Principles for Designing a Coordinated Carbon Market Development Strategy

Abstract

This is a technical working paper, which defines principles to guide how each of the distinct carbon markets can be applied in coordination to efficiently mobilise climate finance and drive national outcomes

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Table of Contents

Principles For Designing a Coordinated Carbon Market Development Strategy

These principles guide coordinated carbon market development across Indonesia's voluntary, domestic compliance and international compliance schemes. A coordinated approach encourages how each scheme can reinforce each other by directing finance to high-impact mitigation, reducing NDC costs, safeguarding sustainable development and strengthening investor confidence. These considerations are critical to realising the potential value from carbon markets while advancing Indonesia's social, environmental, and economic development goals.

Principles		Outcomes
Unlock flows for Indonesia's green, resilient and inclusive growth		
Mobilise finance for Indonesia's low-carbon transition		
	1 Leverage Indonesia's high-integrity mitigation potential to mobilise climate finance.	A portfolio of high-integrity mitigation activities is advanced, reflecting Indonesia's socioeconomic, natural capital and decarbonisation investment opportunities.
	2 Prioritise climate action that promotes just transition, economic diversification and community empowerment with robust environmental and social safeguards.	Mitigation activities promoting sustainable development are financed, whilst mitigating social and environmental risks.
	3 Ensure compliance participation is based on defined emissions thresholds and allows offsetting with sufficient guardrails.	An integrated compliance market can ensure that regulatory pressure is aligned to emissions responsibility and offset eligibility can support the domestic carbon market.
	4 Ensure no double counting of reductions or removals.	Double-counting is avoided with clear accounting boundaries between domestic and international compliance and voluntary schemes.
Find the right mix to unlock finance flows for domestic NDC claims and exporting mitigation outcomes		
Signal a credible NDC achievement path to the market		
	5 Signal a high-integrity Paris-aligned NDC with implementable sectoral investment plans as a foundation for well-functioning markets.	Sectoral investment plans are implemented to meet an ambitious NDC target with buffer, signalling confidence in Indonesia's compliance market pathway.
	6 Prioritise high-feasibility mitigation activities and market competitiveness for Indonesia's products.	Compliance and voluntary schemes are guided toward mitigation options that are capable of delivering timely, reliable and scalable climate outcomes, and support Indonesia's market competitiveness.
	7 Balance cost-effectiveness and development priorities for NDC pathways.	Indonesia's most cost-effective and feasible abatement options are prioritised for NDCs, whilst ensuring economy-wide and equitable transition is achieved.
Leverage Article 6 to unlock int'l finance		
	8 Capitalise on international compliance demand with Article 6 to make low-carbon projects financially viable.	Indonesia's Article 6 strategy can leverage international compliance demands to make high-integrity mitigation activities financially viable.
	9 Embed a conservative approach for applying corresponding adjustments to avoid over-selling mitigation.	Conservative practices are integrated into the Article 6 strategy, such as including an obligation to sell to the domestic market and using an NDC buffer for identifying eligible activities.
Prioritise low-carbon investments that have a cascading effect across Indonesia's economy		
Prioritise high-leverage activities for allocation		
	10 Prioritise quick-wins in technological and nature-based solutions that unlock positive externalities across sectors and advance outcomes for nature, adaptation and resilience.	High-leverage and quickly implementable activities are prioritised in pipeline building to unlock wider abatement potential, benefits to nature, adaptation and resilience.

Please refer to the accompanying whitepaper for elaboration, proposed methods and key considerations for each principle.

Executive Summary

Indonesia has a unique opportunity to design a carbon market system that mobilises finance at scale, protects national decarbonisation goals, and strengthens trade competitiveness. This technical working paper outlines key principles to guide the Government of Indonesia in strategically defining the scope of each carbon market to align low-carbon investment opportunities to the most suitable financing channels.

The approach aims to align the development of domestic compliance, international compliance, and voluntary markets so they work in synergy and unlock positive spillover effects. These recommendations were developed through stakeholder engagement with key government actors and international organizations to input global best practices of high-integrity markets, tailored to Indonesia's unique development and environmental context. The outcome of these principles is a coordinated carbon market development strategy. Without such coordination, markets risk becoming fragmented, investor confidence could erode, and long-term climate outcomes may weaken.

To apply the principles consistently, three concepts are defined:

- **High-integrity mitigation activities**

  Activities that have a high probability of delivering the required number of emissions reductions and removals once the project has been implemented. Factors for determining high-integrity include mitigation activities that deliver emissions reductions and removals that: can be effectively governed, have a high-level of permanence, are quantifiable, deliver positive sustainable development impacts, avoiding locking-in levels of greenhouse gas emissions (GHGs).

- **Risks**

  Project development risks refer to the ability of the project to be implemented and implemented on time. Factors for determining the risk of mitigation activities: stakeholder readiness (includes political economy and social factors), (includes regulatory factors) and technological risks. High development risks are distinct from "low integrity" as the former is concerned with the risks of project implementation and development on time, whereas the latter is concerned with delivery of emissions reductions/ removals (once the project has been implemented).

- **Costs**

  Total project development costs are defined as not only the costs borne by the project developer but also borne by the jurisdiction. Costs should not only include the capital and operational expenditures of the mitigation activity but also the costs related to the operation and administration of certification, issuance and required monitoring, reporting and verification (MRV) of the emissions reduction and removals.

Using the risk-cost approach, each carbon market type can operate within its own tolerance for risk and cost, while ensuring all activities meet high-integrity standards. This distinction clarifies the roles and functions of the three market types:

Voluntary Carbon Market (VCM)	**Description** Enables selling emissions reduction or removal credits to accelerate mitigation beyond value chains[1]	**Corporate Buyer** • Meet corporate climate commitments • Demonstrate climate leadership and values	**Seller** • Access concessional financing for mitigation projects
Domestic Compliance Market (CCM)	**Description** Requires participants to pay for emissions above a certain limit by paying for emissions allowances (ETS)[2]	**Market** • Incentivise cheapest actions are invested first, reducing total cost of NDCs **Seller** • Sell emissions allowances as a source of revenue	**Government** • Increase gov't revenue from taxes/allowance auctiuoning
Article 6 Markets	**Description** Enables the international transfer of emissions reduction or removal for international compliance and other purposes[2]	**Int' sov/ corporate buyer** • Meet int'l compliance with cheaper credits	**Seller** • Unblock concessional financing making projects bankable and access int'l technological expertise

Figure 1: Carbon markets can be categorised into VCM, CCM and Article 6 markets

Source: Systemiq Analysis

1. **Domestic compliance schemes:**

   - **Description:** Activities under these schemes are incentivised by the government through regulatory compliance, emissions trading schemes (ETS) and industrial requirement standards. Emissions reductions and removals are claimed domestically.
   - **Participants:** Participants under these schemes are domestic entities meeting domestic compliance.
   - **Appropriate Activity Types:** Low-risk, low-cost abatement options are most applicable in this scheme as these abatement options can facilitate a least-cost pathway to meet Nationally Determined Contributions (NDCs).

2. **International compliance schemes (including Article 6 markets with corresponding adjustments):**

   - **Description:** Activities under these schemes are incentivised by foreign governments or international schemes through regulatory compliance. Under these schemes, emissions reductions and removals are claimed for international compliance schemes. Examples include bilateral Article 6.2 agreements, International Maritime Organisation (IMO) fuel standards and global pricing mechanism for emissions in the shipping industry, and the International Civil Aviation Organisation's (ICAO) Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).
   - **Participants:** Participants under these schemes could be domestic or international entities meeting international compliance.
   - **Appropriate Activity Types:** Low-risk, higher-cost abatement options are most applicable in this space as these mitigation outcomes can be exported to maximise value whilst safeguarding domestic supply for meeting NDCs.

3. **Voluntary schemes**

   - **Description:** Activities under these schemes are not required by the government under compliance. Emissions reductions and removals can be claimed domestically or internationally. Examples include the voluntary carbon market, voluntary disclosure for specific economic activities and voluntary labelling for extended producer responsibility.
   - **Participants:** Participants under these schemes could be domestic or international entities making voluntary claims such as sustainability-related product/service labelling, corporate social responsibility.
   - **Appropriate Activity Types:** The scope of activities under these schemes can be inherently more flexible as it (1) can occupy the whitespace that the domestic and international compliance market isn't occupying (in the *low-risk, low-cost* and *low-risk, high-cost* segment of the national abatement portfolio); (2) can finance higher development-risk yet high-integrity abatement options; (3) can finance higher risk abatement options that over time can scale and reduce their risk-cost profile, "graduating" into domestic or international compliance schemes.

A coordinated carbon market development strategy ensures that carbon markets are clearly defined such that market mechanisms can develop efficiently, align with national priorities, and mutually reinforce each other.

Value creation channel for Indonesia			
Type	**Increases capital inflow**	**Reduces cost of abatement**	**Mitigates trade loss**
CCM	✓ Unlocks allowance auction/ tax revenue and offset financing	✓ Prioritises least cost abatement ✓ Counts towards NDCs	✓ Reduces foreign tax liability from CBAM
VCM	✓ Unlocks additional revenue stream	✓ Counts towards NDCs	
A6 (non-CA)	✓ Unlocks additional revenue stream	✓ Counts towards NDCs ✓ Technology transfer reduces abatement costs	
A6 (with CA)	✓ Unlocks additional revenue stream ✓ Int'l technical capacity building	✓ Reduces abatement costs with technology transfer	

Figure 2: The three carbon markets can unlock value for Indonesia beyond emissions reduction

Source: Systemiq Analysis

The principles below are grounded by analytical inputs to help inform the allocation of mitigation activities to distinct carbon markets through a risk-cost framework. These principles are essential for developing a coordinated carbon market strategy, but on their own are not sufficient to define final policy or guarantee implementation. The outcome of these principles can guide the formation of a coordinated and well-aligned carbon market development strategy.

Unlock flows for Indonesia's green, resilient and inclusive growth

1

Leverage Indonesia's high-integrity mitigation potential to mobilise climate finance.

A portfolio of high-integrity mitigation activities is advanced, reflecting Indonesia's socioeconomic, natural capital and decarbonisation investment opportunities.

Principle

Leverage Indonesia's high-integrity mitigation potential to mobilise climate finance.

Outcome

A portfolio of high-integrity mitigation activities is advanced, reflecting Indonesia's socioeconomic, natural capital and decarbonization investment opportunities.

- **Purpose**
  Identify emission reduction options across sectors, measure their potential and cost-effectiveness, and use this to guide investment priorities for Indonesia's low-carbon transition.
- **How**
  Several approaches could be adopted to map the national portfolio of mitigation activities, with marginal abatement cost curves (MACCs) as one of the traditional methods. MACCs can be used as a tool to visualise and rank sectoral opportunities by cost per ton avoided or removed. However, the MACC assessments should consider the socioeconomic costs to Indonesia that go beyond a simple financial costs assessment, otherwise development priorities may be overlooked. Any method that identifies the portfolio of sectoral investment options should prompt deeper questions about implementation feasibility, financing, and risks, as the simplified marginal cost ranking will naturally be different from the order of implementation in reality. The selected method should be complemented by additional tools (e.g. risk screening, sectoral roadmaps, stakeholder engagement) to ensure decisions reflect political economy realities and delivery challenges.

Key Considerations

- **MACCs are a necessary but insufficient tool.** They help identify and prioritise investment opportunities but cannot alone determine Indonesia's decarbonisation strategy due to political economy, vested interests, delivery risks and socioeconomic realities.
- **Mapping must be dynamic.** Methods should be updated regularly to reflect technology and cost changes, with outputs feeding into coordinated carbon market development.
- **The national decarbonisation portfolio must reflect Indonesia's context.** Geographic heterogeneity, socioeconomic costs, market structures, and technology licensing needs should be incorporated to capture real investment conditions. **The mapping of the investment opportunity should be integrated into national decarbonisation strategy.** Insights from the effective mapping of the decarbonisation investment opportunity can directly inform Indonesia's 2035 NDC, ensuring the opportunity set aligns with national commitments.

2

Prioritise climate action that promotes just transition, economic diversification and community empowerment with robust environmental and social safeguards.

Mitigation activities promoting sustainable development are financed, whilst mitigating social and environmental risks.

Principle

Prioritise activities with co-benefits, including for adaptation and resilience, and apply robust environmental and social safeguards.

Outcome

Mitigation activities promoting sustainable development are financed and also attract premium demand, whilst mitigating social and environmental risks.

- **Purpose**

  Embedding co-benefits and safeguards in carbon market activities ensures that mitigation not only reduces emissions but advance sustainable development (alignment to UN SDGs) and resilience objectives. By prioritising projects with positive spillovers such as poverty reduction, biodiversity conservation, and adaptation outcomes, Indonesia can maximise the value that its carbon market can bring to the economy, the environment and society. Prioritising such projects underpins ethical climate action, strengthens credibility, and positions Indonesia to attract international finance. Moreover, mitigation with strong co-benefits can also secure market premiums, helping Indonesia mobilise greater resources for its transition. By ensuring that strong "do no significant harm" safeguards are upheld, projects not only reduce the negative impact to the environment and society but also reduce potential carbon price volatility from the project as the market can react negatively to coverage revealing such negative impacts.

- **How**

  Indonesia can integrate robust safeguard standards into the design and approval of carbon projects to guarantee integrity and resilience. All mitigation activities should undergo environmental and social impact assessments aligned with best practices. Project developers should engage local stakeholders early, secure Free, Prior, and Informed Consent (FPIC), and establish grievance mechanisms to protect rights. Indonesia can also integrate alignment with UN Sustainable Development Goals and adaptation indicators within its market architecture, for instance, by promoting UN SDGs and encouraging the third-party verification and the use of globally recognised labelling schemes. These mechanisms provide credible evidence that projects deliver measurable benefits beyond carbon, enabling them to access premium markets and reinforcing Indonesia's reputation as a supplier of high-integrity credits.

Key Considerations

- **Co-benefits and safeguards for the same mitigation activities in different locations may be different due to the exposure to different local contexts.** When assessing the co-benefits of mitigation activities in the national low-carbon portfolio and the required application of safeguarding principles, it must be considered that the local context may increase the socioeconomic and environmental impacts of the mitigation activity from one location compared to another. This consideration prevents mitigation activities in different contexts being treated in the same way.
- **Environmental and social safeguards are not only essential to mitigate negative impacts from low-carbon projects but are also expected from market demand.** These safeguards are particularly important where projects directly affect livelihoods in forestry, land use, renewable energy, and peatlands.
- **Promoting mitigation with co-benefits can help Indonesia unlock international climate finance at a premium.** Projects that combine mitigation with resilience outcomes, such as nature-based solutions and decentralised renewables, provide dual dividends, strengthen market positioning and can often be priced with a significant premium.

3

Ensure compliance participation is based on defined emissions thresholds and allows offsetting with sufficient guardrails.

An integrated compliance market can ensure that regulatory pressure is aligned to emissions responsibility and offset eligibility can support the domestic carbon market.

Principle

Ensure appropriate coverage of mitigation under voluntary and compliance schemes.

Outcome

The scope of voluntary and compliance schemes is appropriately set considering the feasibility and costs of mitigation activities.

