DPGs FOR CLIMATE ACTION COLLECTION

Framework Compliance Summary

VERIFIED DIGITAL PUBLIC GOOD

Climate Action Data Trust

Open-source software · CAD Trust (nonprofit)

github.com/Chia-Network/cadt

Public data infrastructure that connects carbon credit registries worldwide, providing the harmonised, transparent metadata layer that makes reliable, cross-system carbon credit accounting possible at scale. The first global effort to operationalize common data standards for carbon markets as a digital public good — an adapter connecting the systems that governments and oversight bodies use to verify, reconcile and report on credits.

At a glance

CLIMATE OBJECTIVES Climate finance & Carbon Markets · Cross-cutting	**SECTORS** Cross-sector	**DEPLOYMENT** Regional · National · Research	**COUNTRIES ACTIVE** 3 (Bhutan, Singapore, Switzerland)
OWNER CAD Trust (nonprofit); developed with Chia Network	**TYPE** Open-source software	**DATA EXTRACTION** REST/RPC API · CSV export · public observer nodes	**YEAR LISTED** 2026

CLIMATE DPG FRAMEWORK · COMPLIANCE STATUS All four layers met

L1	**DPG Standard**	Verified & listed on the Registry (14 July 2026)	✓ **VERIFIED**
L2	**Climate Alignment**	Climate-relevant by design (carbon markets, MRV)	✓ **MET**
L3	**Infrastructural Approach**	Interoperability L4 · Adoption readiness L4	✓ **MET**
L4	**Measuring Outcomes**	Full KPI table; public dashboard analytics	✓ **MET**

✦ **Admitted to the Climate Action Collection**

LAYER 1 DPG Standard

CAD Trust is a verified digital public good, listed on the DPG Registry (Apache-2.0), having met all nine indicators of the DPG Standard. Layer 1 is a precondition for entry to the DPGs for Climate Action Collection.

LAYER 2 Climate Relevance

Climate-relevant problem addressed

Carbon credit data systems were built apart. Crediting programmes operate worldwide, each with its own registry and data taxonomy, so credits cannot be reliably seen, reconciled or accounted for across systems. This limits government oversight, complicates reporting obligations such as Article 6.2, and constrains how much finance carbon markets can channel into climate action.

CAD Trust addresses this by connecting these systems so they can work together. Registries publish their data directly to a neutral public platform, where it is harmonized under CAD Trust's data model. Governments, crediting programmes, and oversight bodies can see credit activity across systems, and CAD Trust is building the tools that support verification, reconciliation and reporting – starting with Article 6.2. This creates a foundation for oversight, integrity work and accounting, so more finance can reach climate action.

Theory of contribution

CAD Trust is the first global effort to operationalize common data standards for carbon markets as a digital public good. By providing a public harmonised data baseline across decentralised crediting programmes, it is working to enable governments to oversee existing markets, identify double-counting risks, track NDC achievement and report to the UNFCCC. It does not itself issue credits; it makes fragmented carbon market data comparable and usable — the interoperability infrastructure on which national tools and Article 6 reporting can be built.

Frameworks it aligns with

- Carbon Markets & Internationally Transferred Mitigation Outcomes (Article 6).
- UNFCCC decisions & guidelines

How alignment is achieved

CAD Trust uses a standard data model to harmonize information from diverse registries, using Clean Development Mechanism (CDM) sector classification mapped to Article 6 nomenclatures of the Paris Agreement. Data model v2.0 (now rolling out) incorporates all five tables of the internationally negotiated Agreed Electronic Format (AEF), used for annual reporting on internationally transferred mitigation outcomes (ITMOs) under Article 6.2 — letting users trace reported contributions back to the issuing registry and supporting automated AEF export, particularly relevant to national registries aligned with Article 6 guidelines.

Supported Decisions or Actions

CAD Trust's public tools help governments oversee carbon-market activity in their jurisdictions and connect it to their national climate strategy — informing regulation, NDC planning, and decisions on domestic and Article 6 international trading. Relevant to Ministries of Climate, Environment, Energy and Finance. In 2026 it piloted support for UNFCCC reporting, drawing on aggregated registry data with a national government.

