



THE CARBON CODE: TRADING, TRACKING AND TRANSFORMING EMISSIONS



WEEK 2 – DAY 1

OUTLINE

- Natural v/s Artificial Credits
- Avoidance v/s Removal Credits
- The Certification Spectrum

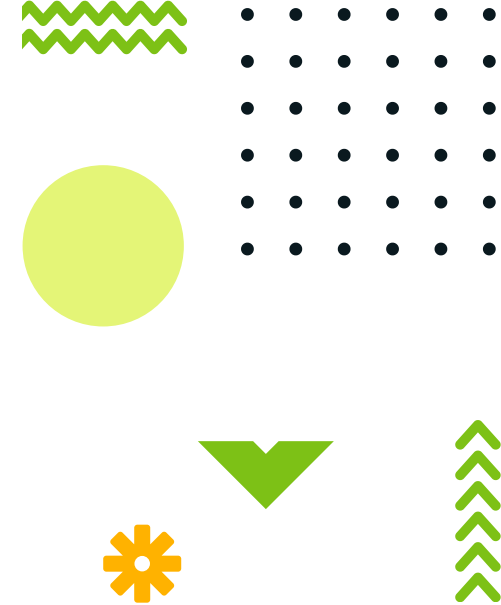


NATURAL CARBON CREDITS

Definition: Generated by protecting or enhancing ecosystems that absorb CO₂.

Type	How It Works	Example
Forests (REDD+)	Pays to stop deforestation	Kasigau Corridor, Kenya
Soil Carbon	Farmers adopt no-till practices	Indigo Agriculture's Soil Credits
Blue Carbon	Restore mangroves/seagrass	Delta Blue Carbon, Pakistan

continued....



Pros	Cons
Co-benefits: Biodiversity, jobs, Indigenous rights	Permanence risk: Forests burn, soils release CO ₂
Lower cost: \$3–\$50/ton	Measurement issues: Hard to verify (e.g., satellite vs. ground truth)

Controversy behind the use of natural carbon credits:
78% of rainforest credits don't reduce deforestation (The Guardian 2023)

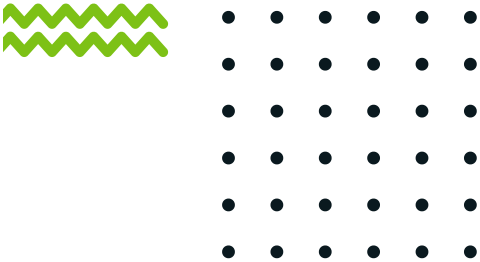
[for futher read, click here](#)

ARTIFICIAL CARBON CREDITS

Definition: Created using technology to remove or prevent emissions.

Type	How It Works	Example
DACCS	Machines suck CO ₂ from air	Climeworks, Iceland
Biochar	Burn biomass, bury charcoal	Pacific Biochar, US
Renewables	Wind/solar replace fossil fuels	Gold Standard Wind Farms

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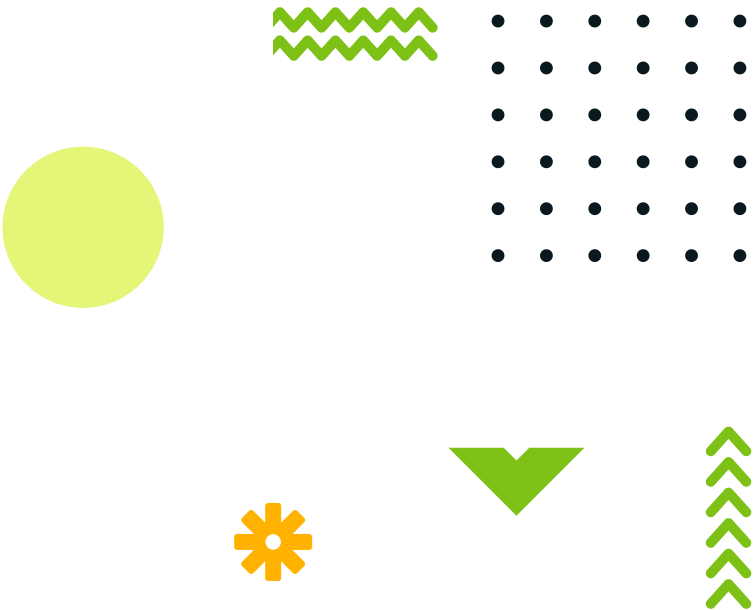
Pros	Cons
Scalable: Tech can be deployed anywhere	High cost: \$100–\$1,200/ton (DACCS)
Precise: Easier to measure (e.g., CO ₂ captured per ton)	Energy hunger: Some tech uses more energy than it saves