- **Purpose**
  Allocate mitigation activities across voluntary and compliance schemes in a way that enhances market integrity, creates investor confidence, and ensures broad coverage of policies and market mechanisms to incentivise investment into Indonesia's decarbonisation potential.
- **How**
  High-integrity activities should be allocated into the most suitable schemes: domestic compliance, international compliance, or voluntary schemes, based on several factors including their risk-costs profile and alignment with market demand. A risk-costs framework can guide this allocation and recognises that domestic compliance schemes will often prioritise high-feasibility and lower-cost options, international compliance schemes may provide bankability for strategic and higher-cost projects, and voluntary schemes can capitalise on domestic offerings that are competitive in the domestic and international markets.

Key Considerations

- **Risk–cost tolerances differ across voluntary and compliance schemes.** In compliance markets, failed delivery can trigger explicit financial penalties, while in voluntary schemes the main risk lies in reputational and integrity impacts.
- **Allocations must be regularly reassessed. R**eviews should reflect market demand, policy evolution, and Indonesia's shifting NDC priorities.
- **A coherent allocation strategy strengthens market architecture.** Such alignment enhances liquidity, transparency, and stakeholder confidence domestically and internationally.

4

Ensure no double counting of reductions or removals.

Double-counting is avoided with clear accounting boundaries between domestic and international compliance and voluntary schemes.

Principle

Ensure no double counting of reductions or removals.

Outcome

Environmental integrity is safeguarded through clear accounting boundaries between domestic, international compliance and voluntary schemes, with overlap prevented.

- **Purpose**
  Establish a transparent accounting framework that ensures each tonne of emission reduction or removal is only credited once, preserving the credibility of Indonesia's carbon market.
- **How**
  Clear and distinct registries, tracking systems, and governance arrangements should be maintained to differentiate reductions and removals allocated to domestic compliance from those transferred internationally. Coordination with international standards is essential to maintain credibility, and interoperability with independent and international registries must be robust enough to prevent double-counting. The risk-costs framework referenced in the following principles can also support the mapping of mitigation activities to distinct markets, further reducing the risk of double-counting.

Key Considerations

- **Clear boundaries must be established between schemes.** Domestic and international compliance systems should operate with distinct and transparent allocation rules to avoid overlap.
- **Market confidence depends on integrity.** Credible separation of reductions and removals underpins investor trust and ensures that climate finance flows are not undermined.

Find the right mix to unlock finance flows for domestic NDC claims and exporting mitigation outcomes

5

Signal a high-integrity Paris-aligned NDC with implementable sectoral investment plans as a foundation for well-functioning markets.

Sectoral investment plans are implemented to meet an ambitious NDC target with buffer, signalling confidence in Indonesia's compliance market pathway.

Principle

Signal credible NDC achievement pathway as a foundation for well-functioning markets.

Outcome

Credible sectoral investment plans are demonstrated to meet unconditional NDC targets with buffer, signaling confidence in Indonesia's compliance market pathway.

- **Purpose**
  Provide a clear and credible signal that Indonesia's unconditional NDC targets can be met, thereby reinforcing the legitimacy of its compliance schemes and attracting sustained investment.
- **How**
  Sectoral investment plans should be developed that collectively meet the unconditional NDC target plus a conservative buffer. These plans should demonstrate the scale, timing, and feasibility of sectoral mitigation while being transparent enough to assure domestic stakeholders and international partners of NDC credibility and ambition.

Key Considerations

- **NDC targets must be fully underpinned by sectoral plans.** Credibility is built when each sector demonstrates how its share of the target will be delivered in practice. This does not have to be developed before the national-level NDC target but must be aligned to it, in order to strengthen the robustness of the national level target.
- **A buffer enhances confidence in delivery.** Including a margin above the unconditional NDC target provides resilience against unforeseen risks or delays in implementation.
- **Transparency is critical for trust.** Investment plans should be publicly communicated and independently validated to build confidence among market participants.
- **Alignment of NDC with compliance markets strengthens market confidence in Indonesia's carbon markets.** Integrating NDC achievement with compliance schemes reinforces market functioning as it supports expectations for stable and predictable market pricing.

6

Prioritise high-feasibility mitigation activities and market competitiveness for Indonesia's products.

Compliance and voluntary schemes are guided toward mitigation options that are capable of delivering timely, reliable and scalable climate outcomes, and support Indonesia's market competitiveness.

Principle

Identify high-feasibility mitigation for compliance and market competitiveness for voluntary schemes.

Outcome

Compliance and voluntary schemes are guided toward mitigation options with strong feasibility, most capable of delivering timely, reliable, and scalable climate outcomes.

- **Purpose**
  Ground the strategy of allocating mitigation options to compliance and voluntary schemes in implementation and market realities. Screening activities against a compliance risk threshold, ensuring only high-feasibility projects are channelled into compliance schemes; and assessing market competitiveness can ensure that voluntary activities are financed by sufficient market demand.
- **How**
  Allocating mitigation activities in the national decarbonisation portfolio to compliance schemes should be screened against a feasibility-criteria that includes factors such as the political economy, regulatory, social, and technological risks. This screening helps determine which activities are realistic for meeting compliance obligations and which may not, due to barriers that delay or prevent project implementation. Identifying comparative advantages in Indonesia's domestic mitigation portfolio can help shape a market competitive VCM strategy, which can unlock domestic and international climate finance to support Indonesia's NDC pathway and green, resilient and inclusive growth.

Key Considerations

- **Market-specific compliance thresholds must be defined.** Each compliance scheme should establish acceptable levels of project risk, tailored to domestic and international contexts.
- **Screening and market competitiveness assessments must evolve with regulation and market demands.** Risk and demand assessments should be regularly updated as Indonesia's regulatory framework and market conditions change.
- **Risk tolerance differs across schemes.** Penalty severity and rules vary across compliance schemes, meaning that thresholds for what is deemed as an acceptable project risk may differ between domestic and various international compliance systems.

7

Balance cost-effectiveness and development priorities for NDC pathways.

Indonesia's most cost-effective and feasible abatement options are prioritised for NDCs, whilst ensuring economy-wide and equitable transition is achieved.

Principle

Prioritise least-cost NDC pathways.

Outcome

Indonesia's most cost-effective and feasible abatement options are prioritized for NDCs, whilst ensuring economy-wide and equitable transition is achieved.

- **Purpose**
  Prioritise a sufficient volume of low-cost mitigation potential for unconditional NDC targets to reduce the costs of meeting the national decarbonisation targets.
- **How**
  Overlay NDC requirements on the national decarbonisation portfolio to identify the least-cost and feasible options to be prioritised for domestic compliance. This ensures that participation in compliance schemes or international export does not compromise Indonesia's ability to meet its unconditional commitments.

Key Considerations

- **High-feasibility, investment-ready options should be prioritised for the NDC pathway.** Abatement options that are feasible under compliance with low project development risks should be prioritised to ensure realistic delivery of NDC commitments.
- **The NDC line may need to be recalibrated** as Indonesia updates its national targets to reflect evolving ambition and market realities.
- **Inconsistencies between NDC formulation and technical screening must be managed transparently to preserve integrity.** The NDC formulation may happen before the technical screening, but any screening and technical analysis should be consistent with the latest updates.
- **Least-cost abatement options alone cannot determine the scope of compliance schemes,** as the equitable distribution of compliance pressure (such as an explicit carbon price) across sectors and impacted groups across society is critical to ensure fairness and social legitimacy.

8

Capitalise on international compliance demand with Article 6 to make low-carbon projects financially viable.

Indonesia's Article 6 strategy can leverage international compliance demands to make high-integrity mitigation activities financially viable.

Principle

Use Article 6 to channel international finance to make low-carbon projects bankable.

Outcome

Indonesia's most cost-effective and feasible abatement options are prioritized for NDCs, whilst ensuring economy-wide and equitable transition is achieved.

- **Purpose**
  Identify and allocate mitigation activities suitable for export under Article 6 to unlock international concessional finance flows.
- **How**
  Eligible activities beyond what is required for meeting domestic NDCs can be mapped for international compliance, where a corresponding adjustment may be applied. Screening tools should be used to confirm feasibility, with Article 6 allocations informed by international demand, diplomatic relationships, financing opportunities, and the capacity limitations of the domestic compliance market.

Key Considerations

- **Robust screening is essential.** National processes should confirm Article 6 eligibility, using established frameworks to guide inclusion and avoid misallocation.
- **Demand in end-markets must be considered.** Assessments should reflect purchasing power and rules of international compliance systems that accept corresponding adjusted credits.
- **Diplomatic and financing opportunities can shape allocations.** Article 6 cooperation may be prioritised where it aligns with bilateral relations and mobilises international climate finance.
- **Domestic capacity constraints may shape Article 6 strategy.** The domestic compliance and voluntary market may not have sufficient capacity to fully mobilise the required investment in Indonesia's low-carbon transition and Article 6 may be leveraged to address this finance gap.

9

Embed a conservative approach for applying corresponding adjustments to avoid over-selling mitigation.

Conservative practices are integrated into the Article 6 strategy, such as including an obligation to sell to the domestic market and using an NDC buffer for identifying eligible activities.

Principle

Embed a conservative approach in the Article 6 strategy to avoid over-selling mitigation.

Outcome

Conservative practices are integrated into the Article 6 strategy, such as CA fees at an appropriate price point and using an NDC buffer for identifying eligible activities.

- **Purpose**
  Safeguard national decarbonisation goals by ensuring Article 6 activities are defined conservatively, with buffers in place to protect unconditional NDC delivery and future flexibility.
- **How**
  The positive list of Article 6 activities should be developed only after confirming that NDC targets with a conservative buffer can be credibly met. Eligible activities should be clearly distinguished from those needed for domestic compliance and regularly reviewed to ensure consistency with evolving NDC commitments. Conservative approaches can include quantitative NDC buffers, phased authorisation, reserve pools and CA fees.

Key Considerations

- **Positive lists must remain dynamic.** Regular updates are required to reflect changes in technology, costs, market conditions, and Indonesia's national targets.
- **Over-selling mitigation outcomes undermines integrity.** Allocating too many activities to Article 6 risks shortfalls in NDC achievement and may weaken international trust.

Prioritise low-carbon investments that have a cascading effect across Indonesia's economy

10

Prioritise quick-wins in technological and nature-based solutions that unlock positive externalities across sectors and advance outcomes for nature, adaptation and resilience.

High-leverage and quickly implementable activities are prioritised in pipeline building to unlock wider abatement potential, benefits to nature, adaptation and resilience.

Principle

Prioritise quick-wins and activities that unlock positive externalities for other mitigation activities, nature, adaptation and resilience.

Outcome

High-leverage and quickly implementable activities are prioritised in pipeline building to unlock wider abatement potential, benefits to nature, adaptation and resilience.

- **Purpose**
  Pinpoint projects that reduce risk or cost for other activities and wider system benefits ("positive spillovers"), enabling broader decarbonisation and systemic resilience. This approach recognises the dynamic interactions between mitigation activities and the wider economy, which require prioritisation beyond simple cost ranking.
- **How**
  High-leverage mitigation activities (HLMAs) should be identified through sectoral analysis and prioritised for scarce public, concessional, and private finance, given their ability to unlock wider abatement potential and reduce risks across the portfolio. Positive spillovers often arise when activities share infrastructure, productive inputs, or enabling institutions. High-leverage mitigation activities should be coupled with quick-win projects, as governments favour visible early results and pilot initiatives can serve as valuable sandboxes for market mechanisms.

Key Considerations

- **Socioeconomic implications must be accounted when identifying HLMA.** Identifying mitigation activities that can unlock wider abatement potential and benefits to nature, adaptation and resilience, should also consider the ramifications to labour markets, supply chains, and equity impacts across Indonesia's economy when this activity is encouraged.
- **Dynamic assessment is essential.** Identifying HLMAs requires considering evolving sectoral linkages, technology shifts, and implementation realities over time.

Based on these assessments, Indonesia could consider the following next steps:

- **Initiate the mapping of the Indonesia's low-carbon transition opportunity for climate investment.** Methods for such mapping may include conducting an economy-wide MACC tailored to the Indonesia socio-economic context.
- **Integrate outputs of the national low-carbon transition investment landscape into NDC planning** to ensure targets are realistic, credible, and investment-ready.
- **Pilot risk-cost allocation exercises to test the feasibility of allocating mitigation activities** under compliance and voluntary schemes.
- **Engage stakeholders across government, private sector, and international partners** to validate assumptions and enhance buy-in of the principles for developing a coordinated carbon market development strategy.

By pursuing these steps in combination, Indonesia can align carbon market policymaking with national goals, attract capital inflows, lower abatement costs, and strengthen trade resilience, while preserving its ability to meet long-term climate targets.

Purpose

2

The views and opinions expressed in this technical working paper are those of the authors and do not necessarily reflect those of the Government of Indonesia or any affiliated institutions. The paper is intended to inform policy discussions, stimulate further research, and should not be interpreted as official policy.

What content does this whitepaper cover?

This whitepaper proposes principles for charting a coordinated carbon market development strategy in Indonesia, one that is premised by defining the unique roles of three carbon market segments: domestic, international compliance, and voluntary markets.

By clearly delineating the function and boundaries of each market, the principles aim to:

- Direct domestic and international finance toward high-impact mitigation activities,
- Reduce costs of meeting Nationally Determined Contributions (NDCs),
- Mitigate potential trade loss,
- Enhance market liquidity, price signals, and investor confidence.

Defining the scope of these segments enables "coordinated development," where markets reinforce rather than undermine each other. In doing so, Indonesia can more efficiently mobilise climate finance through robust market mechanisms whilst aligning with its national and international climate goals.

Scope

This paper is designed to lay out the principles for developing a coordinated carbon market development strategy. It references analytical steps and highlights limitations but does not detail methodologies or provide a full stakeholder mapping.

It has benefited from the multiple consultation processes with key government and development partner stakeholders. Key development partners include the World Bank, the Asian Development Bank and the International Emissions Trading Association.

Why now?

- **Window of opportunity.** Indonesia's carbon markets are at an early stage, with strong government support and ongoing reforms, making this a critical moment to shape their direction.
- **Risk of fragmentation.** Without coordination, market development could become inefficient, lose credibility, and undermine climate finance flows and policy priorities.
- **Wider relevance.** While tailored to Indonesia, this roadmap also offers lessons for other emerging market economies (EMDEs) pursuing carbon markets as a tool for mobilising climate finance.

How will this paper be used?

This paper is designed to:

- Support government policymaking and strengthen inter-ministerial coordination on carbon markets.
- Facilitate dialogues between the Government, development partners, and the wider carbon markets ecosystem.
- Guide the design of practical pilots and regulatory instruments aligned to a coordinated vision.

Introduction

3

Overview:

- Carbon markets are an important set of tools for mobilising climate finance in Indonesia
- Carbon markets are commonly categorised into three market types
- Carbon market development strategy should be coordinated across markets to maximise national outcomes
- Principles can guide the design of a coordinated carbon market development strategy
- A risk-cost framework for allocating mitigation is fundamental for operationalising the Principles

Carbon markets are an important set of tools for mobilising climate finance in Indonesia

Mobilising climate finance at scale remains one of the most urgent global challenges of this decade, particularly for emerging markets. According to the Climate Policy Initiative, climate finance flows in 2023 reached approximately US$1.5-1.6 trillion globally and US$0.2 trillion in emerging markets and developing economies (EMDEs) excluding China (Bhattacharya, The State of Delivery: Progress Report of the Global Climate Finance Agenda, 2024) but this is in stark contrast to the annual requirement of US$2.4 trillion in climate and nature related investments in EMDEs (excluding China) by 2030 and the US$3.1 -3.5 trillion by 2035 (Bhattacharya, Songwe, Soueyran, & Stern, 2024).

