Regulatory Mappings

- EUDR — EU Deforestation Regulation
- CSRD — Corporate Sustainability Reporting
- CBAM — Carbon Border Adjustment Mechanism
- ISSB IFRS S2 — Climate Disclosures
- Article 6.4 — Paris Agreement Carbon Credits

EUDR — EU Deforestation Regulation

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Deadline: 30 December 2026 **Large & Medium Operators**

EU Regulation 2023/1115. Requires operators placing commodities (coffee, cocoa, cattle, soy, palm oil, wood, rubber) on the EU market to prove they are deforestation-free and produced in compliance with local laws.

Framework Mapping

EUDR Requirement	Article	Framework Component
Geolocation of production plots	Art. 9	KoboToolbox GPS polygon ? UNTP DTE with `cth:GpsPrecision` SHACL shape
Deforestation-free assessment	Art. 10	IDEAM raster overlay ? `cth:DeforestationDataVintage` ?24 months
Due Diligence Statement	Art. 4	Automated EUDR DDS export from compliance API; signed as UNTP DCC
Supply chain traceability	Art. 9(1)(g)	UNTP Digital Traceability Event chain from farm ? cooperative ? exporter
Country risk classification	Art. 29	High/standard/low risk country flag auto-applied from EU country benchmarking list
Substantiated concern	Art. 31	Whistle-blower endpoint; triggers Steward review workflow

Data Pipeline

KoboToolbox field submission ? SHACL validation (R-SUB-01) ? FPIC check (R-SUB-02) ? IDEAM deforestation overlay ? Validator DCC signature (R-VAL-01) ? EUDR DDS export ? OID4VP presentation to EU customs

?? The same UNTP DTE used for EUDR compliance is the shared evidence layer for Article 6.4 carbon credits. No duplicate data collection required.

CSRD — Corporate Sustainability Reporting

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Early Adoption: FY2026 **Mandatory: FY2027**

EU Directive 2022/2464. Requires large companies to report on sustainability impacts under European Sustainability Reporting Standards (ESRS). Climate-relevant standards: ESRS E1 (Climate Change) and ESRS E4 (Biodiversity).

Framework Mapping

CSRD Requirement	ESRS	Framework Component
GHG emissions Scope 1/2/3	ESRS E1-6	IoT sensor data + satellite biomass estimates ? emission factor calculations
Transition plan	ESRS E1-1	Not in scope for framework v1.0 — requires company-level data
Biodiversity impact	ESRS E4-5	KoboToolbox biodiversity surveys ? PROV-O linked to parcel DTEs
Value chain engagement	ESRS G1-3	Supplier credential status dashboard — are all cooperatives EUDR-certified?
Double materiality	ESRS 1 §25	Framework provides data layer; materiality assessment remains with reporting company

?? **Important:** CSRD requires double materiality assessment — both financial materiality (how climate affects the company) and impact materiality (how the company affects climate). The framework provides the impact data layer; financial materiality analysis is out of scope.

CBAM — Carbon Border Adjustment Mechanism

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First Declaration: September 2027 **For 2026 Imports**

EU Regulation 2023/956. Requires EU importers to declare the embedded carbon in imported goods (cement, iron, steel, aluminium, fertilisers, electricity, hydrogen). Coffee is not currently in scope but is expected in Phase 2 (2030+).

Framework Mapping (Phase 2 readiness)

CBAM Requirement	Article	Framework Component
Embedded carbon calculation	Art. 7	IoT sensor + satellite biomass data ? emission intensity per tonne
Third-party verification	Art. 10	Accredited Validator DCC (R-VAL-03 — CBAM requires validation, unlike EUDR DDS)
Production country emissions factor	Art. 7(2)	IDEAM national emissions inventory integration
CBAM certificate surrender	Art. 22	Out of scope — EU importer action; framework provides the data package

?? CBAM currently covers energy-intensive industries, not agricultural commodities. However, EU CBAM Phase 2 expansion to include coffee and cocoa is under discussion. Building CBAM-compatible data structures now creates optionality.

ISSB IFRS S2 — Climate Disclosures

ISSB IFRS S2 — Climate-Related Disclosures

Brazil CVM: Jan 1 2026 **Mexico CNBV: FY2025**

IFRS Sustainability Disclosure Standard S2 — Climate-related Disclosures. Mandatory for listed companies in Brazil (CVM Resolution 193) and Mexico (CNBV circular). Aligned with TCFD framework.

Framework Mapping

IFRS S2 Requirement	Paragraph	Framework Component
Physical climate risks	§9	Satellite climate data overlay on farm parcels ? risk scoring per asset
Transition risks	§10	Regulatory status tracker — EUDR compliance rate for supply chain
GHG metrics	§29	IoT + satellite emission estimates ? verified by Accredited Validator
Climate scenario analysis	§22	Not in framework scope — requires financial modelling layer
Scope 3 value chain	§29(a)	Supplier EUDR status as proxy for Scope 3 land-use change emissions

> **Why This Matters for CTH**
> Colombian and Peruvian coffee exporters supplying Brazilian and Mexican listed companies must provide IFRS S2-compatible climate data to their buyers. The framework enables exporters to generate investor-grade climate disclosures from the same field data used for EUDR compliance.

Article 6.4 — Paris Agreement Carbon Credits

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UNFCCC Mechanism **Operationalised 2024**

Article 6.4 of the Paris Agreement establishes a UN-supervised carbon crediting mechanism (successor to CDM). Article 6.4 Emission Reductions (A6.4ERs) are the highest-integrity carbon credits — issued by the UNFCCC Supervisory Body, not private standard bodies.

The Shared Evidence Layer Innovation

> **One DTE ? Two DCCs**
> The same UNTP Digital Traceability Event (DTE) that proves deforestation-free coffee production for EUDR also serves as the shared evidence layer for an Article 6.4 carbon credit. Two Digital Conformity Credentials are issued against the same DTE: (1) EUDR Due Diligence Statement, (2) Article 6.4 Emission Reduction certificate. This eliminates duplicate data collection and double-counting risk.

Article 6.4 Requirement	Framework Component
Additionality demonstration	Baseline deforestation rate from IDEAM raster vs. current parcel status
Permanence monitoring	Annual IoT + satellite biomass comparison against baseline DTE
Leakage assessment	Adjacent parcel monitoring — IDEAM deforestation flag propagation
Corresponding adjustment	Requires host country (Colombia) approval — CTH provides data package to IDEAM/MADS
Third-party validation	R-VAL-03: Accredited Validator DCC required (UNFCCC-approved Designated Operational Entity)
Registry issuance	A6.4ER registry (UNFCCC) — CTH provides data; registry issues the credit

?? **Important:** Article 6.4 requires a Corresponding Adjustment from Colombia — the host country must formally authorise the credit transfer. This is a government process, not a data process. CTH facilitates by providing the MADS/IDEAM with the data package; the political decision is outside the framework.

?? The commercial case: a 1-hectare deforestation-free coffee parcel in Chocó generates approximately 8-12 tCO?e/year in avoided deforestation. At Article 6.4 prices (~$15-40/tCO?e), this represents $120-480/ha/year in additional farmer income on top of the EUDR compliance premium.