

High-Integrity Carbon Markets Toolkit



Module 1 Part 2

Carbon Markets 101

High integrity



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About this publication

This publication was developed with support from the UN-REDD Programme. UN-REDD is the UN knowledge and advisory platform on forest solutions to the climate crisis. It supports nationally-led REDD+ processes and promotes the informed and meaningful involvement of all stakeholders, including Indigenous Peoples and local communities, to mobilize finance for and implement REDD+ activities agreed under the UNFCCC. UN-REDD builds on the convening capacity and technical expertise of FAO, UNDP and UNEP, serving 65 partner countries. UN-REDD is made possible through support from the European Commission and the governments of Denmark, Luxembourg, Norway, Japan, Republic of Korea, Spain, Switzerland and United Kingdom.



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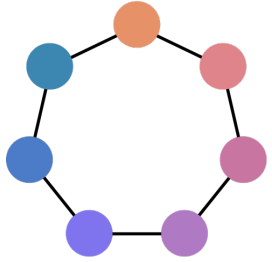
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High-Integrity Carbon Markets Toolkit

The Toolkit serves **supply-side** actors—governments, project developers, companies, NGOs, Indigenous Peoples and local communities—and **demand-side** actors, including investors, corporates and individuals. It equips them to **design, implement and scale** high-integrity carbon market activities that **deliver real and equitable climate outcomes**.

It also supports institutions **that shape and uphold market quality**—including standard-setters, rating agencies, validation and verification bodies, and integrity initiatives—helping to build a **trusted global framework** for carbon markets that deliver lasting benefits for **climate, people and nature**.

The Toolkit **offers flexible, multimedia content**—from webinars and case studies to guidance notes and presentations—for both self-paced and group learning.

Developed with **leading international partners**, the Toolkit focuses first on **social integrity**, an area where UNDP brings deep expertise and global relevance.

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A group of approximately 20 women are standing in a line in a grassy field. They are all wearing white t-shirts with the word 'ACTION' printed on them. Many of the women are also wearing colorful, patterned skirts and headwraps. They are holding small green seedlings in their hands. The background shows a line of trees under a cloudy sky. The image has a soft, warm color overlay.

Chapter 1

What is high integrity?

1. What is high integrity?

Definition

High integrity in carbon markets means that each carbon credit represents a real, additional, permanent tonne of CO₂e reduced or removed, achieved through activities that **are accurately measured, transparently verified, and free from double counting**. It requires building **quality** and **credibility** into every stage of the project lifecycle — from design and baseline setting to monitoring, verification, issuance and retirement.

Equally, high-integrity projects and programmes must respect **human rights, safeguard biodiversity** and deliver **tangible benefits for people and nature**. They secure **Free, Prior and Informed Consent (FPIC)**, ensure equitable benefit-sharing, contribute to the **Sustainable Development Goals (SDGs)**, and guarantee access to **effective grievance redress mechanisms**. These social and environmental outcomes are not optional — they are fundamental to the legitimacy and long-term impact of carbon markets.

In this Toolkit, “**carbon integrity**” is used in place of the more common term “environmental integrity” to clearly distinguish it from social and environmental integrity.

1. What is high integrity?

What's driving increased focus on high integrity over the last few years?

Driver	Description	Impact on market
Integrity scandals and media scrutiny	Exposed widespread over-crediting, non-additionality and social harms.	Eroded trust, triggered calls for reform, court rulings against carbon projects
Corporate greenwashing backlash	Lawsuits, new regulations and public pressure on misleading claims.	Shift to quality over quantity and beyond-value-chain framing.
Paris Agreement and Article 6	Introduced national targets, double counting rules and new accounting standards.	Raised technical and governance requirements.
Investor and buyer demand	Preference for credible, high-impact credits and transparent claims.	Growth of rating agencies, integrity initiatives like ICVCM, VCMI.
Market scaling ambitions	Larger markets require stronger governance to sustain trust.	Integrity becomes foundational to growth.
Justice and co-benefits focus	Social and biodiversity outcomes now central to legitimacy.	Projects must integrate rights, equity and SDG impact. New assets emerging beyond carbon like biodiversity credits.

1. What is high integrity?

What are the risks to **carbon** integrity?

Risk category	Description	Impact	Examples
Risk of non-additionality	The project's emissions reductions would have happened anyway, even without carbon finance.	Credits overstate climate impact if the activity wasn't truly 'caused' by the carbon market.	Renewable energy project built for economic reasons regardless of carbon revenue; forest preserved by law already.
Baseline risk	The "business-as-usual" scenario used to calculate reductions is unrealistic or inflated, exaggerating climate benefits.	Overestimated baselines lead to over-issuance of credits that don't represent real reductions.	Forest loss projections far higher than actual deforestation rates.
Non-permanence (reversal) risk	Carbon stored (e.g., in forests or soils) could be released in the future, reversing climate benefits.	Undermines the durability of mitigation — a credit issued today may not represent a permanent reduction.	Forest burned or logged decades later, releasing stored CO ₂ .
Leakage risk	Emissions are displaced rather than reduced, occurring outside the project boundary as a result of project activities.	Net global emissions may not decrease, even if local reductions occur.	Protecting one forest leads to deforestation shifting to another area.
Double counting risk	The same emission reduction is counted more than once (by multiple buyers or by a country and a company).	Undermines global climate accounting and violates Article 6 principles.	Host country counts reductions toward its NDC while credits are sold to a corporate buyer.

1. What is high integrity?

What is carbon integrity?



Robust quantification

- > Use of a credible baseline
- > Discounting for uncertainty and leakage
- > Robust MRV protocols
- > Consistent with IPCC guidance and/or guidelines



No double counting

- > Not be double-counted, i.e., they shall only be counted once towards achieving mitigation targets or goals
- > Double counting covers three main categories: double issuance, double claiming and double selling



Additionality

- > Ensure that carbon reduction projects lead to emissions reductions that would not have occurred otherwise
- > Ensure that emissions reductions are attributable to project activities



No leakage

- > Project does not cause emissions to materially increase elsewhere (=leakage)
- > Process for assessing and mitigating leakage of emissions that may result from the implementation of an offset project and/or programme



Permanence

- > Long-term mitigation benefits - often defined as 100 years
- > If reversal risks exist, they are covered by compensation mechanisms and managed through mandatory buffer accounts



Validation and verification

- > Third party entity validation and verification of the project and/or programme
- > Accredited under the relevant standard or programme
- > Unique registry to identify, record and track mitigation activities and carbon credits issued

1. What is high integrity?

What is carbon integrity?



Transparency & traceability

- > Project or programme documentation are made publicly available in electronic format (unless confidential business information).
- > Scrutiny of mitigation activities shall be accessible to non-specialized audiences.
- > Sufficient available data and information for a technical expert to replicate the methodological approach, calculations, etc.
- > Each offset credit generated must have clear and transparent chain of custody.



Registries

- > Should make use of a registry to uniquely identify, record and track mitigation activities and carbon credits issued to ensure credits can be identified securely and unambiguously.
- > A country need not necessarily develop its own registry.
- > May make use of a programme-specific registry (VCM) and/or Article 6 registry, as relevant and applicable.



Host country alignment & policy coherence

- > Projects are consistent with national climate goals (NDC) and do not undermine host country mitigation efforts.
- > Letters of authorization under Article 6.
- > Contribution to host country NDC.
- > Coordination with national carbon registries.



Rigorous Measurement, Reporting & Verification (MRV)

- > Emission reductions/removals are measured accurately, reported transparently, and independently verified.
- > Regular data collection and public reporting.
- > Independent validation/verification body (VVB) audits.
- > Use of satellite data, field sampling, and QA/QC systems.

1. What is high integrity?

What are the risks to **social and environmental** integrity?

Risk category	Description
Biodiversity loss & ecosystem degradation	Project activities (e.g., afforestation, infrastructure) may lead to habitat destruction, species loss, introduction of invasive species or altered ecosystem services.
Land tenure & Indigenous rights violations	Projects may overlook customary land tenure or proceed without FPIC.
Displacement & resettlement	Projects restricting access to land or resources may result in physical or economic displacement.
Inclusion of Indigenous Peoples & local communities	Projects often fail to meaningfully involve Indigenous Peoples and local communities in design, decision-making, implementation and monitoring.
Community health, safety & security	Construction, workforce influx, pollution or security measures may pose risks to local communities.
Gender inequality, gender-based violence (GBV)	Projects may exacerbate existing gender disparities or expose women and vulnerable groups to GBV.
Cultural heritage impacts	Activities may disturb sites of cultural, spiritual or historical significance.
Pollution & resource inefficiency	Poor design or management can cause air, water or soil pollution, or unsustainable resource use.
Climate maladaptation	Projects may inadvertently increase vulnerability to climate risks or fail to account for future climate conditions.
Lack of equitable benefit sharing	Benefits (financial, social, environmental) may not reach Indigenous Peoples, local communities, women or other marginalized groups.