Bridging this gap demands a diverse toolkit of financial instruments and policy mechanisms, of which carbon markets can play an important role (Parry, 2021). By placing a price on carbon and enabling result-based finance, carbon markets can channel both public and private capital towards mitigation activities, especially where other financing mechanisms fall short due to policy uncertainty, lack of bankability, or early-stage project risk. Carbon markets also have a capacity to match international demand with domestic supply of emissions reductions, which makes them particularly valuable for EMDEs like Indonesia, where scalable, cost-effective mitigation potential exists but remains underfunded.

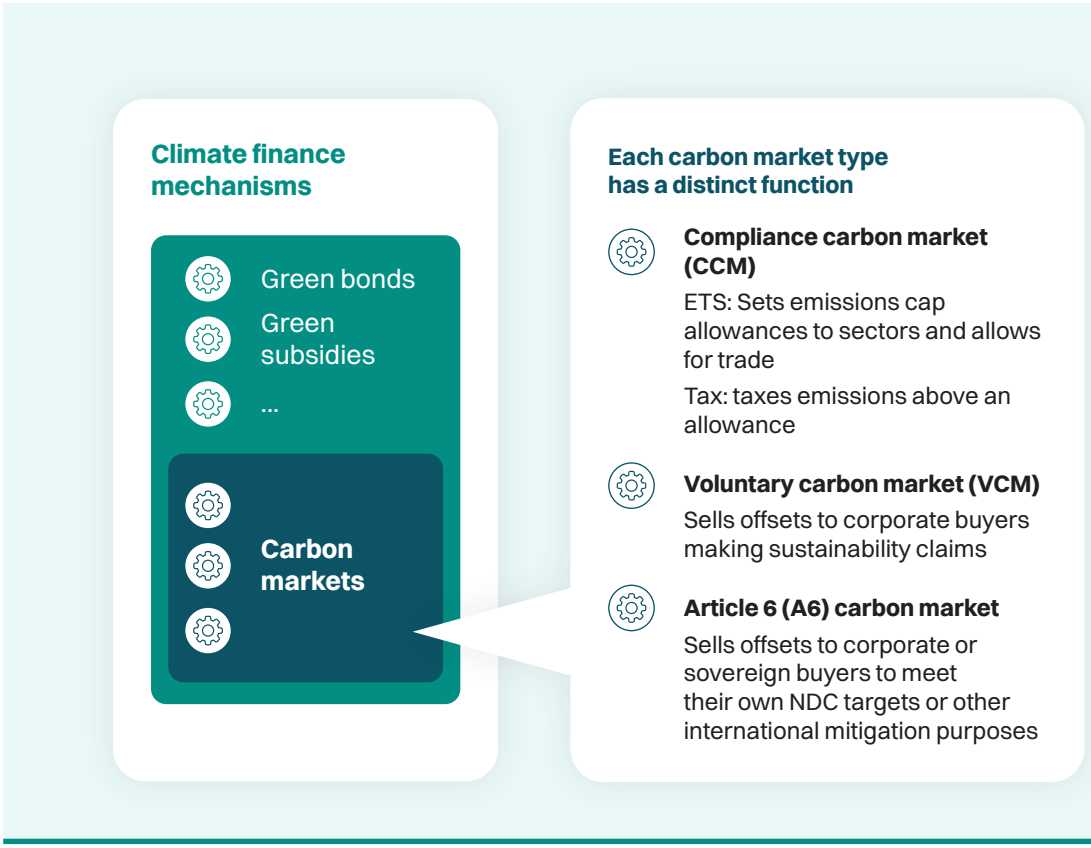
Indonesia is at a pivotal point in its development, targeting developed-economy status by 2045 as visioned on Golden Indonesia 2045 under long term planning (RPJPN), while committing to achieve net-zero by 2060 or earlier as outlined on country's LTS-LCCR. These ambitions position the country to become a rising global leader in green growth. Unlocking Indonesia's carbon markets is critical to achieving these joint development and climate ambitions.

Indonesia is actively engaged in unlocking its carbon market ecosystem, with significant potential that, if realised, would represent a major step forward for climate action, green and resilient growth, and access to international finance.
Yet the gap between current instruments and the scale of ambition required remains substantial. Early measures, including a carbon tax and a mandatory, intensity-based emissions trading scheme (ETS) were in 2023. The ETS scope includes coal-fired power plants connected to the grid of the state-owned PLN, expanding in 2024 to an additional 47 coal-fired power plants by covering installations with a capacity of 25 MW or more reaching a total approximate cap of 256.8 $MtCO_2e$ (ICAP, 2025). Over-counter-transactions averaged IDR 12,000 (USD$ 0.76) per ton for allowance trades (PTBAE-PU) and a secondary market average of IDR 58,800 (USD$ 3.66) on IDX carbon in 2024 (ICAP, 2025). In 2025, the domestic compliance scheme listed projects such as PT Pertamina's geothermal Proyek Lahendong Unit 5 & Unit 6 and PLN's PJB Muara Karang natural gas power plant in 2025 but liquidity and transaction volumes remain limited with a total volume of 273.237 tCo_2e with only 43 transactions as of January 2025 (IDX Carbon, 2025). In the voluntary carbon market, Indonesia has historically been a leading global supplier, particularly through forestry and nature-based projects such as the Katingan Mentaya peatland restoration project in Central Kalimantan and large-scale REDD+ initiatives, though international sales collapsed from a 2021 peak of 26.1$MtCO_2e$ to 1.5$MtCO_2e$ in 2023 after the 2022 VCM regulations restricted exports of carbon credits (Harsono & Lee, 2025). Despite the collapse of VCM sales, 2025 has seen new geothermal, renewable energy, and landscape projects enter the pipeline, showing continuing activity and potential for recovery if high-integrity standards are applied. On the international cooperation side, Indonesia's long-standing Joint Crediting Mechanism with Japan has supported almost 55 projects in energy efficiency, waste management, and renewables (A6IP, 2025). With JCM now preparing to apply corresponding adjustments, many of these projects could become early candidates for Article 6 transfers, offering a practical bridge between voluntary market experience and internationally regulated trade. New bilateral MOUs signed with partners such as South Korea signal momentum in building an Article 6-ready project pipeline (Antara News, 2024). Together, these efforts underscore that while Indonesia's carbon market ecosystem is still in the early stages of maturity, its breadth of activity, institutional engagement, and project pipeline give it a strong platform to attract climate finance, provided that issues such as LOA transparency, market liquidity, and integrity safeguards are effectively addressed.

Carbon markets are commonly categorised into three market types

Figure 3:
Carbon markets exist amongst other climate finance mechanisms, with each market demonstrating a distinct function

Source: Systemiq Analysis



Domestic compliance carbon markets (CCM) refer to the national or regional compliance schemes that oblige participants to reduce emissions or pay an explicit carbon price. These explicit carbon pricing mechanisms include the enforcement of a carbon tax and/or emissions trading scheme (ETS) (ICAP, 2021).

Voluntary carbon markets (VCM) are domestic and international voluntary schemes in which participants are under no formal obligation to achieve a specific target. Non-state actors including individuals, corporates, cities and regions choose to voluntarily offset their emissions to achieve mitigation targets/claims such as climate neutral, net zero emissions **Invalid source specified.**

Article 6 carbon markets (A6) in this paper refers to only the carbon credits that are sold internationally with corresponding adjustments. These are emissions reductions and removals that occur domestically but are exported internationally for the purpose of meeting a compliance or mitigation target/ claim that occurs outside the domestic jurisdiction. When Article 6 credits are sold internationally for compliance purposes (i.e. effecting a deduction in a sovereign's emissions inventory or meeting offsetting obligations from an international compliance scheme) a corresponding adjustment (CA) is applied in the domestic jurisdiction to avoid double-counting of emissions. In general, Article 6 markets include carbon credits with and without CA, known as Internationally Transferred Mitigation Outcomes (ITMO) and A6.4 Mitigation Contribution Units (A6.4MCU) respectively (Fondén & Lim, 2025). However, this paper refers to Article 6 markets as only CA credits. VCM attributes can apply to non-CA credits for the time being as their current functionality is similar (but this may be subject to change as their use cases are being defined).

Carbon markets are an effective policy mechanism for unlocking climate finance in Indonesia as these market types can unlock value through capital inflow, reducing the costs of domestic abatement and mitigating trade loss.

	Value creation channel for Indonesia		
Type	**Increases capital inflow**	**Reduces cost of abatement**	**Mitigates trade loss**
CCM	✓ Unlocks allowance auction/ tax revenue and offset financing	✓ Prioritises least cost abatement ✓ Counts towards NDCs	✓ Reduces foreign tax liability from CBAM
VCM	✓ Unlocks additional revenue stream	✓ Counts towards NDCs	
A6 (non-CA)	✓ Unlocks additional revenue stream	✓ Counts towards NDCs ✓ Technology transfer reduces abatement costs	
A6 (with CA)	✓ Unlocks additional revenue stream ✓ Int'l technical capacity building	✓ Reduces abatement costs with technology transfer	

Figure 4: The three carbon markets can unlock value for Indonesia beyond emissions reduction

Source: Systemiq Analysis

Compliance carbon markets (CCM)

Compliance carbon markets include emissions trading schemes (ETS) and/ or carbon taxes, which can both mobilise climate finance. **These markets can be used for meeting targeted climate action for NDCs.**

Compliance markets can support domestic resource mobilisation and capital inflow as these incentives: firstly, avoid draining government budgets, which other mechanisms such as subsidies may encourage; and secondly, can be a source of government revenue from carbon taxes or emissions allowance auctioning (Cayol & Monar, 2025). The effective incentivisation of sectoral decarbonisation can also promote the issuance of sustainable financial products, further bolstering capital inflow. For example, participants under compliance may choose to raise finance for such activities through a green/transition bond issuance.

These markets can also effectively incentivise decarbonisation because they encourage least cost abatement. For both of the compliance market features, a carbon tax and ETS, an opportunity cost of emissions emerges through an explicit carbon price. In other words, compliant entities either invest in emissions reduction or pay the opportunity cost: for a carbon tax, this would be the set price of emissions; for an ETS, this would be the market-determined price for emissions allowances (ICAP, 2021).

CCM can mitigate trade loss particularly for export sectors that are exposed to international border carbon adjustments (BCAs). If there is a BCA such as the EU carbon border adjustment mechanism (CBAM), EU importers will have to pay a carbon tax on goods imported accounting for the emissions related to its production outside of the EU. Cost pass-through may also occur, where the EU importers may pass the costs of the tax to its suppliers. However, if the domestic CCM has already sufficiently taxed these export sectors to an "equivalent" level depending on the BCA rules, the domestic government can seek a reduction in this tax obligation or waiver due to the fact that the corporate has already been sufficiently taxed for its emissions domestically[1] (Elder, Hopkinson, Zhou, Arino, & Matsushita, 2025). In effect, this prevents an indirect capital outflow to the EU by onshoring carbon tax revenues domestically, further prompting domestic resource mobilisation.

1. Where the domestic carbon taxation is less than the carbon price in the BCA jurisdiction, a tax obligation to the BCA jurisdiction covering the difference may be required.

Voluntary carbon markets (VCM)

Voluntary carbon markets include credits that are sold domestically and internationally. **These markets can be used for meeting targeted climate action for NDCs.**

Voluntary carbon markets unlock capital inflow as it can provide a revenue stream for projects that require financing (i.e. the notion of additionality) that either avoid emissions (against a baseline) or remove emissions from the atmosphere. Without these revenues, the mitigation activity may not occur. Moreover, in the absence of this activity, an alternative more emissions-intensive activity may result using the same asset. An example of this could be a conservation project preserving forest land (the asset), but in the absence of conservation, the land could be used for the production of forestry products.

Article 6.4 carbon credits without corresponding adjustments function similarly to voluntary credits.

Article 6 carbon markets

Article 6 carbon markets with corresponding adjustments comprise Article 6.2 markets and Article 6.4 markets. **Article 6.2 and 6.4 credits with corresponding adjustments that trade as Internationally transferred mitigation outcomes (ITMOs) cannot be counted towards the host county's NDCs** (Fondén & Lim, 2025) as it is counted towards the international compliance (such as for the buyer country's NDCs or other international mitigation purposes (OIMP) such as CORSIA (Verra, 2025)). Article 6.4 credits can be used for domestic NDCs labelled as mitigation contribution units (MCUs) or can turn into an ITMO and not used for domestic but for foreign NDCs/compliance purposes. All ITMOs have a corresponding adjustment (CA) to the host country's domestic emissions inventory to avoid double counting.

Article 6 markets with CA (ITMOs) allow for expensive mitigation activities to be financed, as foreign buyers may be incentivised to purchase up to the carbon compliance price of their own compliance scheme (if their domestic compliance allows for such international offsets). These can be considerably higher than the Indonesian marginal abatement cost required to meet NDCs. Many mitigation activities, particularly with high marginal abatement costs, require high-levels of skilled-labour or technological capacity. Article 6 activities also enable buyer countries that have project-specific technological capacity to assist with the project development of the host country.

Carbon market development strategy should be coordinated across markets to maximise national outcomes

Carbon market development strategy is about understanding how these markets can be implemented and what spaces they should occupy over time. It is fundamental that the carbon market development strategy specifies how and in what situations each of these carbon market mechanisms should be applied. As the objective of climate finance is to fund targeted mitigation activities; the spaces that each carbon market can occupy can be defined by the scope of each market (i.e. which mitigation activities it should include).

Figure 5:
Coordinated carbon market development can promote the optimal allocation of mitigation activities to the scope of each carbon market

Source: Systemiq Analysis

If optimal allocation is achieved, it can:

- Support market liquidity
- Strong carbon price signal which is gradual and rising
- Reduce the risk of incurring compliance penalties
- Support least-cost pathway to meet NDCs
- Access concessional finance for high-cost mitigation
- Unlock private finance for activities with novel tech / methodologies

If optimal allocation is NOT achieved, it can risk:

- Market illiquidity from high variance in price of abatement options
- Weak carbon price signal from price distortions and undercutting
- Incurrence of penalties due to reversal and revocation
- More expensive NDCs due to export of low-cost credits
- High-cost mitigation may not be serviced if not included in market
- Finance can't reach higher-risk projects with high impact potential

A coordinated carbon market development strategy can produce optimal outcomes that not only ensures well-functioning compliance, voluntary and Article 6 markets, but also ensures that these markets can function well together and unlock synergies – where the whole carbon market ecosystem contributes more to achieving on national priorities than the sum of its parts. Well-functioning carbon markets occur when mitigation activities within each market can be effectively financed, and there are limited distortionary effects on price and liquidity from other markets. Market synergies emerge when "positive spillovers" are unlocked. This is where the financing of high-leverage mitigation activities can make other mitigation activities more investable.

The costs of uncoordinated carbon market development have already been witnessed in Indonesia but could further jeopardise the national decarbonisation plan and fail to protect the nation's natural resources. Suboptimal assignment of mitigation activities to markets can impact market liquidity and price signalling, which are both important for investor confidence and targeted climate outcomes. For fungible credit markets such as the compliance markets, liquidity and favourable price signalling (i.e. a price signal that is stable and rising) occurs when market demand can clear the cheapest market supply first (Kinoshita, 2024). This requires a sufficient supply flow of options with a similar marginal abatement cost, so that a fluctuating demand can still result in limited price movements. Over time, as the cap tightens and the market supply stock of abatement options are cleared, the supply at a higher price point can drive a gradually rising price signal. This highlights that careful allocation and sequencing are important to maintain price stability within the market.

