WATX Litepaper v2

Version 2, approved by the WATX board on 21 November 2026. Replaces litepaper v1.3 (2025).

Summary. WATX publishes the Water Scarcity Index (WSI), a single score from 0 to 1 for how much pressure a country is under on water, built only from public data. For data year 2022 the population-weighted global score is 0.3343 across 181 countries. Next to it, WATX publishes a monthly rainfall "pulse" that shows where the last three months were unusually dry. From December 2026 each monthly reading is also written to a public blockchain as a tamper-evident record, first on a test network. WATX is run by a small team of AI agents under a one-person human board. There is no token sale and no token is planned; this paper explains why, what WATX does and does not claim, and what comes next.

What changed since v1.3

v1.3 (2025)	v2 (2026)
WSI v1, a modelled score updated several times a day	WSI v2.0: three official indicators, recomputed monthly, every input sourced and dated
"Hydrological model" and random rainfall on the testnet	A monthly rainfall pulse from satellite-and-station data (CHIRPS v3), published next to the index, never mixed into it
A deflationary token and DAO governance	No token sale. The blockchain is used for a public record of the monthly values. A token is a research question only
Founder-run	AI agents do the daily work; a one-person human board oversees them

1. The problem

Water runs short in three different ways. A country can take too much of what it has. It can have little fresh water per person. Or its people can lack safe drinking water, whatever the supply. These problems often overlap, but they are usually reported separately, and the data comes out once a year or less.

For data year 2022:

- **814,821,897** people lived in countries with high or critical water stress, meaning withdrawals of at least 75% of the freshwater available.
- **1,979,300,391** people lacked safely managed drinking water.

Both figures are country-level: the first counts everyone in a high-stress country, not each person's own situation. Still, they show the scale.

What is missing is one plain, repeatable score that combines the three problems and that anyone can check against public data. That is the gap the WSI fills.

2. What the WSI is

The WSI is a score from 0 to 1 for each country. Higher means more scarcity. Version 2.0 combines three components:

Component	Weight	What it measures	Source
Stress	0.4	Freshwater withdrawal as a share of available freshwater (SDG 6.4.2), capped at 100%	World Bank WDI, ER.H2O.FWST.ZS
Availability	0.3	Renewable internal freshwater per person: 0 at 1,700 m³ or more, 1 at 500 m³ or less, on a log scale between	World Bank WDI, ER.H2O.INTR.PC
Access	0.3	Share of people **not** using safely managed drinking water (SDG 6.1.1)	World Bank WDI, SH.H2O.SMDW.ZS

Rules that keep it honest:

- **Every input is dated.** An input older than five years is not used.
- **Missing inputs are visible.** If a component is missing for a country, the score uses the other components with their weights rescaled, and the country page says which input is missing.
- **The global value** is the population-weighted mean of the country scores. For 2022 it is **0.3343**, covering 181 countries and 99.5% of the world's population.

- **Recomputed every month.** The values change only when the World Bank or the UN publish new data, which is yearly or slower. A quiet month means no new official data, not a calm month for water.

At the top of the 2022 ranking, Libya, Saudi Arabia, Sudan, Syria and Yemen score 1.0, followed by Barbados (0.9286) and Pakistan (0.8651). Every country has its own page at watx.io with its score, components and the year of each input.

How it compares. The WSI is not a rival to the detailed tools. WRI Aqueduct models water risk for thousands of river sub-basins and is the right tool for local decisions. The UN's SDG 6.4.2 is one of the WSI's own inputs. The WSI's job is narrower: one simple, reproducible number per country, from official inputs, that anyone can recompute.

3. The monthly pulse

The WSI moves slowly because its sources do. To show what is happening now, WATX publishes a second, separate number every month: the **dryness pulse**.

1. For each country, average the monthly rainfall from CHIRPS v3 (UC Santa Barbara Climate Hazards Center, satellite and station data, CC BY 4.0) over the country's land.
2. Add up the last three months.
3. Rank that total against the same three months in every year from 1991 to 2020.
4. Pulse = 1 minus that rank: 0 is the wettest in 30 years, 0.5 is normal, 1 is the driest.
5. The global pulse is the population-weighted mean over countries that CHIRPS covers (roughly 60°S to 60°N).

The pulse is published **next to** the WSI and never changes it. Rain this month does not fix a country's long-term water stress, and a dry season does not create it. The two answer different questions: the WSI says where water is structurally short; the pulse says where the last three months were unusually dry for that place.

The pulse is new. Its first public values were withdrawn on 17 November 2026 after a data error (fill values in some source files were counted as rain) and rebuilt the next day. The corrections table on watx.io records this.

4. How WATX uses a blockchain

WATX uses a blockchain for one thing it does well: a public record that cannot be quietly changed afterwards.

The monthly record. In the first ten days of each month, the WATX agent writes the previous month's reading to a smart contract: the global WSI, the pulse, the data year, the coverage, the method version and a fingerprint (hash) of the published data file. Anyone can compare that fingerprint with the file on watx.io. If WATX ever changed a past value, the record would show it.

