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Lao PDR's Participation in International Carbon Markets

Concept Paper

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Abbreviations and acronyms

ASEAN	Association of Southeast Asian Nations
BAU	Business as Usual
BCG	Boston Consulting Group
BECCS	Biomass Energy with Carbon Capture and Storage
CDM	Clean Development Mechanism
DAC	Direct Air Capture
ECA	Economic Consulting Associates
EPF	Environmental Protection Fund
ERPA	Emission Reductions Payment Agreement
ETS	Emissions Trading System
FCPF	Forest Carbon Partnership Facility
GGGI	Global Green Growth Institute
GHG	Green House Gases
ITMO	Internationally transferred mitigation outcomes
LDC	Least Developed Countries
LEDS	Light Emitting Diodes
LULUCF	Land use change and forestry
MO	Mitigation Outcomes
MOU	Memoranda of Understanding
MRV	Measurement, Reporting and Verification
NDC	Nationally Determined Contributions
NSCC	National Strategy on Climate Change
OTC	Over-the-counter
PDR	People Democratic Republic
REDD	Reducing emissions from Deforestation and forest degradation in Developing countries
SWM	Sustainable Wildlife Management
UN	United Nations
VCM	Voluntary Carbon Markets
VCS	Verified Carbon Standards

Executive Summary

This Concept Paper forms part of the World Bank's assistance to the Government of Lao PDR for participation in international carbon markets. The immediate assistance consists of two activities:

- Activity 1: Support for developing an overall carbon market strategy to implement Article 6 of the Paris Agreement and participate in voluntary carbon markets.
- Activity 2: Support for the development of the national registry framework.

This Concept Paper covers Activity 1. It offers an overview of the current international carbon markets landscape, focusing on the challenges and opportunities for Lao PDR to develop different types of carbon markets. The assistance provided by the World Bank is addressing specific areas where support has been identified as needed and fits into the wider package of support on carbon markets being provided by the GGGI (Global Green Growth Institute). These reports are intended to complement and sit alongside other outputs prepared under that support.

Carbon pricing mechanisms are a key tool for reducing emissions. Such mechanisms can be mandatory or voluntary and can be domestic or international, as illustrated below.

Overview of carbon pricing mechanisms

	Voluntary	Compliance
Domestic	**Voluntary – Domestic** Domestic companies buying domestic carbon credits to help meet corporate decarbonisation commitments	**Compliance – Domestic** *Carbon Tax / Emissions Trading Schemes* Governments capping / pricing emissions from domestic companies to help meet NDCs
International	**Voluntary – International** International companies buying domestic carbon credits to help meet corporate decarbonisation commitments	**Compliance – International** (Article 6 markets) Governments buying ITMOs from international sources to help meet NDCs

NDC = Nationally Determined Contribution | ITMO = Internationally Transferred Mitigation Outcome

In recent years, the international Voluntary Carbon Market (VCM) has been the main route for developing countries to raise finance through carbon pricing, via the sale of credits arising from domestic projects to international corporate buyers. However, the VCM has faced severe challenges since early-2023 when accusations of 'green-washing' led to a fall in prices and increased emphasis on 'quality' (ie, the credibility and permanence of emissions reductions).

Looking forward, a major uncertainty for the VCM is whether and how corresponding adjustments under Article 6 of the Paris Agreement will apply to carbon trades made on a voluntary basis between non-state entities (a corresponding adjustment is where credits sold which help meet the Nationally Determined Contribution or NDC of the buying country must be offset by an adjustment to reported emissions for the selling country). On a strict reading,

provided purchasers of carbon credits do not use these as offsets in compliance markets, there is no obligation to make a corresponding adjustment. However, some VCM participants appear to expect corresponding adjustments to become an important indicator of high-quality credits which would then drive trading away from purely voluntary transactions and to trades under Article 6 mechanisms. This uncertainty is reflected in a number of countries suspending or restricting VCM transactions while awaiting clarity as to the potential impacts on achieving their NDCs.

Given Lao PDR's intention centrally manage use of carbon markets with the intention to generate projects which can be used to support achievement of its NDC, similar concerns may arise. This is not to say that corresponding adjustments will necessarily be required, more that uncertainty over whether this will be the case means governments are tending to adopt a 'safety-first' approach of suspending transactions while awaiting clarification of rules for Article 6 trade and making corresponding adjustments. Lao PDR's recent suspension of REDD+ carbon project approvals indicates government acknowledgement of this concern, and is in line with other countries' recent moves to suspend VCM trades ahead of putting carbon market regulation in place.

Furthermore, analyses will be required to ensure Article 6 trade does not jeopardize NDC achievement. Mitigation activities to be supported via Article 6(2) through the issuance and sale of internationally transferrable mitigation outcomes (ITMOs) must be activities that are generating mitigation additional to that required by the NDC. Exact definition of what will be considered additional remains unclear, however countries selling ITMOs will have to be on track to meet NDC commitments in order for additional mitigation to not impose undue risk on NDC achievement.

Discussions with government indicate that a key issue is a lack of understanding of what projects are currently underway, reflecting a lack of coordination across ministries regarding carbon market activities is currently lacking:

- The Department of Climate Change (DCC) of the Ministry of Natural Resources and Energy (MONRE) is in charge of carbon markets in Lao PDR. However, there is not currently a whole of government strategy for carbon markets. Furthermore, at present there is no requirement for projects planning to participate in carbon markets to notify the DCC, as a result the department is often not aware of projects until relatively late in the project development process.

- Project developers interested in developing carbon market projects have tended to approach line ministries (Ministry of Energy and Mines for energy projects and Ministry of Agriculture and Forestry for forestry projects). Line ministries have very limited knowledge of carbon markets and what is necessary to participate in these.

- A registry for issuing and tracking carbon units is required to support management of this process. DCC have set up a team for this, however there is currently very limited capacity and initially there will be a reliance on expert assistance as capacity is built.

A coherent national strategy for carbon markets and clear institutional arrangements are needed to ensure efficient use of this source of funding. The following list of proposed priority actions for has been identified:

- Clearly define institutional arrangements including defining government roles and authority in carbon markets policy coordination, implementation, monitoring and oversight.

- Assess mitigation actions with potential for participation in carbon markets to determine which are essential for achieving Lao PDR's own NDC and which can be traded with corresponding adjustments. This should include a review of the expected cost of each measure.

- Develop a high level cross-sectoral carbon markets strategy. This strategy should be informed by the review of mitigation actions to determine which actions are suitable for participation in the various carbon markets (and/or RBCF).

- Determine a process for providing government approval of corresponding adjustments for Article 6 trades.

1 Introduction

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The paper is structured as follows:

- **Section 2** | Providing a short overview of carbon markets, in particular Article 6 and Voluntary Cabon Markets (VCM)
- **Section 3** | Presenting trends in carbon markets
- **Section 3** | Discussing the Lao PDR context in terms of climate commitments
- **Section 5** | Proposing recommended focus areas for Lao PDR
- **Section 6** | Delineating priority actions for Lao PDR

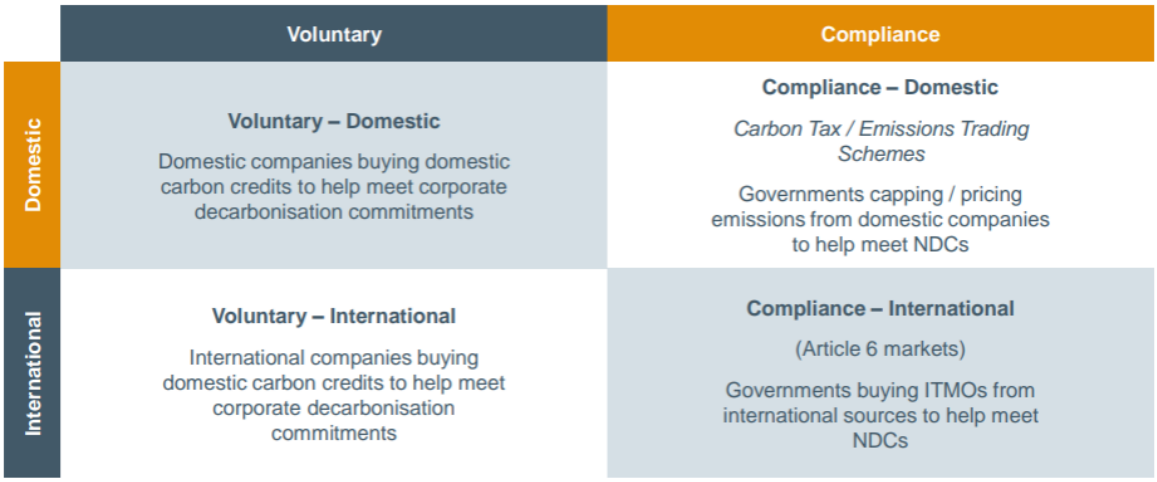
2 Types of carbon markets

Carbon markets are one tool to tackle climate change. Since emissions are transboundary and should be reduced in absolute terms irrespective of location, governments around the world have established markets where emissions (or emissions reductions) can be exchanged from one entity to another.

There are three different types of carbon pricing mechanisms: cap and trade schemes (or emissions trading systems, ETS); baseline-and-credit mechanisms, also known as offsetting or crediting mechanisms and including voluntary carbon markets; and carbon taxes. Carbon taxes consist of a fixed price on carbon emissions, usually levied on fossil fuels upstream and within the jurisdiction of individual countries. In ETS and offsetting mechanisms a fixed quantity of carbon emitted, that is a tonne of CO_2e, is bought and sold. In an ETS companies trade pollution permits (often called “allowances”), which allow them to emit one tonne of CO2e. For instance, when a company releases 1 tCO_2e, it must give one permit back to the government. Instead, in an offsetting mechanism, countries and companies trade offsets, i.e. emission reduction units, which must represent a tonne of CO_2e which has been reduced already.[1]

Demand for carbon pricing mechanisms is driven by both mandatory (defined in national and/or international law) and voluntary sources and can be both domestic and international, as illustrated in the figure below.

Figure 1 Overview of carbon pricing mechanisms



NDC = Nationally Determined Contribution | ITMO = Internationally Transferred Mitigation Outcome

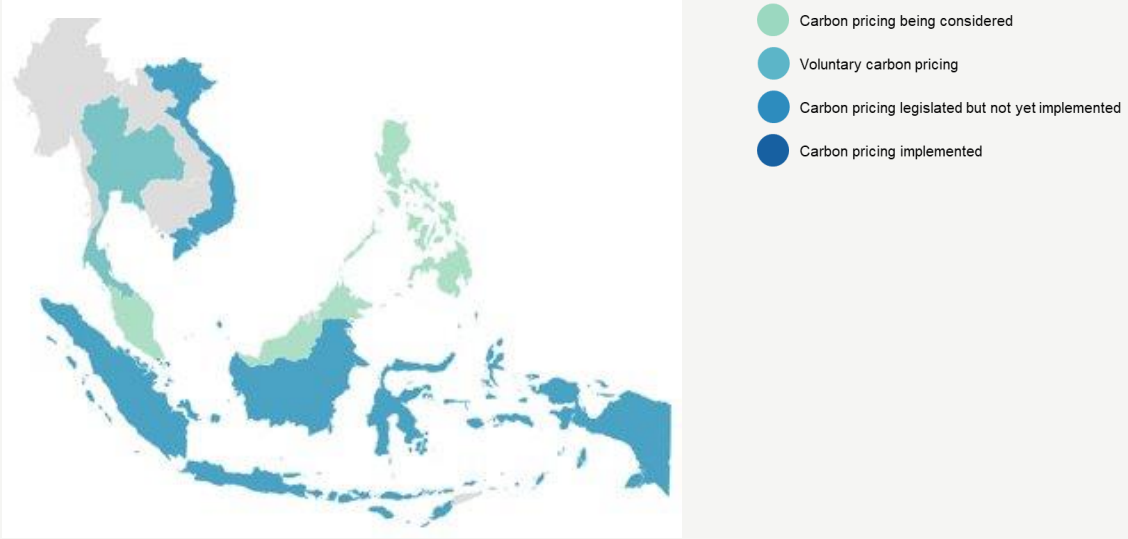
Domestic compliance instruments are usually carbon taxes and ETS, which can also be combined. Globally, 73 compliance instruments are operating or under development although their prices vary widely. International compliance markets have instead been defined by the Paris Agreement in Article 6 which is split into two different market mechanisms: Article 6(2) and Article 6(4). Finally, voluntary carbon markets usually consist of three different forms of crediting mechanisms: international independent mechanisms, and international and domestic governmental mechanisms.