1. What is high integrity?

What is social and environmental integrity?*

Principle	Objective	Key requirements
P1: Leave No One Behind	Prioritize marginalized and excluded groups and empower them as active agents in development.	> Target the most vulnerable and excluded. > Empower marginalized communities in decision-making.
P2: Human rights	Uphold accountability, participation, inclusion, equality and non-discrimination.	> Conduct human rights analysis. > Avoid supporting activities that violate human rights. > Support states in fulfilling human rights obligations. > Ensure participation of marginalized groups.
P3: Gender equality and women's empowerment	Promote gender equality and eliminate discriminatory practices.	> Base design on gender analysis. > Ensure meaningful and equitable participation. > Address GBV risks with prevention and response measures. > Do not reinforce gender-based discrimination.
P4: Sustainability and resilience	Integrate social, environmental and economic resilience into programming.	> Apply mitigation hierarchy. > Strengthen resilience to shocks and disasters. > Avoid unnecessary GHG emissions. > Integrate low-emission, climate-resilient objectives.
P5: Accountability	Ensure transparency, participation and grievance redress.	> Engage communities actively in decision-making. > Provide accessible information on risks and impacts. > Establish grievance redress mechanisms. > Enable participatory monitoring and reporting.

1. What is high integrity?

What is social and environmental integrity?*

Standard	Objective	Key requirements
S1: Biodiversity and natural resource management	Conserve biodiversity and ecosystem services and ensure equitable benefit sharing.	➤ Apply a precautionary approach and mitigation hierarchy. ➤ Avoid critical habitats and invasive species. ➤ Use biodiversity offsets only as a last resort. ➤ Promote sustainable resource use and small-scale community management.
S2: Climate change and disaster risk	Strengthen resilience and reduce emissions.	➤ Conduct climate and disaster risk assessments. ➤ Avoid maladaptation. ➤ Minimize GHG emissions and intensity. ➤ Integrate adaptation and disaster risk reduction into plans.
S3: Community health, safety and security	Protect communities from health, safety and security risks.	➤ Assess and manage health and safety risks. ➤ Prevent disease spread and hazardous exposures. ➤ Plan for emergencies. ➤ Ensure security arrangements respect human rights.
S4: Cultural heritage	Protect and promote cultural heritage.	➤ Avoid and mitigate adverse impacts. ➤ Engage experts and affected communities. ➤ Ensure continued access and confidentiality, when necessary. ➤ Provide equitable benefit sharing from cultural heritage use.

1. What is high integrity?

What is social and environmental integrity?*

Standard	Objective	Key requirements
S5: Displacement and resettlement	Avoid forced evictions and improve livelihoods if displacement occurs.	> Avoid or minimize displacement. > Provide fair compensation and resettlement support. > Ensure meaningful participation and legal remedies. > Conduct independent monitoring and completion analysis.
S6: Indigenous Peoples	Respect Indigenous Peoples' rights and secure free, prior and informed consent (FPIC).	> Recognize land, territory and resource rights. > Require FPIC for all activities affecting IPs. > Develop Indigenous Peoples plans (IPPs). > Ensure equitable benefit sharing and participatory monitoring.
S7: Labour and working conditions	Protect workers' rights and ensure safe, fair conditions.	> Eliminate forced and child labour. > Ensure non-discrimination and equal opportunity. > Provide safe and healthy workplaces. > Establish grievance mechanisms and due diligence for contractors and suppliers.
S8: Pollution prevention and resource efficiency	Minimize pollution and promote sustainable resource use.	> Apply pollution prevention and control technologies. > Safely manage hazardous materials and waste. > Promote a circular economy and efficient use of water, energy and materials. > Avoid use of highly hazardous pesticides.

1. What is high integrity?

What is social and environmental integrity?

Topic	Objective	Key requirements	
Carbon rights	> Clearly define carbon rights and ensure social acceptance. > Ensure legal validity and compliance with national and international law to underpin the integrity and permanence of carbon crediting activities.	Identify and recognize carbon rights	Conduct due diligence to identify legal and customary rights related to carbon assets, including overlapping claims, and ensure alignment with applicable national and subnational regulations.
		Ensure legal authorisation	Demonstrate that the entity generating or transferring carbon credits holds, or has secured, the legal right or authorization consistent with applicable laws and regulations.
		Respect tenure and customary rights	Recognize legitimate tenure and resource use rights, including those held by Indigenous Peoples and local communities, in line with international human rights standards and relevant other standards (i.e., Standards on Indigenous Peoples and Human Rights)
		Secure FPIC where applicable	Obtain FPIC where carbon activities affect Indigenous Peoples or communities with customary tenure.
		Clarify responsibilities for permanence and liability	Define the roles, responsibilities and liabilities associated with maintaining carbon stocks, managing reversals and ensuring the permanence of credited emission reductions/removals.
		Prevent and manage disputes	Establish transparent and accessible grievance mechanisms for disputes related to carbon rights, tenure or authorization.

1. What is high integrity?

What is social and environmental integrity?

Topic	Objective	Key requirements	
Equitable benefit sharing	Ensure that the benefits derived from carbon crediting activities are distributed in a fair, transparent, inclusive and accountable manner, consistent with human rights principles, SDG objectives, and national and local development priorities.	Design transparent benefit-sharing mechanisms	Develop clear, transparent and publicly available benefit-sharing plans or mechanisms that describe how proceeds from carbon crediting will be allocated among beneficiaries.
		Ensure equity and inclusion	Ensure that benefit sharing arrangements are fair and inclusive, taking into account gender equality, Indigenous Peoples' rights, vulnerable groups and local development needs.
		Promote participatory decision-making	Involve stakeholders, including legitimate rights-holders, in the design, governance and monitoring of benefit sharing mechanisms, through culturally appropriate and gender-responsive processes.
		Establish accountability and monitoring	Put in place clear institutional arrangements, monitoring systems and reporting requirements to track benefit flows and ensure accountability.
		Provide grievance redress	Establish and publicize grievance mechanisms accessible to all stakeholders to address complaints regarding benefit allocation or access to proceeds.
		Design transparent benefit-sharing mechanisms	Develop clear, transparent and publicly available benefit-sharing plans or mechanisms that describe how proceeds from carbon crediting will be allocated among beneficiaries.

1. What is high integrity?

What is social and environmental integrity?

Topic	Objective	Key requirements	
Sustainable development and SDG alignment	Ensure that carbon market activities deliver measurable, transparent and verifiable contributions to sustainable development, aligned with national priorities and the SDGs.	Identify relevant SDGs and national priorities	During project design, identify the SDG goals, targets and indicators that the activity is expected to contribute to, ensuring alignment with host country sustainable development strategies, NDCs and sectoral policies.
		Plan for positive SD outcomes	Develop an explicit plan or results framework describing how the activity will contribute to identified SDGs, including both direct and indirect benefits, and any enabling conditions needed to realize them.
		Monitor and report on SDG contributions	Establish measurable indicators for relevant SDG targets; monitor progress regularly; and report transparently at key stages (e.g. validation, verification, credit issuance). Where feasible, use official SDG indicators or robust proxies.
		Ensure participation and transparency	Engage stakeholders, including affected communities, local governments and civil society, in identifying and validating expected SDG contributions. Disclose information on SDG outcomes publicly in an accessible format.
		Plan for positive SD outcomes	Develop an explicit plan or results framework describing how the activity will contribute to identified SDGs, including both direct and indirect benefits, and any enabling conditions needed to realize them.
		Identify relevant SDGs and national priorities	During project design, identify the SDG goals, targets and indicators that the activity is expected to contribute to, ensuring alignment with host country sustainable development strategies, NDCs and sectoral policies.

1. What is high integrity?

How is social and environmental integrity **applied** in a project?