Principles can guide the design of a coordinated carbon market development strategy

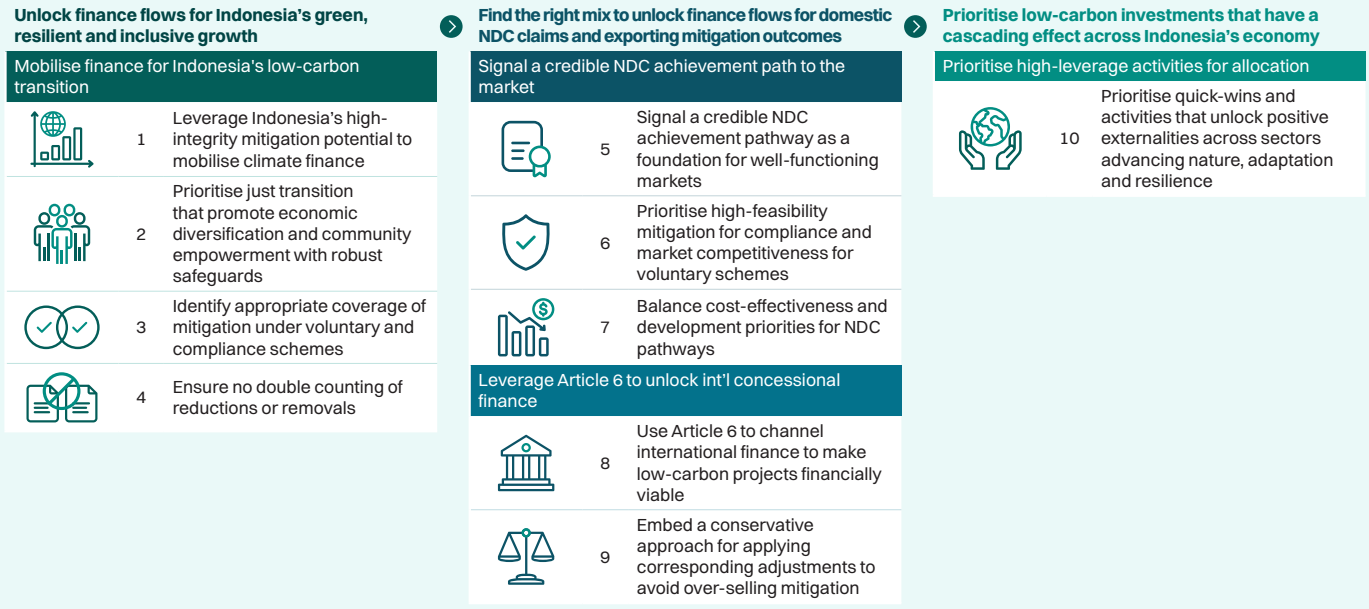


Figure 6: The principles for designing a coordinated carbon market development strategy

Designing a coordinated carbon market strategy requires high-level regulation, clear guidelines, and detailed technical legislation to establish the foundations of market infrastructure. Indonesia is at a critical inflection point where it can shape the design of its carbon markets, making the careful delineation of domestic compliance, international compliance, and voluntary schemes essential. These markets are not only a vehicle for unlocking climate finance but also for preserving natural capital, enabling socioeconomic development, and delivering a range of wider co-benefits.

Anchoring the development of carbon market systems to a set of principles ensures coherence across all layers of policy, from high-level strategy to technical rules. While coordinated carbon market development involves multiple steps and institutional components, consistent principles provide an axiomatic foundation that keeps the system aligned with Indonesia's national priorities and climate outcomes. Without such principles, there is a risk that regulation and market design evolve in a fragmented or inconsistent manner.

The principles are organised into three groups that reflect Indonesia's key carbon market priorities. The first group, *"Unlock climate finance flows for Indonesia's green growth strategy"*, covers macro-level considerations such as mapping the national decarbonisation portfolio and applying foundational principles that cut across markets. The second group, *"Find the right mix to unlock finance flows for domestic NDC claims and exporting mitigation outcomes"*, sets out how to allocate mitigation activities between domestic compliance schemes, international cooperation, and voluntary markets while ensuring credible and reliable delivery of Indonesia's NDC. The third group, *"Prioritise low-carbon investments that have a cascading effect across Indonesia's economy"*, highlights the need to prioritise high-leverage mitigation activities that deliver systemic benefits, such as reducing the risks and costs of wider abatement across sectors.

These principles are designed to anchor Indonesia's carbon market legislation and serve as a directional guide to drive practical implementation. By providing clarity and consistency, they enable Indonesia to build a market that both mobilises finance and achieves real, lasting climate outcomes.

A risk-cost framework for allocating high-integrity mitigation activities is fundamental for operationalising the *Principles*

Dimension	Factor	Description	Impact on risks-costs
Costs	Abatement amount per ton	The amount of greenhouse gases avoided or removed by the mitigation activity	A **higher** emissions abatement with a fixed cost base may entail **less** costs per ton
	MRV feasibility	The feasibility of effectively and accurately measuring, reporting, and verifying (MRV) emissions abatement	A **higher** MRV cost may mean **more** total costs for the activity
	Cost of capital	Cost of capital and access to capital markets	A **higher** cost of capital entails a **higher** cost
Risks	Stakeholder readiness	Level of willingness and preparedness of stakeholders (in)directly involved with the activity	A **higher** level of stakeholder readiness entails a **lower** risk for the activity
	Policy readiness	The extent to which a sector has policies that support the transition activity without undermining the price signal	A **higher** level of policy readiness entails a **lower** risk for the activity
	Technology risks	The novelty of the technology or historical success of the project activity	A **higher** level of technology risk entails a **higher** risk for the activity
	Methodology risks	The novelty of the methodology including the recency of its latest revision	A **higher** level of methodology risk entails a **higher** risk for the activity
	Carbon leakage	The inclusion of this activity under carbon markets leads to emissions elsewhere	A **higher** level of carbon leakage entails a **higher** risk for the activity
	Selling risks	Carbon credits sold internationally for compliance need to be globally competitive and for certain compliance chemes, lower than the buyer country/ entity's compliance price	**Non-cost competitive** carbon credits should be above the risk-threshold as it poses significant selling risks

Figure 7: Prospective factors that may be included in the assessment of risks and costs of mitigation activities

Source: Systemiq Analysis

***High-integrity mitigation activities* are activities that have a high probability of delivering the required number of emissions reductions and removals once the project has been implemented.** Factors for determining high-integrity include mitigation activities that deliver emissions reductions and removals that[2] : can be effectively governed, have a high-level of permanence, are quantifiable, deliver positive sustainable development impacts, avoiding locking-in levels of greenhouse gas emissions (GHGs). These factors are aligned with globally recognised standards for high integrity activities, particularly the Integrity Council for the Voluntary Cabron Market's (ICVCM) Core Carbon Principles.

Costs in this context refers to the total project development costs which is defined as not only the costs borne by the project developer but also borne by the jurisdiction/ governing administration. Costs should not only include the capital and operational expenditures of the mitigation activity but also the costs related to the operation and administration of certification, issuance and required monitoring, reporting and verification (MRV) of the emissions reduction and removals. Costs should include these aspects, despite being borne by different stakeholders, because the costs for meeting NDCs is the total cost to the economy.

2. High integrity mitigation activities follow parts of the ten ICVCM's Core Carbon Principles, namely *1. Effective governance, 2. Tracking, 3. Transparency, 4. Robust independent third-party verification, 6. Permanence, 7. Robust quantification of emission reductions and removals, 9. Sustainable development benefits and safeguards, 10. Contribution towards net zero transition.* Note that the following points are excluded because this is the definition of high integrity mitigation activity, not high-integrity credit: *5. Additionality* is excluded because abatement options with a negative marginal abatement cost wouldn't meet the "additionality" criteria, yet are suitable for inclusion under the domestic compliance scheme; *8. No double counting* is achieved by the implementing the whitepapers principles for coordinated carbon market development (i.e. activities are not allocated to both domestic and international compliance).

Risks in this context refers to project development risks, indicating the ability of the project to be implemented and implemented on time. These risks should also factor into the calculation of the mitigation activities cost of capital. High development risks are distinct from "low integrity" as the former is concerned with the risks of project implementation and development on time, whereas the latter is concerned with delivery of emissions reductions/removals (once the project has been implemented).

These risk categories are listed below:

- **Stakeholder readiness determines whether key actors across the mitigation value chain are aligned and capable of supporting implementation.** Successful delivery depends on more than just the project developer. It also requires readiness among sectoral ministries, data providers, subnational authorities, and private or community partners. For example, if a line ministry lacks the capacity to manage MRV data or issue sectoral guidance, then the activity's delivery and verification may be compromised. Weak institutional coordination can introduce delays, reduce data quality, or result in misreporting, all of which elevate delivery risk.
- **Policy readiness ensures that the broader policy environment supports, rather than undermines, the mitigation activity.** Even technically feasible projects may fail if prevailing policy signals are inconsistent or counterproductive. For instance, if fossil fuel subsidies persist in a sector targeted for decarbonisation, they can distort investment signals and crowd out cleaner alternatives. Similarly, overlapping or conflicting regulations may introduce legal uncertainty or reduce incentives for project developers (ICAP, 2021). A supportive policy environment is essential for reducing delivery risk, especially under compliance frameworks.
- **Technology risk reflects the maturity, appropriateness, and operational reliability of the mitigation technology.** Technologies that are not yet commercially viable, lack operational history in the Indonesian context, or depend heavily on foreign licensing and servicing arrangements are less likely to deliver emissions reductions consistently. For compliance purposes, activities should rely on proven technologies with established performance records under similar infrastructure, environmental, and institutional conditions.
- **Methodology risk captures the uncertainty associated with baseline setting, emissions quantification, and MRV.** If a mitigation activity lacks a clear, applicable, and transparent methodology, or if the existing methodology is overly complex or inconsistent, it creates uncertainty in emissions accounting. This undermines environmental integrity and creates regulatory risk for compliance systems. Only activities with robust, high-confidence methodologies should be eligible for compliance-grade crediting.
- **Carbon leakage risk reflects the potential for emissions reductions in one area to be offset by increases elsewhere.** Some mitigation activities may displace emissions rather than eliminate them through shifts in production, supply chains, or market dynamics. If not accounted for, leakage can significantly reduce or even reverse the net climate benefit of a project. Compliance schemes, especially those contributing to national or sectoral targets, must screen for and minimise leakage risk to ensure genuine emissions reductions.
- **Selling risk addresses the market viability and credit demand for a given mitigation activity.** Selling risk is particularly apparent for Indonesian offsets that are sold to international compliance markets. Even technically sound projects may fail to secure financing or implementation if the resulting credits cannot be sold or monetised due to significant selling risk. Selling risk includes credit market liquidity for the credit type, buyer preferences and cost competitivity. For example, if the Indonesian carbon credit can only be sold at a higher price than the target international market's compliance price, the result would be a decline in demand for these credits.

Principles

Unlock flows for Indonesia's green, resilient and inclusive growth

1. Leverage Indonesia's high-integrity mitigation potential to mobilise climate finance.
2. Prioritise climate action that promotes just transition, economic diversification and community empowerment with robust environmental and social safeguards.
3. Ensure compliance participation is based on defined emissions thresholds and allows offsetting with sufficient guardrails.
4. Ensure no double counting of reductions or removals.

Find the right mix to unlock finance flows for domestic NDC claims and exporting mitigation outcomes

5. Signal a high-integrity Paris-aligned NDC with implementable sectoral investment plans as a foundation for well-functioning markets.
6. Prioritise high-feasibility mitigation activities and market competitiveness for Indonesia's products.
7. Balance cost-effectiveness and development priorities for NDC pathways.
8. Capitalise on international compliance demand with Article 6 to make low-carbon projects financially viable.
9. Embed a conservative approach for applying corresponding adjustments to avoid over-selling mitigation.

Prioritise low-carbon investments that have a cascading effect across Indonesia's economy

10. Prioritise quick-wins in technological and nature-based solutions that unlock positive externalities across sectors and advance outcomes for nature, adaptation and resilience.

Unlock flows for Indonesia's green, resilient and inclusive growth

1

Leverage Indonesia's high-integrity mitigation potential to mobilise climate finance.

A portfolio of high-integrity mitigation activities is advanced, reflecting Indonesia's socioeconomic, natural capital and decarbonisation investment opportunities.

Principle

Leverage Indonesia's high-integrity mitigation potential to mobilise climate finance.

Outcome

A portfolio of high-integrity mitigation activities is advanced, reflecting Indonesia's socioeconomic, natural capital and decarbonization investment opportunities.

Purpose

Mapping Indonesia's abatement opportunities is a necessary first step to understand the total potential and relative cost-effectiveness of its decarbonisation options. A portfolio approach enables policymakers to assess where climate finance can deliver the highest returns for Indonesia's low-carbon transition. This requires identifying options across all sectors, not only to rank them in terms of cost but also to examine feasibility, risks, and system-wide implications. Mitigation options may also include nature-related projects that avoid or remove emissions, such as the avoided use or improved management of land, ocean, sea and freshwater resources including conservation and preservation efforts.

Mapping exercises provide the techno-economic foundation for subsequent steps in a coordinated carbon market strategy. Outputs support the construction of the supply curve for emissions reductions, enabling policymakers to identify abatement opportunities that minimise the cost of meeting Indonesia's Nationally Determined Contributions (NDCs). For compliance carbon markets, this informs emissions cap setting and offset eligibility criteria, ensuring that price signals align with underlying cost structures. For Article 6 markets, mapping the decarbonisation investment landscape helps to distinguish between low-cost domestic actions that may be prioritised for domestic compliance and higher-cost activities that can be monetised through international carbon transactions (The Global Green Growth Institute, 2023) (this is also addressed in *"Principle 8: Use Article 6 to channel international finance to make low-carbon projects bankable"* & *"Principle 9: Embed a conservative approach in the Article 6 strategy to avoid over-selling mitigation"*).

Mapping Indonesia's mitigation options also enables identification of high-leverage mitigation activities (HLMAs). These activities unlock broader system benefits, such as investments in grid infrastructure that reduce risks and costs for multiple downstream mitigation options. Highlighting HLMAs ensures that scarce capital is directed to the most catalytic investments (addressed in *"Principle 10: Prioritise quick-wins that unlock positive externalities for other mitigation activities, nature, adaptation and resilience"*).

How

Several approaches can be used to map Indonesia's mitigation portfolio, with marginal abatement cost curves (MACCs) serving as one common but imperfect tool. Each abatement option in the MAC curve represents a specific mitigation activity, plotted by its marginal cost of abatement on the vertical axis, typically expressed in USD or IDR per tonne of CO_2e avoided or removed, and its abatement potential on the horizontal axis (measured cumulatively on the horizontal axis). Activities with negative or low marginal costs (e.g., industrial energy efficiency, waste-to-energy) appear on the left side of the curve, while high-cost or technologically immature options (e.g., carbon capture and storage, direct air capture, green hydrogen applications) appear on the right. The methodology involves aggregating sector-specific emissions baselines, technical potentials, and cost components such as CAPEX, OPEX, and transaction costs, tailored to Indonesia-specific conditions (McKinsey & Company, 2009). While useful for visualising the techno-economic landscape, MACCs should be complemented by methods that capture implementation feasibility, political economy factors, and delivery risks.