[1] Carbon Markets Watch. 2020. Carbon Markets 101: The Ultimate Guide to Global Offsetting Mechanisms.

In most ASEAN countries, carbon pricing mechanisms have been legislated but not implemented, as illustrated in Box 1 below.

Box 1 Status of development of compliance markets in ASEAN

Figure 2 Status of development of compliance markets in ASEAN



Carbon tax in force, applicable to facilities emitting >25,000 tCO_2e pa
Tax planned to increase from S$ 5/tCO_2e to S$ 25/tCO_2e by 2024-25, S$ 45/tCO_2e by 2026, and S$ 50-80/tCO_2e by 2030

Voluntary power sector ETS and carbon exchange operating
Carbon tax of Rp 30,000/tCO_2e for coal power plants has been legislated but has not yet become effective

Enabling legislation for an ETS became effective in January 2022
A road map has been issued for a pilot ETS in 2026-27 and a mandatory full ETS from 2028 covering emissions-intensive industries

2.1 Results-based climate financing (RBCF)

Results-Based Climate Financing (RBCF) is a non-market alternative for providing funding support to emissions reducing projects.

In RBCF, funding payments are linked to the achievement of pre-agreed results/outcomes, and disbursed are made when results are verified:[2]

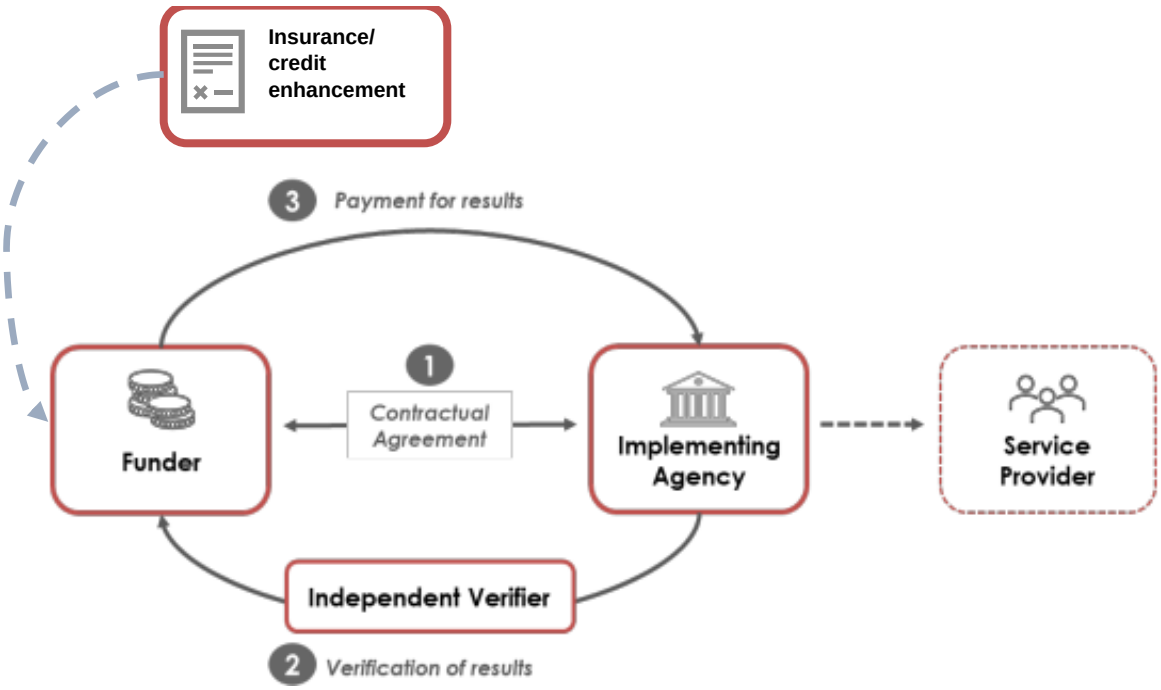
- RBCF is type of results based finance (RBF) where payments are made for climate mitigation/adaptation results.

[2] GPRBA (2017), Escalanate and Orrego (2021), GPRBA/World Bank (2024)

- RBCF projects involve contracts to provide payments for GHG emission reductions like a commercial transaction.
- RBCF does not require issuance of tradable carbon units and therefore can be implemented with simplified monitoring and verification processes to carbon market based projects.
- RCBF has proven results in decreasing GHG emissions and increasing energy efficiency.
- RBCF projects range from reducing deforestation, to water and sanitation spending, to renewable energy pursuit, etc.
- The reducing emissions from deforestation and forest degradation in developing countries' (REDD+) programme is an example of RBCF

Figure 3 illustrates the functioning of RBCF.

Figure 3 Functioning of RBCF



Adapted from Escalanate and Orrego (2021)

2.2 Voluntary carbon markets

Voluntary carbon markets allow carbon emitters to offset their emissions by purchasing carbon credits linked to projects that reduce or remove GHGs from the atmosphere. While compliance markets are currently limited to specific regions, voluntary carbon markets are significantly more fluid, unrestrained by boundaries set by nation states or political unions. They also have the potential to be accessed by every sector of the economy instead of a limited number of industries.

Voluntary markets are focused on carbon crediting mechanisms which value emissions reductions and removals to facilitate buyers (typically corporates) to offset their emissions. Multiple certification mechanisms exist, including:

- Independent mechanisms run by commercial and not-for-profit entities, such as the **Verified Carbon Standard** (VCS) by Verra, which currently dominates the VCM certification landscape;
- International mechanisms, such as such as the Clean Development Mechanism (CDM); and
- Domestic mechanisms linked to domestic compliance and voluntary markets, such as the Australian Carbon Credit Unite (ACCU).

Figure 4 below includes some examples of crediting mechanisms.

Figure 4 Crediting mechanisms

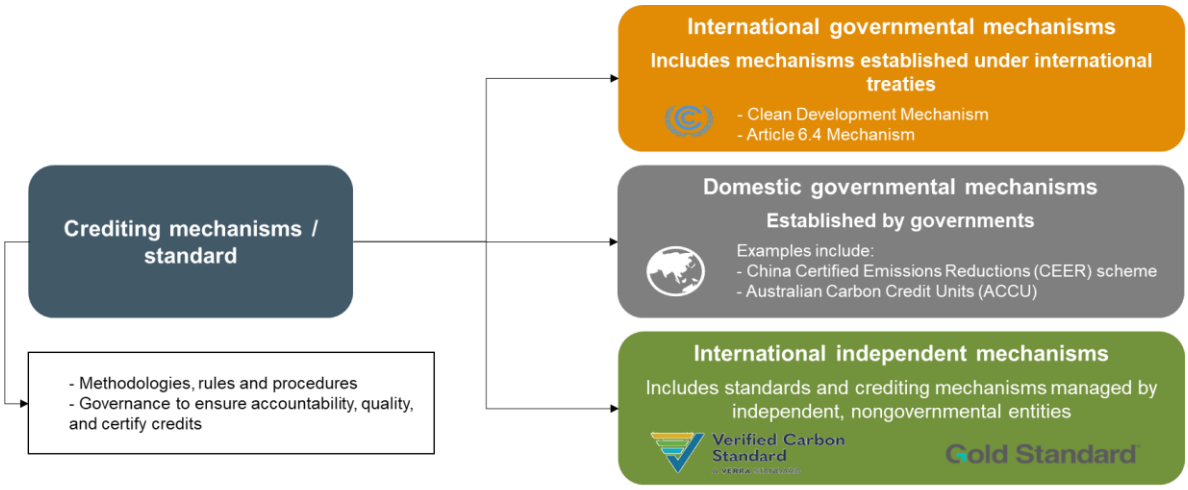


Figure 5 illustrates the structure and participants of the voluntary carbon market. Voluntary Carbon Markets (VCM) trade verified and validated credits issued by the accrediting organization. **Standards** provide the framework for a crediting mechanism. They are principles by which organizations, usually NGOs, certify that an emissions reduction project achieves its stated outcomes. Standards have a series of methodologies which define how emissions reductions are measured, reported, and validated. Currently, 170 types of carbon units exist within the VCM, targeting different industries such as agriculture, land use, waste, energy efficiency, buildings and chemicals. Each of these has a set of governing standards and a corresponding methodology.

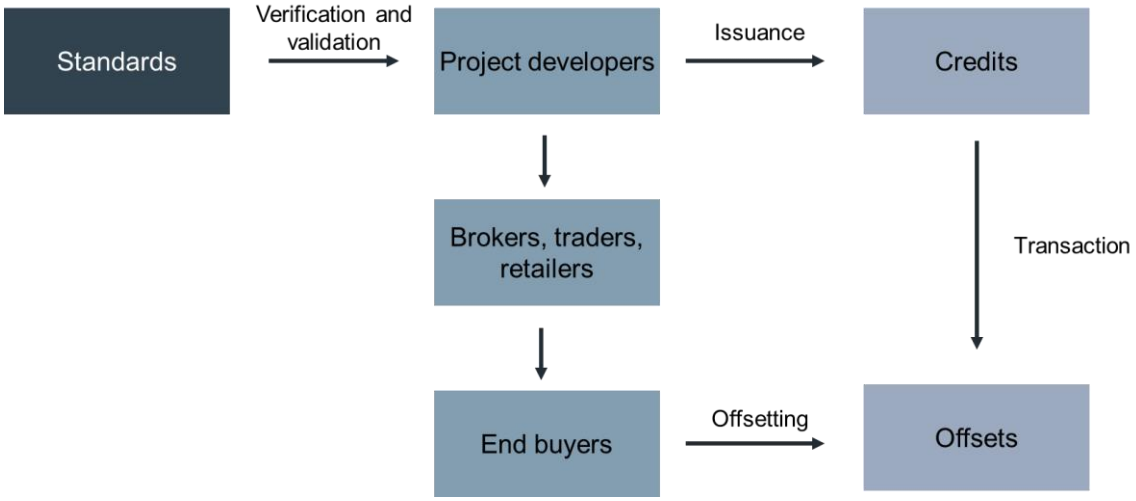
Carbon units or carbon credits are transferable instruments certified by an independent body to represent an emission reduction of one metric tonne of CO2. The purchaser of a carbon unit can claim the corresponding carbon offset, which refers to a reduction in GHG emissions used to compensate for emissions that occur elsewhere.

The other players of VCMs are **project developers**, who set up projects issuing carbon credits, which can range from large-scale projects to smaller community-based ones.

The downstream market is made up of **end buyers**: companies – or even individual consumers – that have committed to offset part or all their GHG emissions.

