ARTICLE 6 SERIES

ENVIRONMENTAL INTEGRITY, SUSTAINABLE DEVELOPMENT AND SAFEGUARDS – AN INTRODUCTION

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This paper forms part of a series of five papers related to Article 6 of the Paris Agreement, prepared for the Pacific Alliance's Technical Sub-Group on Monitoring, Reporting and Verification (SGT-MRV). It has been developed by Gold Standard under a programme supported by Environment and Climate Change Canada (ECCC) (2022-2026).

The intention of each paper in this series is to provide policymakers with an introduction to a topic identified by SGT-MRV focal points as a priority for further training. Each paper follows a two-hour training session led by Gold Standard in 2025-6 and is supported by recommendations for further resources related to the topic. Links to further resources are available at the end of this paper.

SUMMARY

— Environmental integrity of a carbon project means it generates real, additional and permanent emission reductions or removals
— Carbon projects typically deliver on multiple SDGs targets, which are increasingly monitored and reported on
— Safeguarding measures make sure that harms are avoided or minimisd and local communities are involved in project design
— Third-party assessment is encouraging more robust approaches across these three areas across the market

BACKGROUND

This paper provides an introduction to three areas that are critical to the positive impact of a carbon credit project: environmental integrity, sustainable development, and safeguards. It looks at what each of these mean in practice, why they matter and how they are evolving in the context of the Paris Agreement and lessons learned from past experience in carbon markets.

ENVIRONMENTAL INTEGRITY

Environmental integrity, in the context of carbon markets, can be understood as the certainty that a carbon credit issued to a project represents at least one tonne of carbon dioxide equivalent (tCO2e) reduced or permanently removed from the atmosphere.

The environmental integrity of a project reflects multiple components. The main areas for ensuring environmental integrity are set out in the table below.

AREA	DESCRIPTION	How it is achieved?
Additionality	Ensuring that emissions reductions or removals would not have been achieved in the absence of the incentive created by carbon finance	– Financial additionality testing – Regulatory additionality testing – Common practice analysis
Robust quantification	Ensuring that emissions reductions or removals are robustly quantified, based on conservative approaches and complete, scientific methods	– Methodologies approved and updated through a transparent process, engaging experts – Management of uncertainty and application of conservativeness principle – Management of, and accounting for leakage (emissions moving outside the project boundary)
Permanence	Ensuring that emissions reductions or removals are permanent or, where a risk of reversal exists, that measures are in place to fully compensate for any reversals.	– Buffer pools – Insurance tools
Double counting	Ensuring that emissions reductions or removals are only counted once towards a mitigation target or goal, through the avoidance of double claiming, double issuance and double use	– Screening for dual registration – Robust registry systems – Accounting under Article 6.2

Figure 1 – Overview of key areas for the assurance of environmental integrity in carbon market projects.

Responsibilities to ensure environmental integrity

Multiple different actors have responsibility to ensure the environmental integrity of projects in the carbon market. These include:

— **Crediting programmes**: Crediting programmes set and maintain a standard – a set of rules and methodologies – intended to ensure the environmental

integrity of carbon credits that they issue to projects. These rules and methodologies must be kept up-to-date over time, to reflect lessons learned from experience, improvements in scientific understanding and other relevant developments. Crediting programmes also typically manage and oversee registry systems, which help to avoid double counting, and oversee the approval and performance of third-party validation and verification bodies.

— **Validation and verification bodies (VVBs)**: VVBs provide third-party validation that projects are designed in accordance with a crediting programme's standard, and verification that emission reductions or removals have been achieved and calculated in accordance with a methodology approved by the programme. VVBs must be approved by a crediting programme, and are typically accredited by the UNFCCC and/or national accreditation bodies.

— **Project proponents**: Project proponents, the entity/ies involved in the implementation of projects, must follow the rules and methodology provided by the relevant crediting programme and otherwise apply good practice in the design and implementation of their project(s). Project proponents may choose to go beyond a programme's rules in some cases in the interest of environmental integrity.