LAYER 3 Infrastructural Approach

Modular design

A layered, decoupled architecture with three separable layers: consensus/storage (Chia blockchain + DataLayer), node/application (CADT API) and presentation (public Data Dashboard, third-party clients). API-first with no shared state — any client can substitute for the UI. Node role (governance / publishing / read-only observer) is set by config, not a separate build. Versioned API namespaces (/v1, /v2) run side by side so registries migrate without a network-wide cutover. The v2 data model is published as a machine-readable JSON schema. Federated ownership: each registry owns and publishes its own datastore, with no central write authority. Ships as Docker, Kubernetes, apt and cross-platform (x86 + ARM) binaries.

Data processing

INGESTION Registries publish through authenticated v2 REST/RPC endpoints — no proprietary client required. A managed Node-as-a-Service (NaaS) ingestion path lets registries integrate at the API layer only.

VALIDATION The machine-readable schema is the data contract (types, required flags, picklists, provenance). Picklist values validate against the governance node as the authoritative live source, so vocabularies cannot drift. All writes pass through staging → review → commit; nothing reaches the ledger until an explicit commit.

DISSEMINATION Public API GET endpoints on observer nodes return JSON; the public Data Dashboard is the human-facing interface with CSV export. All published data is public and free. A new MCP server endpoint enables AI-agent / LLM consumption (pending further funding to deploy widely).

Integrations & Adapters

CAD Trust is an adapter, not a replacement for the registries issuing credits: all connected registries keep their own system of record and publish a mapped metadata subset, so integration is additive with no changes to the underlying registry. The v2 data model is aligned to the UNFCCC Article 6.2 AEF reporting standard, enabling automated Article 6 reporting pipelines from diverse registries, and the team is working toward interoperability between connected registries and national government registry systems via interoperability protocols, data models and APIs.

Maturity scales

Interoperability Level 4 / 5 — Integrated

Machine-readable JSON schema (cadtrust-schema-v2.0.2.json) with field definitions, types, picklists and v1→v2 migration notes; v2 RPC API guide with endpoint/field tables and staging workflow; schema-mapping reference; public Data Dashboard; documented connection process. Core API on GitHub (Apache-2.0).

Interoperability Evidence Core API repository (Apache-2.0): GitHub - Chia-Network/cadt: Climate Action Data Trust

v2 RPC API guide: docs/cadt_rpc_api_v2.md — endpoints, field tables, staging workflow, curl examples
Machine-readable schema: docs/cadtrust-schema-v2.0.2.json — field definitions, types, picklists, insert order, v1→v2 migration notes
Schema mapping reference:
docs/CADTrust_Machine_Readable_Schema_v2.0.2_Schema_Mapping_Reference.pdf
Public Data Dashboard: https://data.climateactiondata.org
Connection process and API access: https://climateactiondata.org/how-to-connect/

Adoption readiness Level 4 / 5 — Orchestrated / Cloud-Optimized

Scalability, Performance & reliability CAD Trust aggregates only metadata records — not files or imagery, which stay with the registries of record — keeping the footprint low and storage scaling with record count. Pagination, selectable columns and configurable request-size limits protect nodes from expensive or malicious queries. The federated, replicated network (each node holds a full copy) provides natural redundancy.

Computing & energy intensity CAD Trust runs on the Chia blockchain, which uses a proof-of-space-and-time consensus rather than proof-of-work — no GPU mining, and ARM-binary support for low-power hardware. Because it stores only metadata (not files), the compute and storage footprint is modest.

LAYER 4 Measuring Climate Outcomes

Measurable outcomes it facilitates

- Improved data quality or reduced uncertainty,
- Carbon market participation, registry, or Article 6 readiness strengthened,
- Climate data infrastructure, interoperability, or accessibility improved

Reach in numbers

12 registries connected (World Bank CATS, UNFCCC CDM, Verra, Gold Standard, and others) · 6.3 million dashboard visits · 650 dashboard accounts · 20+ governments trained · First government supported UNFCCC reporting (pilot).