Brokers and retail traders link supply and demand just as in other markets: brokers buy carbon credits from a retailer trader and market them to an end buyer, usually with some commission.

Figure 5 Structure of the voluntary carbon market



Source: S&P Global (2021) Voluntary carbon markets: how they work, how they're priced and who's involved.

The standards' certifications also ensure certain core principles or requirements of carbon finance are respected:

- **Additionality**: The project should not be legally required, common practice, or financially attractive in the absence of credit revenues.
- **No overestimation**: CO2 emissions reduction should match the number of offset credits issued for the project and should take account for any unintended GHG emissions caused by the project.
- **Permanence**: The impact of the GHG emission reduction should not be at risk of reversal and should result in a permanent drop in emissions.
- **Exclusive claim**: Each metric ton of CO2 can only be claimed once and must include proof of the credit retirement upon project maturation. A credit becomes an offset at retirement.
- **Provide additional social and environmental benefits**: Projects must comply with all legal requirements of its jurisdiction and should provide additional co-benefits in line with the UN's SDGs.
- **Leakage** Leakage occurs when a VCM activity project causes the source of GHG emissions to move rather than eliminating the associated emissions (for example if a deforestation prevention project causes deforestation to happen somewhere else). Leakage should be prevented by managing, quantifying, accounting for and

compensating displacements, with best practices differing across VCM activity types.

Box 2 Additionality and Permanence in Carbon Credits

Additionality

Additionality is the requirement that greenhouse gas (GHG) emissions reductions under a project would not have happened without the revenues generated from the sale of carbon credits. This is not always obvious. For example, additionality may not be able to be claimed where:

- The project is legally required. An example would be where a forest is legally protected. In this instance, it would not be possible to obtain credits for avoided deforestation as it is not legally permitted to cut down the forest.
- The project is financially viable without credits. An example would be a solar power project which receives a feed-in-tariff which covers its costs of production. In this instance, the project does not need the additional revenues from the sale of carbon credits to be profitable.
- The project is least-cost. An example would be replacement of existing lighting with LEDs. The savings from lower electricity bills after installing LEDS outweigh the initial purchase price and, therefore, this is the least-cost option. Carbon credits are not required.

What constitutes additionality varies across different carbon markets and is evolving over time. Furthermore, the level of formal guidance available varies between markets. As such, additionality represents a critical issue for consideration and potential source of risk when developing a carbon markets strategy.

Permanence

Permanence is the requirement that GHG emissions reductions under the project cannot be reversed. This is particularly a problem with removals projects, which remove current GHG emissions, as opposed to avoidance projects, which avoid future GHG emissions.

For example, a project may reforest an area of land and, thereby, capture carbon dioxide, removing it from the atmosphere. However, for this to be considered permanent, measures are needed to ensure that the reforested area will not subsequently be deforested which would release the saved carbon dioxide back to the atmosphere.

2.3 Article 6 carbon markets

Article 6(2) defines a carbon market in which countries can sell bilaterally any extra emission reductions they have achieved compared to their nationally determined targets.

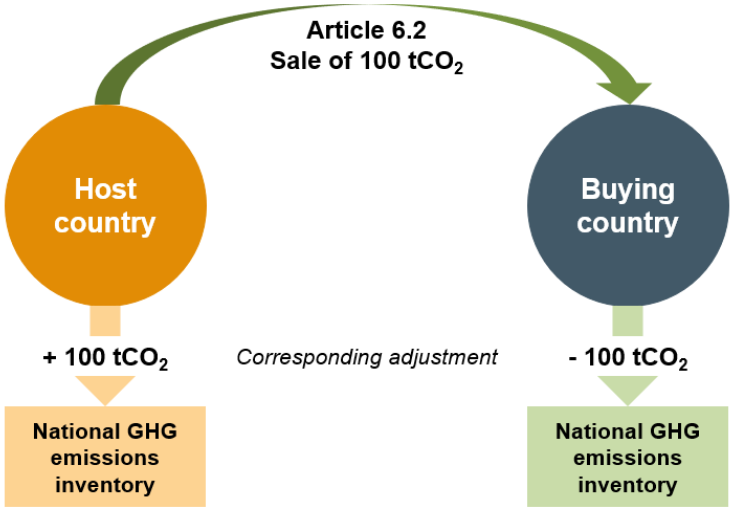
Parties shall, where engaging on a voluntary basis in cooperative approaches that involve the use of internationally transferred mitigation outcomes (ITMOs) toward nationally determined contributions, promote sustainable development and ensure environmental integrity and transparency, including in governance, and shall apply robust accounting to

ensure, inter alia, the avoidance of double counting, consistent with guidance adopted by the Conference of the Parties serving as the meeting of the Parties to this Agreement.[3]

Article 6.2 enables a host country, that is on track to exceed its NDC target, to trade units to obtain investments, support for capacity building, and access to technologies not available through domestic resources. The buyer country purchases these units, known as ITMOs, to address any gaps in meeting its own climate goals. This **corresponding adjustment** mechanism is intended to ensure that a country cannot both sell an ITMO to be used by another country to meet its NDC and count that credit against its own NDC. In this way, the corresponding adjustments avoids double-counting, as illustrated in the figure below.

The nature of corresponding adjustments imply that countries will have to make analyses will be required to ensure Article 6 trade does not jeopardize NDC achievement. Mitigation activities to be supported through Article 6(2) via the issuance and sale of internationally transferrable mitigation outcomes (ITMOs) must be activities that are generating mitigation additional to that required by the NDC. Exact definition of what will be considered additional remains unclear, however countries selling ITMOs will have to be on track to meet NDC commitments in order for additional mitigation to not impose undue risk on NDC achievement.

Figure 6 Corresponding adjustment in Article 6.2 carbon markets



In **Article 6.4** markets countries can trade units approved by a centralized mechanism, supervised by a United Nations (UN) body called Article 6.4 Supervisory Body. The setup resembles the Clean Development Mechanism[4], except that it is not restricted to projects implemented in developing countries. Under this market, it is expected that project developers will reduce emissions through specific actions in a country and sell these emission reductions to another country, company, and/or individual. This process therefore requires more control from the Supervisory Body which should establish detailed rules and verify that projects and credits comply with certain criteria. While Article 6.4 project may have different requirements for demonstrating additionality to Article 6(2); corresponding adjustments will have to be made

[3] UNFCCC. 2015. Paris Agreement.
[4] The Clean Development Mechanism (CDM) is a market in which high-income countries buy emission reductions from developing ones through carbon credits, called Certified Emission Reductions (CERs).

for these trades and countries must take care to ensure such trade does not jeopardise NDC achievement.

The Article 6(4) mechanisms are still under development and only in November 2023 the Supervisory Body agreed to a framework on project methodologies and carbon removals to be included in the carbon markets' guidelines. This framework includes the following points:

- Adopt a cautious approach in estimating a project's emission reductions or removals
- Uphold increasing environmental ambition, by using baselines that reduce volumes of credits issued over time
- Demonstrate a project's additionality, including considering all relevant national policies and legislation
- Address project leakage, where there is a change in GHG emissions outside the project boundary linked with the project's activities.
- Address non-performance and reversal aspects (eg, a wildfire, which reverses the carbon removals of the trees under a carbon project)

Agreements have been reached on requiring 2% of credits traded to be cancelled (ie not counted towards the purchasing country's NDC) to ensure an overall reduction in global emissions and 5% of credits traded to be used as contributions to a global adaptation fund. CDM projects are allowed to transition credits to Article 6(4) for a period of up to five years, from January 2021. Applications for transition were required by December 2023.

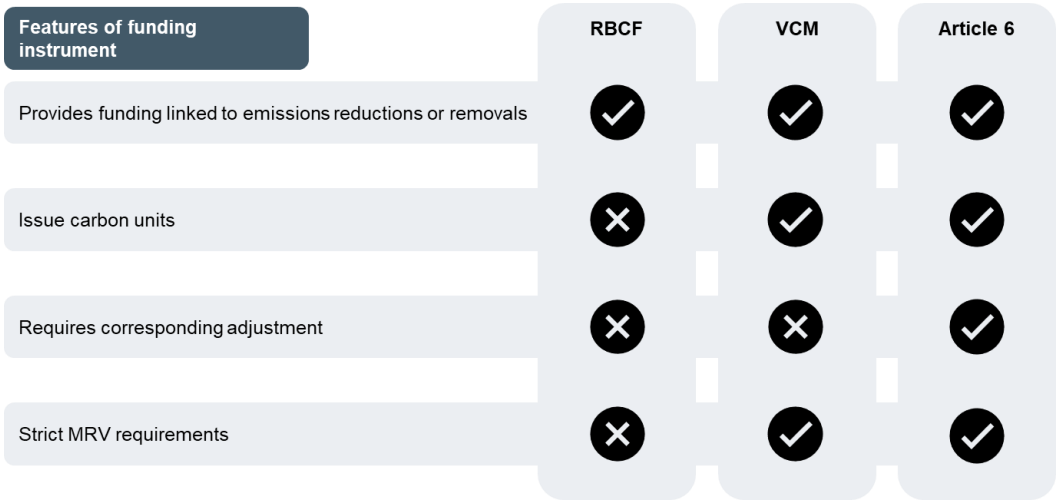
In 2022, for the first time, a new type of unit was defined under Article 6(4) called "mitigation contribution". This unit is non-authorized, do not require a corresponding adjustment and may be used for various purposes, which opens the door for use in other markets, such as in the voluntary carbon markets or domestic markets.[5] Section 3.2 will further discuss how the VCM is also expected to become more aligned with Article 6(4).

Figure 7 summarises how RBCF, voluntary and Article 6 carbon markets differ in their setup. Some considerations need to be kept in mind:

- There is uncertainty about whether carbon units traded on the VCM may require corresponding adjustments to be made going forward
- While RBCF requires MRV of emissions reductions, it can be implemented with simplified criteria compared to carbon unit issuing alternatives

[5] The Nature Conservancy. 2023. Article 6 Explainer: questions and answers about the COP27 decisions on carbon markets and what they mean for NDCs, nature and voluntary carbon markets.

Figure 7 Comparison of instruments



3 Trends in voluntary and Article 6 markets

The following section discusses recent trends in the international VCM and Article 6 carbon markets, before providing recommendations on how the Government of Lao PDR can approach the development of international carbon markets.

3.1 Voluntary carbon markets

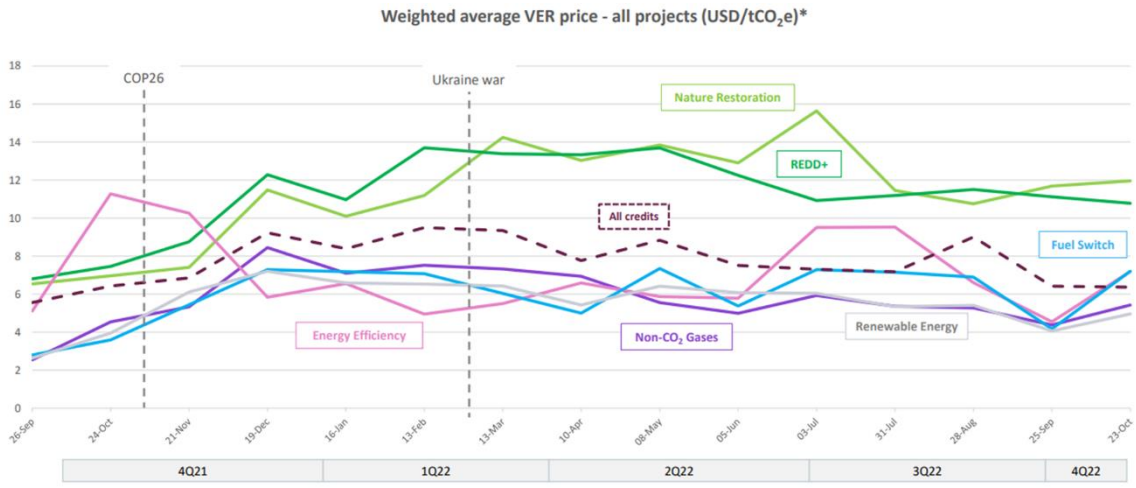
VCMs provide an opportunity to **attract national and foreign direct investments into mitigation action without burdening national budgets or affecting debt ceilings**. In this way the private sector or foreign investors can complement governments' efforts to reduce or remove emissions by financing climate mitigation projects.

