SYMPOSIUM

CARBON CREDIT SUPPLY CHAIN, ADDED VALUES AND WATERSHED CO-GOVERNANCE STRATEGY

NetZero 2050

COMMITMENT TO ACTION

Hanoi, April 6th 2026

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PREFACE

Vietnam is entering a decisive phase in the development of carbon markets, driven by its Net Zero 2050 commitment and the gradual establishment of domestic regulatory frameworks. This transition marks a shift from fragmented pilot initiatives towards the need for a coherent system capable of linking climate mitigation with national development priorities.

Forest ecosystems, particularly in upland and watershed landscapes, are central to this transition. They function as interconnected socio-ecological systems that sustain carbon sequestration, biodiversity, water regulation and livelihoods. Carbon value is therefore embedded within landscape-level processes rather than isolated interventions. Effective carbon market development requires approaches that align ecological functions with governance arrangements and economic mechanisms.

Current carbon-related mechanisms in Vietnam are evolving in parallel. Policy frameworks, technical systems and market instruments are being developed across different sectors and levels, with limited integration. This results in inconsistencies in implementation, unclear roles and uneven value distribution. In this context, the challenge is not only to expand carbon initiatives, but to organise them into a coherent system with clear institutional linkages and operational logic.

Meanwhile, global carbon markets are undergoing structural change. Increasing requirements on transparency, traceability and integrity are redefining how carbon value is assessed and exchanged. These shifts create both constraints and opportunities. Countries that establish coherent, credible systems are better positioned to participate in higher-value market segments, whereas fragmented approaches risk limiting long-term benefits.

This workshop's proceeding frames carbon market development through three interrelated pillars: the carbon credit supply chain, added-value outcomes, and watershed-based co-governance. Together, these pillars provide a system perspective that links forest management, value creation and institutional coordination across scales. They emphasise the need to organise carbon systems as integrated governance structures rather than standalone financial mechanisms.

This document reflects a transition from conceptual discussion to implementation-oriented thinking. It aims to support the development of carbon systems that are coherent, scalable and aligned with both environmental and socio-economic objectives. Strengthening integration across governance, technical and market dimensions is essential to ensure that carbon markets contribute effectively to climate mitigation, ecosystem resilience and inclusive development in Vietnam.

ACKNOWLEDGEMENT

This proceeding draws on the contributions of policymakers, researchers, practitioners and community representatives who participated in the symposium. Their insights and experiences have informed the analysis and recommendations presented in this document.

We also acknowledge the contributions of partner institutions and organising teams whose support enabled the development of this proceeding.

CONTENT

ACRONYMS

ACCU – Australian Carbon Credit Unit

AFOLU – Agriculture, Forestry and Land Use

AI – Artificial Intelligence

CCSC – Carbon Credit Supply Chain

KFN – Key Farmer Network

CGSEA – Climate Governance of Nature-based Carbon Sinks in Southeast Asia

CHESH – Centre for Human Ecology Study of Highlands

CIFOR-ICRAF – Center for International Forestry Research – World Agroforestry

CIRD – Centre for Indigenous Knowledge and Development

CENDI – Centre for Community Entrepreneur Development

CODE – Consultant on Development

CO_2 – Carbon dioxide

COP – Conference of the Parties (UNFCCC)

FREM – Forest Resources & Environment Management Consultancy

FPIC – Free, Prior and Informed Consent

GHG – Greenhouse Gas

MRV – Measurement, Reporting and Verification

$MtCO_2e$ – Million tonnes of carbon dioxide equivalent

PFES – Payment for Forest Environmental Services

RECOFTC – Regional Community Forestry Training Center for Asia and the Pacific

REDD+ – Reducing Emissions from Deforestation and Forest Degradation

SPERI – Social Policy Ecology Research Institute

TEW – Towards Ethnic Women

I. EXECUTIVE SUMMARY

1.1. Introduction

Vietnam is shifting from policy formulation to operationalisation of carbon market systems under its Net Zero 2050 commitment. Multiple instruments, including voluntary markets, REDD+ and emerging domestic regulations, are developing simultaneously but remain fragmented across governance, technical processes and market interfaces, leading to inconsistent implementation, unclear roles and weak coordination. This fragmentation shapes how carbon value is generated and distributed, with mechanisms operating under different standards and arrangements and limited alignment between forest management, carbon accounting and market participation. As a result, system performance is constrained, transaction costs remain high and value flows are uneven, while forest-dependent communities, despite being central to carbon generation, have limited influence over decision-making and value realisation.