— **Meta-standards**: 'Meta-standards', such as the Integrity Council for the Voluntary Carbon Market (ICVCM) and CORSIA, assess the eligibility of crediting programmes (and methodologies in the case of the ICVCM) against a set of criteria, to determine if their rules are sufficient to ensure environmental integrity. Other market actors, such as ratings agencies, also independently assess the quality of projects.

— **National governments**: National governments may choose to take steps to also preserve environmental integrity, as a complement to the categories of organisation listed above. This could include establishing a project approval process with environmental integrity requirements, providing and maintaining accurate standardised emissions factors, or providing public clarity on whether mitigation activities fall within the scope of a country's unconditional or conditional NDC or go beyond planned national efforts.

Evolution of environmental integrity

Our understanding of how best to manage environmental integrity changes and improves over time. This can be in response to improved data, new scientific findings, learnings from experience, feedback from project proponents or stakeholders, new innovations, or new policy frameworks. To illustrate this, a case study of how a methodology has evolved over time is provided below.

CASE STUDY

TECHNOLOGIES AND PRACTICES TO DISPLACE DECENTRALISED THERMAL ENERGY CONSUMPTION (TPDDTEC)

Gold Standard introduced a first version of its TPDDTEC methodology in April 2011, for use by projects distributing improved cookstoves, biodigesters, safe water treatment technologies and other technologies that reduce or displace greenhouse gas emissions from the thermal energy consumption of households and non-domestic premises.

The methodology was developed with support from experts in academia (including the University of Oxford, UC Berkeley and Yale University), project developers and businesses. Since its introduction, over 400 projects have used the methodology globally, with over 60 million credits issued to date. In 2025, the latest version of the methodology was approved by the ICVCM, recognising its alignment with its Core Carbon Principles.

See *Public Consultation* ←

The methodology has been maintained over time, with updates in 2015, 2017 and 2021. A fifth version of the methodology was published for consultation in late 2025.

Each update to the methodology has been intended to introduce improvements, drawing on experience, scientific developments and new information. In 2021, for instance, changes were introduced to provide further clarity on how quantification and sampling should be managed by project developers; to ensure alignment with host country regulatory frameworks for the provision of thermal energy services and to ensure that project devices are durable.

In 2025, Gold Standard consulted on changes to the methodology that would introduce downward adjustment of project baselines, to align with the host country's net zero goals and to narrow eligibility of the methodology.

The experience of Gold Standard's TPDDTEC methodology is reflective of other long-standing methodologies in the carbon market. Our understanding of environmental integrity and how best to protect it improves over time, and it is important that methodologies are updated promptly to respond to this.

The adoption of the Paris Agreement, including the Article 6 framework and the Paris Agreement Crediting Mechanism (PACM), has prompted changes in how environmental integrity is managed within the carbon market. These changes can be seen in the design of the PACM, but are also being adopted by other crediting programmes, such as Gold Standard. This includes the following areas of change:

— **Additionality**: Under the Clean Development Mechanism (CDM), certain caveats were included for the assessment of 'regulatory additionality', i.e., checking whether a project is required under domestic regulation. In order to avoid penalising countries for taking climate action, project developers did not need to take into account domestic policies introduced from 2001 onward to incentivise decarbonisation. Under the Paris Agreement, with all countries taking action to implement NDCs, the assessment of regulatory additionality is stronger, with project developers required to take all relevant policies into account. Other means of testing additionality – financial additionality and common practice analysis – are also being updated.

— **Baseline setting**: Under the CDM, most 'baselines' (the counterfactual scenario against which carbon credits are issued) were based on 'historic' or 'business-as-usual' (BAU) baselines. With the transition to the Paris Agreement, it was recognized that such approaches to baseline setting would not be consistent with the ambitious global temperature goal and national commitments adopted by governments. With this in mind, the PACM and Gold Standard have adopted the principles of below BAU baselines and downward adjustment. Under this latter principle, the baseline against which carbon credits are issued decreases on an annual basis, towards zero.