Key performance & impact indicators

Category	Indicator Name	Definition / Unit of Measurement	Data Source	Baseline (if available)	Most Recent Value	Reporting Frequency / Evidence Link
Cross-cutting (data infrastructure, interoperability, digital MRV)	Registries connected	Count	CAD Trust		12	https://data.climateactiondata.org
Cross-cutting (data infrastructure, interoperability, digital MRV)	Visits to the CAD Trust Data Dashboard	Count	CAD Trust		6.3 million	Monthly, IT vendor
Cross-cutting (data infrastructure, interoperability, digital MRV)	Accounts on the CAD Trust Data Dashboard	Count	CAD Trust		650	Monthly, IT vendor
Cross-cutting (data infrastructure, interoperability, digital MRV)	Contributions to market-building	Resources or initiatives by international organizations and regulators we have inputted into	Various (see below)		7	See below

Cross-cutting (data infrastructure, interoperability, digital MRV)	Governments trained on carbon market data models, interoperability, or introduced to carbon market activity through the CAD Trust	Count	World Bank, CAD Trust		20+	World Bank PMI (online trainings, Knowledge Forums)
Climate Finance & Carbon Markets	Governments directly supported with UNFCCC reporting from the platform	Count	CAD Trust		1	CAD Trust (report not public on CARP yet)

Deployment countries · 3 live

Bhutan, Singapore, Switzerland. Bhutan uses CAD Trust as the public interface of its national registry.

Adopting Organizations

Registries connected: World Bank (CATS), UNFCCC (CDM), Verra, Gold Standard, Global Carbon Council, Cercarbono, BioCarbon, Tero Carbon, Rainbow, Asia Carbon Institute, plus the Royal Kingdom of Bhutan and Switzerland. Active users include the Article 6 Implementation Partnership Centre. The World Bank and UNDP have referenced the data-model design; training has reached 20+ governments. Deployments with multiple governments and institutions are being scoped for 2027 (post v2.0 transition).

Evidence & Additional Resources · 12 sources

A live national registry, connection announcements, source code, standards leadership and independent recognition. See below for more details.

Evidence Sources

Most notable contributions to building standardized, connected carbon markets in late 2024-2026:
Released an updated version of the data model powering our DPG: https://climateactiondata.org/cad-trust-launches-data-model-version-2-0/, completed infrastructure upgrades, started transitioning the connected registries
Convened work and was lead author for the World Bank Carbon Markets Infrastructure Working Group Guidance Note on Enhancing Data and Systems Interoperability for Carbon Markets: https://openknowledge.worldbank.org/entities/publication/012a149a-80b5-4006-a520-89a8234bd891

Supported the G20 SFWG effort to develop recommendations for a Common Carbon Credit Data Model under the South African presidency:
https://assets.bbhub.io/company/sites/75/2025/10/Common-Carbon-Credit-Data-Model-Summary-of-Responses-to-Public-Consultation.pdf
Contributed to the ICVCM's Continuous Improvement Work Program, specifically on data standardization and interoperability topics:
https://icvcm.org/wp-content/uploads/2026/03/CIWP-Market-Transparency-Scalability-Standardisation-Report.pdf
Contributed to the OECD / G7 Carbon Market Platform:
https://www.oecd.org/content/dam/oecd/en/publications/reports/2025/06/exploring-governments-efforts-to-shape-carbon-credit-markets_dac6ff0f/0bafe9af-en.pdf
Consulted UNIDROIT working group on the legal nature of verified carbon credits on topics of carbon registry interoperability.
Started co-leading the development of a new ISO data standard: https://www.iso.org/standard/77780.html
https://climateactiondata.org/iso-standard-for-carbon-data-model-under-development/

Evidence of Adoption

The Government of Bhutan uses CAD Trust as the public interface of their national registry:

- https://carbonmarketsplatform.moenr.gov.bt/registry

Some of the registry connection announcements:

- https://climateactiondata.org/cad-trust-data-dashboard-is-live/
- https://climateactiondata.org/gold-standard-connects-to-the-cad-trust/
- https://climateactiondata.org/cad-trust-integrates-kingdom-of-bhutan-as-first-national-registry/
- https://climateactiondata.org/icroa-recommends-cad-trust/
- https://climateactiondata.org/world-banks-carbon-assets-tracking-system-connects-to-cad-trust/

Independent validation

The product owner has identified the following types of external validation applicable to this solution:

- **Independent evaluation** — external assessment of the solution's technical design, climate alignment, or impact claims by an entity not involved in its development
- **Government validation** — real-world adoption, deployment, or formal endorsement by a national government authority — e.g. a ministry, designated national authority, or national meteorological service

The information above reflects the self-reported responses provided by the product owner as part of a structured compliance submission against the Framework for Identifying Digital Public Goods for Climate Action.