At the same time, global carbon markets are evolving towards stricter requirements on integrity, transparency and traceability. Increasing emphasis on additionality, permanence and safeguards is shifting demand towards high-integrity credits, raising entry barriers but also creating opportunities for countries able to organise coherent and credible systems. Vietnam therefore faces a strategic transition, as expanding isolated initiatives is insufficient to meet market requirements or development objectives. The core challenge is to organise existing and emerging mechanisms into an integrated system that aligns governance, technical processes and market functions, as fragmentation will otherwise continue to constrain scalability, efficiency and access to higher-value markets.

This requires a system-level perspective, where carbon market development is understood as the coordination of interdependent components, including forest management, MRV systems, institutional arrangements and market transactions. System effectiveness depends on how these components are connected and how roles and participation are structured across actors and levels. This proceeding therefore focuses on transitioning from fragmented arrangements to an integrated carbon system, examining how alignment across system components can improve coherence, reduce inefficiencies and support more balanced participation, contributing to climate mitigation, ecosystem management and sustainable development.

1.2. Carbon Credit Supply Chain

The carbon credit supply chain (CCSC) links forest-based carbon generation with verification, certification and market transactions, connecting local forest management with national accounting systems and global carbon markets. It structures how carbon value is quantified, validated and exchanged, while defining the roles and interactions of key actors across stages.

Beyond a technical sequence, CCSC functions as an organising framework that shapes participation and value distribution. The positioning of actors within different stages influences access to information, control over processes and the share of value captured. As such, the effectiveness of carbon systems depends not only on generating carbon outcomes, but on how the supply chain is structured and governed.

In the Vietnamese context, strengthening CCSC requires improving coordination across stages and enabling more balanced participation of upstream actors within the system. This involves aligning institutional roles, standardising processes and improving linkages between forest management, carbon accounting and market access. Strengthening aggregation mechanisms and clarifying governance arrangements can enhance efficiency and reduce transaction costs. At the same time, improving access to

information and technical systems is essential to enable forest owners and communities to engage more effectively in value creation and decision-making processes.

1.3. Key Themes

The symposium is structured around four interrelated themes that frame the development of forest carbon systems in Vietnam:

Carbon credit supply chain (CCSC): Structuring the sequence of carbon generation, accounting, certification and market exchange, and defining how roles, processes and value flows are organised across actors and stages. This includes aligning technical steps with institutional arrangements, ensuring continuity across supply chain stages, and enabling coordination between upstream production, validation systems and downstream market transactions within a coherent operational framework.

Measurement, Reporting and Verification (MRV): Establishing the technical and institutional basis for carbon accounting, including data generation, validation and compliance with recognised standards. This involves integrating field measurements, remote sensing and verification processes, while ensuring consistency across methodologies, interoperability of data systems and alignment with national and international accounting requirements.

Governance and Co-Governance Models: Organising coordination among state institutions, local actors and market participants across levels, with emphasis on watershed- and landscape-based approaches. This includes defining roles, responsibilities and decision-making structures, enabling multi-level coordination and linking ecological processes with institutional arrangements to support consistent and scalable system implementation.

Participation of Forest-Dependent Communities: Positioning local actors within carbon systems through collective organisation, access to information and involvement in governance and implementation processes. This includes strengthening organisational structures, enabling engagement in technical and decision-making functions, and improving access to knowledge and system processes to support effective participation across the supply chain.

