

Taap·AI

How good is this data center for your area?

THEME AI SAFETY · THE PHYSICAL & CIVIC FOOTPRINT OF THE AI WE ARE ALL BUILDING

Every wave of AI is built on a physical foundation almost nobody sees enormous buildings full of computers that drink water, draw power, and throw off heat. Taap·AI answers one question for anyone, in seconds, from open data: **how good is this data center for your area?** It gives developers, regulators, and ordinary residents the **same honest, inspectable facts** so the people who live beside this infrastructure are no longer the last to know.

Why this matters now

"AI safety" is usually framed as keeping models aligned. But the AI boom also has a **physical and civic** safety problem that is landing right now, at the speed of construction:

- **The body of AI drinks water.** US data centers' direct water use rose from ~5.5 billion gallons in 2014 to over **17 billion gallons in 2023** and roughly **two-thirds** of those built or planned since 2022 sit in **water-stressed** regions.
- **The costs are local; the benefits are remote.** Water from the basin, pressure on local power bills, noise and diesel backup land on whoever lives nearby while the compute serves users and shareholders far away. And these facilities create very few permanent jobs relative to their size.
- **Communities can't even check.** In one review, **25 of 31** localities had signed NDAs limiting what the public can learn about a project's water and power demands. The professional GIS tools that could scrutinise a site cost a fortune.
- **The result:** developers argue from press releases, communities argue from fear, and **nobody is looking at the same facts.** Organised opposition has already delayed or cancelled over **\$64 billion** of projects in under a year.

India makes the stakes vivid: **~3.5 GW** of new capacity announced in a single year Jamnagar (up to 3 GW), Chennai (which literally ran out of water in 2019), Hyderabad, Visakhapatnam **all in water-stressed states.** The AI we are all building has to live somewhere; right now it is too often landing where it does the most harm, behind closed doors.

Task what we set out to build

Close the information gap from both sides at once, with a tool that is radically accessible and impossible to accuse of bias:

- **Give everyone the same facts.** One shared, open source of truth that reads identically whether a developer, a regulator, or a residents' group opens it.
- **Answer two plain questions** for any point on Earth: (1) *Is this a sensible place to build?* (siting suitability) and (2) *What would it cost the people nearby?* (community cost).

- **No paywall, no login, no GIS expertise, no black box.** In a browser, in seconds, from data no single company can switch off and showing its working so anyone can audit and argue with it.

Action what we built

A live web app (React · Vite · MapLibre). You drop a pin or draw an area anywhere in the world, and the system:

- **Gathers live open signals in parallel** climate, solar & wind from **Open-Meteo / ERA5**; grid substations and population from **OpenStreetMap (Overpass, ODbL)** plus bundled reference data: **WRI Aqueduct 4.0** baseline water stress (CC BY 4.0) and **CEA / Ember** grid carbon intensity.
- **Scores two indices transparently** a weighted sum of normalised 0–100 indicators, *deliberately not machine learning*:
 - **Siting suitability** grid proximity (30%), free-cooling potential (25%), grid carbon (20%), renewable potential (15%), water availability (10%).
 - **Community cost** basin water stress (45%), population nearby (35%), local grid emissions (20%).
- **Shows its working the credibility core.** Every factor displays its **raw value, weight, points contributed, confidence flag, and data source**, and the parts **always sum to the headline score**. The weights are **draggable**, so a community can encode what *it* cares about and watch the score recompute live.
- **Is honest about its limits.** Where a feed is coarse or falls back to a default, the factor is flagged **low** confidence rather than dressed up as certainty.
- **Turns worry into evidence.** One click exports an **editable Word (.doc) EIA-style screening report** baseline conditions, predicted impacts and significance, mitigation recommendations, and full scoring detail a real document a residents' group could download and take to a council meeting.

Result proof, from a real site

MVP Project link : <https://taapai.vercel.app/>

The MVP runs live today. Below is the actual screening it produces for **Jamnagar, Gujarat** (the major Reliance site) reproduced from the tool's own downloadable EIA report. This is the result template the platform delivers for *any* point.

Siting suitability

43/100

(higher = better build)

Community cost

80/100

(higher = more burden)

"A weak site for buildability (43/100), led by grid proximity (0.3 km @ 66 kV), but held back by water availability (Aqueduct 4.2/5 Extremely High >80%). It would place a high cost on its neighbours (80/100), driven mainly by basin water stress; a water-cooled design here would compete for an already extremely-stressed supply."