Marginal Abatement Cost (MAC) estimation can be undertaken using three main methods that differ in their underlying assumptions and scope. A first option is the *technology cost-curve* or "bottom-up" approach, which assesses individual technologies by calculating their abatement potential and costs, then ranks them from the cheapest to the most expensive in order to construct an aggregated MAC curve (McKinsey & Company, 2009). A second approach is *model-derived*, where partial or general equilibrium models simulate the interaction of energy use, emissions, and prices; this can involve engineering-based bottom-up energy models such as MARKAL or broader economy-wide top-down models such as CGE, both of which generate an equilibrium relationship between emission levels and carbon prices (Kesicki & Ekins, 2011). A third method is *production-based*, which embeds CO_2 emissions directly within the production function of the economy and interprets abatement as a shift in resource allocation, meaning deeper reductions typically imply lower overall output; this yields estimates of the implicit or "shadow" costs of emission reductions (Du & Mao, 2015). However, each of these approaches should consider the socioeconomic costs related to each mitigation option.

While MAC analysis provides a useful techno-economic starting point, assessments in Indonesia should also integrate wider socio-economic considerations to capture development priorities alongside abatement costs. A purely financial ranking risks overlooking activities that deliver significant societal value, such as health benefits, resilience, or rural livelihoods, which are central to Indonesia's green growth strategy. This is particularly relevant in land use and forestry, which account for nearly 60% of Indonesia's mitigation potential and have complex socio-economic dimensions related to tenure, community rights, and biodiversity (Ministry of Environment and Forestry, 2023). Embedding cost-benefit and distributional analysis within MAC assessments will therefore ensure that Indonesia's investment pathway reflects both climate efficiency and national development goals.

It should be emphasised that an economy-wide MAC curve analysis may be necessary but not sufficient alone for developing a national decarbonisation and carbon markets strategy. While MAC curves serve as a foundational tool for identifying and sequencing mitigation opportunities based on relative cost-efficiency, they provide only a partial view of the conditions required to operationalise those opportunities at scale (Ekins, Kesicki, & Smith, 2011). MAC curves are a necessary tool for designing a market strategy as it can map the opportunity space for decarbonisation investment with sectoral specificity. However, they are insufficient to use in isolation because the analyses are inherently static, often excluding critical dimensions such as implementation feasibility, regulatory readiness, technological diffusion constraints, and system-level interactions across sectors (Ekins, Kesicki, & Smith, 2011). They also abstract away from transaction costs, behavioural and institutional barriers, and political economy considerations that materially affect abatement potential. Furthermore, MAC curves typically assume idealised policy and investment environments and may not reflect dynamic shifts in capital costs, carbon pricing trajectories, or evolving baseline scenarios. Therefore, while MAC curves are instrumental in informing high-level prioritisation, they must be integrated into a broader strategic framework that includes sensitivity towards implementation realities and the design of enabling policy, particularly where carbon markets are intended to play a role in aligning incentives and allocating mitigation outcomes efficiently.

Key considerations

Mapping the decarbonisation portfolio must reflect firm heterogeneity such as technology access and geographic disparities, all of which significantly influence abatement cost structures. Unlike many economies where sectoral averages can sufficiently approximate abatement potential, Indonesia's structural composition, characterised by the coexistence of large, vertically integrated conglomerates and vast numbers of small and medium-sized enterprises (SMEs), necessitates a more granular approach. Abatement costs for a given mitigation option may diverge markedly between firms depending on scale, capital intensity, and operational complexity. For instance, while a large industrial player may internalise the cost of adopting energy-efficient technologies through economies of scale, SMEs may face disproportionately higher marginal costs due to limited access to finance and technical capacity. Furthermore, certain mitigation technologies, particularly in energy, manufacturing, or transport, may involve proprietary components or technology licensing fees, which can introduce variability in cost structures based on firm size and negotiating power. Geographic heterogeneity compounds this complexity (Helmcke, Nauclér, Pendrey, & Vroman, 2025), for example, abatement options viable on Java may not be economically or logistically feasible in outer island provinces such as Maluku or Papua, where infrastructure constraints, energy access, and market connectivity remain limited. Therefore, a credible mapping for Indonesia must go beyond national averages and incorporate differentiated cost estimations that reflect institutional, technological, and spatial asymmetries in the real economy. Moreover, the mapped output of Indonesia's domestic decarbonisation portfolio should ideally be updated with a regular cadence to account for changes in the costs structure of mitigation activities.

2

Prioritise climate action that promotes just transition, economic diversification and community empowerment with robust environmental and social safeguards.

Mitigation activities promoting sustainable development are financed, whilst mitigating social and environmental risks.

Principle

Prioritise activities with co-benefits, including for adaptation and resilience, and apply robust environmental and social safeguards.

Outcome

Mitigation activities promoting sustainable development are financed and also attract premium demand, whilst mitigating social and environmental risks.

Purpose

This principle ensures that carbon market activities not only cut emissions but also advance Indonesia's sustainable development goals and climate resilience. By prioritizing mitigation projects with significant co-benefits (e.g. poverty reduction, biodiversity restoration and protection, adaptation to climate impacts) and enforcing strong "do no harm" safeguards, Indonesia can maximize positive impacts while avoiding social or environmental harms. Global frameworks across independent standards and the UNFCCC Article 6.4 mechanism now embed this approach for instance, the Article 6.4 Sustainable Development Tool (SD Tool)mandates that all projects uphold stringent social and environmental safeguards and contribute to Sustainable Development Goals (UNEPCCC, 2024). Likewise, the Integrity Council for Voluntary Carbon Markets (ICVCM) includes "sustainable development benefits and safeguards" among its Core Carbon Principles for high-quality credits (ICVCM, 2025). In short, ensuring projects deliver net-positive benefits and respect human rights underpins both ethical climate action and market credibility.

Indonesia can leverage its potential for mitigation activities with strong co-benefits to not only trigger positive systemic impacts but also to mobilise more international climate finance per ton due to the premium on certain credits with co-benefits. The recognition or labelling of credits with these additional co-benefit attributes has often been able to attract a price premium. According to Ecosystem Marketplace's 2025 State of the Voluntary Carbon Market report, in 2024, the premium for credits with at least one SDG certification increased to 71%, which was more than double the premium the year before at 29% (Procton, 2025).

How

Integrate robust safeguard standards into the design and approval of carbon projects. All mitigation activities sold as carbon projects should undergo environmental and social impact assessments aligned with international best practices. As specified across safeguarding tools (such as A6.4 SD Tool), project developers, particularly concerning the management of natural resources, should engage local stakeholders early (securing Free, Prior, and Informed Consent where applicable) and implement grievance redress mechanisms to protect community rights.

Safeguard elements		
Environmental	Element 1	Energy
	Element 2	Air, land and water
	Element 3	Ecology and natural resources
Social	Element 4	Human rights
	Element 5	Labour
	Element 6	Health and safety
	Element 7	Gender equality
	Element 8	Land acquisition and involuntary resettlement
	Element 9	Indigenous people
	Element 10	Corruption
	Element 11	Cultural heritage

Figure 8: Article 6.4 Sustainable Development Tool environmental and social safeguard elements

Source: Article 6.4 sustainable development tool (UNFCCC, 2024)

To quantify and incentivize co-benefits, projects can map contributions to the SDGs and track indicators for adaptation and resilience outcomes. Using third-party certification, frameworks and labelling that demonstrates alignment to SDGs under independent standard (such as Gold Standard's SDG Impact Tool, the CCB Standards or SD VISta under Verra) helps verify these claims.

Adaptation and resilience co-benefits are especially important for Indonesia given its acute climate vulnerabilities. With rising sea levels, extreme rainfall, and heightened disaster risks, mitigation activities that also strengthen adaptation provide double dividends. Nature-based solutions are a clear example: mangrove restoration simultaneously captures carbon and protects coastal communities from storms, floods, and erosion as referenced by the work done by community based organisation Penjaga Pulau in Lambuhan Bajo, Sumbawa West Nusa Tenggara province (UNDP, 2025). Similarly, peatland rehabilitation prevents catastrophic fires that damage health and ecosystems, while decentralized renewable energy systems improve resilience in remote communities by reducing reliance on fossil fuel imports. By prioritising projects that deliver these dual outcomes, Indonesia can use carbon markets not just as a tool for emissions reduction, but as a driver of national resilience and adaptation to climate change.

Key considerations

The co-benefits and safeguards of the same mitigation activity can vary significantly depending on the local context, and this must be factored into national carbon market planning. While a given mitigation technology or project type may appear uniform in terms of its emissions reduction potential, its socioeconomic and environmental impacts can differ widely when implemented in different regions. Local conditions such as land tenure arrangements, community dependence on natural resources, or ecosystem vulnerability may amplify either the positive spillovers or the risks associated with an activity. For instance, renewable energy projects in one province may generate strong employment and energy security co-benefits, while in another they could trigger land-use conflicts or biodiversity trade-offs. Treating such activities as if they deliver identical outcomes risks overlooking these distributional effects and may undermine both equity and environmental integrity. Incorporating local context into assessments of co-benefits and safeguards ensures that Indonesia's national low-carbon portfolio does not apply a one-size-fits-all approach, but instead reflects the differentiated realities of implementation across its diverse geography and socioeconomic landscape.

Community benefits and safeguards are paramount in Indonesia, where many mitigation opportunities directly affect local people. Forestry, peatland, renewable energy, and land-use projects all intersect with community livelihoods, and without robust safeguards, projects risk creating social harm. Indonesia's REDD+ framework already requires implementers to report evidence of compliance with Cancun safeguards through the national Safeguards Information System (MOEF, 2022). Despite a global review that found that nearly half of countries lack explicit FPIC requirements in their carbon governance frameworks, Indonesia has does have the infrastructure for national benefit-sharing and grievance redress mechanisms, displaying evidence across four of the five categories – showing that a benefit sharing mechanism and grievance redress mechanism are operational; however a minimum allocation of benefits to communities are not included (Jodoin & Robinson, 2025). For Indonesia, this means project developers must proactively uphold FPIC and equitable benefit-sharing even in the absence of binding law, ensuring that carbon finance delivers real improvements to community welfare while preventing conflict and safeguarding Indigenous rights.

3

Ensure compliance participation is based on defined emissions thresholds and allows offsetting with sufficient guardrails.

An integrated compliance market can ensure that regulatory pressure is aligned to emissions responsibility and offset eligibility can support the domestic carbon market.

Principle

Ensure appropriate coverage of mitigation under voluntary and compliance schemes.

Outcome

The scope of voluntary and compliance schemes is appropriately set considering the feasibility and costs of mitigation activities.

Purpose

Allocating mitigation activities across voluntary and compliance schemes is essential to ensure integrity, investor confidence, and broad coverage of Indonesia's decarbonisation potential. Each of the domestic compliance, international compliance and voluntary schemes have a distinct role and comparative advantage. By clearly defining which activities are suited to each, Indonesia can strengthen its overall climate market architecture, safeguard its NDC targets, and attract sustainable investment.

Guiding the allocating of mitigation activities to domestic compliance, international compliance and voluntary schemes with a risk-cost framework can enable the synergistic functioning of all three carbon market types. These synergies operate through three primary channels: (i) voluntary markets can support the phased expansion of the domestic compliance market; (ii) voluntary markets can contribute to the long-term liquidity of both domestic and international compliance markets; and (iii) Article 6-financed projects can reduce the risk-cost profiles of activities in the domestic compliance market, thereby bolstering market liquidity (See Appendix II for elaboration of these market synergies).

How

Mitigation activities should be allocated to the scheme most suited to their risk-cost profile. Compliance markets require lower-risk and lower-cost activities to avoid penalties and minimise the overall cost of meeting the NDC. International mechanisms such as Article 6 are better suited to low-risk but higher-cost activities, maximising export value while retaining low-cost potential domestically. Voluntary markets can host activities that have strong market competitiveness or are less feasible under compliance mechanisms (due to project development risks, innovative technologies etc.), providing competitive financing for mitigation that may not be suitable under compliance schemes.

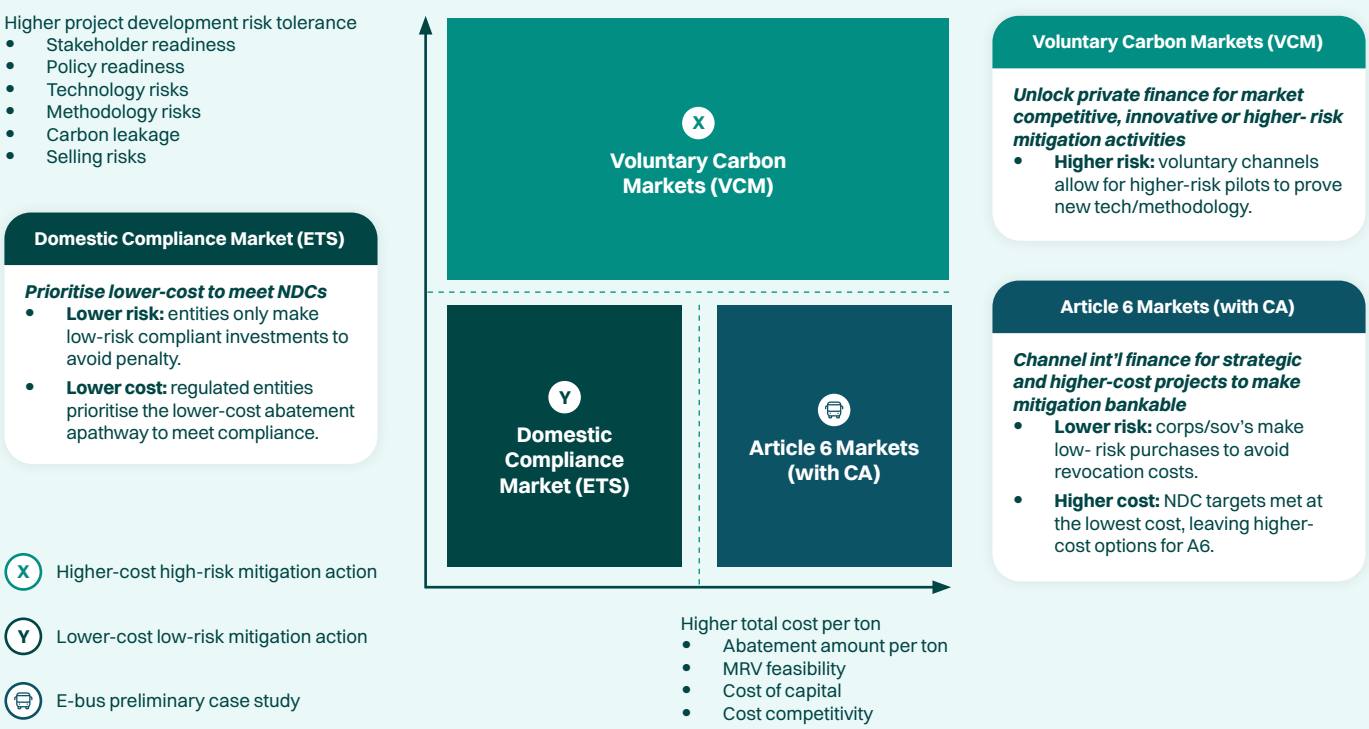


Figure 9: Distinct spaces for voluntary and compliance schemes can be mapped when defining the risk and cost tolerances of their respective participants

Source: Systemiq Analysis

Domestic compliance schemes should prioritise lower-risk, lower-cost mitigation activities to safeguard compliance integrity and minimise the cost of meeting NDC targets. Low project development risk is critical because the loss given reversal for allowances and offsets in a compliance system is high; a reversal can cause a compliance entity to unintentionally incur financial penalties despite good-faith compliance. These risks also include mitigation investments that do not yield the expected emission reduction. Lower-risk activities are additionally more attractive under compliance as low-risk typically attracts a lower cost of capital, improving the financing conditions for compliant entities undertaking capital expenditure. Prioritising lower-cost and lower-risk options reduces the overall cost burden of achieving the NDC and can improve public and political acceptability of compliance markets. Additional factors that influence the inclusion of mitigation activities under compliance schemes may also include requirements to be aligned with other international compliance schemes. Examples of alignment could be requirements to align with another emissions trading scheme (ETS) for ETS linking (ICAP, 2021); inclusion of a mitigation activity that is exposed to an impending border carbon adjustment mechanism (BCAs) such as a carbon border adjustment mechanism; and other new compliance standards required for international trade. According to a World Bank report overall trade exposure to EU CBAM is expected to be limited, but of all countries assessed, Indonesia is 10th highest exposed country to the EU CBAM, measured by total excess carbon payment (% of GDP). This is because of Indonesia trade dependency and carbon intensive production of Aluminium and fertiliser (Maliszewska, Fischer, Jung, & Chepeliev, 2025).