Controversy:
Chevron’s Gorgon CCS project captures only 50% of promised CO₂ (The Guardian 2023)

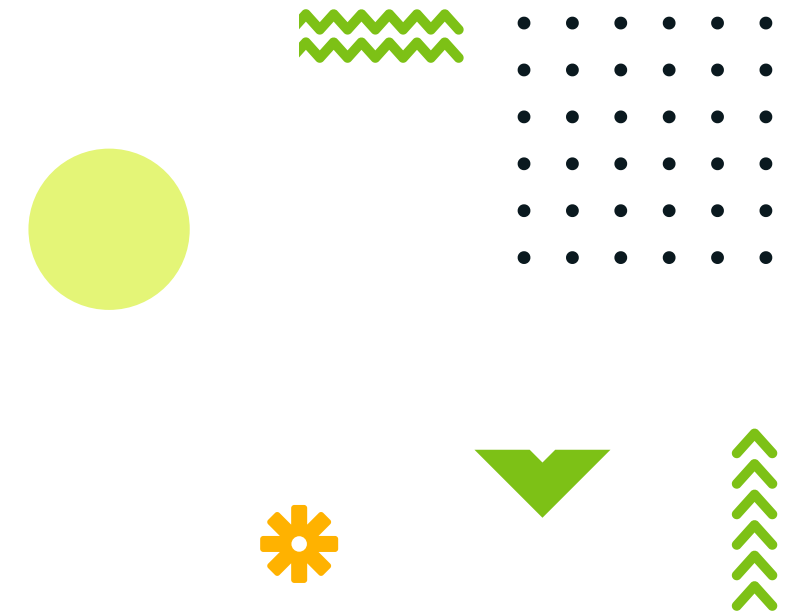
[for further read, click here](#)

KEY DIFFERENCES

Factor	Natural Credits	Artificial Credits
Cost	\$3–\$50/ton	\$50–\$1,200/ton
Permanence	10–100 years (unreliable)	100–1,000+ years (if stored properly)
Co-benefits	High (biodiversity, jobs)	Low (mostly just CO ₂ removal)
Fraud Risk	High (baseline manipulation)	Medium (fake storage claims)



WHICH IS BETTER?

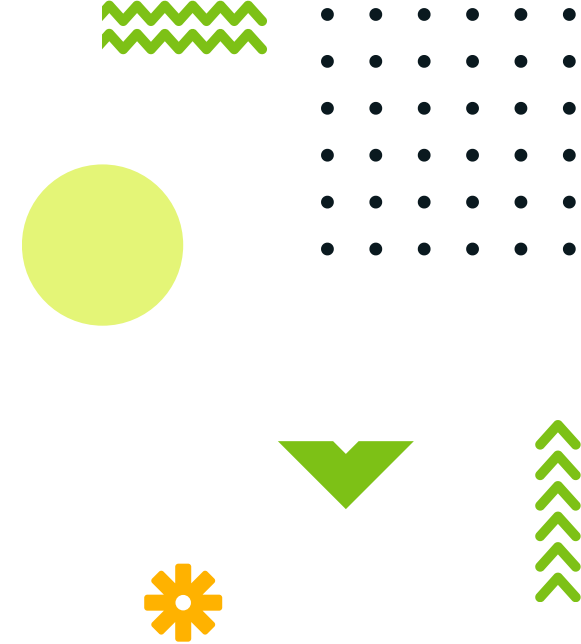


For immediate impact: Natural (cheap, supports communities)

For long-term solutions: Artificial (permanent, scalable)

For credibility: Blend both + strict auditing

AVOIDANCE VS REMOVAL



CERIFICATION SPECTRUM(Carbon Credit Certification Tiers)

Ranked by methodological rigor, transparency, and market acceptance.