In plain terms: technically *okay* to build (amazing solar, grid almost on the doorstep) but a **heavy cost on the ~948,000 people within 25 km**, because it sits in an **extremely water-stressed basin (>80%)**. The tool surfaces exactly that tension, and names what to do about it (dry/hybrid cooling, reclaimed water, on-site renewables, public metering).

Siting suitability 43/100

Factor	Value	Score /100	Weight	Points	Confidence
Grid proximity	0.3 km @ 66 kV	77	30%	23	high
Free-cooling potential	21.7 °C wet-bulb · 10% free-cool days	18	25%	5	high
Grid carbon (clean)	750 gCO ₂ /kWh (Western regional grid)	18	20%	4	medium
Renewable potential	5.4 kWh/m ² /day GHI · 5.7 m/s wind	65	15%	10	high
Water availability	Aqueduct 4.2/5 Extremely High (>80%)	16	10%	2	high

Community cost 80/100

Factor	Value	Score /100	Weight	Points	Confidence
Basin water stress	Aqueduct 4.2/5 Extremely High (>80%) (Gujarat)	84	45%	38	high
Population nearby	~948k within 25 km	74	35%	26	low
Local grid emissions	750 gCO ₂ /kWh (Western regional grid)	82	20%	16	medium

Points sum to the headline score in every block (23+5+4+10+2 = 43; 38+26+16 = 80) the assessment is fully auditable, never a black box. A complete, formatted EIA screening report for this site (sections 1–8: executive summary, project description, methodology, baseline conditions, anticipated impacts & significance, mitigation measures, scoring detail, limitations & confidence) is generated as an editable .doc with one click. See the attached file *Taap-AI_EIA_Jamnagar_Gujarat_2026-06-22.doc*.

Why it matters the AI-safety case

Safe AI is not only well-behaved models; it is AI infrastructure built where it does the least harm, with the people affected able to see and contest the numbers. Taap-AI turns *"I'm worried about this"* into *"here is the evidence."* A community can ask with numbers for dry cooling, recycled water, or a less harmful location. A small council can screen a billion-dollar proposal without hiring anyone. It levels a field that has always tilted toward whoever could afford the data. The platform aligns with five UN Sustainable Development Goals **SDG 9, 7, 6, 13 and 11** but it comes down to one line:

Some Output from the tool (EIA Report)

Taap-AI_EIA_Jamnagar_Gujarat_2026-06-22.doc.

Environmental Impact Screening Assessment

Proposed data-center site: Jamnagar, Gujarat | Coordinates: 22.4707, 70.0577 | Generated: 6/22/2026, 1:36:39 AM
Prepared with Taap-AI — an independent open-data screening tool. Editable working document; not a regulatory determination.

Siting suitability 43/100 (higher = better build)
Community cost 80/100 (higher = more burden)

1. Executive Summary

This is a weak site for buildability (43/100), led by grid proximity (0.3 km @ 66 kV), but held back by water availability (Aqueduct 4.2/5 — Extremely High (>80%)). It would place a high cost on its neighbours (80/100), driven mainly by basin water stress (Aqueduct 4.2/5 — Extremely High (>80%) (Gujarat)); a water-cooled design here would compete for an already extremely-stress supply. Lower | confidence on population nearby — treat those with caution.

2. Project & Site Description

This screening assesses the suitability of the location above for a hyperscale / AI data-center development and the environmental and community costs such a facility would impose. The assessment is location-specific and derived entirely from open data; project-specific parameters (capacity in MW, cooling technology, water source, phasing) should be inserted by the proponent where available.

Item	Detail
Site / Locality	Jamnagar, Gujarat
Coordinates	22.47070, 70.05770
Administrative area	Gujarat
Assessment date	6/22/2026, 1:36:39 AM
Proposed capacity (MW)	[to be completed by proponent]
Cooling technology	[to be completed by proponent]

Water source	[to be completed by proponent]
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3. Assessment Methodology & Data Sources

Scores are a transparent weighted combination of normalised indicators (0–100), not a machine-learning black box. For each indicator, *points = sub-score × weight*; the block score is the weighted average. Live signals: Open-Meteo / ERA5 (climate, solar, wind) and OpenStreetMap via Overpass (grid, population proxy). Bundled reference data: WRI Aqueduct 4.0 baseline water stress (CC BY 4.0) and CEA / Ember grid carbon intensity. Confidence flags indicate where source data was coarse or a fetch fell back to a default.