Prices

Prices in the VCM are set by negotiation between sellers and buyers, either directly or through intermediaries, and are driven by a combination of cost and the perceived value to the buyer. The fact that exchanges are still relatively illiquid distinguishes VCM pricing from compliance markets, where an 'anchor' price is provided by the carbon tax that can be offset or by the price of purchasing allowances in traded and more liquid markets.

Three trends can be observed in VCM pricing. **First, prices have generally fallen within a range of 4-12 $/tCO$_2$e**, with nature-based credits (both restoration and 'reducing emissions from deforestation and degradation' or REDD) realising higher prices than technology-based credits, as shown in Figure 8. These prices are generally below those seen in compliance markets, which can be explained by the limited ability to use VCM credits as offsets or allowances in compliance market.

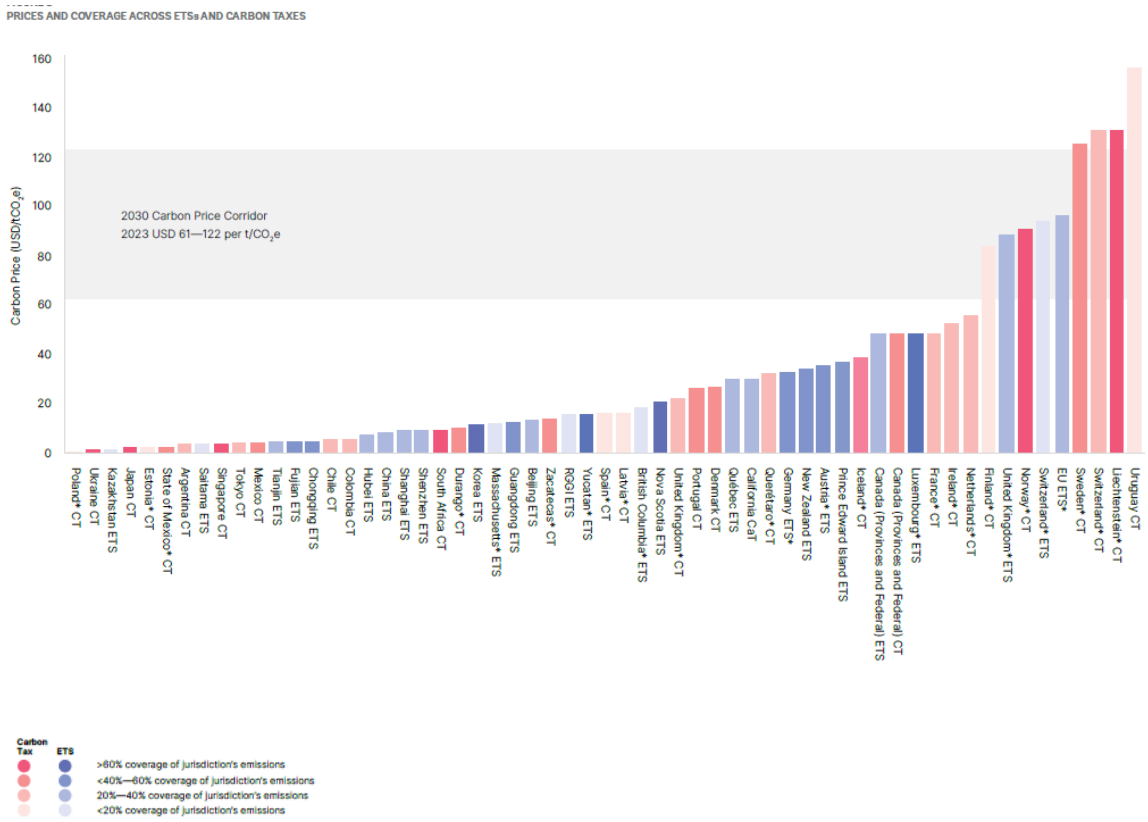
Figure 8 VCM Credit Prices 2021-2022



Source: Trove Research. 2022. Voluntary Carbon Market 3Q22 in Review . Trove Research calculates prices including exchange and Over-the-Counter (OTC) trades and asks, weighted by volume of asks and transactions with asks given a lower weighting

In Figure 9, we show prices for carbon allowances and carbon tax rates across a range of compliance markets. While these vary widely, it is evident that most markets show prices exceeding those in the VCM, as described above. This difference can be explained by the limitations on using VCM credits to meet obligations in compliance markets. For example, the European Union Emissions Trading Scheme (EU ETS), which is the largest compliance market by value[6], has increasingly limited the use of international credits.

Figure 9 Carbon prices in compliance markets



Source: World Bank. 2023. State and Trends of Carbon Pricing 2023

Second, nature-based credits have, in recent years, traded above the prices for technology-based credits. This likely reflects a mix of the higher value placed on credits which remove carbon, and which deliver co-benefits, and of concerns of potential oversupply of technology-based credits developed under the Clean Development Mechanism and whether these represent 'real' reductions.[7]

Third, since the start of 2023, prices for nature-based credits have sharply declined. Prices for nature-based offsets have fluctuated significantly and have been decreasing since the start of 2023. This decline is further illustrated in Figure 10 below, which shows prices of nature-based credits traded on the CBL exchange.

[6] China's ETS covers a larger volume but at lower prices.
[7] For example, a 2011 review for the European Commission of the CDM concluded that: "…the CDM has generally failed to deliver on the very first objective of ensuring and promoting sustainable development and social equity" and "…given the counterfactual nature of offsets, it is exceedingly difficult to implement an accurate method for additionality and baseline determination." | AEA. 2011. Study on the Integrity of the Clean Development Mechanism: Final Report.

Figure 10 Price trends in nature-based carbon units (August 2023 – March 2024)

Source: Carbon Credits. Prices as of 22 March 2024

These trends have significant implications for the development of VCM projects in Lao PDR. They suggest that prices, already low relative to compliance markets, may fall further except for the 'highest-quality' credits. Therefore, expectations for revenues from carbon credits sold in the VCM should be realistic.

Two key conclusions can be drawn from these statistics:

- In the absence of any underlying price anchor, such as a carbon tax, VCM prices are driven by buyers' preferences and valuations. These are subjective and can change rapidly, meaning significant uncertainty over future prices.
- Corporate buyers are very concerned about the public perception of carbon credits that they purchase. This is driving increasing focus on the 'integrity' of credits and will likely lower prices for lower-quality credits.

Buyer preferences

Recently the voluntary carbon market has been subject to credibility issues, with the efficacy of many projects and carbon credits being increasingly scrutinised, leading to a steep fall in liquidity and a subsequent drop in confidence, with many buyers reducing their activity.

Concerns over 'greenwashing' have led to a decline in both issuance of new credits and in prices in existing VCMs. Greenwashing can be defined as "misleading the public to believe that a company or entity is doing more to protect the environment than it is".[8] As increasing numbers of companies make claims over carbon-neutrality and proclaim net-zero commitments, it has become a growing concern. For example:

[8] UNFCCC. 2022. COP27: 'Zero tolerance for greenwashing', Guterres says as new report cracks down on empty net-zero pledges

- Delta Airlines is facing a proposed $1 billion lawsuit alleging false claims over carbon-neutrality.[9]

- The European Parliament has voted to ban claims of carbon-neutrality based on the use of offsets.[10]

- The United Kingdom's Advertising Standards Agency has banned adverts from financial services companies, oil and gas producers and airlines for misleading claims about carbon-neutrality based on the use of offsets.

In response to greenwashing concerns, the November 2022 report[11] of the High-Level Expert Group on Net Zero Commitments of Non-State Entities, appointed by the United Nations' Secretary-General, recommended that:

- Carbon credits should not be included by non-state actors in the emissions reduction trajectories required to meet net-zero commitments.

- Non-state actors are encouraged to purchase high-integrity credits to offset remaining unabated emissions above these trajectories, as these can provide a valuable source of finance for decarbonisation in developing countries.

- High-integrity credits should meet the requirements of additionality and permanence.

Box 3 Detailed recommendations of the High-Level Expert Group on Net Zero Commitments of Non-State Entities

The detailed recommendations are for credits to be:

- Certified by a "credibly-governed standard-setting body that has the highest environmental integrity with attention to positive social and economic outcomes".
- Transparently reported, including "whether or not the credits used can also be counted towards Nationally Determined Contributions".
- "Built on a rights-based approach, which fully respects, protects and takes into account the rights of Indigenous Peoples and local communities".
- Derived from projects or programmes that "prioritise the sectors and peoples most in need or support — for instance, those that protect biodiversity or restore degraded land, build resilience to climate impacts, accelerate distributed energy projects for energy access and livelihoods, or projects that advance technologies for hard-to-abate sectors".

Source: United Nations' high-level expert group on the net zero emissions commitments of non-state entities. 2022. Integrity matters: net zero commitments by businesses, financial institutions, cities and regions.

[9] Lampert A and C Mindock. 31 May 2023. "Delta Air Lines faces proposed U.S. class action over carbon neutral claims". Reuters
[10] Diab K. 11 May 2023. "European Parliament abandons neutrality in anti-greenwashing drive". Carbon Market Watch
[11] High-Level Expert Group on the Net Zero Emissions Commitments of Non-State Entities. 2022. Integrity Matters: Net Zero Commitments by Businesses, Financial Institutions, Cities and Regions

The recommendations of the Expert Group highlight what can be considered to comprise a high-quality carbon credit, one which has both high-integrity (additionality and permanence) along with co-benefits. These aspects of a high-quality credit are illustrated and summarised in Figure 11, overleaf.

VERRA's Verified Carbon Standard is an example of a widely adopted, high-quality credit. The Verified Carbon Standard (VCS) Program is the world's most widely used GHG crediting program. It drives finance toward activities that reduce and remove emissions, improve livelihoods, and protect nature.

VCS quality assurance principles ensure all projects represent GHG emission reductions or removals that are:

- **Additional** - Projects must exceed the likeliest "business-as-usual" scenario and demonstrate that GHG emission reductions or removals would not occur without revenue from the sale of verified carbon units (VCUs).

- **Real and measurable** - Projects must apply an approved methodology to ensure net GHG emission reductions or removals which must have already taken place, and are measurable.

- **Conservative** - Projects must use conservative assumptions, values and procedures to ensure emission reductions are not overstated.