Together, these themes provide a structured lens to examine how system components interact and shape overall performance, coherence and participation within emerging carbon market systems.

1.4. Key Insights

Carbon credits shape incentives, roles and decision-making across actors, influencing how resources are managed and how value is distributed within the system. The design of rules, standards and institutional arrangements determines how actors interact, how responsibilities are allocated and how governance outcomes are produced across the supply chain.

As the entry point to certification and markets, MRV defines eligibility, data ownership and participation, influencing both credibility and power relations across the supply chain. Control over measurement, reporting and verification processes shapes access to markets, influences decision-making and determines how actors engage with technical and institutional systems.

Upstream actors generate carbon value through forest management, while a larger share of financial and decision-making value is concentrated in downstream stages. This reflects differences in access to technical processes, information systems and market interfaces that structure how value is realised and distributed.

Forest-dependent communities underpin carbon generation but have limited influence over system design, technical processes and market engagement. Their participation is often mediated through external actors, affecting how they access information, engage in decision-making and capture value within the supply chain.

Weak alignment across governance, technical systems and market mechanisms limits efficiency, scalability and the ability to access higher-value market segments. Disconnections between processes increase transaction costs, reduce consistency in implementation and constrain coordination across actors and levels.

Moving towards higher-integrity and higher-value carbon markets requires coherent organisation of supply chains, governance frameworks and participation structures. Integration enables alignment of processes, improves system consistency and supports more effective coordination across technical, institutional and market dimensions.

1.5. Key Challenges

Carbon-related mechanisms operate with limited alignment across governance, technical systems and market processes, reducing coherence and scalability. Parallel implementation of different frameworks leads to inconsistencies in methodologies, duplication of processes and weak coordination across actors and levels, constraining system integration and overall performance.

High technical complexity, cost and data requirements constrain participation of local actors and create dependence on external service providers. Limited access to methodologies, tools and technical capacity restricts engagement in data generation and reporting, shaping participation patterns and reinforcing reliance on intermediaries.

Forest owners and communities face structural constraints in accessing information, technical systems and market channels, limiting their role in value creation and decision-making. Their participation is often confined to implementation activities, with limited influence over system design, data processes and contractual arrangements.

Fragmented landholdings and dispersed management structures hinder participation at scale and increase transaction costs. The absence of effective collective organisation limits coordination of activities, reduces efficiency in MRV implementation and constrains access to certification and market processes.

Roles, responsibilities and benefit-sharing frameworks remain insufficiently defined, creating uncertainty and limiting coordinated system development. Overlapping mandates and weak institutional linkages affect accountability, data management and the organisation of processes across the supply chain.

Evolving standards and integrity requirements increase entry thresholds, while current system limitations constrain competitiveness in higher-value market segments. Challenges in meeting technical, documentation and compliance requirements affect the ability to access stable demand and participate effectively in emerging market structures.

1.6. Key Opportunities

Collective organisational models, including cooperatives and community-based structures, provide a basis for consolidating fragmented forest areas and enabling participation at scale. These structures support coordination of activities, shared use of technical systems and improved efficiency in certification and market engagement.

Integrating simplified methodologies and participatory elements can improve data generation, reduce costs and expand inclusion within carbon accounting systems. Combining community-based monitoring with standardised processes supports broader engagement while maintaining consistency and reliability in reporting and verification.

Aligning institutional roles, policy frameworks and system components can improve coordination, reduce duplication and support more consistent implementation. Clear allocation of responsibilities and stronger linkages across levels enable more effective management of data, processes and actor interactions.

Managing carbon systems at landscape scale enables alignment of ecological processes with governance and technical systems, improving efficiency and system integrity. This approach supports coordinated implementation across forest areas and facilitates aggregation of activities within shared ecological units.

Collaboration among public institutions, private sector actors and local organisations can strengthen system integration, mobilise resources and improve market linkage. Coordinated engagement enables alignment of technical, institutional and financial inputs across the supply chain.