Stage	Purpose	Key actions and requirements
Screening and scoping	Identify potential social and environmental risks and opportunities early.	> Conduct an initial environmental and social risk screening. > Identify affected communities, including Indigenous Peoples and vulnerable groups. > Map land tenure, cultural heritage and biodiversity values.
Stakeholder engagement and FPIC	Ensure inclusive, rights-based participation from the earliest stages.	> Engage stakeholders in identifying priorities and risks. > Obtain free, prior and informed consent (FPIC) from Indigenous Peoples. > Establish ongoing dialogue platforms.
Impact assessment and risk management	Assess, avoid and mitigate potential adverse impacts.	> Conduct detailed environmental and social impact assessments (ESIA). > Apply the mitigation hierarchy (avoid, minimize, mitigate, offset).
Project design and planning	Integrate social, environmental and rights-based principles into project design.	> Incorporate safeguard measures into project plans. > Design benefit-sharing mechanisms and governance structures. > Align with national policies and SDGs.

1. What is high integrity?

How is social and environmental integrity **applied** in a project?

Stage	Purpose	Key actions and requirements
Implementation and capacity-building	Deliver project activities in line with standards and safeguards.	> Implement mitigation and management plans. > Provide training and capacity support to local communities and implementing partners.
Monitoring, reporting and verification	Track project performance, impacts and compliance.	> Monitor social and environmental indicators continuously. > Involve communities in participatory monitoring. > Publish monitoring reports and results.
Grievance redress and accountability	Provide mechanisms for addressing conflicts, complaints and rights violations.	> Establish effective, culturally appropriate grievance mechanisms. > Track and resolve grievances promptly. > Publicly report on grievance outcomes.

1. What is high integrity?

Elements to be explored in depth in forthcoming Toolkit modules

- Consultation and consent
- Equitable benefit sharing
- Gender equality
- Effective grievance mechanisms
- Social and environmental management systems
- SDG impact
- Respect for international law, human rights, including Indigenous Peoples' rights



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Chapter 2

Safeguard requirements in compliance and voluntary markets

2. Safeguard requirements in compliance and voluntary markets

Strengthening safeguards in domestic carbon markets



Reliance on national law

Domestic compliance markets generally outsource safeguards to existing legal frameworks. Where those laws are strong (e.g., European Union, New Zealand, California), protections can be robust. Where they are weak, safeguards are minimal.



Little focus on community impacts

Most emissions trading systems (ETSs) focus on facility-level emissions from industry and power generation, where social and land-use impacts are less direct. As a result, safeguards frameworks are underdeveloped.



Offsets are the main exception

Where domestic systems allow offsets (e.g., California, China), they introduce more safeguard requirements — such as stakeholder consultation, legal land use verification and environmental assessments — but still fall short of voluntary standards.



No standardized FPIC or benefit sharing

Few domestic systems explicitly require free, prior and informed consent (FPIC) or equitable revenue distribution, leaving major integrity gaps where projects affect Indigenous territories or local communities.



Transparency and accountability vary

Public participation and grievance processes exist but are often fragmented, limited in scope and inaccessible, especially in emerging markets.

2. Safeguard requirements in compliance and voluntary markets

Safeguard requirements under Article 6 of the Paris Agreement

Topic	What Article 6 requires
Human rights	All cooperative approaches under Article 6 must “respect, promote and consider human rights”, including the rights of Indigenous Peoples and local communities (Preamble, Paris Agreement).
Transparency and stakeholder participation	Article 6.4 mechanism requires public participation and stakeholder consultation, and Parties must submit transparent reporting on mitigation outcomes.
Grievance redress mechanisms	The Article 6.4 mechanism explicitly requires the establishment of a grievance process.
Sustainable development contribution	All Article 6 activities must contribute to the sustainable development of the host country (Article 6.1).
Environmental impacts	Activities must avoid negative environmental impacts and ensure they do not undermine broader climate or biodiversity goals (Article 6.2 guidance, 6.4 mechanism rules).

2. Safeguard requirements in compliance and voluntary markets

How select VCM standards integrate safeguards requirements



Standard

Approach to safeguards

Verra – Verified Carbon Standard (VCS)

Integrates safeguards through project-level requirements, legal compliance and stakeholder engagement. Often combined with Climate, Community & Biodiversity (CCB) Standards or Sustainable Development Verified Impact Standard (SD VISta) for stronger co-benefit safeguards.

Gold Standard for the Global Goals

Places social and environmental integrity at the center of its standard. Safeguards are mandatory and integrated.

Architecture for REDD+ Transactions (ART-TREES)

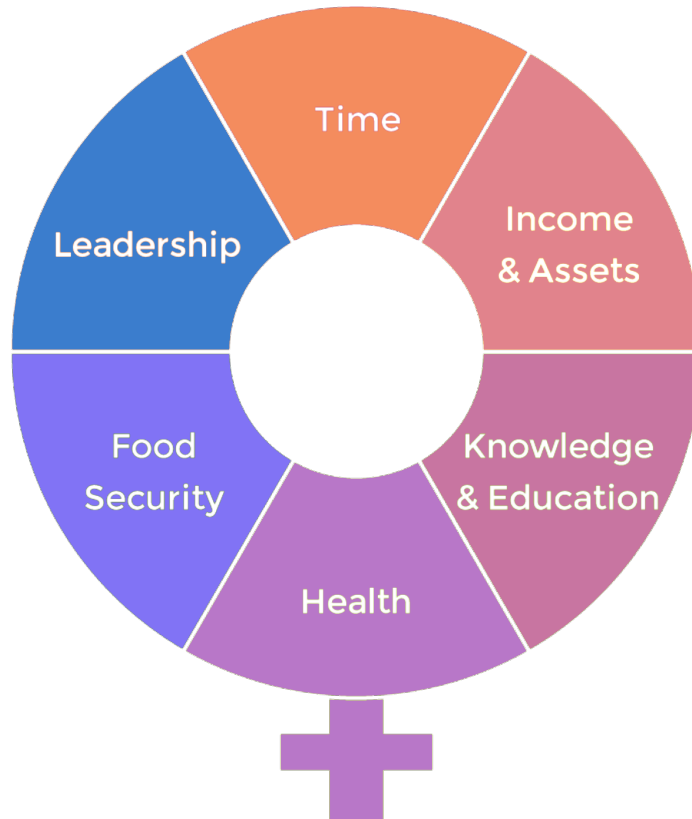
Integrates safeguards at the jurisdictional level, requiring alignment with UNFCCC Cancun Safeguards and national legal frameworks.

Plan Vivo

Community-centred, with safeguards built into its participatory design and implementation model.

2. Safeguard requirements in compliance and voluntary markets

Example of an 'add-on' label: W+ Standard



Six categories to integrate and measure women's empowerment impacts

- > Created by WOCAN
- > Women-specific standard that measures women's empowerment in a transparent & quantifiable manner
- > Gives a monetary value to results
- > Designed to be implemented with carbon or non-carbon projects

2. Safeguard requirements in compliance and voluntary markets

How safeguard requirements differ under Article 6 and VCM standards

Topic	Article 6	Voluntary carbon standards
Human rights	Broad, but binding reference to human rights and Indigenous rights.	Often more explicit and detailed requirements.
Stakeholder engagement	Required for 6.4, encouraged for 6.2.	Detailed protocols and documentation required.
Safeguard enforcement	Largely up to host country and Article 6.4 Supervisory Body.	Enforced through third-party validation and verification.
Grievance mechanisms	Required under 6.4.	Required by most major standards.
Sustainable development	Required, but host country defined.	Usually tied to specific SDGs or co-benefit frameworks.

2. Safeguard requirements in compliance and voluntary markets

Key challenges to effective application of safeguards in carbon projects



Weak or vague safeguard requirements

Many standards require projects to “avoid harm” but don’t define how to do so or set measurable indicators. Requirements for FPIC, benefit-sharing and biodiversity protection are often optional or vaguely worded.



Voluntary or add-on nature of safeguards

In some standards, deeper social and environmental criteria are optional rather than mandatory.



Limited enforcement and oversight

Standards rely heavily on self-reporting and third-party validation/verification bodies (VVBs), which may lack capacity, local context or social science expertise. Few consequences exist for weak safeguard implementation.



Insufficient attention to human rights and FPIC

FPIC requirements are often poorly defined, inconsistently implemented or treated as a box-ticking exercise. Standards vary widely in how they define “consent” and from whom it must be obtained.