4. Baseline Environmental Conditions

Environmental aspect	Baseline value	Source	Confidence
Climate (annual mean)	26.5 °C, 66% RH, 21.7 °C wet-bulb	Open-Meteo / ERA5 reanalysis	high
Free-cooling availability	10% of days below 15 °C wet-bulb	Open-Meteo / ERA5 reanalysis	high
Water stress (basin)	Aqueduct 4.2/5 — Extremely High (>80%) (Gujarat)	WRI Aqueduct 4.0 baseline water stress (state-aggregated, CC BY 4.0)	high
Grid carbon intensity	750 gCO ₂ /kWh (Western regional grid)	CEA CO2 Baseline Database / Ember (approx. regional grid factors)	medium
Solar / wind resource	5.4 kWh/m ² /day GHI; 5.7 m/s wind	Open-Meteo shortwave radiation (proxy for Global Solar Atlas GHI)	high
Grid infrastructure	Nearest substation 0.3 km @ 66 kV	OpenStreetMap power=substation via Overpass (ODbL)	high
Population nearby	~948,000 within 25 km	OpenStreetMap place density via Overpass (proxy)	low

5. Anticipated Impacts & Significance

Impact aspect	Predicted effect	Significance
Water resources	Freshwater draw on a extremely high (>80%) basin; competition with local users if water-cooled.	Major

Energy & grid	Connection feasibility: favourable (substation 0.3 km, 66 kV). New large load on local network.	Low
Air quality & carbon	Operational emissions follow the Western regional grid intensity (750 gCO ₂ /kWh); backup diesel generators add local emissions.	Major
Cooling energy demand	10% free-cooling days — high year-round cooling load.	Moderate
Socio-economic / community	Exposure of ~948,000 residents within 25 km to price pressure, noise and resource competition; few permanent jobs relative to size.	High

6. Mitigation Measures & Recommendations

- Adopt **air-cooled or hybrid (adiabatic) cooling** rather than evaporative water cooling: the site sits in a **extremely high (>80%) water-stress** basin (Gujarat), where freshwater draw competes directly with local users.
- Source cooling make-up water from **reclaimed / non-potable supply** and commit to public, metered disclosure of annual water withdrawal and consumption.
- Exploit the strong solar resource (5.4 kWh/m²/day GHI) with **on-site and contracted (PPA) renewable generation** plus storage to cut grid dependence.
- Offset the carbon intensity of the Western regional grid (750 gCO₂/kWh) through 24/7 carbon-free energy procurement and demand flexibility.
- Low free-cooling availability (10% of days) raises cooling energy and water demand — prioritise **high-density liquid cooling** and heat-reuse where an off-taker exists.
- With a sizeable resident population nearby (~948k within 25 km), implement **backup-generator emission controls, noise attenuation**, and a community benefit/transparency agreement.
- Establish an **Environmental Management Plan (EMP)** with monitoring of water, energy, grid impact, air and noise, and periodic public reporting.

7. Scoring Detail

Siting suitability — 43/100

Factor	Value	Score /100	Weight	Points	Confidence	Source
Grid proximity	0.3 km @ 66 kV	77	30%	23	high	OpenStreetMap power=substation via Overpass (ODbL)

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Renewable potential	5.4 kWh/m ² /day GHI · 5.7 m/s wind	65	15%	10	high	Open-Meteo shortwave radiation (proxy for Global Solar Atlas GHI)
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Community cost — 80/100

Factor	Value	Score /100	Weight	Points	Confidence	Source
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Population nearby	~948k within 25 km	74	35%	26	low	OpenStreetMap place density via Overpass (proxy)
Local grid emissions	750 gCO ₂ /kWh (Western regional grid)	82	20%	16	medium	CEA CO2 Baseline Database / Ember (approx. regional grid factors)

8. Limitations & Confidence

Water stress and grid carbon are aggregated to state / regional level for this screening; population is a coarse settlement-density proxy. Indicators marked low confidence should be confirmed with site-specific survey data before any decision. This document is an independent open second opinion intended to inform — not replace — a full statutory Environmental Impact Assessment.

Generated by Taap AI (hackathon MVP). Sources: Open-Meteo/ERA5, OpenStreetMap/Overpass [ODbL], WRI Aqueduct 4.0 [CC BY 4.0], CEA CO₂ Baseline Database / Ember. This is an editable .doc — refine figures and insert project-specific data as needed.