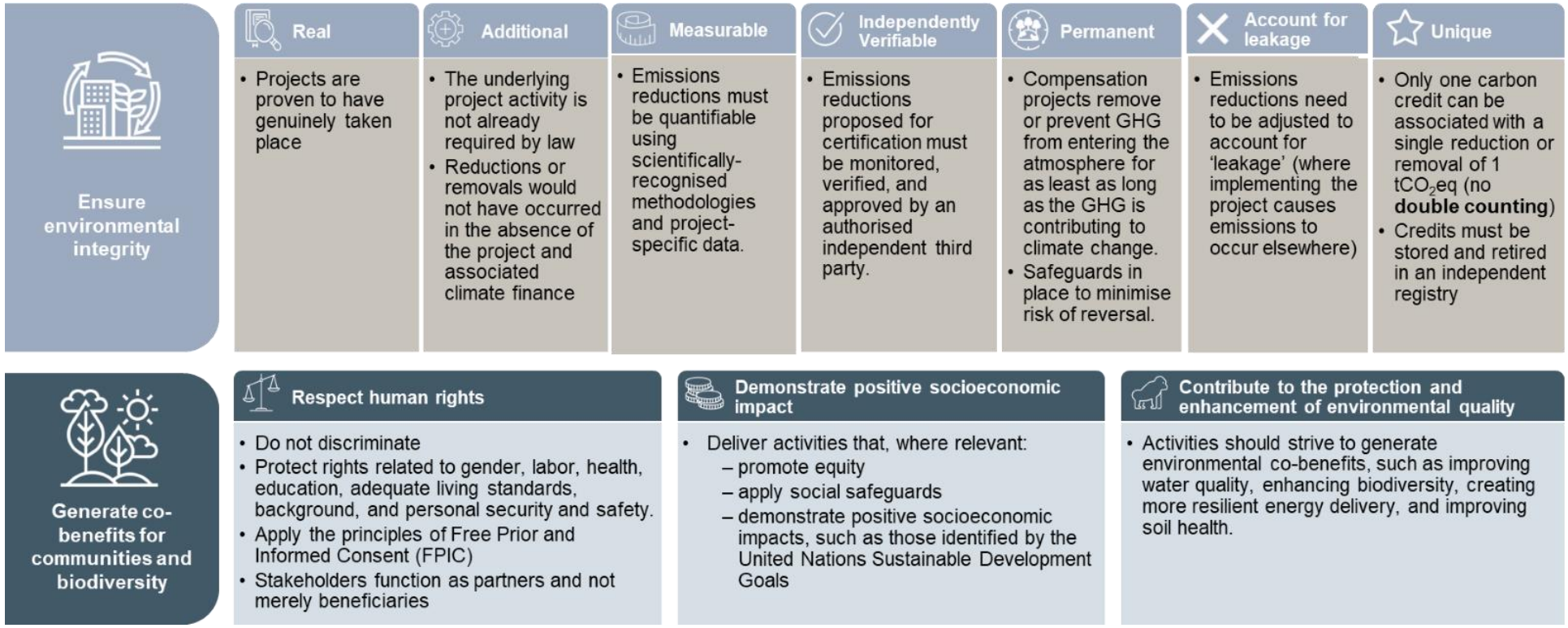
- **Permanent** - Projects in the Agriculture, Forestry, and Other Land Use (AFOLU) sector must ensure GHG removals are not lost due to unforeseen events such as fire or disease.

- **Independently verified** - Projects must contract an approved validation/verification body to confirm that the project design meets VCS criteria and that all GHG emission reductions or removals are quantified according to VCS requirements.

- **Uniquely numbered and transparently listed** - Projects must register with the Verra Registry operator to ensure each carbon unit is assigned a unique serial number and listed on the Verra Registry.

Carbon units certified under Verra's VCS represented 72% of total issuance recorded in 2022. So far, more than 2000 projects have been registered under the VCS.

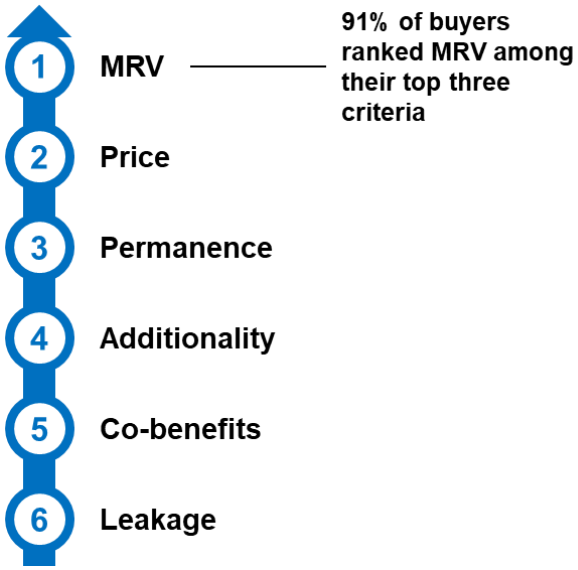
Figure 11 Components of a high-quality carbon credit



Source: Carbon Counts

Given these trends, VCM buyers are starting to focus more and more on robust Measurement, Reporting and Verification (MRV) systems and on additionality. In 2022, Shell and the Boston Consulting Group (BCG) conducted a survey[12] of 200+ companies active in the VCM, supported by in-depth interviews with 20+ executives. The survey found that the most important criterion in deciding which credits to purchase was a robust MRV system, reflecting the importance attached to being able to track and verify emissions reductions (see Figure 12). The second and third-ranked criteria were price and permanence (i.e., whether reductions will persist).

Figure 12 Buyers' ranking of purchasing decision criteria



Source: Shell | BCG. 2022, The Voluntary Carbon Market: 2022 Insights and Trends

The survey also found that buyers expect removal credits to become increasingly important in the market relative to avoidance credits, with over half of buyers expecting removals credits to be more than 60% of the market volume by 2030. Removals credits, such as ecosystem restoration, Direct Air Capture (DAC) and Biomass Energy with Carbon Capture and Storage (BECCS) are preferred because they offer much greater certainty over additionality and over permanence. By contrast, avoidance credits, such as avoided deforestation and renewable energy generation, are less certain as to their additionality and permanence (for example, will deforestation take place in future?).

These quality requirements are feeding through into carbon crediting programmes. As a notable example, the largest independent certification agency, Verra, no longer accepts grid-connected renewable energy projects, other than in Least Developed Countries (LDCs), under the Verified Carbon Standard (VCS) programme. It also excludes projects involving fuel switching from coal to gas, energy-efficient lighting and electricity transmission investments.

Corresponding adjustments

A major uncertainty for the VCM is whether and how corresponding adjustments under Article 6 of the Paris Agreement will apply to carbon trades made on a voluntary basis between non-state entities. On a strict reading, provided purchasers of carbon credits do not

[12] Shell | BCG. 2022, The Voluntary Carbon Market: 2022 Insights and Trends

use these as offsets in compliance markets, there is no obligation to make a corresponding adjustment. However, some VCM participants appear to expect corresponding adjustments to become a marker of high-quality credits which would then drive trading away from purely voluntary transactions and to trades under Article 6 mechanisms.

This uncertainty is reflected in a number of countries suspending or restricting VCM transactions while awaiting clarity as to the potential impacts on achieving their NDCs.

To date, countries that have announced restrictions include:

- Indonesia suspended international sales while it sets up a national carbon exchange;
- India has stated that priority will be given to meeting its NDC targets before international sales are permitted;
- Honduras and Papua New Guinea have also imposed limits on international sales of credits.

Given Lao PDR's intention to develop a national crediting programme, which will be used to purchase credits and generate projects which can be used to support achievement of its NDC, similar concerns may arise. This is not to say that corresponding adjustments will necessarily be required, more that uncertainty over whether this will be the case means governments are tending to adopt a 'safety-first' approach of suspending transactions while awaiting clarification of the 'rules.

3.2 Article 6 carbon markets

Article 6 of the Paris Agreement is seen as an essential enabler of international emissions trading, providing countries and businesses with a key pathway to meet and accelerate their climate goals.

With Article 6, countries can both raise ambition to fight climate change – which is crucial to achieve the Paris Agreement's central goal of holding global average rise to as close as possible to 1.5 degrees C – and implement their national climate action plans far more cheaply. In fact, according to the International Emission Trading Association, **Article 6 has the potential to halve the cost of implementing national climate action plans, which could save an estimated $250 billion annually by 2030 alone**. Very significantly, Article 6 can be a source of climate finance for developing nations, with a share of proceeds going towards efforts to green rapidly growing economies and to build resilience to the inevitable impacts of climate change.[13]

When it comes to comparing Articles 6(2) and 6(4), Article 6(2) is based on bilateral agreements, which ensures more flexibility for countries to design their preferred rules and establish quality controls and safeguards, while the Article 6(4) mechanism may take longer to be up and running. On top of this, Article 6(2) has no mandatory fees, while Article 6(4) has mandatory monetary contributions and automatic cancellations. On the other hand, establishing bilateral agreements under Article 6(2) comes with a transactional and political cost, which requires additional time and capacity compared to a more standardized

[13] United Nations Climate Change. 2022. Article 6 is a key tool to boost climate ambition.

mechanism. All units generated under Article 6(4) go through a centralized body with pre-approved methodologies, making the process and eligibility of these units more predictable. Lastly, the Article 6(4) framework is an update from the Kyoto Protocol's CDM, so some countries could use an updated version of already existing infrastructure to engage.[14]

Furthermore, additionality under Article 6(2) can play an enhanced role and could be evaluated to mitigate risks to the host and buyer. While in other project-based mechanisms demonstrating additionality relied on the absence of the project activity and a used a business-as-usual (BAU) scenario as a baseline, Article 6(2) guidance emphasizes evaluating the impact of mitigation activities in relation to a country's commitments and its performance in achieving a scenario below BAU in the future. Under Article 6(2), the host country is tasked with assessing and determining the quantity and type of mitigation outcomes (MO) it intends to sell or retain to ensure the fulfilment of its own NDCs, while avoiding overselling or falling short by not adequately participating in international markets. Additionality is thus viewed as a risk management tool, rather than a simple yes/no criterion, for deciding the amount of MO from an activity that may be permitted for international transfer by the host country.[15] According to this framework, financial viability represents less of an issue in project selection, and therefore the uptake of beneficial, but oftentimes more expensive, developments such as renewable energy systems and technologies may be fostered.

Some countries have started to engage in Article 6 agreements. 80% of countries have signalled an intention to use Article 6 to achieve their NDC targets, and 24% have already started to engage with pilots and/or bilateral agreements. However, for selling countries, any international transfers will involve trade-offs: the more a host country exports emission reductions, the less mitigation can be claimed against its own NDC target.

Uncertainty around trading prices and progress toward NDC targets set for 2030 can complicate this decision even further. On this respect, host countries may want to keep the cheapest, easiest mitigation and count it to meet their own NDC target. This mitigation likely would not be traded, because the price would not cover the true cost of a corresponding adjustment, which is the cost or the marginal unit of abatement needed to achieve the countries NDC target. Instead, countries may either wish to trade "easy" mitigation activities at a higher price than the cost of mitigation or only trade "difficult" or high cost mitigation activities that the host country may not have sufficient financial resources to implement otherwise.

Examples of ongoing Article 6 activities are:

- Switzerland is a first mover on Article 6 activities and has concluded a number of bilateral treaties, which set the cooperation framework and state the requirements for recognition of the international transfer of emission reductions by the treaty parties. The country is engaged with Peru, Ghana, Senegal, Georgia, Vanuatu, Thailand, Dominican Republic, Ukraine, Morocco, Malawi, Uruguay, Chile, Kenya and Tunisia.

- Singapore, too, has signed similar Article 6 memoranda of understanding (MOUs) with over a dozen countries, including Bhutan, Cambodia, Colombia, Chile, Kenya, Morocco, Papua New Guinea, and Peru.

[14] The Nature Conservancy. 2023. Article 6 Explainer: questions and answers about the COP27 decisions on carbon markets and what they mean for NDCs, nature and voluntary carbon markets.
[15] International Bank for Reconstruction and Development, World Bank. 2023. Considerations for Additionality Concepts to Article 6(2) Approaches.