Article 6 cooperative approaches can focus on lower-risk but higher-cost activities that successfully meet international compliance demands, to generate export value whilst ensuring the achievement of the NDC target. Indonesia can unlock significant value by selling mitigation outcomes abroad at an appropriate and competitive price premium that successfully meets international demand. Additionally, Article 6 projects can also enable technological transfer from buyer countries to host countries – growing domestic technological capacity. The Article 6 strategy requires screening for international demand, relative marginal cost advantages, and technology transfer potential (The Global Green Growth Institute, 2023). Article 6-financed projects can also create spillovers, such as shared infrastructure for electric vehicles or renewable energy, that lower the risk–cost profile of other domestic mitigation activities (Zenobe, 2025). A careful balance needs to be attained that realises the value potential of Article 6 projects and ensuring a low-cost pathway for meeting NDCs.

Voluntary schemes can accommodate domestic offerings that are competitive in the VCM market, higher-risk and novel mitigation activities, providing a flexible channel for newer technologies and methodologies (Winrock International, 2025). Voluntary schemes have a higher risk tolerance because there is no compliance penalty, albeit reputational losses can occur from challenges to voluntary commitments. Therefore, in the VCM, credits are used as an additional revenue stream to enhance project bankability (CDM, 2012), rather than a core compliance obligation. This corresponds to a higher risk tolerance because any failure to deliver emissions reductions would impact project returns but doesn't necessarily incur a compliance penalty. This flexibility allows for the financing of activities that may experience certain feasibility barriers and that wouldn't have occurred without the additional incentive (this is emphasised in point 5 of ICVCM's Core Carbon Principles (ICVCM, 2025) called "Additionality"). High-integrity projects with higher project development risk (due to such barriers) may access finance through the VCM as entities regulated under compliance markets may be deterred from taking that risk. Priority for activities under voluntary schemes may also be given where the host country has a strong comparative advantage, enabling the creation of internationally competitive VCM offerings and strengthening its reputation in global carbon markets.

Indonesia's carbon market positioning reflects some early alignment to this prioritisation, with early experience in voluntary carbon market, a strong track record under the Joint Crediting Mechanism (JCM), and emerging interest in carbon storage. Indonesia has hosted more than 60 registered JCM projects with Japan, primarily in renewable energy, energy efficiency, and waste-to-energy sectors, which have delivered measurable emission reductions while building domestic institutional capacity (A6IP, 2025). These projects illustrate Indonesia's ability to generate high-quality mitigation outcomes that align with both domestic priorities and international demand. With the JCM now moving toward the application of corresponding adjustments, Indonesia's existing project pipeline could evolve into a first generation of Article 6.2 cooperative activities, providing a practical bridge into the new Paris Agreement mechanisms (A6IP, 2025). At the same time, Indonesia's voluntary carbon market has grown rapidly over the past decade, especially in nature-based solutions such as forestry and peatland restoration, positioning the country as one of the largest suppliers of REDD+ credits globally. Indonesia reached its record volume of VCM sales by emissions reductions, reaching 26.1MtCO_2e, which towered over other APAC countries with a combined total of 3.3Mt CO_2e from Thailand, Vietnam and Singapore in descending order (Harsono & Lee, 2025). However, this position was overtaken by Vietnam in 2023 and 2024 due to the gradually increasing Vietnamese volume and the collapse of Indonesian volume following the domestic export restrictions in 2022 (Harsono & Lee, 2025). Despite the ongoing process to the revision of these regulations, Indonesia has been advancing opportunities for regional carbon capture and storage (CCS) given its geographic position to Japan, Singapore and South Korea markets leading to a potential additional 26 MTPA capacity (AdvoCarb, 2025). In light of this commercial opportunity, ExxonMobil signed a memorandum of understanding with the Coordinating Ministry of Economic Affairs to advance CCS technology with an estimated investment of US$10 billion (Antara News, 2025). This signals growing corporate interest in Indonesia's geological storage potential, which could become a new line of high-cost mitigation activities eligible for Article 6 markets or potentially voluntary carbon market activity. By leveraging these experiences and resources, Indonesia is well placed to align with the broader trend of reserving least-cost mitigation for NDC delivery while using Article 6 for higher-cost projects and the VCM for innovative, private sector–driven activities such as engineered removals and CCS.

It is important to note that this sequencing applies to scope determination, not the order of market implementation. In practice, voluntary carbon markets can often be established and scaled more rapidly than domestic compliance markets or Article 6 frameworks, due to fewer national market infrastructure requirements and greater flexibility in project eligibility. As a result, VCM activity may begin and even expand before a domestic ETS, or international cooperation strategy is fully operational. This can be advantageous: a functioning VCM can provide government and market actors with valuable empirical insights into MRV practices, registry operations, project development cycles, and transaction processes (Wetterberg, Ellis, & Schneider, 2024). These early lessons can inform the design of compliance market infrastructure and help policymakers anticipate practical challenges in scaling regulated markets. In this way, while the sequencing of scope determination prioritises domestic compliance first, an evolving VCM can still play a critical role as a testbed and capacity-building platform in the early stages of market development.

Key Considerations

Allocations must be reassessed regularly to remain credible and adaptive. Market demand, evolving carbon prices, international policy changes (such as CBAMs), and Indonesia's own NDC priorities will shift over time, requiring periodic reallocation of activities between schemes (The Global Green Growth Institute, 2023). Without reassessment, there is a risk that markets become misaligned with Indonesia's strategic objectives, leading to inefficiency and potential double counting.

A coherent allocation strategy builds liquidity, transparency, and confidence in Indonesia's carbon markets. Clarity on the division of roles between schemes increases investor trust, prevents misallocation of low-cost options, and ensures markets reinforce rather than compete with each other. This alignment is essential to mobilise capital at scale, safeguard NDC integrity, and strengthen Indonesia's credibility internationally (Bistline, Molar-Cruz, Blanford, & Diamant, 2025).

4

Ensure no double counting of reductions or removals.

Double-counting is avoided with clear accounting boundaries between domestic and international compliance and voluntary schemes.

Principle

Ensure no double counting of reductions or removals.

Outcome

Environmental integrity is safeguarded through clear accounting boundaries between domestic and international compliance and voluntary schemes, with overlap prevented.

Purpose

The purpose of this principle is to establish a transparent accounting framework that ensures each tonne of emission reduction or removal is credited one time only, thereby preserving the credibility of Indonesia's carbon market. If the same emission reduction were claimed by multiple parties or programs, it would undermine the trust in the market's integrity (Climate Focus, 2016). Indonesia must guarantee that a carbon credit used toward its Nationally Determined Contribution (NDC) or domestic targets is not simultaneously sold or counted abroad, and vice versa. In practice, this means aligning with international rules so that any credit transferred overseas is correspondingly omitted from Indonesia's own national accounting to prevent all forms of double counting such as double issuance (issuing more than one credit for the same reduction), double claiming (two entities claiming the same reduction), or double use (using the same credit twice) (Climate Focus, 2016).

How

Clear and distinct registries, tracking systems, interoperability and governance arrangements are required to differentiate emissions reductions allocated in Indonesia's domestic compliance, international compliance and voluntary markets. In practice, Indonesia is implementing a National Registry System (SRN-PPI) to record all carbon credits and their use. Every credit is assigned a unique identifier, and its status (domestic or authorized for export) is tracked to ensure it is only counted in one context (Pradipa, 2025). Robust governance rules (such as requiring a Letter of Authorization for any internationally transferred credit) establish which credits can be sold internationally and trigger adjustments in the national inventory. Coordination with international standards is essential: under Article 6 of the Paris Agreement, if Indonesia transfers a carbon credit abroad, it must apply a Corresponding Adjustment (CA) to its greenhouse gas accounting system so that the same reduction is not counted toward Indonesia's NDC. By following this approach, Indonesia's framework makes sure that carbon units used in its own cap-and-trade or offset programs are not "re-issued" or reused in another market. Likewise, credits approved for export are transparently marked and adjusted for, preventing any leakage between the domestic registry and overseas registries. In summary, rigorous tracking, unique serial numbers for credits, transparency on LOA and CA documentation and adherence to Article 6 accounting rules together can reduce the risk of double counting of emission reductions. This includes reducing the risk of a credit being duplicated or an emission reduction being claimed.

Find the right mix to unlock finance flows for domestic NDC claims and exporting mitigation outcomes

5

Signal a high-integrity Paris-aligned NDC with implementable sectoral investment plans as a foundation for well-functioning markets.

Sectoral investment plans are implemented to meet an ambitious NDC target with buffer, signalling confidence in Indonesia's compliance market pathway.

Principle

Signal credible NDC achievement pathway as a foundation for well-functioning markets.

Outcome

Credible sectoral investment plans are demonstrated to meet unconditional NDC targets with buffer, signaling confidence in Indonesia's compliance market pathway.

Purpose

Providing a clear and credible signal that Indonesia's unconditional NDC targets can be met reinforces the legitimacy of compliance schemes and attracts sustained investment. Without a demonstrated pathway, investor confidence in domestic compliance markets is likely to remain limited, and international partners may doubt Indonesia's ability to deliver on its unconditional commitments. "Unconditional NDCs" as opposed to "conditional NDCs" refer to the national determined contribution pledges that can only be achieved with international financial support from other countries (Overholt, Gerholdt, Srouji, & Alayza, 2025). Establishing sectoral plans that transparently show how the NDC will be achieved provides certainty for compliance entities, assurance for policymakers, and credibility in global climate diplomacy (Chan & Yuen, 2025).

How

Sectoral investment plans should collectively meet the unconditional NDC target with an appropriate buffer, ensuring resilience against risks or underperformance. This requires combining two filters on the national mitigation portfolio: cost-effectiveness (activities below the marginal abatement cost for NDC delivery) and feasibility (activities that pass the compliance project development-risk threshold). By applying both criteria, policymakers can isolate a set of activities that are lower-cost, lower-risk, and implementable to meet NDC targets. These activities form the core supply base for domestic compliance and voluntary instruments, with compliance instruments yielding the most controllable outcomes (e.g an ETS emissions cap ensures that a certain amount of emissions is reduced). Therefore, the mapping of cost-effective and feasible mitigation activities can provide a technically robust and policy-aligned foundation for NDC achievement. This process helps safeguard the integrity of Indonesia's national targets, ensuring that emission reductions counted toward the NDC are both real and enforceable.

Key Considerations

NDC targets must be fully underpinned by sectoral plans to ensure credibility. A national commitment only becomes believable when disaggregated across sectors, showing exactly how each ministry, sector, or jurisdiction will contribute to the unconditional target. Without this sectoral breakdown, the NDC remains abstract, leaving compliance markets without the clarity needed to anchor obligations in reality (Wetterberg, Ellis, & Schneider, 2024). Alignment of compliance markets with NDC pathways also ensure that compliance pressure (such as a tightening emissions cap, rising carbon tax or increased regulatory standards etc.) is stable and predictable. This is important for market participants as compliant entities can expect regulatory pressure and anticipate their decarbonisation capital expenditures accordingly and in advance. The result for a compliance carbon market is not only confidence from entities under compliance but also a stronger and more liquid market with a stable and rising price signal, which aligns with the FASTER principles established by the OECD and World Bank (OECD and WBG, 2015).

An appropriate buffer above the unconditional NDC target enhances confidence in delivery by providing insurance against implementation risks. Mitigation activities can face delays due to political resistance, financing shortfalls, or technical difficulties. By planning for an NDC pathway that exceeds the target by a conservative margin, Indonesia signals to compliance entities and international buyers that it can still meet its commitments even under adverse conditions. This buffer strengthens both environmental integrity and market credibility. If Indonesia were to allocate too many activities to Article 6 and later face a shortfall in meeting its NDC, it would not only jeopardize its own credibility but also weaken international faith in the robustness of cooperative mechanisms.

This risk is why several countries are building in safeguards: Ghana, for example, has committed to reserve a portion of its Article 6 credits (1% of all ITMOs) in a national buffer account to minimize the risk of overselling and ensure it can still meet its NDC obligations (UNFCCC, 2025). However, an NDC buffer that is too conservative can limit the potential of the Article 6 market as a climate finance mechanism, as it would limit the volume of mitigation outcomes eligible for export.

Transparency of sectoral investment plans is critical for building trust among domestic and international stakeholders. Publicly communicating the scale, timing, and feasibility of planned mitigation activities, alongside independent validation where possible, ensures accountability and reduces information asymmetries. A transparent, credible and ambitious NDC builds market confidence that compliance obligations rest on realistic foundations and that compliance/regulatory pressure to meet NDC targets will evolve along a stable and predictable pathway (Chan & Yuen, 2025).This can still occur even if the NDC process begins with setting a target first, as regardless of the bottom or top-down approach, sectoral transition plans are necessary to lend credibility to national targets.

6

Prioritise high-feasibility mitigation activities and market competitiveness for Indonesia's products.

Compliance and voluntary schemes are guided toward mitigation options that are capable of delivering timely, reliable and scalable climate outcomes, and support Indonesia's market competitiveness.

Principle

Identify high-feasibility mitigation for compliance and market competitiveness for voluntary schemes.

Outcome

Compliance and voluntary schemes are guided toward mitigation options with strong feasibility, most capable of delivering timely, reliable, and scalable climate outcomes.

Purpose

Grounding mitigation options in implementation realities ensures that only feasible projects are channelled into compliance schemes. A compliance risk threshold provides the filter for distinguishing between activities that can reliably deliver emissions reductions and those that face implementation substantial barriers. This is crucial because regulated entities face financial and legal penalties for non-compliance, and compliance markets lose credibility if activities with high delivery risk repeatedly fail to perform. Ensuring that only low-risk activities are eligible for compliance schemes such as for allowances or eligible credits under the compliance market is therefore essential to maintaining both fairness and system credibility (Wetterberg, Ellis, & Schneider, 2024).