Power imbalances and elite capture

Safeguards often fail to address structural inequalities and local power dynamics. Benefits may be captured by elites, while marginalized groups are excluded from decision-making or revenue.

2. Safeguard requirements in compliance and voluntary markets

Key challenges to effective application of safeguards in carbon projects



Inadequate monitoring and reporting of safeguards

While carbon is measured precisely, social and environmental outcomes are rarely tracked with the same rigor. Once a project is validated, ongoing safeguard compliance is often weakly monitored.



Fragmented and inconsistent approaches across standards

Each standard has its own safeguard requirements, terminology and enforcement mechanisms — creating confusion and inconsistency.



Limited accessibility and effectiveness of grievance mechanisms

While grievance mechanisms are often required, they are frequently inaccessible, poorly communicated and lack independence. Communities may fear retaliation or lack trust in the process.



Lack of independent verification of social safeguards

VVBs are often technical auditors with expertise in carbon accounting, not human rights or community engagement. Few safeguards are independently verified by social experts.



Gaps in national legal frameworks

In many countries, domestic laws on land rights, Indigenous rights and environmental protection are weak or poorly enforced, leaving gaps even if standards require compliance.

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Chapter 3

High-integrity initiatives

3. High integrity initiatives

Integrity Council for the Voluntary Carbon Market (ICVCM)



A multistakeholder led independent governance body that sets and enforces a global benchmark for high-quality carbon credits.

Core focus areas

1. Core Carbon Principles (CCPs)

- Ten science- and rights-based criteria defining what makes a carbon credit high-integrity.
- Cover both carbon integrity (real, measurable, additional, permanent, uniquely accounted) and social and environmental integrity (respect for human rights, safeguards, equitable benefit sharing).

2. Assessment Framework (AF)

- A technical evaluation tool used to assess carbon standards and methodologies against the CCPs.
- Defines eligibility, quality thresholds and assurance processes for crediting programmes and project types.
- Supports consistent benchmarking and recognition of credible standards.

3. CCP Label

- Credits that meet the CCPs and pass AF review receive the “CCP-Approved” label.
- Signals to buyers, investors and regulators that credits meet the highest integrity bar in both climate and social terms.

3. High integrity initiatives

Voluntary Carbon Markets Integrity Initiative (VCMI)

An international non-profit organization providing guidance on how companies can make voluntary use of carbon credits as part of credible, science-aligned net-zero decarbonization pathways. On the supply-side, VCMI's Access Strategies Program provides guidance for countries to engage in high-integrity VCMs.

Core focus areas

- **Claims Code of Practice:** Framework guiding how companies integrate carbon credits into their net-zero strategies—covering disclosure, hierarchy of action (reduce first, then compensate) and eligible credit types.
- **VCMI labels (Silver, Gold, Platinum):** Recognize companies that demonstrate credible use of high-integrity credits and robust internal emission reductions.
- **Alignment and coherence:** Ensures consistency with SBTi, ICVCM and national climate policies to avoid double counting and greenwashing.

Key outputs and tools

- **Claims Code of Practice:** Core guidance document defining integrity thresholds for corporate claims.
- **Monitoring & Assurance Framework:** Mechanisms for independent verification of claims.
- **VCMI Labels Registry:** Publicly accessible list of companies with verified claims and label status.
- **Carbon Markets Access Toolkit:** provides step-by-step guidance to help policymakers decide how best to generate and sell carbon credits to access climate finance, catalyze innovation and de-risk investment.

3. High integrity initiatives

Science Based Targets initiative (SBTi)



Core focus areas

- **Target Validation Protocols:** Clear criteria and review processes for approving corporate GHG reduction targets consistent with 1.5 °C.
- **Residual Emissions Guidance:** Defines what remains unavoidable after full value-chain mitigation, clarifying the appropriate role for carbon credits.
- **Beyond Value Chain Mitigation (BVCM):** Encourages companies to finance mitigation outside their value chain—such as through high-integrity carbon markets—while maintaining transparency and alignment with VCM guidance.

Key outputs and tools

- **Corporate net-zero standard:** Framework defining near-term and long-term targets, residual emissions and net-zero criteria.
- **Target validation service:** Formal review and approval mechanism for company targets.
- **Sectoral decarbonization pathways:** Sector-specific guidance for aligning with 1.5 °C trajectories.
- **Above and Beyond: An SBTi Report on the Design and Implementation of BVCM (2024):** Practical recommendations on the responsible use of carbon credits beyond value chain mitigation.

3. High integrity initiatives

Greenhouse Gas (GHG) Protocol

The GHG Protocol, developed by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD), is the most widely used international accounting standard for GHG emissions.

Purpose

- Ensure consistency, transparency and comparability of emissions reporting.
- Provide foundations for carbon disclosure (CDP, SBTi, etc.) and regulatory compliance frameworks.

Key standards

- **Corporate accounting and reporting standard:** Defines how companies measure and report GHG emissions across:
 - Scope 1: Direct emissions (from owned/controlled sources)
 - Scope 2: Indirect emissions from purchased electricity/heat
 - Scope 3: Other indirect emissions (supply chain, waste, etc.)
- **Project protocol:** Used for quantifying emission reductions from specific projects.
- **Value chain (Scope 3) standard:** Expands corporate reporting to the full value chain.
- **Mitigation goal standard & policy and action standard:** Used by governments and organizations to track progress toward climate goals and assess policy impacts.

3. High integrity initiatives

International Organization for Standardization (ISO) standards

The ISO develops globally recognized standards for measurement, verification and management systems, many of which align with or build upon the GHG Protocol.

Purpose

- Provide auditable, certifiable systems for GHG management.
- Facilitate third-party assurance and alignment with national or international schemes (e.g., Article 6, ETS or voluntary markets).

Key ISO standards for GHG management

	Focus area
ISO 14064-1:2018	Quantification and reporting of GHG emissions and removals at the organization level
ISO 14064-2:2019	Project-level GHG reductions/removals
ISO 14064-3:2019	Validation and verification of GHG statements
ISO 14065:2020	Accreditation of validation/verification bodies
ISO 14066:2011	Competence of GHG validation/verification teams
ISO 14067:2018	Carbon footprint of products
ISO 14068	Climate neutrality and net-zero claims

3. High integrity initiatives

Coalitions of buyers committed to high integrity

	Who they are	Core commitment	Key actions and features
Lowering Emissions by Accelerating Forest finance - LEAF Coalition	Coalition of governments (e.g., US, UK, Norway) and major companies (e.g., Amazon, Nestlé, Salesforce, Bayer, Walmart, Unilever).	Purchases only high integrity, jurisdictional REDD+ credits that meet ART-TREES and align with Paris Agreement rules.	➤ Aggregates large-scale demand for high-quality forest credits. ➤ Uses jurisdictional scale to reduce leakage and permanence risks.
The First Movers Coalition for Carbon Removal (carbon dioxide removal – CDR)	Companies like Microsoft, Stripe, Alphabet, Shopify, H&M Group, and others.	Committed to buying high-durability, verified carbon removal credits, often with >1,000-year permanence.	➤ Aggregates early demand for nascent, high-integrity CDR technologies. ➤ Sets clear durability and verification standards. ➤ Supports price discovery and market scaling.
Carbon Credit Quality Initiative (CCQI)	Partnership between WWF, Öko-Institut and Environmental Defense Fund?	Not a buyer group but a benchmark tool used by buyers to assess credit quality.	➤ Rates project types on additionality, permanence, quantification, safeguards, etc. ➤ Used by many corporates to guide procurement.

3. High integrity initiatives

Coalitions of buyers committed to high integrity

	Who they are	Core commitment	Key actions and features
VCMI corporate buyers (VCMI labels)	Companies seeking Silver, Gold or Platinum labels under the VCMI Claims Code of Practice	Must meet science-based targets and use CCP-aligned credits beyond their value chain.	> Provides transparency on use of credits. > Requires disclosure of credit sources and quality. > Prohibits offsets from substituting for real emissions cuts.
Exemplary corporate buyers	Individual companies that have set internal policies on credit quality (e.g., Microsoft, Salesforce, Swiss Re, Ørsted)	Commit to purchasing only credits that meet high-integrity standards (e.g., ICVCM CCP-aligned, jurisdictional, FPIC-compliant).	> Often requires co-benefits, social safeguards and SDG impact. > Publishes supplier criteria and projects due-diligence frameworks.