Rules built into the contract:

- A 24-hour challenge window after each reading, in which a guardian can veto it.
- Readings are refused if the index jumps more than 0.05 from the last one, if coverage is under 90%, or if the data is more than five years old.
- Parameter changes wait 48 hours before they apply.

The test network first. Since November 2026 this runs on Polygon Amoy, a public test network, with test tokens that have no value. The first monthly reading goes on-chain on 2–10 December 2026. The testnet also runs a simple simulation in which a test reservoir "evaporates" faster in dry months and the same amount "rains" back, part of it set aside for test projects. This only checks that the rules work in practice. It is not a financial product.

Contributions with public receipts. WATX accepts voluntary contributions. The plan is to give each contribution a public on-chain receipt so anyone can see what came in and what it was spent on. A contribution is a gift: it is not an investment and buys nothing.

Why no token. A token would add transferable or rewardable claims. None of that makes the data more accurate, and each would bring securities, consumer-protection, anti-money-laundering and tax obligations (in the EU and EEA, the MiCA regulation). A token would also give its holders a reason to want the index to read higher or lower. WATX therefore has no token sale and does no token marketing. A token remains only a research question, behind a written legal opinion, a legal entity, a security audit and a board decision.

5. How WATX is run

WATX is run by a small team of AI agents under a one-person human board.

Role	Who	What it does
Board	One person	Sets direction, approves anything that matters, holds the keys and the budget, answers for what WATX publishes
CEO	AI agent (Claude Opus)	Plans the week, assigns tasks, checks in mid-week, reports to the board every month
Water scientist, blockchain analyst, research writer, marketing lead, developer	AI agents (Claude)	Method and sources; the on-chain design; notes and papers; posts on X; code proposals
Data pipeline	Scheduled program, no AI	Downloads the data, computes the index and the pulse, publishes the files, writes the on-chain record

The board approves any token or mainnet contract, any change to the index method, spending above the budget, and legal questions or public commitments. Day-to-day work goes out without waiting.

The agents follow fixed rules: every number in a note or post must match the published data (an automatic check rejects anything else); no investment language; on X, no automated replies, likes or mentions; every change is versioned; mistakes are corrected in public.

The board member is not named. WATX asks to be judged on its method and its data, which anyone can check.

6. Roadmap

Phase	What	When	Gate before the next phase
A. Design	WSI v2.0, the pulse method, the testnet rules	Done, November 2026	Approved by the board on 16 November 2026
B. Testnet	Monthly record and simulation on Polygon Amoy; country pages;	November 2026 – March 2027	Three clean monthly records in a row; the pulse validated against

Phase	What	When	Gate before the next phase
	litepaper v2; methodology paper		an independent rainfall source; the methodology paper published
C. Public record	The monthly record on a public mainnet, still with no token; public receipts for contributions	Spring 2027 at the earliest	A security review of the contract; keys in a multi-signature wallet; a legal entity if contributions are received on-chain
D. Research	Whether any token could ever be justified	Not before the second half of 2027, if ever	A written legal opinion, a legal entity, an audit and a board decision

Alongside: a methodology paper with the full method, sources and sensitivity tests (first quarter of 2027), and a monthly public board report from December 2026.

7. Limits and what WATX does not claim

- **Country averages hide local stress.** A country with a dry south and a wet north gets one number. For local decisions, use basin-level tools such as WRI Aqueduct.
- **The data is old.** The latest complete year is 2022, because the UN indicators are published with a lag of about four years.
- **Upstream water is not counted.** Availability uses a country's internal resources only, so countries that rely on rivers from upstream, such as Egypt, score higher than their real supply suggests.
- **The top of the ranking is tied.** Five countries score 1.0, and for all five the access component is missing, so their score rests on stress and availability alone. The index cannot rank them against each other.
- **The weights are a choice.** 0.4, 0.3 and 0.3 are reasonable, not proven. The methodology paper will show how the ranking changes under other weights.
- **The pulse is about rain, not water.** It does not include snow, groundwater, rivers or reservoirs, and recent CHIRPS months are preliminary and can be revised.
- **The blockchain proves what was published, not that it is right.** The record shows that a value was not changed afterwards. It cannot check the value itself.

- **WATX funds no projects today.** Funding real projects needs a legal entity and an independent review first.

Sources

- World Bank, World Development Indicators: ER.H2O.FWST.ZS, ER.H2O.INTR.PC, SH.H2O.SMDW.ZS, SP.POP.TOTL. https://data.worldbank.org
- UN SDG indicators 6.4.2 (FAO) and 6.1.1 (WHO/UNICEF JMP). https://sdg6data.org
- CHIRPS v3, Climate Hazards Center, UC Santa Barbara (CC BY 4.0). https://www.chc.ucsb.edu/data/chirps3
- WRI Aqueduct 4.0. https://www.wri.org/aqueduct
- Regulation (EU) 2023/1114 on markets in crypto-assets (MiCA). https://eur-lex.europa.eu/eli/reg/2023/1114/oj
- WATX data, method and corrections: https://www.watx.io/wsi and https://www.watx.io/how-watx-is-run

Earlier version: litepaper v1.3 (2025, archived; describes a concept WATX no longer follows).