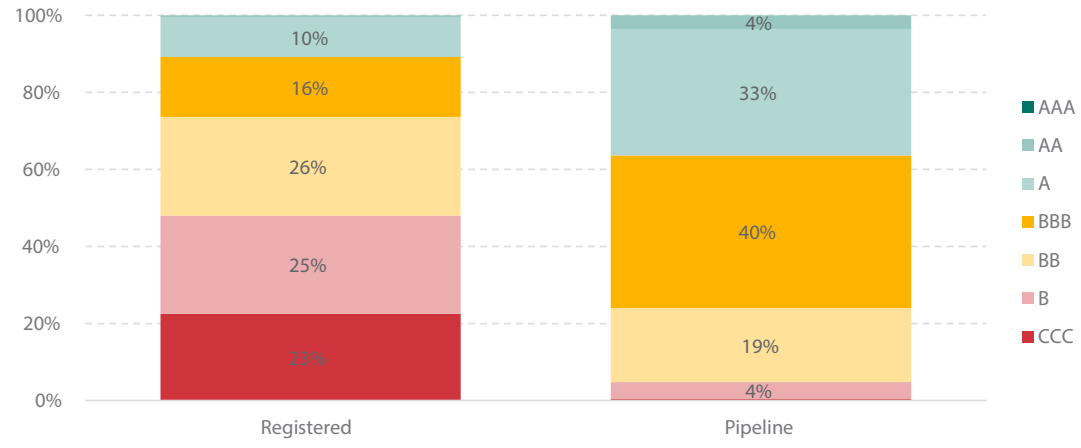
— **Avoidance of technology lock-in**: With the adoption of the Paris Agreement, and its goal to limit temperature increases to well below 2oC, the use of certain technologies will need to be phased out. The PACM and Gold Standard have introduced a requirement that methodologies must avoid the adoption or prolongation of the lifetime of technologies or practices that are incompatible with the long-term goals of the Paris Agreement, taking into account different national circumstances, approaches and pathways.

Over the past five years, there has been a considerable increase in the analysis of, and availability of data on, the environmental integrity of projects. This has come as a result of the establishment of the ICVCM, as well as new ratings agencies, private companies that provide ratings for projects based on their likelihood of delivering credits that represent one tonne of CO2e reduced or removed. In this time, there has also been considerable media scrutiny of certain projects and project types in the carbon market, which has heightened interest in environmental integrity, including amongst buyers.

There is evidence that environmental integrity is improving in the carbon market, and also that buyers are both increasing their purchase of credits considered to have higher environmental integrity and willing to pay higher prices for these

credits. According to ClearBlue Markets, carbon credits that are recognised by Calyx Global (a ratings agency) to have higher environmental integrity received a price premium of more than 50% in 2025 relative to credits with lower environmental integrity[1].

Distribution of carbon-project ratings by project stage, % of Projects, as of Aug. 2025.



Source: MSCI ESG Research. Data as of Aug. 22, 2025. Includes 249 pipeline projects and 4,410 registered projects with a full MSCI Carbon Project Rating.

Figure 2 – Distribution of carbon projects based on their rating by MSCI, a company providing carbon market project ratings. This indicates that new projects – those in the 'pipeline' – are considerably more likely to be considered to have higher environmental integrity than existing projects.

Environmental integrity matters for governments for several reasons. If a government is authorizing mitigation outcomes from an activity under Article 6 of the Paris Agreement, it is **committing to adjust its emissions balance** to allow these mitigation outcomes to be used by another Party or entity. This means the government cannot count the emission reductions towards its own NDC. It is therefore essential that the mitigation outcomes represent one tonne of CO2e reduced or removed, and that the government is not accounting for mitigation that either did not occur or would have occurred anyway (i.e., is not additional).