3. High integrity initiatives

How key actors can advance social integrity



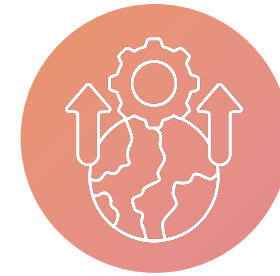
Standard-setting bodies

(carbon crediting programmes and ICVCM) should require robust, best-in-class social and environmental safeguards, in line with international human rights law.



Project developers

should apply robust procedures for screening, assessing, managing, monitoring and reporting potential adverse social and environmental impacts, including related to Indigenous Peoples' rights.



Host countries

should establish policy, legal and regulatory frameworks for Article 6 transactions and guidance in the context of VCMs, to ensure project developers active in their countries and carbon projects taking place in their countries are aligned with robust safeguards and applicable international obligations.

3. High integrity initiatives

How key actors can advance social integrity



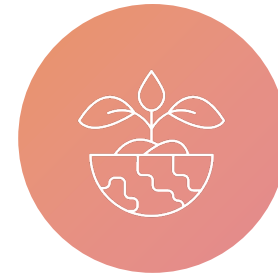
Carbon credit rating agencies

should incorporate a means to effectively assess application of robust safeguards into their ratings methodologies and scores to reflect a more comprehensive, realistic assessment of the quality of a carbon project/credit.



Validation and verification bodies

should ensure they have the necessary assessment methodologies and human resource capacities to undertake social audits associated with respect for international obligations, including Indigenous Peoples' rights.



Buyers

should signal a greater interest and value for carbon credits that comply with robust safeguards, demonstrate respect for international obligations, including Indigenous Peoples' rights, and establish robust internal due diligence capacities to confirm this before purchases are made.

A group of approximately 15 women are standing in a line in a grassy field. They are all wearing white t-shirts with the word 'ACTION' printed on them. They are holding small green seedlings in their hands. The women are wearing colorful patterned skirts and headwraps. The background shows a line of trees under a cloudy sky. The image has a purple and blue color overlay.

Chapter 4

Social and environmental risks profiles of select carbon project types

4. Social and environmental risks profiles of select carbon project types

Risk profile: Energy efficiency at the household level – Efficient cookstoves

Category	Potential risks and impacts
Human rights	> The key rights-related issue is the question of fair and equitable access to the new technologies, such as exclusion from low-income or remote households.
Gender equality and empowerment	> Women, who often bear the brunt of traditional cooking practices, may face cultural barriers to adoption. > If new fuel technologies are included, this may inadvertently increase women's workload.
Sustainability and resilience	> Reduced cooking satisfaction or food quality leading to non-adoption. > Lack of effective consultation before adoption and/or limited post-project support leading to abandonment of the new technology. > Use of materials in design with high embodied emissions could counterbalance the intended outcome of emission reductions. > Continued reliance on unsustainable fuelwood or charcoal supply may limit impact. > Poor quality may lead to abandonment of new technology.
Accountability	> Lack of transparency in the distribution of cookstoves may cause distrust among beneficiaries or stakeholders. > Lack of transparency in the production and sourcing of the efficient cookstoves; risk of elite capture of the production and distribution process. > Pressure selling or misinformation leading to loss of trust and abandonment of technology
Biodiversity conservation and sustainable natural resource management	> Effective use of the technology should lead to less impact on natural resources, but only if it is used correctly and consistently.

4. Social and environmental risks profiles of select carbon project types

Risk profile: Energy efficiency at the household level – Efficient cookstoves

Category	Potential risks and impacts
Community health, safety and security	› Inefficient or unsafe stove design could increase risk of burns, smoke leakage. › Use of inappropriate/toxic materials in construction (such as lead paint or poor insulation material) could lead to health and safety issues. › Risk of occupational health and safety during stove production process.
Indigenous Peoples	› Indigenous communities may face barriers to accessing efficient cookstoves due to geographic isolation, lack of effective prior consultation and involvement in training on use of cookstoves.
Labour and working conditions	› Risk of poor labour conditions in cookstove production and installation. › Risk of child labour.
Pollution prevention and resource efficiency	› Improper disposal of broken or unused stoves causing metal or plastic waste. › Environmental pollution from non-recyclable components.
Carbon rights	› Lack of clarity and/or understanding of carbon rights depending on implementation model adopted (developer owned, manufacturer or distributor owned, community or cooperative model, government or public sector model) leading to mistrust and/or conflict.
Benefit sharing	› Lack of transparency on carbon revenue distribution and use. › Limited community participation in decision-making.

4. Social and environmental risks profiles of select carbon project types

Risk profile: Energy efficiency in buildings

Category	Potential risks and impacts
Gender equality and empowerment	> Energy audits and retrofit designs often based on male-dominated workplace patterns or building-use data. > Technologies optimized for cost or technical performance may ignore comfort, health and safety aspects important to women. > Construction and retrofit workforces are overwhelmingly male. > Women excluded from skilled jobs and training (electrical, HVAC, smart controls). > Lack of gender-disaggregated indicators for benefits (e.g., satisfaction, health, productivity).
Sustainability and resilience	> Energy-efficient technologies may have a high upfront cost, leading to limited uptake and reduced long-term sustainability if not properly incentivized.
Accountability	> Lack of transparency in reporting energy savings or the equitable distribution of project benefits.
Biodiversity conservation and sustainable natural resource management	> Energy-efficient technology upgrades (e.g., new buildings or retrofits) may indirectly impact natural resource use (e.g., construction materials) but typically have a low impact on biodiversity.
Climate change and disaster risks	> Failure to account for climate variability in energy efficiency upgrades (e.g., extreme heat or cold) may reduce the effectiveness of the technologies.

4. Social and environmental risks profiles of select carbon project types

Risk profile: Energy efficiency in buildings

Category	Potential risks and impacts
Community health, safety and security	> Disclosure of private energy use data for baseline. > Disturbances to tenants or office staff during the retrofitting process. > Accidents from electrical, rooftop work or other occupational health risks. > Power interruptions during retrofitting. > Energy savings data not linked to occupant well-being. > Use of informal or uninsured affecting quality standards and generating possible safety risks
Displacement and resettlement	> Energy efficiency retrofits or infrastructure upgrades may require relocation of occupants or users during the construction or installation process. > Land acquisition related to the retrofitting (rare but possible) may result in relocation of people and their structures; particularly relevant where there are informal settlements in the vicinity
Labour and working conditions	> Workers involved in energy efficiency retrofits or installations may face unsafe working conditions, particularly in construction or equipment handling. > Risk of use of forced or child labour in manufacture of components/materials used.
Pollution prevention and resource efficiency	> Risk of noise, dust and other possible negative impacts during retrofitting/construction. > Waste generation from removed materials. > Improper disposal of old materials including refrigerants, bulbs or electronics. > E-waste leakage to informal recyclers.
Carbon rights	> Conflicts between building owner, financier and carbon project developer about carbon rights.
Benefit sharing	> Tenants not benefitting from efficiency gains.

4. Social and environmental risks profiles of select carbon project types

Risk profile: Energy efficiency in industry

Category	Potential risks and impacts
Human rights	> New supply chains may negatively impact livelihoods of traditional suppliers/value chains.
Gender equality and empowerment	> Unequal access to new technical roles/positions. > Construction and retrofit workforces overwhelmingly male; women may have limited opportunities to participate. > Women excluded from skilled jobs and training (electrical, HVAC, smart controls).
Sustainability and resilience	> Newer technologies may result in job losses or deskilling (persons versed in old technology no longer employable). > Energy efficiency retrofits or infrastructure upgrades may require temporary loss of productivity and economic impact. > New technologies may have unfavourable impact on product quality. > Supply chains for new fuels may be unreliable. > Energy-efficient technologies may have a high upfront cost, leading to increased product prices transferred to consumers (depending on the type of industry).
Climate change and disaster risks	> Failure to account for climate variability in energy efficiency upgrades (e.g., extreme heat or cold, other factors) may reduce the effectiveness of the technologies.