Strengthening system credibility, transparency and participation creates conditions to access high-integrity carbon market segments with greater long-term value. Alignment with evolving standards supports competitiveness and enables more stable engagement in global carbon markets.

1.7. Preliminary Recommendations

Define carbon rights, institutional roles and benefit-sharing arrangements across national and local levels, ensuring alignment between forestry, climate and carbon market domains. This includes clarifying responsibilities for carbon accounting, MRV oversight and market participation, while linking tenure systems with carbon rights to support consistent implementation and accountability across actors and levels.

Develop institutional linkages across sectors and administrative levels to improve policy coherence, data integration and system consistency. This involves establishing clear communication channels, aligning procedures across agencies and enabling coordination between national frameworks and local implementation to reduce duplication and improve system performance.

Standardise methodologies, integrate participatory approaches and ensure consistency between project-level implementation and national carbon accounting systems. This includes simplifying technical requirements where feasible, strengthening data interoperability and enabling broader participation in measurement and reporting processes while maintaining data integrity.

Enable cooperatives and community-based organisations to consolidate forest areas, coordinate implementation and facilitate access to certification and markets. Aggregation improves scale efficiency, supports shared use of technical systems and enables coordinated engagement with verification, certification and transaction processes.

Improve access to information, technical systems and decision-making processes for forest owners and communities. This includes strengthening organisational structures, enabling engagement in technical and governance functions and improving capacity to interact with institutional and market systems across the supply chain.

Establish clear rules and procedures for revenue allocation, management and accountability within collective structures. Transparent systems support consistent distribution of financial flows, strengthen

trust among participants and ensure that contributions are recognised within coordinated implementation frameworks.

Build capabilities of public agencies, cooperatives and community organisations to manage carbon systems effectively. This includes developing skills in data management, MRV implementation, governance coordination and interaction with market mechanisms to support consistent system operation.

Support direct connections between aggregated carbon supply and domestic and international buyers under evolving market requirements. This involves structuring transaction processes, improving access to market information and enabling coordinated engagement with buyers and intermediaries.

Harmonise existing mechanisms, including PFES and REDD+, with emerging carbon market regulations and standards. This requires aligning methodologies, reporting systems and institutional arrangements to support consistency across frameworks and reduce fragmentation.

Enable coordination, dialogue and knowledge exchange among government, private sector, research institutions and community actors. These platforms support information sharing, alignment of approaches and collective problem-solving across technical, institutional and market dimensions.

1.8. Next Steps

Prioritise the implementation of pilot initiatives based on community-based and watershed-level carbon models to generate practical evidence on operational pathways. This includes forest carbon systems in areas such as Cao Quang in Quang Tri province, where community forestry institutions manage large-scale forest landscapes. These pilots enable testing of carbon systems across both forest and agricultural contexts, particularly in relation to participatory MRV, aggregation mechanisms and governance arrangements. The evidence generated will inform the design of scalable, inclusive and high-integrity carbon systems.

Strengthen partnerships among research institutions, government agencies and private sector actors to support implementation and system development. Such collaboration is essential to mobilise technical expertise, financing and market access, while also strengthening local capacity. Particular attention should be given to supporting community-based organisations, cooperatives and intermediary structures that enable forest owners to engage more directly in MRV processes, governance mechanisms and market transactions.

Promote the establishment of multi-stakeholder coordination platforms for forest carbon to improve alignment across sectors, actors and system components. These platforms should facilitate policy dialogue, coordination of pilot initiatives and integration of technical systems with emerging national carbon market frameworks, including Decree 29/ND-CP. It should also serve as a mechanism to connect local implementation with national policy processes, ensuring that community-based governance models and participatory approaches are embedded within system design.

Initiate the gradual integration of pilot experiences into policy and regulatory frameworks to support scaling. Lessons from implementation should inform the development of standardised approaches to MRV, aggregation and benefit-sharing, enabling a transition from fragmented pilot initiatives towards a coherent and integrated carbon system. This process is critical for strengthening system consistency, reducing uncertainty and improving Vietnam's positioning in higher-integrity carbon markets.