3.3 How countries are preparing for ongoing participation in international carbon markets

After the adoption in 2022 of CMA 3[16] regarding implementation of Article 6 of the Paris Agreement at Conference of the Parties (COP) 26, many countries have been actively making steps to facilitate and manage participation in both Article 6 markets and voluntary carbon markets (VCM). In particular countries have been establishing frameworks to oversee and manage participation in international carbon markets, including:

- **Establishing legislative and regulatory frameworks.** Legislation covering carbon markets is commonly included within an overarching climate change law and can include: assigning or establishing an entity responsible for oversight and management of carbon markets within the country, establish a process for issuing licences or permits for participating in carbon markets and defining what activities must obtain a permit, and establishing a requirement to implement regulation to define rights, processes and institutional arrangements necessary for participation in carbon markets. Such arrangements will include definition of processes for authorization of corresponding adjustments.

- **Development of supporting infrastructure for participation in carbon markets.** Essential infrastructure include those facilitating monitoring, reporting and verification (MRV) of emissions and emissions reductions by participating entities; as well as emissions accounting systems including national inventories, data management systems (DMS), and carbon registries.

- **Prioritisation of mitigation activities to participate in particular carbon markets.** Different international carbon markets have different requirements with respect to making corresponding adjustments to the NDCs of buyer and seller countries. Countries are therefore working to identify which mitigation activities should not be allowed to sell carbon units that require corresponding adjustment, and which can do so.

Papua New Guinea (PNG) is one country that has been making steps towards participation in carbon markets. Box 1 includes a case study of the steps being taken in PNG related to establishing legislative and regulatory frameworks for participation in carbon markets, and development of supporting infrastructure.

Box 1: Papua New Guinea preparation for participation in international carbon markets

Primary legislation governing and implementing institutional arrangements for carbon markets in PNG is the Climate Management Act (2015) & the Climate Change (Management) (Amendment) Act 2021. Key features of these legislation are:

- Establish the Climate Change and Development Authority (the Authority), responsible among other things for implementing many aspects of carbon markets including

[16] UNFCCC. Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA). 2022. Report of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement on its third session, held in Glasgow from 31 October to 13 November 2021

having power; and the National Climate Change Board to provide oversight for the Authority.

- Enable the Authority to implement an emissions trading system (ETS).
- Establishes a National Registry for dual purposes of overseeing emissions reductions projects, programmes, and activities; and to be a registry holding carbon units (including domestic compliance[17] and offset units, voluntary carbon units, and ITMOs).
- Defines requirements for verifiers of emissions reductions and carbon units. Verifiers must comply with UNFCCC rules, unless verifying projects participating in VCM which are not guided by the UNFCCC and Paris Agreement.
- Define processes for implementing a project agreement with land owners and holders of traditional land rights which must include a benefits sharing agreement.
- Allows for the establishment of a regulation for the identification and definition of carbon rights to define legal claims to the benefit streams derived from carbon removals projects.

Work is currently underway to prepare a carbon markets regulation to implement the requirements of the legislative framework. The regulation is in draft and is not yet publicly available but is expected to include:

- A framework for administration of carbon markets.
- Define carbon rights and the process for generating carbon units.
- Establish a permitting system for projects intending to generate and sell carbon units on different markets.
- Define a framework for benefits sharing.
- Outline a process for identification and approval of projects to generate carbon units for sale through Article 6 of the Paris Agreement.

The legislation includes requirements for verifiers and to implement a registry. PNG already has some existing capacity related to these from previous participation in REDD+ and voluntary carbon markets. This includes a national DMS overseeing VCM and REDD+ projects.

Source: Government of Papua New Guinea. 2015. Climate Change (Management) Act 2015, Government of Papua New Guinea. 2021. Climate Change (Management) (Amendment) Act 2021.

[17] Should a domestic ETS be introduced.

4 Lao context

Lao PDR submitted an updated NDC to the UNFCCC in March 2021. The updated NDC includes:

- An unconditional emissions reduction target of 62,000 ktCO2e annual emissions reduction (60% relative to a baseline scenario).
- And an enhanced conditional emissions reduction scenario (an aggregate target is not provided for this scenario but enhanced sectoral activities are outlined), that would align with a pathway for Lao PDR achieving net zero emissions by 2050. An enhanced contribution of the forestry sector is a major element of this scenario.

A key challenge for Lao PDR is mobilising the financing needed to achieve the sectoral targets set out in the enhanced scenario. An estimated US$4.8 billion will be required to implement these measures. The NDC includes an explicit request for support from developed countries to provide financial instruments that can support accessing this financing need.

Carbon markets are one mechanism through which this financial support can be delivered, particularly for the forestry sector.

Table 1 Overview of Lao PDR's NDC targets

Sector	Unconditional		Conditional (addition)	
	Identified contributions	**$ktCO_2$ per year** (2021-30 average)	**Identified contributions**	**$ktCO_2$ per year** (2021-30 average)
LULUCF	--	1,100	Increase forest cover to 70%	45,000
Renewable energy	13 GW hydro	2,500	1 GW solar + wind 300 MW biomass	100 84
Energy efficiency	50,000 cook stoves	50	10% reduction in final energy consumption	280
Transport	Vientiane BRT Lao-China railway	25 300	30% EV penetration 10% biofuel use	30 29
Agriculture	--	-	50,000 hectares adjusted water management	128

Sector	Unconditional		Conditional (addition)	
Waste	--	-	500 tons/day municipal SWM project	40

Source: Lao PDR. 2021. Nationally Determined Contribution 2020

Land use, land use change, and forestry is expected to play a major role in delivering NDC targets. As illustrated in the table above, The Government of Lao PDR has placed a clear emphasis on the important role and contribution of the land use, land use change and forestry (LULUCF) sector in its national commitment to reducing emissions. LULUCF is a major source of emissions in Lao PDR contributing 41,1013 ktCO2e of emissions and 7,533ktCO2e of removals, or net emissions of 33,479 ktCO2e, on average annually between 2005 and 2015. For context, total emissions in 2020 were approximately 53,000ktCO2e.

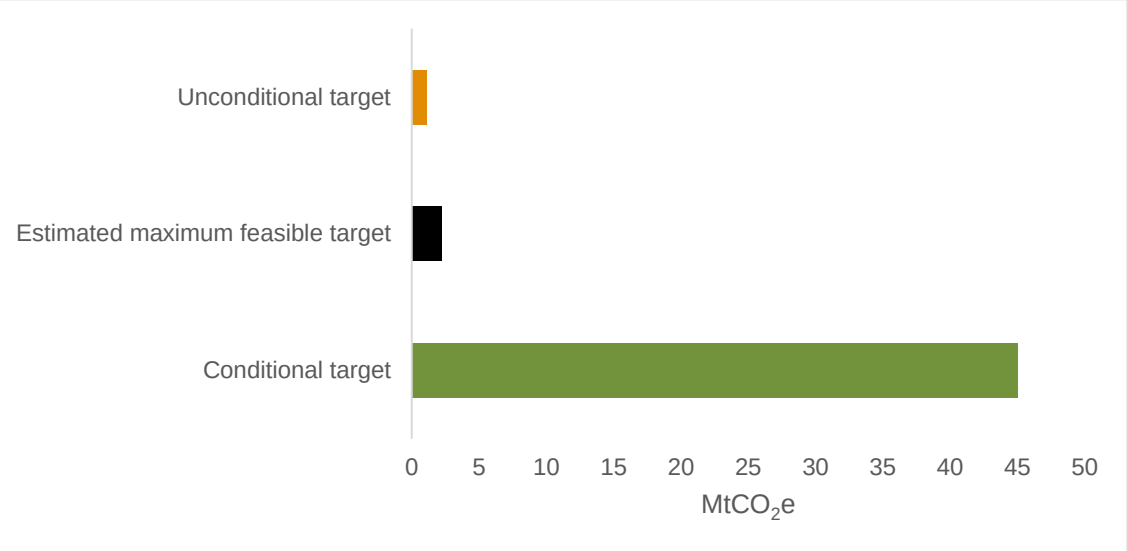
However, the feasibility of the NDC targets for the forestry sector has been questioned. The conditional forestry sector target included in Lao PDR's NDC is significantly higher than the unconditional target. Estimates of the maximum feasible target are much lower than the conditional target, albeit still approximately double the unconditional target, as illustrated in Figure 13.

- The conditional LULUCF target of 45,000 ktCO2e/y is significantly higher than the unconditional target 1,100 ktCO2e/y. The conditional target would be achieved through increasing forest cover in Lao PDR to 70% of the countries land area, currently forests cover 58% of the country.

- The conditional target has been questioned by forestry specialists, and the NDC Implementation Plan estimates that Lao PDR could likely only reach up to 2,200 ktCo2e/y from forestry.

Regardless, the sector is however a potential significant source of cost-effective emissions reductions that are suitable for support through carbon markets. The 45,000 ktCO2e/y in the conditional target, represent 98% of total reductions in the target but require only 36% of expected financing requirement. On a per unit basis, this corresponds to a cost of just US$3.8/tCO2e, below the range of recent prices achieved for nature based carbon units traded in VCM in recent years.

Figure 13 Comparison of forestry sector NDC targets



Despite the notable opportunity for carbon markets to support forestry projects, the majority of existing VCM projects are hydropower. Currently there are 13 projects in Lao PDR earning carbon units on VCM as shown in Table 2. 8 of these are hydropower projects, however concerns about additionality of such projects mean future hydropower projects may not be eligible to earn emissions units.

Table 2 VCM projects in Lao PDR

Project Name	Type	Total Credits Issued	First Year of Project
Nam Long Hydropower Project (GS2707 CER to VER conversion)	Hydropower	39,680	2016
TerraClear Ceramic Water Purifier Project in Lao PDR	Clean Water	181,799	2012
Xenamnoy 6 Hydropower Project	Hydropower	72,106	2015
Xe Namnoy 2 - Xe Katam 1 Hydropower project	Hydropower	203,032	2016
Nam Long Hydropower Project	Hydropower	133,180	2016
Xenamnoy 1 Hydropower Project	Hydropower	318,177	2014
Nam Nga 2 Hydropower Project	Hydropower	53,837	2018
Nam Pha Gnai Hydropower Project	Hydropower	104,038	2019
Improved Cookstove Program in Lao PDR	Cookstoves	255,775	2014
Rubber based agro-forestry system in Pakkading, Bolikhamsay Province, Lao PDR	Afforestation / Reforestation	83,099	2015

Project Name	Type	Total Credits Issued	First Year of Project
Afforestation in Eucalyptus and Acacia plantations for Burapha Agroforestry Co., Ltd.	Afforestation / Reforestation	134,440	2017
Installation of high efficiency wood burning cookstoves in Laos	Cookstoves	5,733	2022
15 MW Nam Hinboun Downstream Hydropower Project	Hydropower	57,284	2021
Total		1,642,180	

Source: Berkley Carbon Trading Project. 2023. Voluntary Registry Offsets Database (v9). Nine projects are registered under the Gold Standard and four projects under VCS. A total of 31 projects are listed including those registered but with no credits issued (11 projects) and those not yet registered (7 projects)

Besides engagement with VCM, Lao PDR involvement's in activities related to CDM, Article 6, and RBCF indicates a need for coherent strategy and management. As shown in Activities across VCM, CDM, Article 6, and RBCF demonstrate a willingness for Lao PDR to participate in these frameworks to support achievement of emissions reduction targets. This activity supports the statement from Lao PDRs NDC that "*the Central Bank of Lao PDR will consider carbon credits and low interest loans as sources of financing for renewable energy and agricultural projects carried out by small and medium enterprises*", in indicating the intention to use carbon markets going forward.