4. Social and environmental risks profiles of select carbon project types

Risk profile: Energy efficiency in industry

Category	Potential risks and impacts
Community health, safety and security	> Operational disruption during retrofitting. > Disclosure of proprietary data for baseline. > Incomplete safety screening before retrofitting. > Fire, explosions or electrical hazards during retrofitting and afterwards if not properly done. > Inadequate safety training on new technology. > Use of informal or uninsured affecting quality standards and generating possible safety risks.
Displacement and resettlement	> Land acquisition related to the retrofitting (rare but possible) may result in relocation of people and their structures; particularly relevant where there are informal settlements in the vicinity.
Labour and working conditions	> Supply chain labour or environmental risks that are difficult to determine. > Workers involved in energy efficiency retrofits or installations may face unsafe working conditions, particularly in construction or equipment handling. > Exclusion of small enterprises or local contractor, from bidding processes
Pollution prevention and resource efficiency	> Improper disposal of contaminated equipment, old fuels and machinery. > Risk of noise, dust and other possible negative impacts during retrofitting/construction. > Waste generation from removed materials. > Improper disposal of old materials including refrigerants, bulbs or electronics. > E-waste leakage to informal recyclers.
Carbon rights	> Conflicts between industry/plant owner, energy company or financier, and carbon project developer about carbon rights.
Benefit sharing	> Lack of transparency on use of carbon revenues. > Cost savings, at least partially, not transferred to employees.

4. Social and environmental risks profiles of select carbon project types

Risk profile: Fuel switching – Biomass energy

Category	Potential risks and impacts
Human rights	> There are several rights-related issues linked to restricting access to lands and resources, inadequate consultation included FPIC, and economic rights (waste pickers or other traditional users loss of livelihoods)
Gender equality and empowerment	> Limited participation of women in decision-making, employment, and training opportunities in waste or biomass management. > Women excluded from compensation or benefit-sharing arrangements. > Increased workload for women if biomass collection or waste sorting becomes formalised without fair payment.
Sustainability and resilience	> Overharvesting of biomass feedstock leading to soil nutrient loss or deforestation. > Unsustainable extraction of residues or fuelwood affecting long-term energy supply. > Weak maintenance or operation and maintenance (O&M) systems leading to plant shutdown and loss of community trust.
Accountability	> Lack of transparency and /or opaque decision-making on project finances, carbon-credit revenues and revenue allocation (see below under benefit sharing). > Inadequate community participation in project governance, limited access to grievance redress and inadequate complaint handling.
Biodiversity conservation and sustainable natural resource management	> Feedstock sourcing from natural forests or ecologically sensitive areas. > Unsustainable biomass extraction causing deforestation and soil degradation. > Competition with other biomass uses. > Displacement of organic material that supports soil biodiversity or traditional uses (mulching, composting). > Habitat disturbance from plant construction, access roads or increased truck traffic.
Climate change and disaster risks	> Methane leakage or incomplete combustion reducing GHG-reduction integrity. > Climate-related feedstock shortages (e.g., drought reducing residue availability).

4. Social and environmental risks profiles of select carbon project types

Risk profile: Fuel switching – Biomass energy

Category	Potential risks and impacts
Community health, safety and security	> Fire or explosion risk due to poor gas management or feedstock storage. > Air pollution from combustion (particulate matter, NOx, CO). > Odour and noise impacts from waste storage or plant operation. > Traffic hazards and accidents from biomass transport. > Security risks near industrial sites lacking proper fencing or supervision.
Displacement and resettlement	> Temporary or permanent loss of land or access for informal users, small traders or waste-pickers if plant is built on common land. > Economic displacement from loss of informal recycling or fuelwood income.
Indigenous Peoples	> Potential impacts if biomass sourced from Indigenous lands without consent or fair compensation. > Inadequate engagement with traditional leaders and governance structures in feedstock areas.
Labour and working conditions	> Unsafe working environments during construction or operation (heat, machinery, gas handling). > Informal and/or unprotected labour in biomass collection and transport. > Absence of gender equality in employment and wage parity.
Pollution prevention and resource efficiency	> Air emissions, odour, and leachate affecting air and water quality. > Improper ash or digestate disposal contaminating soils or groundwater. > Inefficient combustion or waste-heat recovery reducing emission benefits.
Carbon rights	> Unclear ownership of carbon rights between municipality, private operator and feedstock suppliers. > Lack of documented consent from local contributors of biomass.
Benefit sharing	> Absence of defined mechanism for distributing carbon revenues or energy-access benefits to local communities. > Elite capture or misuse of community-benefit funds (if existing). > Limited participation of women or marginalized groups in deciding how benefits are used.

4. Social and environmental risks profiles of select carbon project types

Risk profile: Low-carbon agricultural practices

Category	Potential risks and impacts
Human rights	There are several rights-related risks that could arise; most of these are also addressed under other categories below, and could include: land and resource rights, right to an adequate standard of living, labour rights, right to a clean, safe and healthy environment, right to participation and access to redress.
Gender equality and empowerment	- There is a specific risk of women being excluded and marginalised from decision-making processes and benefiting; women's participation in activities, decision-making and access to benefits could be limited by cultural and social barriers. - Women are likely to face an additional layer of vulnerability, as their tenurial rights are often more fragile due to cultural and legal restrictions on women's land rights and ownership. - While project activities may aim to increase women's involvement in decision-making, this may also result in increased burden of work or risk of GBV (due to challenges and changes in gender norms and roles). - There is a specific risk of gender bias in capacity-building and training activities, and in opportunities to access to knowledge/skills related to sustainable agriculture activities.
Sustainability and resilience	- Promoted low-carbon agricultural techniques (e.g., no-till, cover crops) may not be resilient to extreme climate events, affecting productivity. - There are economic/resilience risks at various levels. Shifting to new/different cropping systems and approaches may lead to short-term yield decline affecting household food security. - There may be access barriers for smallholders who cannot afford new equipment, or there may be market or price risks for new, unfamiliar crops. - Limited adoption of new techniques post-project may lead to poor longer-term sustainability.
Accountability	Lack of transparency in carbon credit distribution and benefit sharing could lead to disputes or erosion of trust among project stakeholders (see separate categories below).

4. Social and environmental risks profiles of select carbon project types

Risk profile: Low-carbon agricultural practices

Category	Potential risks and impacts
Biodiversity conservation and sustainable natural resource management	➤ Conversion of traditional cropland to low-carbon farming could inadvertently impact local ecosystems, reducing biodiversity if monocultures are introduced. ➤ Exacerbate weed and pest issues if the new farming practices are not coupled with management interventions creating tensions and conflicts due to water management issues. ➤ Increased wildlife-crop conflicts.
Climate change and disaster risks	➤ Low-carbon agriculture techniques may fail to withstand extreme weather (e.g., droughts, floods), leading to crop failures or soil erosion.
Community health, safety and security	➤ New agricultural practices like increased use of organic fertilizers or increased mulching could lead to pest increases. ➤ Pathogen risk from manure handling. ➤ Integrated pest management could expose farmers to new health risks without training. ➤ Fire risk from dry residue on fields, odour nuisance near local communities.
Displacement and resettlement	➤ Risk of exclusion of smallholders, tenant farmers or the landless, disputes over land boundaries or land tenure, and inadvertent restriction of grazing of resource access. ➤ Potential economic displacement of farmers with insecure land-use rights or agreements.
Indigenous Peoples	➤ Land tenure/access/grazing regime rules are particularly relevant if there are Indigenous groups in or around the project area that are still awaiting legal recognition of their land or territorial rights. ➤ Other potential impacts on Indigenous Peoples' land and resource use if new farming practices encroach on traditional lands or disrupt cultural practices.

4. Social and environmental risks profiles of select carbon project types

Risk profile: Low-carbon agricultural practices

Category	Potential risks and impacts
Labour and working conditions	➤ Increased labour demand (e.g., manual weeding, planting cover crops), particularly an increased demand on women. ➤ Perpetuation of existing working conditions and practices that fail to comply with national and/or international labour standards or safety standards, including the risk for child labour.
Pollution prevention and resource efficiency	➤ Introduction of organic or natural pesticides and fertilizers could still result in nutrient runoff or improper application, leading to localized water pollution. ➤ Altered drainage patterns may have localised impacts.
Carbon rights	➤ Unclear or contested carbon rights can lead to conflicts over ownership of credits, exclusion of legitimate smallholder farmers or Indigenous communities, legal insecurity for investors and developers; and invalidation of credits if multiple entities claim the same emission reductions. ➤ If involved communities don't fully understand their carbon rights, this can lead to unlawful carbon rights transfer and elite capture of benefits.
Benefit sharing	➤ Lack of transparency (clear benefit sharing mechanisms) and/or inequitable distribution of project benefits may result in mistrust or conflict. ➤ Expected benefits may not accrue as expected to the different target groups (smallholder farmers, local communities, etc.) because they may lack the knowledge, capacity and/or financial support to participate actively in the project activities. ➤ The project might inadvertently favour larger or more well-connected farmers (through farmer associations), exacerbating existing inequalities.