II. BACKGROUND AND OBJECTIVES

2.1 Context

Global carbon markets have expanded significantly over the past decade as countries and private actors seek cost-effective pathways to achieve climate mitigation targets. Both compliance and voluntary markets are evolving towards stricter requirements on environmental integrity, transparency and accountability. Increased scrutiny over carbon credit quality has led to the development of more rigorous standards, enhanced verification systems and strengthened safeguards to ensure that emission reductions are real, measurable and additional. Mechanisms under Article 6 of the Paris Agreement are also enabling new forms of international cooperation through the transfer of mitigation outcomes, further shaping market structure and demand.

Forest-based carbon has become a key component within this evolving landscape. Forest ecosystems provide scalable carbon sequestration potential while delivering co-benefits such as biodiversity conservation, water regulation and climate resilience. They play a critical role in the global carbon cycle by absorbing atmospheric CO_2 and storing it in biomass and soils. Continued land-use change and emissions from fossil fuel consumption have increased the importance of forest carbon as part of mitigation strategies. As a result, forest carbon initiatives are increasingly integrated into voluntary markets, compliance systems and results-based finance mechanisms such as REDD+.

Vietnam is positioning itself within this transition through its commitment to achieving Net Zero emissions by 2050 and the gradual development of a domestic carbon market. National greenhouse gas emissions are estimated at over 400 $MtCO_2e$, with agriculture, forestry and land use (AFOLU) and energy sectors as major contributors (MONRE, Biennial Updated Report, 2022)[1]. National strategies, including the National Strategy on Climate Change and the Green Growth Strategy, provide direction for integrating climate mitigation with economic development. At the same time, Vietnam continues to participate in voluntary carbon markets, REDD+ programmes and results-based climate finance initiatives.

Forest ecosystems are central within this context. Vietnam's forest area is estimated at approximately 14.7 million hectares, largely located in upland and mountainous regions (MARD/VNFOREST, Forest Status Report, 2023)[2]. These areas provide essential ecosystem functions, including carbon sequestration, biodiversity conservation, hydrological regulation and protection against climate-related risks. They also support the livelihoods of millions of forest-dependent households, particularly in regions with high concentrations of ethnic minority communities.

Forest governance in Vietnam reflects a diversity of tenure arrangements and institutional structures. Land and forest resources are managed through a combination of state agencies, households, communities and organisations with legally recognised use rights. Over the past decade, community-based forest management has expanded, supported by legal frameworks that recognise community tenure and collective management practices. These arrangements influence how forest resources are managed and how carbon-related activities can be organised across different contexts.

Carbon-related mechanisms have developed within this broader governance landscape. Payment for Forest Environmental Services (PFES) has established a domestic system for monetising ecosystem services, linking forest protection with financial transfers from downstream users such as hydropower and water supply companies. REDD+ programmes have introduced results-based financing linked to emission

[1] https://vnforest.gov.vn/wp-content/uploads/2025/03/Summary-Report_view.pdf?utm_source=chatgpt.com
[2] https://vnforest.gov.vn/wp-content/uploads/2025/03/Summary-Report_view.pdf?utm_source=chatgpt.com

reductions from deforestation and forest degradation. Voluntary carbon projects have created additional channels for accessing international carbon markets. These mechanisms operate alongside emerging domestic carbon market regulations, contributing to a diverse and evolving system.

Institutional arrangements for carbon and forest management involve multiple sectors and levels of government. Responsibilities are distributed across forestry, environmental and climate policy domains, with coordination mechanisms continuing to develop. Implementation involves interactions between national frameworks, provincial authorities, community organisations and external actors. This multi-level structure shapes how carbon systems are operationalised and how roles and responsibilities are defined in practice.