Table 3 Engagement in carbon market activities

VCM & Clean Development Mechanism (CDM)	Lao PDR has 13 projects issuing credits in the voluntary carbon market, and 38 clean development mechanism projects, eight of which have registered for transition under Article 6(4).
Article 6	In 2023 Lao PDR also signed a bilateral deal with South Korea on the development of large-scale solar and landfill projects and is looking to seek collaboration with Singapore to help it export carbon credits in the international market.
RBCF	Lao PDR has been a partner country in the Forest Carbon Partnership Facility (FCPF) since 2008 to receive help for implementing successful REDD+ programs. The countries Emission Reductions Programme Document (ER-PD) was accepted into the FCPF Carbon Fund in June 2018, and an Emission Reductions Payment Agreement (ERPA) was signed in December 2020 for 8.4 million tCO2eq and up to USD 42 million in results-based payments.

However, given the range of options available to provide this kind of finance, there is a need for a coherent strategy and management framework to be implemented to enable Lao PDR to achieve domestic emissions reductions through an efficient use of financial resources, and to maximise revenues gained from emissions reductions above and beyond NDC targets (while not placing undue risk on achieving those targets).

Lao PDRs recent suspension of REDD+ [18] carbon project approvals indicates government acknowledgement of this need, and is in line with other countries recent moves to suspend VCM trades ahead of putting carbon market regulation in place.

Discussions with government indicate that coordination across ministries regarding carbon market activities is currently lacking. In fact:

- The **Department of Climate Change** (DCC) of the **Ministry of Natural Resources and Energy** (MONRE) is in charge of carbon markets in Lao PDR. However, there is not currently a whole of government strategy for carbon markets. Furthermore, at present there is no requirement for projects planning to participate in carbon markets to notify the DCC, as a result the department is often not aware of projects until relatively late in the project development process.

- **Project developers** interested in developing carbon market projects have tended to approach line ministries (Ministry of Energy and Mines for energy projects and Ministry of Agriculture and Forestry for forestry projects). Line ministries have very limited knowledge of carbon markets and what is necessary to participate in these. Furthermore, lack of inter-ministerial coordination means line ministries typically do not communicate with the DCC when approached.

- A **registry** for issuing and tracking carbon units is required to support management of this process. DCC have set up a team for this, however there is currently very limited capacity and initially there will be a reliance on expert assistance as capacity is built.

A coherent national strategy for carbon markets and clear institutional arrangements are needed to ensure efficient use of this source of funding. **Based on the information provided in this chapter, the following list of proposed priority actions for has been identified**:

- Clearly define institutional arrangements including defining government roles and authority in carbon markets policy coordination, implementation, monitoring and oversight.

- Assess mitigation actions to determine which are essential for achieving Lao PDRs own NDC, and which are surplus to requirement for achieving Lao PDR's own NDC and can be traded with corresponding adjustment. This should be include a review of the expected cost of each measure.

- Develop a high level cross sectoral carbon markets strategy. This strategy should be informed by the review of mitigation actions to determine which actions are suitable for participation in the various carbon markets (and/or RBCF).

- Determine a process for providing government approval of corresponding adjustments for Article 6 trades.

[18] Although not a market based form of funding, additionality considerations mean that projects receiving REDD+ and other forms of RBCF may not be eligible to also generate carbon units and therefore must be considered when deciding on a framework for carbon market participation. Source: World Bank. 2021. Lao PDR signs agreement to protect forests and reduce carbon emissions.

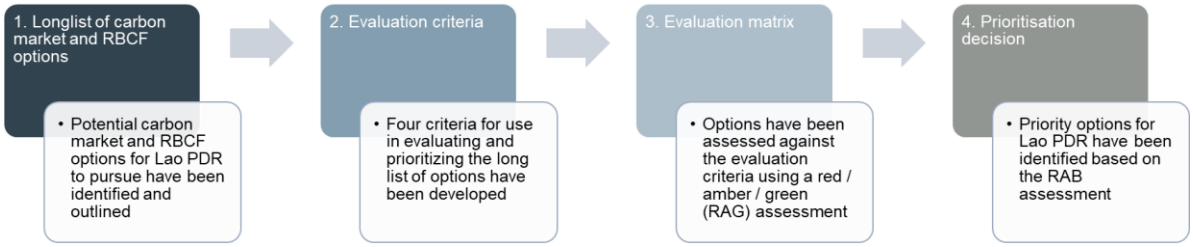
The following chapters provide a strategy for implementing these actions by:

- Assessing which carbon markets and RBCF are likely the most appropriate for Lao PDR to target for funding.
- Outline a roadmap of actions for developing a coherent strategy and implementing strong institutional arrangements.

5 Recommended focus areas for Lao PDR

Ahead of preparing a strategy for participation in carbon markets, Lao PDR must identify which carbon markets (and / or RBCF) to target. Figure 14 illustrates the process that has been used to identify priority carbon market (and / or RBCF) opportunities for Lao PDR.

Figure 14 Process for identifying priority areas



First, based off the review of presented in the previous chapter four carbon market and RBCF have been identified as options for prioritization in Lao PDR.

1. **Domestic compliance or voluntary regime supported by crediting** - Lao PDR would establish a domestic voluntary carbon market (perhaps leveraging international crediting methodologies) with the potential for this to develop into and provide offsets in a future compliance market such as an emissions trading scheme or carbon tax.

   Carbon units issued through the scheme would be sold to voluntary buyers looking to offset emissions and achieve corporate decarbonisation targets, and might also be sold through Article 6.

2. **Focus on sales through international market mechanisms** - Lao PDR would focus on developing projects for generating internationally recognised carbon units through an independent mechanism such as Verra or Gold Standard. Sales would be made predominantly to international corporate buyers.

3. **Sales through Article 6(2)** - Negotiating agreements to sell carbon units to support the climate targets of another Paris Agreement signatory country. This is presumed to be undertaken through Article 6(2) given the lack of details regarding the form of Article 6(4) at present.

   Corresponding adjustments would be applied to Lao PDR's NDC for all carbon units sold, and therefore sales through Article 6(2) can only be made for mitigation from actions additional to those needed to achieve Lao PDR's own NDC

4. **Results-based climate financing** - Lao PDR to continue engaging in RBCF including REDD+ projects and seek to expand to other sectors.

Secondly, four criteria have been identified for assessing carbon markets and RBCF options for Lao PDR.

1. **Maximising revenues** - Maximising revenues enables Laos to maximise its sustainable development initiatives, achieve its NDC targets for cost-

effectiveness, accelerate renewable energy uptake, and intensify other decarbonisation activities.

Maximising revenues has two key objectives: (1) supporting the achievement of Lao PDRs NDC by accessing funding through mechanisms that do not require corresponding adjustments, (2) collection of revenue from surplus emissions not needed to meet NDC targets that can then be used to support other policy objectives as outlined above.

Lao PDR has formalised the use of revenues from forestry carbon units in the Law of Forestry 2021 which requires a share of revenues collected through forest carbon units be allocated to the Forestry Protection Fund.

2. **Capacity requirements on Lao PDR's institutions** - As a lower middle-income country with a relatively small population, Laos' institutions are correspondingly capacity constrained.

   Routes to imposing and availing carbon market opportunities must therefore place reasonable expectations on the ability to develop the necessary capacity domestically.

3. **Policy alignment and achieving co-benefits** - Carbon market participation can complement, overlap, or conflict with other policy initiatives. Complementarity can be achieved through co-benefits derived from support for given projects, helping meet strategic targets and goals beyond carbon reduction and facilitate stakeholder and public support.

   In particular carbon market participation can complement or conflict with NDC target achievement. While carbon markets can provide funding to support mitigation activities, the sale of carbon units that require a corresponding adjustment can present a risk to achievement of targets.

4. **Minimizing risk** - Projected benefits from carbon market participation (both direct and indirect) may be uncertain and contingent upon successful completion of challenging preparatory activities, on the development of suitable legislation and procedures (both domestic and international), and wider market dynamics. Furthermore, there is ongoing uncertainty about future requirements for trade of carbon units, e.g. whether corresponding adjustments will become required for VCM trades.

   Such uncertainty can place a risk on project developers in terms of expected revenues from carbon unit sales and requirements for market participation, as well as place risk on the government in terms of achieving NDC targets.

Based on the criteria, the Red/ Amber/ Green assessment of options shown in Table 4 was carried out, which suggests that Lao PDR should look to access funding from several markets. The evaluation indicates that:

- *To the extent surplus reductions beyond the NDC unconditional target are plausible*, **Option 3: Sales through Article 6(2)** represent the recommended priority route for Laos to explore revenue potential carbon markets.

- Where mitigation actions are determined to be essential to implementing Lao PDR's NDC unconditional commitments, **Option 2: Sales to international voluntary market mechanisms** may be a source of finance, however in the future VCM trade may require corresponding adjustments in which case this would no longer be suitable.

Table 4 RAG assessment

	Option 1: Domestic compliance or voluntary regime supported by crediting	Option 2: Focus on sales through international voluntary market mechanisms	Option 3: Sales through Article 6(2)	Option 4: Results-based climate financing
Maximizing revenues	It is expected to be difficult for Lao PDR to implement a domestic compliance market demanding a high price of carbon such that offsets sold to obligated parties in that market may command strong revenues. Voluntary demand from corporate buyers within Laos will be very thin and insufficient to drive significant activity. While early work looking at a carbon tax in Lao PDR is underway, significant background work and economic development needs to occur before a carbon tax becomes feasible in the country.	International voluntary carbon markets are well established and Lao PDR's focus on LULUCF credits may be considered attractive. Nevertheless, prices have declined in recent years and are substantially below those driven by some compliance markets. Furthermore, concerns on additionality limit types of project for generating offsets.	Future revenue potential from Article 6(2) is highly uncertain given the small number of agreements to date. However, given demand is supported by the imperative to meet national obligations (and overseas domestic compliance markets where these are linked) a higher willingness-to-pay may be expected. This is supported by Switzerland's initial deals having been quoted at an average of $23.50/tCO2. However, buyers may have reservations about forestry credits due to permanence issues.	Revenue potential is high, with PCPF participation amounting to USD 42 million in results-based payments. However, recent pushback on impact of REDD+ projects has also led the government to suspend credit approvals.
Capacity requirements on Lao PDR institutions	Developing a domestic scheme would require substantial capacity to develop the necessary legislation, processes, and MRV systems,	Processes are well established by international providers and do not require domestic legislation or regulation.	Will require government-to-government negotiation and corresponding agreement with project developers regarding MRV requirements.	Lao PDR has already performed well in PCPF REDD+ Readiness process from 2014 to 2022.

	as well as supporting analysis and stakeholder engagement.			
Policy alignment and co-benefits	A domestic scheme may be crafted to encourage projects that deliver co-benefits aligned to wider policy objectives (possibly at expense of complexity) but this could be limited by lack of willing buyers.	While international voluntary market buyers will value projects that bring co-benefits, these may not align with goals of Lao PDR government. Project eligibility may also be more restricted.	The very significant conditional reductions potential from the LULUCF sector within Lao PDR's NDC aligns well with this approach assuming the unconditional trajectory is taken as baseline against which abatement is considered to be additional to the NDC.	The very significant conditional reductions potential from the LULUCF sector within Lao PDR's NDC aligns well with this approach assuming the unconditional trajectory be taken as baseline.
Minimising risk	A domestic scheme provides the Government of Lao PDRs full control over the process, eligibility, and price setting.	Future demand (and therefore price offered) for voluntary credits is uncertain as is the eligibility of different project types. Future application of corresponding adjustments not to VCM trades is certain.	The future evolution of and interest in use of Article 6 mechanisms under the Paris Agreement and the price and other terms buyers will offer remain uncertain. Increases risk on NDC achievement.	Payments in advance can lead to non-performance risk, especially in contexts of poor subnational regions or socioeconomic groups. Challenge is to define responsibility for under- or non-performance.

