How long do stations actually stay down after typhoons and earthquakes, and why?
- How much extra water can a working station produce, and how quickly?
- Which local government is best placed for a 2027 pilot?

5 How you can help

Help us test it

We are looking for disaster offices, refilling-station owners, universities and humanitarian groups in the Philippines.

- Try it: philippines-typhoon-draft.web.app
- Contact: impact@cleanwaterhelp.org

References and sources

1. Philippine Statistics Authority. Household Characteristics, 2020 Census of Population and Housing. psa.gov.ph
2. Clean Water Help. Philippines Drinking Water Explorer (prototype). philippines-typhoon-draft.web.app
3. Clean Water Help. Water Security Platform requirements (July 2026) and path-forward review (September 23, 2026).
4. IBTrACS, International Best Track Archive for Climate Stewardship (historical typhoon tracks).