Environmental integrity also matters for **reputational reasons**. Projects found to have low environmental integrity can undermine trust amongst local communities, citizens and the international community. A government may also find itself subject to direct scrutiny if it has provided an approval or an Article 6 authorisation for any project in this situation.

[1] ClearBlue Markets (September 2025) **The VCM Reset is Here: Key Takeaways on Price, Integrity, and Confidence**

SUSTAINABLE DEVELOPMENT

Most carbon market projects, by design, provide benefits that go beyond the reduction or removal of greenhouse gas emissions. Projects that distribute cookstoves to households reduce the time that family members (typically women) need to spend collecting firewood, improve health outcomes for those in the household and reduce pressures on local forests. Meanwhile landfill biogas projects can contribute to affordable and clean energy while creating employment for local citizens.

Historically, there have been mixed efforts within the carbon market to incentivize or even measure these broader benefits for sustainable development. The requirement that projects provide a quantified impact against at least three Sustainable Development Goals (SDGs) was a key differentiator for Gold Standard for a number of years. While governments approving projects for registration under the CDM were required to confirm that the project contributed towards sustainable development, this was not subsequently measured in a routine way.

Figure 3 – Heatmap of projects in Pacific Alliance countries registered under Gold Standard according to contributions to different UN Sustainable Development Goals (Source: Gold Standard SDG Impact Dashboard)

This has changed in the past few years. In 2019, Verra introduced SD Vista, a voluntary standard for projects to measure and verify positive impacts for sustainable development. In 2021, Parties to the Paris Agreement agreed that projects registered under the PACM must monitor sustainable development impacts through use of a dedicated SDG Tool. Following this, ICAO required that for credits to be eligible for use under CORSIA, projects must have reported their sustainable development contributions. Sustainable development is increasingly mainstreamed across the carbon market, with projects expected to deliver – and measure – benefits beyond greenhouse gas reductions or removals.

The sustainable development benefits delivered by carbon market projects are important for governments to understand and incentivise. Governments approving projects for the PACM or authorising mitigation outcomes under Article 6 are required to report to the UNFCCC on how projects are supporting their sustainable development objectives.

 CAMBODIA	Identifies three categories, with subcategories reflecting national priority sustainable development indicators. Projects seeking authorisation must meet these criteria. The list also contains negative criteria; if a project leads to any of these, it will be disqualified.
 GHANA	Article 6 activities must be consistent with Ghana's SDG objectives. Project developers can use approved external tools to quantify and monitor the SDG impacts. For new methodologies, the developer can propose an approach towards SDG impact monitoring for national approval. The sustainable development impacts should be part of the project's stakeholder consultation.
 ZAMBIA	Article 6 activities must identify their contribution towards national SDG priorities. They must conduct a prior assessment of the expected sustainable development impacts, using one of four approved external tools. These impacts must then be monitored annually as part of project implementation.
 KENYA	Project requesting authorisation under Article 6 must specify how they are aligned with Kenya's sustainable development priorities.

Figure 4 – Examples of government policies to promote sustainable development in carbon project.

At the same time, governments may wish to incentivise the implementation of certain project types in order to achieve their national goals. For instance a government wishing to improve health outcomes in rural communities may choose to incentivise projects that distribute clean cookstoves or install water purification systems. Or a government wishing to improve incomes and livelihoods in rural communities may encourage agricultural or forestry-related projects. In this way, governments can think strategically about the types of projects that they wish to encourage in their jurisdiction; not only considering achievement of their climate targets but also their wider objectives for sustainable development.

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Safeguards are in place in carbon market activities to avoid, or minimise, any negative harm that may result from the implementation of the activity. This could include negative social, economic or environmental and ecological impacts. Safeguards adopted by crediting programmes in the carbon market will typically be based on international best practice. Safeguarding principles under Gold Standard, for instance, are derived from international conventions including UNDP's Social and Environmental Standards (2021), UNEP's Environmental, Social and Sustainability Framework (2020), the IFC's Environmental and Social Performance Standard (2021) and the FAO's Framework for Environmental and Social Management (2022).