Key	Well aligned with criteria	Moderately aligned with criteria	Not aligned with criteria

6 Priority actions

There are six priority actions for Lao PDR to take to maximize potential benefits for the country from carbon markets, summaries in Table 5.

Table 5 Priority actions for Lao PDR

Set up an institutional and regulatory governance framework	Lao PDR must set up legal, policy and institutional frameworks and processes for oversight, implementation and planning of carbon market participation.
Assess which mitigation actions are essential for NDC achievement	Analysis of possible mitigation actions that could be supported through carbon markets or RBCF must first be conducted to identify which are essential for the achievement of Lao PDR's NDC and should therefore not be supported through Article 6 trade which would require corresponding adjustments for emissions traded. Emphasis should be placed on the LULUCF sector given the significant difference in the conditional and unconditional targets for this sector. Consideration of additionality and which additionality criteria different mitigation actions are likely to meet should be included in this analysis to help determine suitable markets for supporting each action.
Assess potential for surplus reductions as against NDC targets	Drawing on the results from the above action, the potential for emissions reduction measures that yield reductions above and beyond Lao PDR's own NDC targets should be assessed. These measures could then be targeted for funding through Article 6 trade. Consideration of additionality and whether mitigation actions can be supported through Article 6 trade, as well as identifying whether that trade should be through Article 6(2) or Article 6(4) should be included I this assessment. Given the lack of clarity at present regarding Article 6(4), it is recommended that Lao PDR focus efforts on identifying opportunities through Article 6(2). However, once more detail become available regarding Article 6(4) Lao PDR could shift some focus to participating in that market ahead of it becoming fully effective.
Develop Article 6(2) offering and corresponding adjustment process	Laos authorities should assess the mitigation project pipeline and identify projects considered most suited to support through Article 6(2) trading. This may be done in an iterative process in conjunction with seeking preliminary talks with international partners to understand their objectives and areas of specific interest. Given the sales prices of carbon units traded under Article 6(2) are expected to be high relative to VCM, mitigation cost should be included as a criterion for assessment with higher cost mitigation activities targeting Article 6(2).
Define a process for authorizing Article 6 Corresponding Adjustments	To implement the findings and process outlined above, a process must be defined for authorising projects for approval for corresponding adjustments.

Set up an institutional and regulatory governance framework	Lao PDR must set up legal, policy and institutional frameworks and processes for oversight, implementation and planning of carbon market participation.
Create a process for benefit sharing	The 9th National Socio-Economic Development Plan (NSEDP) Financing Strategy (2023-2025) and the National Green Growth Strategy of the Lao DR till 2030 mention ambition to increase incomes from carbon units. The Law on Forestry 2021 legislates that a share of revenue collected through forest carbon units shall be allocated to the Forestry Protection Fund. An equitable and transparent strategy for revenue sharing and use of revenues from carbon markets will have to be defined. Furthermore, a system for collection and monitoring of revenue collection will have to be established.

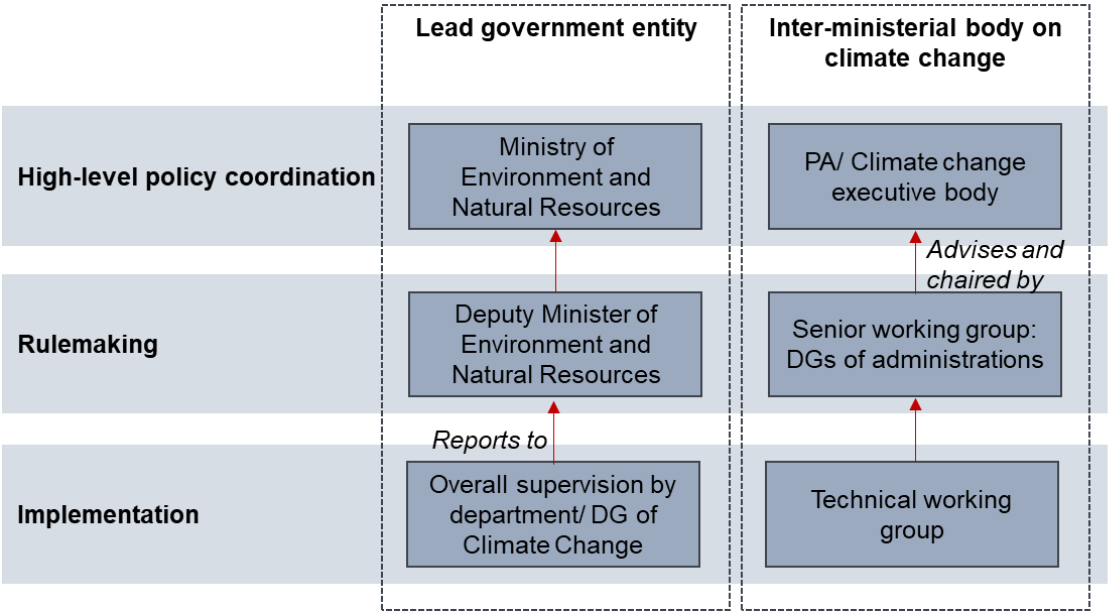
As an initial step, the Government of Lao PDR must define an **institutional and regulatory governance framework**. A clear legal framework, policy direction, and assignment of institutional responsibility must be established to ensure effective participation in carbon markets. A decree on carbon markets is currently in draft form. Based on a review of an early version of this draft, the following concerns have been noted:

- The decree does not distinguish between voluntary carbon markets and compliance (Article 6) markets. This leads to it imposing what appears to be an excessive regulatory burden on VCM projects.
- A proposed two-step process for obtaining approvals for projects, first from the sector ministry and then from MONRE, does not appear necessary. This increases administrative requirements and costs, and also imposes significant risks of delay.
- The draft approvals process appears to require developers to demonstrate the viability of their projects (in the same way as, for example, an investment project such as a new power plant). This appears unnecessary. The main concern for government is that new carbon market projects do not undermine the ability of Lao PDR to achieve its NDC and that they deliver on other legal requirements.
- If there are doubts about the viability of some projects and the knock-on impacts on the credibility of other carbon market projects in Lao PDR, these could be addressed by requiring projects to be certified using mechanisms (and methodologies) approved by MONRE.
- It is not clear why government needs to conduct technical inspections of the carbon market projects as proposed in the draft reviewed, as this would also be done by the independent verification agents appointed for the project.

It is recommended that institutional responsibility be allocated per the recommendations of the GGGI. These arrangements are outlined in the righthand figure. In addition, it is recommended that it should become a legal requirement for all projects earning revenue associated with emissions reductions to register with the DCC. To support this oversight, there is a need to

assign responsibility to a chosen entity to implement and manage accounting infrastructure such as a data management system or transaction registry.

Figure 15 Proposed institutional responsibility



Source: GGGI. Article 6 carbon markets framework assessment.

There is not currently an overarching policy document for prioritization of carbon markets. Such a strategy should be produced by the DCC. Actions 2, 3, and 4 in Table 5 outline the steps that can contribute to the formulation of such a policy.

The government must **assess which mitigation actions are essential for NDC achievement**. Identification of which mitigation actions are essential to NDC achievement is critical because mitigation associated with these actions must not be traded in a manner that requires corresponding adjustment. A range of high-level actions have been outlined in Lao PDR's NDC, some under the unconditional target and other under the conditional target. Assessment of these actions and other potential mitigation actions that might be supported through carbon markets or RBCF should be done to compile a list of actions that are suitable for participation in carbon markets but are essential for achieving the NDC. These actions should not be supported through markets that require corresponding adjustment but might target VCM or RBCF to support implementation.

An important consideration will be how the conditional and unconditional targets are treated with respect to Article 6 trades, in particular Lao PDR will need to decide if it is willing to sell ITMOs for actions included in the conditional part of the NDC and therefore make less progress towards the conditional element of the target.

Lack of clarity between conditional and unconditional measures enhances the risk of overselling carbon units and could compromise the achievement of NDC. In addition, Lao PDR should avoid selling low-cost mitigation outcomes (MOs). This could compromise NDC achievement if remaining mitigation opportunities turn out to be too expensive.

Third, it must **assess potential for surplus reductions as against NDC targets**. Based on the definition of the conditional NDC mitigation measures, it will be possible for Lao PDR to define a list of activities that are not needed for use towards Lao PDR's own NDC and might become eligible for authorizing creation of ITMOs for trade through Article 6. In particular

assess the potential for LULUCF measures that yield reductions above and beyond Laos' own NDC. Sensitivity testing of the reduction trajectories provided by the NDC and in the forthcoming LT-LEDS will help understand the risk to Laos meeting its own commitments.

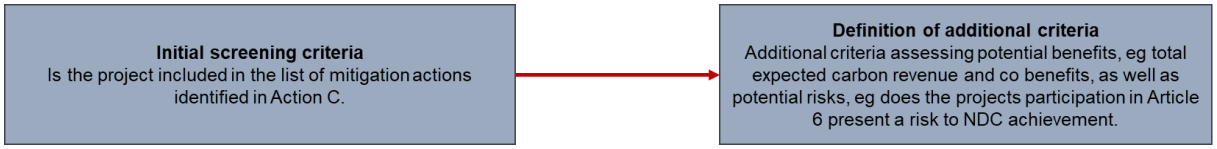
Fourth, Laos authorities should **develop Article 6(2) offering and corresponding adjustment process**. Once the second and third points have identified which actions are suitable for Article 6, VCM, and RBCF; specific projects appropriate for participating should be identified and a process for implementation developed.

An iterative process might take place involving government stakeholders engaging with international partners to understand their objectives and areas of specific interest.

A project selection process or explicit tendering approach could be developed for selecting projects for implementing mitigation actions that are expected to generation carbon units for Article 6 sale based off predefined criteria.

Fifth, the government should **define a process for authorizing Article 6 corresponding adjustments**. This could be made up of two components, an initial screening criteria and the definition of additional requirements, as illustrated below.

Figure 16 Process for authorising Article 6 corresponding adjustments



Finally, the government should **create a process for benefit sharing**. The 9th National Socio-Economic Development Plan (NSEDP) Financing Strategy (2023-2025) and the National Green Growth Strategy of the Lao DR till 2030 mention ambition to increase incomes from carbon units. The Law on Forestry 2021 legislates that a share of revenue collected through forest carbon units shall be allocated to the Forestry Protection Fund.

An equitable and transparent strategy for revenue sharing and use of revenues from carbon markets will have to be defined. Furthermore, a system for collection and monitoring of revenue collection will have to be established. Co-benefits can be important to ensure buy-in from domestic stakeholders and international partners. Examples of what co benefits might include are listed below:

- **Educational co-benefits**: Training and upskilling of the local work force on operation of new technologies and practices
- **Environmental co-benefits**: Reduction of local and household pollution related to both GHG and non-GHGs; Biodiversity conservation
- **Economic co-benefits**: Participation of marginalized communities in the economy; enhancing sources of revenues for local communities
- **Social co-benefits**: promoting gender equality

Across all of the above priority actions, Lao PDR is likely to have gaps in capacity and technical expertise. International support to build capacity and provide technical assistance will likely be important for successful implementation.