[click here for an interesting read](#)

1. TIER 1: PREMIUM STANDARDS (HIGH INTEGRITY):

Key Features:

Robust Methodologies:

Additionality Tests: Project must prove it wouldn't happen without carbon revenue (e.g., financial barrier analysis).

Conservative Baselines: Avoids over-crediting (e.g., uses historical deforestation data + satellite verification).

Buffer Pools: 10-20% of credits withheld as insurance (e.g., for forest fires).

Governance:

Multi-stakeholder boards (scientists, NGOs, industry).

Public comment periods for new methodologies.

Tools:

Verra's VM0042 (Improved Forest Management)

Gold Standard's SDG Impact Tool

Weaknesses:

Costly Validation: \$50k–\$500k per project, favoring large developers.

Slow Issuance: 2–5 years from idea to first credits.

Standards:

- Verra VCS (Verified Carbon Standard)
- Gold Standard (GS4EE)
- American Carbon Registry (ACR)
- Climate Action Reserve (CAR)

Example:

The Kasigau Corridor (Kenya) – VCS-certified REDD+ project with 20M+ credits issued.

2. TIER 2: SPECIALIZED/REGIONAL STANDARDS

Standards:

- ART-TREES (Architecture for REDD+ Transactions)
- Plan Vivo (Community-focused)
- Social Carbon (Brazil-centric)

Key Features:

Niche Focus:

ART-TREES: National-scale forest protection (e.g., Gabon's 90M credit issuance).

Plan Vivo: Smallholder agroforestry (avg. 5k tons/year).

Lower Costs: \$10k–\$100k validation.

Weaknesses:

Limited Market Access: Fewer corporate buyers.

Lighter MRV: Some allow self-reporting (vs. third-party audits).

3. TIER 3: BASIC COMPLIANCE STANDARDS

Standards:

- CDM (Clean Development Mechanism) – Kyoto Protocol legacy.
- VCS Jurisdictional REDD+ – Emerging national programs.

Key Features:

Government-Backed: Often used for NDC compliance.

Risks:

Loose Rules: CDM's HFC-23 scandal (credits for increasing emissions).

Political Interference: E.g., Malaysia's disputed forest baselines.

4. TIER 4: UNVERIFIED/CRYPTO-LINKED

Examples:

- KlimaDAO's Base Carbon Tons (BCTs)
- Self-Certified Biochar Credits

Red Flags:

- No independent validation.
- Opaque retirement records (e.g., Toucan's missing retirement receipts).

CERTIFICATION DEEP DIVES

How Verra's VCS Works

Methodology Selection (e.g., VM0015 for avoided deforestation).

- Validation: Auditor (e.g., DNV) checks project design.
- Monitoring: Annual satellite/field data collection.
- Verification: Auditor confirms CO₂ reductions.
- Issuance: Credits listed on registry.

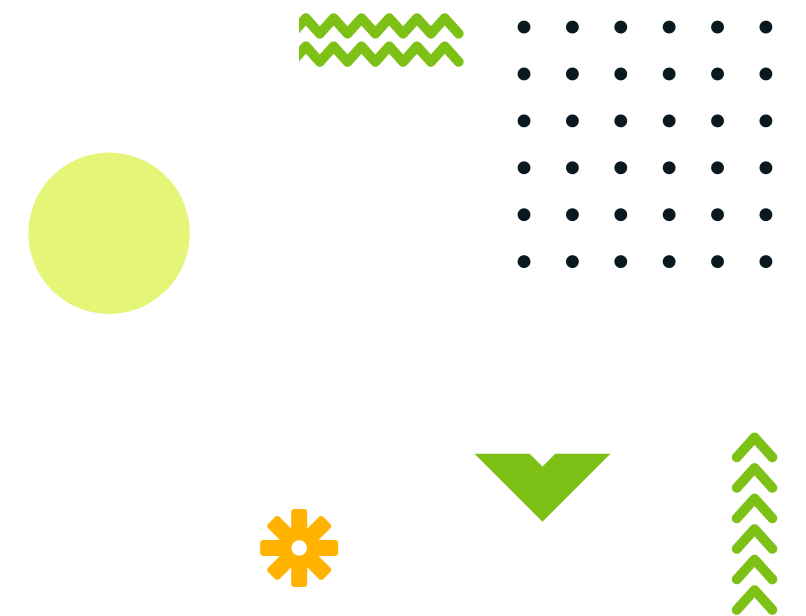
Loophole Alert:

Projects can cherry-pick high-deforestation historical years to inflate baselines.

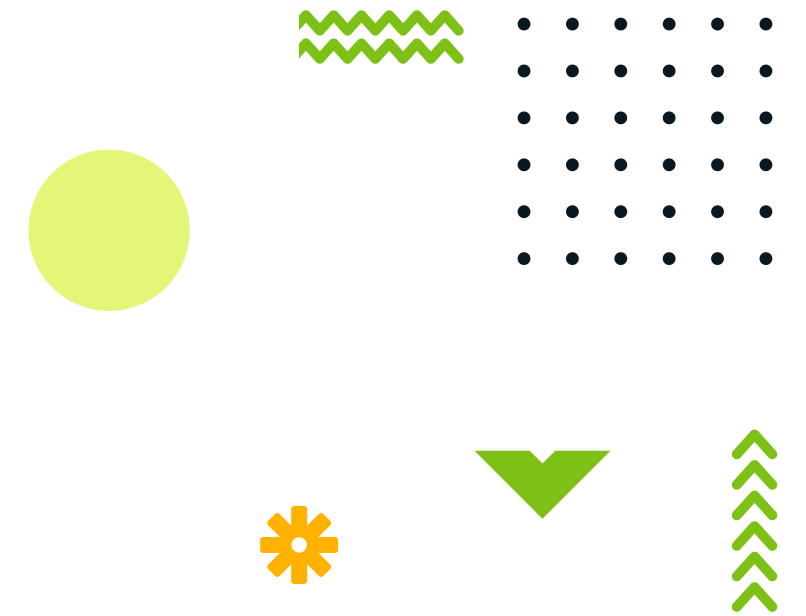
Gold Standard's Extra Requirements

SDG Alignment: Must prove ≥ 3 UN Sustainable Development Goals (e.g., gender equity).

No Fossil Fuel Links: Bans credits from coal/oil companies.



EMERGING REFORMS (2024)



ICVCM's Core Carbon Principles (CCP):

Global benchmark to label "high-integrity" credits.

Requires:

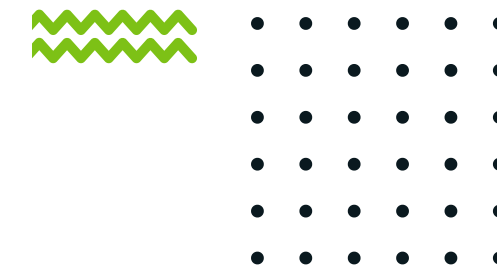
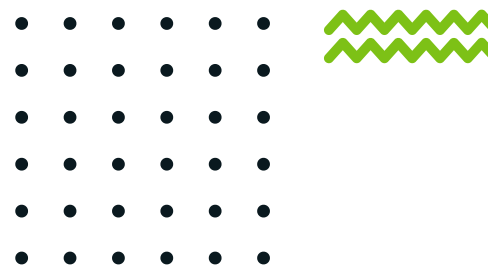
- Permanence (min. 40-year guarantees).
- No human rights violations.

EU's Carbon Removal Certification Framework (CRCF):

Will regulate tech-based removal credits (DACCS, BECCS).

Blockchain Experiments:

Regen Network: IoT sensors for real-time soil carbon monitoring.)



THANK YOU