4. Social and environmental risks profiles of select carbon project types

Risk profile: Low-carbon agriculture - Rice methane mitigation

Category	Potential risks and impacts
Human rights	➤ Rights-related issues focus on possibility of inadequate or absent stakeholder consultation with smallholders or tenant farmers, lack of awareness or understanding of their carbon rights, and loss of land access by farmers with insecure land rights.
Gender equality and empowerment	➤ Exclusion of women from decision-making bodies and/or technical committees, training and capacity-building, and employment. ➤ Increased workload without fair compensation. ➤ Carbon payments may be directed to male landowners, excluding women (and others).
Sustainability and resilience	➤ Over-dependence on external technical inputs. ➤ Yield fluctuations or short-term productivity losses during transition to AWD/SRI methods. ➤ Weak institutional capacity for sustaining improved water management and other relevant practices post-project. ➤ AWD can exacerbate weed and pest issues if the new farming practices are not coupled with management interventions. ➤ Inadequate on-boarding during initial phases (training, etc) would negatively impact long-term outcomes.
Accountability	➤ Lack of transparency on carbon-credit revenue distribution. ➤ No accessible grievance mechanism for farmers.
Biodiversity conservation and sustainable natural resource management	➤ Poor water scheduling affecting aquatic biodiversity or wetland species in rice landscapes. ➤ Use of chemical fertilisers or pesticides harming soil biota and biodiversity. ➤ Loss of traditional seed varieties due to uniform cultivation practices. ➤ Repeat wetting and drying cycles can negatively impact soil structure and quality. ➤ Water management issues could arise if not carefully planned and managed, especially with respect to smallholders.
Climate change and disaster risks	➤ Incomplete methane reduction due to poor irrigation control or drought. ➤ N₂O emission increases from excessive nitrogen fertiliser use. ➤ Crop vulnerability to heat or flood extremes under changing water regimes.

4. Social and environmental risks profiles of select carbon project types

Risk profile: Low-carbon agriculture - Rice methane mitigation

Category	Potential risks and impacts
Community health, safety and security	› Exposure to agrochemicals and contaminated water during fertiliser or pesticide application. › Increased vector-borne diseases from intermittent flooding if drainage is poorly managed. › Safety risks for field workers handling irrigation infrastructure without training. › Poor water management affecting livelihoods.
Displacement and resettlement	› Economic displacement if tenants or smallholders lose access to project benefits or irrigated land or are excluded from participating. › Reallocation of water reducing downstream access for non-participating farmers.
Indigenous Peoples	› Exclusion of Indigenous farmers from project consultations or benefit sharing. › Lack of recognition of traditional water management or seed systems within project design, leading to negative impacts on livelihoods.
Labour and working conditions	› Lack of formal labour contracts for seasonal workers or data collectors. › Perpetuation of existing practices that fail to comply with prevailing norms, including risk of child labour. › Gender wage disparities in field operations.
Pollution prevention and resource efficiency	› Fertilizer runoff causing water eutrophication. › Improper management of straw and residues leading to methane or smoke emissions.
Carbon rights	› Unclear ownership of emission reductions between individual farmers, cooperatives and project developers. › Carbon rights transferred without informed consent or fair benefit arrangements.
Benefit sharing	› Farmers undercompensated for participation compared to project revenue. › Opaque or unequal distribution of carbon revenues, external capture of benefits. › Exclusion of women and landless workers from direct or indirect benefits.

4. Social and environmental risks profiles of select carbon project types

Risk profile: Jurisdictional REDD+

Category	Potential risks and impacts
Human rights	There are many rights-related risks that could arise; most of these are also addressed under other categories below, and could include: violation of land and resource rights including unrestricted land access for traditional purposes including grazing, right to an adequate standard of living, labour rights, right to a clean, safe and healthy environment, right to participation and access to redress.
Gender equality and empowerment	- Women's participation in activities, decision-making, and access to benefits could be limited by cultural and social barriers (for instance, the widespread perception that forestry-related activities is a male domain). - Women are likely to face an additional layer of vulnerability, as their tenurial rights are often more fragile due to cultural and legal restrictions on women's land rights and ownership. - While project activities may aim to increase women's involvement in decision-making and project activities, this may also result in increased burden of work or risk of GBV (due to challenges and changes in gender norms and roles). - Women may have limited access to employment opportunities or decision-making processes related to REDD+ activities.
Sustainability and resilience	- Technical challenges (low seedling survival rates and inadequate replanting, inadequate value chain assessments for livelihood activities, insufficient training or inadequate/no grant financing for small businesses) could threaten the long-term project outcomes. - Threat to local livelihoods viability due to temporary or permanent restricted access to traditional lands/grazing areas.
Accountability	- Lack of transparency in project governance, failure to include local stakeholders in decision-making, insufficient monitoring and reporting of project impacts, and weak grievance mechanisms. - Lack of transparency in carbon credit distribution and benefit sharing could lead to disputes or erosion of trust among project stakeholders (see separate categories below).

4. Social and environmental risks profiles of select carbon project types

Risk profile: Jurisdictional REDD+

Category	Potential risks and impacts
Biodiversity conservation and sustainable natural resource management	➤ Poorly planned REDD+ activities could lead to encroachment on protected areas, increased illegal activities (poaching and illegal logging), and/or competition for limited water resources. ➤ Project activities involving the restoration of forest cover on degraded land or sustainable production practices could affect biodiversity, water and soil quality, and other ecosystem services if invasive/non-native species are introduced, or mono-cropping tree plantations are implemented.
Community health, safety and security	➤ Increased exposure to hazards related to project activities (e.g., fire risks during controlled burning).
Displacement and resettlement	➤ Project activities could create tensions or exacerbate conflicts among communities and individuals regarding land use and property rights claims. In some cases, the project could engender land speculation and drive land grabbing. ➤ Project activities could potentially restrict availability, quality of and access to resources, in particular to marginalized groups, regarding farming, grazing, hunting and/or collecting of forest products. ➤ Displacement of communities may be required due to land designated for conservation, leading to lost land and/or livelihoods, disruption of traditional practices and cultural heritage ➤ These risks could potentially affect men and women differently, given their differentiated responsibilities and relationships to forests and land use.
Indigenous Peoples	➤ Indigenous Peoples and local communities whose collective land rights are not secure, are more likely to have legal disputes about land demarcation or about overlapping and contradictory land claims. ➤ There is a risk of violation of Indigenous land rights especially if FPIC is absent or inadequate. ➤ Indigenous Peoples may be marginalized in decision-making processes. ➤ They may lose access to traditional forests and resources, with a corresponding erosion of cultural and spiritual ties to the land.

4. Social and environmental risks profiles of select carbon project types

Risk profile: Jurisdictional REDD+

Category	Potential risks and impacts
Labour and working conditions	➤ Poor working conditions for local communities involved in REDD+ projects, exploitation of labor, inadequate wages, lack of occupational safety and health measures, and unequal employment opportunities for vulnerable groups.
Pollution prevention and resource efficiency	➤ Potential water and soil pollution from project activities (e.g., use of agrochemicals), inefficient use of natural resources, unsustainable practices in forest management, and increased waste and carbon footprint from project operations.
Carbon rights	➤ Unclear or contested carbon rights can lead to conflicts over ownership of credits, exclusion of legitimate land users or Indigenous communities, legal insecurity for investors and developers; and invalidation of credits if multiple entities claim the same emission reductions. ➤ If involved communities don't fully understand their carbon rights, this can lead to unlawful carbon rights transfer, and elite capture of benefits.
Benefit sharing	➤ Lack of transparency (clear benefit sharing mechanisms) and/or inequitable distribution of project benefits may result in mistrust or conflict. ➤ Expected benefits may not accrue as expected to the different target groups (local communities, Indigenous groups) because they lack the knowledge, capacity and financial support to participate actively in the project activities. ➤ The project might inadvertently favor larger or more well-connected actors, exacerbating existing inequalities.