Technical systems form a central component of carbon market development. Measurement, Reporting and Verification (MRV) systems rely on standardised methodologies, data collection processes and verification procedures to ensure consistency and credibility in carbon accounting. These systems involve technical agencies, project developers and local stakeholders, and require sustained financial and institutional support. Their design and accessibility influence how carbon activities are implemented across different regions and organisational structures.

Forest landscapes in Vietnam are characterised by fragmented landholdings and varied management arrangements. Household-based management, community forestry and state-managed forest areas coexist within the same regions. These structures affect the scale at which carbon activities can be implemented and influence the organisation of projects, including aggregation, monitoring and participation. Collective organisational models, such as community forest management groups and cooperatives, are increasingly used to coordinate activities across dispersed forest areas.

Vietnam's carbon system is therefore developing within a context of multiple interacting components, including policy frameworks, governance arrangements, technical systems and market mechanisms. These components are evolving in parallel, reflecting an ongoing process of system formation. The effectiveness of carbon market development depends on how these elements are coordinated and how roles are structured across actors and levels.

At the same time, carbon initiatives are increasingly linked to broader development objectives. Forest carbon activities intersect with goals related to sustainable land use, biodiversity conservation and rural livelihoods. Integrating carbon finance with these objectives can support more comprehensive approaches to ecosystem management and economic development. This requires alignment between carbon market instruments and national strategies in forestry, agriculture and climate policy.

The combination of global market developments, national policy frameworks and local governance structures shapes the context in which forest carbon systems are emerging in Vietnam. Understanding these elements provides a basis for analysing how carbon systems can be organised, how participation is structured and how value is generated across different components of the system.

2.2. Community-Based Forest Governance and Carbon System Formation

Over the past decade (2015–2025), Consultant on Development (CODE) and Social Policy Ecology Research Institute (SPERI) have focused on developing watershed-based forest co-governance models grounded in legally recognised community rights and endogenous capacity. These efforts have centred on securing legal recognition of community-managed forest territories, including boundaries, customary laws and belief systems associated with sacred forests, watershed protection forests and livelihood forests.

These governance systems are embedded in traditional ecological knowledge and community-specific practices that reflect long-standing relationships between local ethnic communities and their ecosystems.

A key outcome of this process has been the formal recognition of community forest tenure and customary governance systems across multiple administrative levels. A total of 45 communities across diverse cultural and geographical contexts in the Mekong sub-region have obtained legal recognition of their land and forest use rights. Customary institutions have been incorporated into governance arrangements from village (Buôn, Bản, Sóc) to district levels and reflected in provisions of the Vietnamese Forest Law No. 16/2017/QH14. This demonstrates that community-based governance can be institutionalised within national legal frameworks, providing a legally grounded foundation for collective forest management and watershed stewardship.

This trajectory builds on more than three decades (2015-2035) of engagement by SPERI and its predecessor and concurrent organisations, including Towards Ethnic Women (TEW), Centre for Human Ecology Study of Highlands (CHESH), Centre for Indigenous Knowledge and Development (CIRD), Centre for Community Entrepreneur Development (CENDI) and CODE. These organisations have consistently worked with indigenous and local communities to strengthen endogenous values and cultural systems centred on the principle of "nurturing nature." This principle underpins community-based governance approaches that integrate ecological stewardship, cultural identity and livelihood systems within watershed ecosystems.

Based on this foundation, CODE and SPERI have developed a comprehensive body of empirical evidence, training materials and policy contributions supporting community-based forest governance. These outputs have been disseminated through multiple platforms and have informed legal and regulatory processes related to land and forest governance. This reflects a sustained process of linking local practice with institutional development, positioning co-governance as a viable and scalable governance approach.

At the regional level, members of the Key Farmer Network (KFN) in the Mekong sub-region have articulated a strategic orientation that combines the preservation of community self-management with engagement in emerging carbon market systems. This includes strengthening endogenous capacity, reinforcing collective governance and managing territories based on legally recognised rights. The development of community entrepreneurs and community agro-forestry cooperatives is identified as a priority to enable local actors to organise production, manage resources and engage with carbon market mechanisms. Independent evaluations conducted in 2020 confirm progress in strengthening these organisational structures and community capacity.