SAFEGUARDING PRINCIPLES		
Social	Principle 1	Human Rights
	Principle 2	Gender Equality and Women's Empowerment
	Principle 3	Community Health and Safety
	Principle 4	Cultural Heritage, Indigenous Peoples, Displacement and Resettlement
	Principle 5	Corruption
Economic	Principle 6	Economic Impacts
Environmental and Ecological	Principle 7	Climate and Energy
	Principle 8	Water
	Principle 9	Environment, Ecology and Land Use

Figure 5 – Summary of Safeguarding Principles in place under Gold Standard for the Global Goals

Typically, projects will at the time of registration need to provide evidence that they have assessed the risks that a project could create or contribute to negative harm, and provide a plan for how any identified risks will be addressed and prevented. Project proponents must also undertake stakeholder consultation at the beginning of a project, and must both document any comments or concerns raised by participants and explain how the comment or concern is being taken into account.

Project proponents must then monitor the appearance of negative impact over the time of a project, and disclose any such occurrence transparently in their project reporting. Finally, most crediting programmes will now have in place a grievance mechanism, through which any concerns can be raised about the implementation of a project[2].

Robust safeguards are a critical part of project design. Just as for environmental integrity, projects found to have led to negative impacts can not only undermine the effectiveness and benefit of the project itself, but also cause significant reductions in trust amongst local communities and any indigenous groups, governments, investors and the wider international community. It is therefore important that crediting programmes take sufficient steps to ensure comprehensive safeguarding procedures and risk assessments are in place within projects. Governments may also wish to take a role in ensuring the avoidance of negative harm, for instance through carbon market regulations and project approval processes.

CONCLUSION

The success, impact and sustainability of projects in the carbon market are reliant on the extent to which they demonstrate sound environmental integrity, measure and take steps to achieve wider benefits for sustainable development, and properly safeguard against risks of negative harm. As a whole, the carbon market

[2] The public grievance page of the PACM and of Gold Standard.

has seen significant improvements in recent years in how each of these three areas is managed, driven by new norms under the Paris Agreement and national regulation, public scrutiny and improved understanding and data.

For a government hosting carbon market projects within its jurisdiction, ensuring environmental integrity and the strength of safeguards is important to avoid the risk of public criticism, which could undermine trust and lead to reputational harm, in particular if the government has provided an approval or authorisation for the project in question. Governments also have an incentive to ensure environmental integrity and the promotion of sustainable development for their own national goals. Projects with sound environmental integrity can help to achieve a government's climate goals, while projects that deliver broader co-benefits can – in particular if directed in the right way – help to achieve a government's sustainable development objectives.

FURTHER READING

- Core Carbon Principles, Assessment Framework and Assessment Procedure. ICVCM, 2024.
- Continuous Improvement Work Programme: Sustainable Development Benefits and Safeguards. ICVCM, 2025.
- Article 6 and REDD+ Safeguards. Climate Law & Policy, 2023.
- Safeguards Handbook – Application of the Sustainable Development Tool of Article 6.4 for carbon market projects in energy, transport, industry, housing, and water and sanitation. SPAR6C (Supporting Preparedness for Article 6 Cooperation), 2025.
- Ensuring safeguards and assessing sustainable development impacts in the voluntary carbon market. Oeko Institute, 2022.
- Cooperating for the SDGs: Article 6 through a Sustainable Development Lens. Sustainable Development Initiative, 2022.
- Piloting the Article 6.4 Sustainable Development Tool: Lessons from Early Use. Sustainable Development Initiative, 2025.
- Importance of Assessing Sustainable Development Impacts of Climate Actions. Sustainable Development Initiative, 2025.
- Sustainable Development – Factsheet. Gold Standard, 2025.
- Inclusivity, Safeguards and Benefit Sharing – Factsheet. Gold Standard, 2025.