How

Screening mitigation activities against a delivery-risk threshold identifies which are suitable for compliance schemes and which belong in voluntary markets. A mapping of the Indonesia's portfolio of mitigation activities, can highlight cost-effective mitigation options but does not account for implementation risks. A second-level screen is therefore required to evaluate political economy, institutional, technological, and social risks that may delay or undermine delivery. By reserving low-risk activities for compliance, Indonesia can ensure that its NDC targets are underpinned by reliable reductions (ICAP, 2021), while higher-risk or innovative activities can still attract finance through voluntary schemes where flexibility and experimentation are more acceptable (Winrock International, 2025).

Sectoral readiness, policy alignment, and phased integration are key components of designing a compliance scheme implementation plan. Mapping of the national decarbonisation portfolio define the potential pool of activities, but not all will be immediately suitable for compliance markets. Some sectors may lack sufficient MRV infrastructure, market readiness, or institutional capacity to support inclusion at scale. Additional tools such as market simulation, regulatory readiness checks, and stakeholder consultations are required to refine which activities can be introduced in the near term. A phased approach to expansion, supported by regular updates, ensures that the compliance market grows in tandem with Indonesia's institutional and technical capacity (ICAP, 2021).

Factors		Significance	Description
Emission Significance			Proportion of total national greenhouse gas (GHG) emissions attributable to a specific sector
Sectoral Readiness	Stakeholder Readiness		Level of progress, willingness and preparedness of industry players to adopt decarbonization technologies and initiatives
	Policy Readiness		The extent to which a sector have policies that support sectoral transition without undermining the price signal of an ETS
Monitoring Feasibility			The feasibility of effectively and accurately measuring, reporting, and verifying (MRV) emissions and trading activities of market participants
Cost Pass-through			The ability to pass increased costs to downstream buyers to produce a price signal or change behaviour (Note this is paired with the availability of abatement options/products to incentivize transition)
Trade Exposure from Non-Decarbonization			The trade risk faced by sectors or activities that do not adopt decarbonization measures. This exposure stems from international agreements, market shifts, and technological advances that favor low-carbon products
Transition Opportunities	Intra-sector Transition Opportunities		Opportunities to unlock intra-sector benefits, including capital inflows, cost efficiencies, and income generation, thereby incentivizing participation in carbon trading or emission reduction activities
	Cross-sector Transition Opportunities (including focus on RE)		Opportunities to unlock cross-sector benefits, including green products adoption or clean electricity incentivization, thereby incentivizing participation in carbon trading or emission reduction activities
Co-benefit Relevance			Alignment to target co-benefits beyond national emissions, including those that are relevant for GoI and sustainable development
Abatement Availability			Current availability and potential availability of abatement options at low cost/ potential low cost
Market Structure (toggle factor in a sectoral recategorisation)			Concentration of sector in terms of number of firms covering sectoral emissions
Investment Climate			Cost of capital and access to capital markets

Figure 10: Potential screening tool for assessing mitigation activities for inclusion under an ETS

Source: Systemiq Analysis

Project development risk screening for compliance schemes (including more than the ETS) must be defined through comprehensive criteria reflecting real implementation constraints. These criteria may include stakeholder readiness, policy alignment, technological maturity, methodological robustness, carbon leakage potential, and market viability each shaping the likelihood of successful emissions reductions (definitions for each of these risks are outlined in the Definitions section above). For instance, weak institutional coordination or MRV capacity can elevate project development risk even for technically sound projects, while inconsistent policy signals, such as fossil fuel subsidies (referred to in ICAP Handbook as "countervailing policies"), can undermine investment in cleaner alternatives (ICAP, 2021). Similarly, reliance on immature technologies or untested methodologies introduces uncertainty, while leakage risks and weak credit demand can further diminish feasibility and marketability. Incorporating these dimensions into a national screening process ensures only credible activities are channelled into compliance systems.

Identifying comparative advantages in Indonesia's domestic mitigation portfolio can help shape a market competitive VCM strategy. By leveraging the strengths of producing mitigation activities at a lower price point and delivering mitigation with strong co-benefits, Indonesia can successfully reach a broad base of international buyers. Market competitiveness is particularly important for VCM strategy because the VCM's supply and demand base is the global market, which can be guided (amongst other significant factors) by the emissions claims at the most competitive price without sacrificing quality, or finding emissions reduction project with the most impactful co-benefits.

Key Considerations

Not all compliance schemes are equivalent in their treatment of mitigation activities, and delivery-risk screening must consider scheme-specific eligibility, methodology alignment, and timing of credit demand. Compliance markets may include domestic and international schemes such as Article 6 cooperative approaches under the Paris Agreement, international aviation schemes like CORSIA, or even emerging bilateral compliance arrangements. However, each scheme has its own rules regarding eligible sectors, activity types, and approved methodologies. For example, CORSIA only recognises emissions reductions from certain programs and methodologies (ICAO, 2024). Therefore, even if an Indonesian mitigation activity appears technically feasible and cost-effective, its eligibility for a specific international compliance market depends on alignment with that scheme's methodology eligibility and integrity standards.

Indonesia's diverse sectoral base and evolving regulatory landscape require a delivery-risk screen that is adaptive to national priorities and implementation capacity. Given the country's wide variation in sectoral maturity, regional infrastructure, and institutional capability, mitigation activities in Indonesia face highly uneven delivery-risk conditions. For example, abatement in the palm oil or peatland sectors may face stakeholder and policy readiness challenges, especially where conflicting land use incentives or unclear tenurial rights persist (Liswanti, Dermawan, & Peteru, 2025). This would require, in relevant cases, to factor in the geographic diversity of delivery-risk for the same abatement option. Additionally, the regulatory landscape for compliance schemes is evolving in Indonesia, particularly for the domestic compliance market, requiring for any determination of the compliance risk-threshold to be regularly updated. Moreover, Indonesia may sign more bilateral agreements for international cooperation under Article 6 of the Paris Agreement with more sovereign partners, again requiring regular updating of the compliance risk-threshold for applicable mitigation activities.

7

Balance cost-effectiveness and development priorities for NDC pathways.

Indonesia's most cost-effective and feasible abatement options are prioritised for NDCs, whilst ensuring economy-wide and equitable transition is achieved.

Principle

Prioritise least-cost NDC pathways.

Outcome

Indonesia's most cost-effective and feasible abatement options are prioritized for NDCs, whilst ensuring economy-wide and equitable transition is achieved.

Purpose

Prioritising lower-cost mitigation potential for unconditional NDC targets reduces the overall cost of Indonesia's decarbonisation. Cost-effectiveness is critical to ensuring that compliance markets remain politically and economically viable, while safeguarding the credibility of Indonesia's Paris Agreement commitments. By explicitly mapping which activities are retained domestically, Indonesia can prevent overselling of its lowest-cost abatement and avoid dependence on higher-cost or less reliable options in the future (The Global Green Growth Institute, 2023). Prioritisation must be balanced with the needs of Indonesia's economic development priorities and planning, as some high-cost activities may be included in NDC targets because it achieves significant developmental objectives.

How

Overlaying the NDC requirements on the national mitigation portfolio prioritises least-cost, feasible activities to be reserved for compliance. This step applies the unconditional NDC emission reduction requirements onto Indonesia's national mitigation portfolio. This can be achieved by applying an "NDC-line" to Indonesia's portfolio of low-carbon mitigation options, placing the line at the cumulative volume of emissions reductions required to meet Indonesia's unconditional NDC target (The Global Green Growth Institute, 2023), but only counting activities that can be realistically implemented due to structural barriers (as stated in Principle 6: Identify high feasibility mitigation for compliance and market competitiveness for voluntary schemes). The intersection of these two filters, cost and risk, identifies the core set of mitigation activities that are both low-cost and realistically deliverable, forming the foundation of Indonesia's domestic compliance market architecture. As stated above, there will be some high-cost activities which achieve significant development objectives that may be earmarked for meeting NDCs. Such activities may be beyond the NDC-line if they are particularly expensive on a marginal cost basis.

The NDC line defines which activities may be prioritised for unconditional commitments rather than exported. This ensures that Indonesia's most cost-effective and feasible mitigation are prioritised to meet its unconditional climate commitments, rather than being prematurely monetised internationally. Without this integration, domestic compliance markets risk becoming overextended or misaligned with Indonesia's Paris commitments, exposing the country to both environmental and reputational risks.

Key Considerations

The NDC line may need to be recalibrated as Indonesia updates its national targets to reflect evolving ambition and market realities. If an NDC is overly conservative or based on outdated assumptions, the allocation of activities may misrepresent the country's true potential or lock out cost-effective options. Future NDC submissions, such as the 2035 update, must integrate the outputs of cost and risk screening to ensure that sectoral priorities align with real investment conditions (The Global Green Growth Institute, 2023). This recalibration is particularly important given Indonesia's ongoing bilateral Article 6 agreements, which may already commit certain mitigation activities for export, potentially creating inconsistencies with domestic NDC allocations.

Inconsistencies between NDC formulation and technical screening must be managed transparently to preserve integrity. In practice, analytical exercises often lag behind political processes, meaning that Indonesia's official NDC submissions may include activities that technical screening identifies as more suitable for exporting to international compliance markets, or vice versa. These tensions cannot always be solved technically, but a pragmatic response is to clearly document which activities are already embedded in the official NDC and flag them from positive lists for Article 6 export. This approach helps avoid double claiming or regulatory inconsistencies and ensures alignment between Indonesia's domestic compliance markets and its international commitments.

Least-cost abatement options alone cannot determine the scope of compliance schemes, as the distribution of compliance pressure (such as a carbon tax) across sectors is critical to ensure fairness and social legitimacy. If compliance design were based purely on cost-efficiency, it could concentrate obligations disproportionately in one sector, creating uneven burdens for certain industries, regions, or communities while sparing others. Such imbalances risk undermining political support for carbon markets, as affected groups may perceive the system as inequitable or socially regressive. A credible compliance framework must therefore balance cost-effectiveness with considerations of distributional equity, ensuring that mitigation responsibilities and benefits are spread in a way that reflects broader economic and social priorities.

8

Capitalise on international compliance demand with Article 6 to make low-carbon projects financially viable.

Indonesia's Article 6 strategy can leverage international compliance demands to make high-integrity mitigation activities financially viable.

Principle

Use Article 6 to channel international finance to make low-carbon projects bankable.

Outcome

Indonesia's Article 6 strategy can leverage international compliance demands to finance and make high-integrity mitigation activities financially viable.

Purpose

Allocating appropriate mitigation activities to Article 6 should provide a channel for unlocking international climate finance without undermining Indonesia's NDC delivery. This mechanism allows Indonesia to monetise strategic or higher-cost opportunities that exceed its domestic compliance needs, while retaining least-cost options for meeting unconditional commitments. By using Article 6 strategically, Indonesia can mobilise concessional finance and technology transfer for projects that would otherwise be unaffordable or "unbankable" under domestic market conditions (Bhattacharya, 2024).

How

Mapping for international compliance identifies a pool of mitigation activities suitable for export with corresponding adjustment. These activities typically include projects that are feasible under compliance (as referenced in Principle 5) but above the NDC marginal abatement cost, meaning they are technically feasible but costlier than the options retained for unconditional domestic delivery (as referenced in Principle 7). However, this is not a fixed constraint as Article 6 may prioritise strategic investments due to caveats mentioned in key considerations (e.g. significant international compliance demand at a premium, low domestic compliance capacity etc.).

Article 6 screening must evaluate international demand, bilateral agreements, and price expectations to determine which activities are viable for export. Demand in end-markets depends on the design and carbon prices of compliance systems abroad, with some schemes unlikely to purchase credits above their domestic carbon price thresholds (The Global Green Growth Institute, 2023). Screening should therefore include competitiveness assessments, expected marginal costs, and technology readiness. Alignment with bilateral partnerships and host-country priorities further informs which activities are suitable for cooperative approaches, as does sequencing with Indonesia's phased Article 6 implementation strategy, which may prioritise pilots to test MRV and registry infrastructure before scaling volumes.

Key Considerations

Robust screening is essential to confirm Article 6 eligibility and avoid misallocation of mitigation activities. Frameworks such as those developed under SPAR6C provide tools for evaluating project feasibility, additionality, integrity, and readiness for export. Applying these systematically ensures that only activities capable of delivering high-certainty reductions at internationally acceptable standards are allocated to Article 6, safeguarding Indonesia's reputation and avoiding over-commitment of scarce resources (The Global Green Growth Institute, 2023). This is particularly the case for mitigation activities near the estimated NDC marginal abatement cost. Activities in the buffer zone should remain in domestic or voluntary markets to preserve flexibility and ensure NDCs are met. These options may also be required to meet a tightened 2035 NDC, or to provide additional liquidity for Indonesia's domestic ETS once compliance obligations expand. Reserving them domestically ensures Indonesia retains sufficient capacity to meet future commitments while avoiding premature export of mitigation potential.

International demand conditions must guide which mitigation activities are allocated to Article 6. Crediting opportunities will only be monetised if they match the eligibility and price signals of international markets. For example, the CORSIA scheme and emerging ETS linkages may only accept certain methodologies or project types (ICAO, 2024), and buyers are often highly price sensitive. Export allocations must therefore be grounded in realistic assessments of demand, international compliance eligibility and international competitiveness.

Diplomatic and financing opportunities can shape Article 6 allocation decisions. Cooperative approaches are often embedded within bilateral relationships, and prioritisation may be influenced by strategic partnerships, technology transfer arrangements, or concessional finance packages. For Indonesia, Article 6 transactions present not just a carbon finance opportunity but also a diplomatic tool for mobilising long-term support for its transition, especially in capital-intensive sectors such as renewables, transport, and industrial decarbonisation (GIZ, 2024).

Domestic capacity constraints in the domestic compliance and voluntary markets may require leveraging Article 6 to bridge Indonesia's climate finance gap. While Indonesia's voluntary and compliance markets are still developing, the scale of capital required for its low-carbon transition exceeds current domestic financing capacity. Article 6 cooperation can therefore be a strategic channel to mobilise the upfront investment needed for high-capex projects that domestic entities cannot yet finance, while maintaining the credibility of NDC delivery by reserving least-cost options at home (Climate Action Tracker, 2025).

9

Embed a conservative approach for applying corresponding adjustments to avoid over-selling mitigation.

Conservative practices are integrated into the Article 6 strategy, such as including an obligation to sell to the domestic market and using an NDC buffer for identifying eligible activities.

Principle

Embed a conservative approach in the Article 6 strategy to avoid over-selling mitigation.

Outcome

Conservative practices are integrated into the Article 6 strategy, such as CA fees at an appropriate price point and using an NDC buffer for identifying eligible activities.

Purpose

Allocating appropriate mitigation activities to Article 6 should provide a channel for unlocking international climate finance without undermining Indonesia's NDC delivery. This mechanism allows Indonesia to monetise strategic or higher-cost opportunities that exceed its domestic compliance needs, while retaining least-cost options for meeting unconditional commitments. By using Article 6 strategically, Indonesia can mobilise concessional finance and technology transfer for projects that would otherwise be unaffordable or "unbankable" under domestic market conditions (Bhattacharya, 2024).