4. Social and environmental risks profiles of select carbon project types

How scale shapes risk and integrity: Project-level vs. Jurisdictional REDD+

Category	Project-level REDD+	Jurisdictional REDD+
Additionality	High risk — projects may over-credit or rely on weak counterfactuals.	Lower risk — additionality assessed within national baselines and policies.
Baseline setting	Often inflated or inconsistent across projects.	Harmonized reference levels using national data; more conservative and transparent.
Permanence	Vulnerable to local land-use change, fire or management failure.	Broader scale and policy incentives can reduce reversal risk; national buffer systems.
Leakage	High — activities can shift emissions outside project boundaries.	Captured within jurisdictional accounting; lower leakage risk.
Double counting	Significant risk if projects operate outside national registry or NDC system.	Coordinated national registries and corresponding adjustments can prevent overlaps.
Accounting accuracy	Inconsistent MRV and varying technical quality among projects.	Standardized national MRV protocols ensure consistency and comparability.
NDC/national alignment	Often disconnected from national targets; may undermine NDC integrity.	Embedded in national strategies and NDC accounting frameworks.
Social and environmental safeguards	Uneven application; depends on individual standards and developers.	Institutionalized in national safeguard systems with public oversight.
Land and resource tenure	Site-specific disputes and unclear land rights common.	Broader legal frameworks can clarify tenure and recognize customary rights.
Institutional capacity	Relies on private developers and consultants; variable quality.	Built into national institutions with technical support and data systems.

4. Social and environmental risks profiles of select carbon project types

Risk profile: Reforestation

Category	Potential risks and impacts
Human rights	> There are several rights-related risks that could arise; most of these are also addressed under other categories below, and could include: land and resource rights, right to an adequate standard of living, labour rights, right to a clean, safe and healthy environment, right to participation and access to redress.
Gender equality and empowerment	> Women's participation in activities, decision-making, and access to benefits could be limited by cultural and social barriers (for instance, the widespread perception that forestry is a male domain). > Women are likely to face an additional layer of vulnerability, as their tenurial rights are often more fragile due to cultural and legal restrictions on women's land rights and ownership. > While project activities may aim to increase women's involvement in decision-making and project activities, this may also result in increased burden of work or risk of GBV (due to challenges and changes in gender norms and roles). > Women may have limited access to employment opportunities or decision-making processes related to reforestation activities.
Sustainability and resilience	> Monoculture reforestation can reduce biodiversity and ecosystem resilience, making forests vulnerable to pests, diseases and climate change impacts. > Technical challenges (low seedling survival rates and inadequate replanting) could threaten the long-term reforestation outcomes.
Accountability	> Lack of meaningful community participation (stakeholder consultation or FPIC) means that communities may not be able to have adequate impact on important decisions affecting their livelihoods and cultural traditions. > Lack of transparency in carbon credit distribution and benefit sharing could lead to disputes or erosion of trust among project stakeholders (see separate categories below).

4. Social and environmental risks profiles of select carbon project types

Risk profile: Reforestation

Category	Potential risks and impacts
Biodiversity conservation and sustainable natural resource management	➤ Poorly planned reforestation could lead to the loss of native species or habitat and increased poaching, encroachment on protected areas, competition for limited water resources, and/or increased soil erosion during planting.
Climate change and disaster risks	➤ Reforestation efforts may not be resilient to climate change impacts (e.g., droughts, wildfires), potentially jeopardizing long-term carbon storage.
Community health, safety and security	➤ Reforestation activities may pose health and safety risks due to the use of equipment or chemicals (e.g., herbicides) that could affect local communities. ➤ Risk of occupational health and safety hazards related to fire management activities. ➤ Forest protection/security activities may generate conflicts between security personnel and resource users/local communities.
Displacement and resettlement	➤ Risk of land tenure disputes/conflicts related to unclear and/or overlapping tenure. ➤ Expanding reforestation areas could lead to displacement of communities or restrict their access to traditional lands for agriculture or grazing. This is particularly relevant if there are existing land tenure disputes or conflicts, related to unclear/overlapping tenure.
Indigenous Peoples	➤ Reforestation activities may negatively impact Indigenous Peoples' land rights, cultural practices and access to natural resources. ➤ This is particularly relevant in areas where Indigenous groups are still awaiting legal recognition of their land or territorial rights.

4. Social and environmental risks profiles of select carbon project types

Risk profile: Reforestation

Category	Potential risks and impacts
Labour and working conditions	Workers involved in reforestation may face poor labor conditions, lack of fair wages and/or unsafe working environments during planting and maintenance. Women may be particularly vulnerable due to cultural norms and traditions.
Pollution prevention and resource efficiency	Reforestation activities may cause soil erosion, water pollution from runoff, or improper use of resources if not managed correctly.
Carbon rights	- Unclear or contested carbon rights can lead to conflicts over ownership of credits, exclusion of legitimate land users or Indigenous communities, legal insecurity for investors and developers; and invalidation of credits if multiple entities claim the same emission reductions. - If involved communities don't fully understand their carbon rights, this can lead to unlawful carbon rights transfer, and elite capture of benefits.
Benefit sharing	- Lack of transparency (clear benefit sharing mechanisms) and/or or inequitable distribution of project benefits may result in mistrust or conflict. - Expected benefits may not accrue as expected to the different target groups (local communities, Indigenous groups) because they lack the knowledge, capacity and financial support to participate actively in the project activities. - The project might inadvertently favour larger or more well-connected actors, exacerbating existing inequalities.

4. Social and environmental risks profiles of select carbon project types

Risk profile: Waste management and gas flaring

Category	Potential risks and impacts
Human rights	> There are several rights-related issues that could arise; most of these are also addressed under other categories below and could include: restricted access to land and livelihoods, labour rights, right to a clean, safe and healthy environment, right to participation in decision-making and access to redress.
Gender equality and empowerment	> Women, who may often work in informal waste picking or be disproportionately affected by poor air quality from gas flaring, might not receive equitable benefits.
Sustainability and resilience	> Poorly managed waste-to-energy projects or gas flaring reduction systems could lead to environmental degradation, reducing long-term sustainability. > Potential negative impact on existing informal networks and individuals involved in the waste sector including collection, transportation and disposal of waste (such as waste pickers and informal waste collectors). > Loss of traditional domestic animal grazing on landfills as waste management is modernized.
Accountability	> Lack of transparency in monitoring the reduction of emissions from waste or gas flaring could erode community trust and project credibility.
Biodiversity conservation and sustainable natural resource management	> Waste mismanagement or the impacts of gas flaring could damage local ecosystems, leading to habitat degradation and loss of biodiversity. > Contamination of soils and rivers due to emissions and accidental spills leading to health hazards and limiting access to informal recyclers during the upgrading of existing dumpsites and health care waste treatment facilities.

4. Social and environmental risks profiles of select carbon project types

Risk profile: Waste management and gas flaring

Category	Potential risks and impacts
Community health, safety and security	➤ Waste management facilities siting near settlements, schools or other community facilities can cause odour, noise and increased health concerns due to air and water contamination if not properly managed. ➤ There are risks of traffic congestion and other safety risks for local residents especially if there are construction activities.
Displacement and resettlement	➤ Expansion of waste management facilities or gas flaring projects may require land acquisition, leading to involuntary displacement of local communities, especially near landfills.
Indigenous Peoples	➤ Waste management and gas flaring activities near Indigenous territories may infringe on traditional lands and sacred sites, impacting cultural practices and livelihoods.
Labour and working conditions	➤ There could be occupational health risks to workers such explosions, fires, gas leaks or exposure to infectious or hazardous waste. ➤ Risk of use of child or informal labour (in contravention of national or international legislation). ➤ If local residents are not appropriately trained or skilled, they risk being excluded from the new jobs and opportunities generated by the project.
Pollution prevention and resource efficiency	➤ Mismanagement of solid waste could cause leachate contamination if facility is sited near community water sources (surface water bodies and groundwater). ➤ There is a risk of air pollution from incomplete combustion (SOx, NOx, particulates), or noise and light pollution from flares. ➤ If the project includes new construction, there may be negative environmental and social impacts associated with this.
Carbon rights	➤ Unclear or contested carbon rights can lead to conflicts over ownership of credits, legal insecurity for investors and developers.
Benefit sharing	➤ Lack of transparency on benefit-sharing arrangements depending on ownership/management model (municipal or public ownership, private sector or Public Private Partnership) may lead to mistrust or conflict and/or inequitable distribution of project benefits.



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