How

Conservative Article 6 engagement preserves the integrity of Indonesia's NDC and climate credibility. Every mitigation outcome transferred abroad under Article 6 must be subtracted from Indonesia's national emissions accounting, so an overly aggressive export of carbon credits could leave the country unable to fulfil its Nationally Determined Contribution (NDC) commitments. In the Kyoto era, developing countries had no binding targets and could freely sell carbon credits, but under Paris every country has pledged emissions cuts, making overselling a serious risk (Malvar, Myers, & Gra, 2024). If Indonesia authorizes too many Internationally Transferred Mitigation Outcomes (ITMOs) without caution, it could compromise its ability to achieve domestic climate goals (Roth, Echeverría, & Gass , 2019). A cautious, principled approach to Article 6 – only selling genuinely surplus reductions – is therefore essential to maintain environmental integrity and international trust in Indonesia's climate actions.

NDC targets that are on track with an appropriate buffer mechanism can strengthen the robustness of authorizing international transfers. The principle of using Article 6 conservatively means Indonesia should export carbon credits when it is on track to meet its own NDC targets. This ensures that unconditional emission reductions pledged in the latest NDC, 31.89% below business-as-usual by 2030 per Indonesia's Enhanced NDC, remain protected (UNFCCC, 2022). In practice, this requires building a buffer into NDC planning, a margin of extra emission cuts beyond the minimum target, so that even after transferring some mitigation outcomes abroad, Indonesia can still credibly meet its NDC. Indeed, Indonesia imposed a temporary moratorium on carbon credit exports in 2022 to develop clearer frameworks that align with national climate priorities and reduce the risk of overselling against the NDC target (Roth, Echeverría, & Gass , 2019).

Conservative approaches can include quantitative NDC buffers, phased authorisation, reserve pools and CA fees. NDC buffers refer to the positive list of eligible Article 6 activities only authorising ITMOs that exceed unconditional NDC targets by a conservative margin. Phased authorisation refers to the gradual implementation of Article 6 to avoid overselling to quickly and to adjust strategy according to market testing. Reserve pools require the government creating a reserve account to hold domestically a percentage of total credits before they become exportable mitigation outcomes, so as to build a buffer that can be used for NDC claims. CA fees can be structured as a tax on ITMOs which can be variable or at a fixed price for each credit, this allows for a CA revenues to fund and support domestic mitigation.

Key Considerations

Regularly revisiting and updating the positive list is essential as national targets and market conditions evolve. Indonesia's Article 6 positive list must remain dynamic, adjusting to changes in technology costs, mitigation potential, and the ambition of future NDCs. For example, low-carbon technologies may become cheaper or more widespread through economies of scale, Indonesia may decide to ratchet up its own targets in-line with the cadence of updating NDCs. Therefore, the government should periodically review which activities remain appropriate to authorize under Article 6, ensuring that what is sold internationally never undermines its increasing domestic ambition and remains updated to the realities of the green economy. Early-moving countries have recognized this need for flexibility; for example, host governments have considered integrating Article 6 eligibility criteria into their next NDC updates to keep international cooperation in line with evolving national implementation plans (The Global Green Growth Institute, 2023). This adaptive management will safeguard Indonesia's decarbonization pathway as circumstances change.

Prioritise low-carbon investments that have a cascading effect across Indonesia's economy

10

Prioritise quick-wins in technological and nature-based solutions that unlock positive externalities across sectors and advance outcomes for nature, adaptation and resilience.

High-leverage and quickly implementable activities are prioritised in pipeline building to unlock wider abatement potential, benefits to nature, adaptation and resilience.

Principle

Prioritise quick-wins that unlock positive externalities for other mitigation activities, nature, adaptation and resilience..

Outcome

High-leverage mitigation activities are prioritised in pipeline building to unlock wider abatement potential, benefits to nature, adaptation and resilience.

Purpose

Pinpointing projects that reduce risks or costs for other mitigation activities creates system-wide benefits that simple cost rankings cannot capture. Mitigation activities interact dynamically through shared infrastructure, capital, and supply chains. Identifying leverage points within these systems ensures that scarce public, concessional, and private finance is channelled into activities that not only reduce emissions directly but also enable broader transitions by lowering the barriers to other mitigation options (Systemiq & KADIN Net Zero Hub, 2023).

How

High-leverage mitigation activities (HLMAs) reduce the risk-cost profile of other activities, creating positive spillovers that accelerate system-wide transitions. Unlike static marginal abatement cost curves, which only rank options by cost per tonne, HLMA analysis reveals the interdependencies that amplify abatement across sectors and longer-term benefits to nature, adaptation and resilience. In practice, HLMAs can be identified leveraging approaches such as the "Breakthrough Effect" methodology (Systemiq & KADIN Net Zero Hub, 2023), which maps activities with positive feedback loops, cost declines from learning-by-doing, economies of scale, or social adoption effects that cascade through multiple sectors. This ensures that prioritisation reflects dynamic realities, not just static cost estimates.

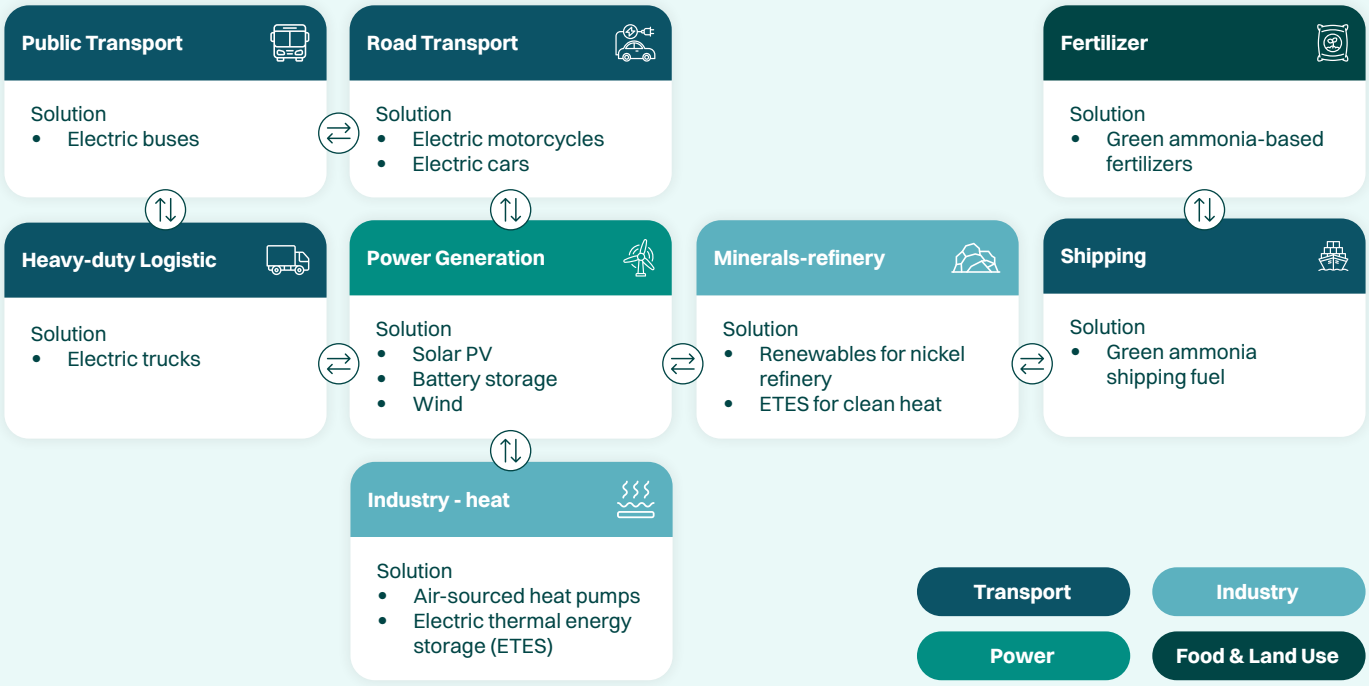


Figure 11: Assessment of high-leverage mitigation activities in ASEAN

Source: Based on The Breakthrough Effect in ASEAN report (Systemiq & KADIN Net Zero Hub, 2023)

Focusing on HLMA enables decision-makers to target scarce resources where they achieve the greatest systemic effect. After filtering options by cost-effectiveness and delivery risk, HLMA analysis highlights the subset of activities that can catalyse the largest ripple effects across the economy. For example, research shows that a single zero-emission vehicle mandate for light transport acts as a "super-leverage" policy: it not only reduces road transport emissions directly but also accelerates clean power deployment, battery cost declines, and electrification of heavy vehicles and industrial sectors (Nijsse, Sharpe, Sahastrabuddhe, & Lenton, 2024). By identifying and prioritising such interventions, Indonesia can maximise total investment returns and policy efficiency in achieving its climate goals.

High-leverage mitigation activities should be coupled with quick-win projects, as governments favour visible early results and pilot initiatives can serve as valuable sandboxes for market mechanisms. Prioritising a set of implementable, near-term activities alongside more transformative interventions allows policymakers to demonstrate progress, build political momentum, and generate early confidence in the carbon market system. Quick-wins provide not only immediate abatement but also a platform for learning-by-doing, as their implementation exposes practical challenges in monitoring, governance, and finance that may not be apparent in abstract modelling. By launching pilots rapidly, Indonesia can test registry linkages, authorisation processes, and safeguard systems in real-world conditions, enabling regulators to refine rules before scaling up. This dual strategy, pairing systemic leverage with rapid pilots, ensures that ambition is balanced with pragmatism, creating both credibility and adaptability in the early years of market development.

Key Considerations

Socioeconomic implications must be accounted for when identifying high-leverage mitigation activities. Transformative interventions often reshape supply chains, capital flows, and labour markets, and they can create both winners and losers. For Indonesia, where large populations depend on carbon-intensive livelihoods such as coal mining or palm oil production, rapid transitions could risk creating "sacrifice zones" if not managed inclusively (Pereira, et al., 2025). Another example could be the promotion of electric vehicles may need to also account for the implications of nickel mining in Indonesia on both the environment and people due to its impacts from resource-intensive mining processes (Lo, et al., 2024) and atmospheric pollution (Sawal, 2025). Policymakers must therefore integrate equity and distributional analysis into HLMA identification to ensure that catalytic investments do not exacerbate inequalities or undermine social stability.

Dynamic assessment is essential because leverage effects evolve over time with technology and policy shifts. An activity that is high-leverage today may lose influence as costs decline or new technologies emerge, while other activities may become leverage points as systems change (Meadows, 1999). For example, renewable energy deployment once depended heavily on subsidies, but now increasingly drives down costs autonomously through global scale. Indonesia's HLMA screening must therefore be iterative and updated regularly, ensuring that prioritisation reflects the evolving interactions between technologies, sectors, and institutions.

Conclusion

5

Indonesia stands at a pivotal moment in defining its green, resilient and inclusive growth plan as it shapes the future of its carbon markets and low-carbon transition pathway. By adopting the principles for designing a coordinated carbon market development strategy, the country can maximise climate finance mobilisation, safeguard its NDC commitments, and optimise participation in international markets. These principles ensure that domestic compliance, international compliance, and voluntary markets can occupy clearly defined spaces and establish well-functioning markets whilst advancing long-term national socioeconomic and environmental outcomes.

The first category of principles "unlocking finance flows for Indonesia's green, resilient and inclusive growth strategy" lays the foundation for a credible and investable low-carbon transition. These principles emphasise the importance of mapping Indonesia's high-integrity mitigation portfolio and fundamental principles such as the prioritisation of co-benefits, application of robust environmental and social safeguards and the requirement to ensure no double-counting across markets. These macro-level principles ensure that policymakers, investors, and international partners have a shared understanding of the scale and cost of mitigation opportunities in both direct financial terms and in terms of the costs borne to society and the environment. By grounding decision-making in evidence and aligning it with Indonesia's socioeconomic realities, these principles provide the basis for mobilising capital efficiently while directing scarce resources toward high-integrity and nationally strategic investments.

The second category "finding the right mix to unlock finance flows for domestic NDC claims and exporting mitigation outcomes" anchors the approach of carbon market scope setting in credibility and integrity. These principles establish the allocation logic for mitigation activities between compliance, voluntary, and international cooperation schemes. They underscore that lower-cost and lower-risk options may be prioritised to meet unconditional NDCs, with caveats such as ensuring an equitable distribution of compliance pressure across society. Additionally, these principles outline that strategic low-carbon projects, international compliance demands, and higher-cost options can be exported through Article 6 to mobilise international finance and technological capacity. These principles also highlight the critical role that the voluntary market plays to mobilise domestic and international finance, which can support NDC achievement. These principles also highlight that Indonesia's Article 6 strategy needs to strike a careful balance between what it can sell to meet international compliance demand and how it may conservatively reserve mitigation to meet domestic NDC targets. Conservative measures include NDC buffers, CA fees, credible sectoral pathways, and robust screening which are vital to avoid over-selling and to reinforce the trust of international partners. By structuring allocations carefully, Indonesia can ensure that its domestic targets remain secure, while at the same time harnessing the finance and diplomatic opportunities that come with international market participation.

The third category "prioritising low-carbon investments that have a cascading effect across the economy" ensures carbon markets can deliver systemic transformation beyond emissions reduction and in a near-term timeframe. High-leverage mitigation activities, such as those that lower technology costs or expand enabling infrastructure, can unlock broader abatement potential across multiple sectors. However, HLMA identification should also account for activities that promote benefits to nature, adaptation and resilience. Prioritising such activities multiplies the impact of limited public and concessional resources, while also accelerating private investment. At the same time, equity and socioeconomic considerations must guide this prioritisation, ensuring that rapid transitions do not generate uneven burdens for workers or communities.

Together, these principles provide Indonesia with principles to design coordinated carbon markets that are investable, inclusive and resilient. The immediate priority is to establish an economy-wide evidence base, particularly a mapping of Indonesia's domestic decarbonisation portfolio to inform the 2035 NDC and subsequent market regulations. This may be achieved using several methods including but not limited to marginal abatement cost curves, with the required sensitivities and additional analysis to sufficiently capture the socioeconomic, natural capital and decarbonisation profile of Indonesia's economy. From this foundation, the principles can guide regulatory design, market sequencing, and allocation strategies that are consistent across policy levels. This approach can help accelerate Indonesia's mobilisation of climate finance at the scale required, meet its international commitments with credibility, and accelerate a transition that supports economic competitiveness and natural capital preservation and social resilience.

Turning these principles into practice will require immediate steps to establish an evidence base, test allocation approaches, and build shared ownership across stakeholders. Indonesia's priority should be to initiate the mapping of its low-carbon transition opportunity for climate investment, for example through an economy-wide MACC adapted to the country's socioeconomic context. The outputs of this exercise can be integrated into future NDC planning to ensure that national targets are credible, realistic, and investment ready. At the same time, piloting risk-cost allocation exercises will allow policymakers to test the feasibility of assigning mitigation activities to compliance and voluntary schemes, providing practical lessons for market design. These next steps are detailed in Annex 1: Proposed roadmap for implementing a coordinated carbon market development strategy. To ensure legitimacy and uptake, these steps must be complemented by structured engagement with government, private sector, and international partners, both to validate underlying assumptions and to secure buy-in for coordinated market development. While decisions on governance and regulatory leadership will need to evolve, moving quickly on these tangible next steps will bridge the gap between principle and implementation.

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Annex I: Proposed roadmap for implementing a coordinated carbon market development strategy

(In attached document)

Annex II: Coordinated carbon market development can encourage market synergies

(In attached document)

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