Recent developments in forest carbon policy have introduced new dynamics into this governance landscape. The issuance of Decree 107/2022 on emission reduction transactions in the North Central region represents an early step in operationalising forest carbon finance. Implementation experiences indicate that forest owners were not systematically informed, engaged or involved in decision-making processes. In response, SPERI has provided analytical feedback to highlight the implications of carbon transactions for forest owner rights under existing land and forest legislation, contributing to policy dialogue on carbon governance.

To strengthen the technical basis for community participation, CODE and SPERI initiated pilot research (2023–2024) on forest carbon measurement, including the application of biomass estimation methodologies in community-managed forest systems. These pilots position forest owners as direct participants in measurement processes, strengthening their understanding of carbon valuation and technical systems. The results have been disseminated through publications and technical workshops,

including a national workshop in 2025, contributing to broader institutional awareness and knowledge exchange.

At the same time, external institutional factors are reshaping the operational environment. Administrative reforms aimed at restructuring sub-national governance and reducing bureaucratic costs are altering institutional arrangements for land and forest management. In parallel, new regulatory requirements governing international cooperation, including Decree 313/2025, are redefining modalities for engagement between domestic organisations and international partners. These changes require organisational adaptation while maintaining continuity in community-based approaches.

Within this evolving context, CODE and SPERI are repositioning their roles. CODE focuses on research and analysis related to CCSC, value creation and governance systems, while SPERI continues to strengthen community-based organisations, including community forestry cooperatives and networks of community entrepreneurs. These two organisational structures function as core operational nodes within forest carbon systems. Community forestry cooperatives, under the leadership of community entrepreneurs, act as legally recognised representatives of forest owners and form the foundational link in CCSC, connecting forest management, governance and market transactions.

This transition is grounded in a broader understanding of ecosystem stewardship. Community-based practices emphasise ecological protection and restoration, soil health and the maintenance of biogeochemical cycles within watershed ecosystems. Strengthening forest biomass, carbon storage capacity, and ecosystem functions is not only a technical objective but part of a broader approach to sustaining ecological systems and livelihoods. Within this perspective, carbon is understood as an element of life systems rather than solely as a tradable commodity, raising important considerations for how carbon markets are conceptualised and governed.

The organisation of the 2026 symposium on **"Carbon credit supply chain, added values and watershed co-governance strategy"** reflects a strategic transition from community-based forest governance towards engagement with carbon market systems. It aims to connect established governance foundations with emerging CCSC, value creation processes and institutional arrangements. This historical trajectory provides a concrete institutional and operational basis for shaping carbon systems that integrate governance, participation and ecological integrity.

2.3 Problem Statement

Vietnam's forest carbon system remains in a formative stage, where key components are developing in parallel rather than as a coherent and integrated system. At its core, the system is shaped by structural fragmentation across governance arrangements, technical processes and market mechanisms. This fragmentation defines how carbon value is generated, accessed and distributed, and constrains both system performance and participation.

A primary issue lies in the limited integration of existing carbon-related mechanisms. Instruments such as PFES, REDD+, voluntary carbon projects and emerging domestic carbon market frameworks operate under different standards, methodologies and institutional arrangements. The absence of alignment across these mechanisms results in inconsistencies in implementation, duplication of processes and weak linkages between project-level activities and national systems. This reduces efficiency, increases transaction costs and limits scalability within a unified framework.

Governance arrangements further reinforce these constraints. Responsibilities for forest management, climate policy, carbon accounting and market regulation are distributed across sectors and administrative

levels, with coordination mechanisms still evolving. Roles, rights and benefit-sharing arrangements related to carbon remain insufficiently defined, particularly for forest-dependent communities. This lack of clarity affects accountability, weakens institutional coordination and creates uncertainty for both implementation and investment.

Technical systems, particularly MRV, present additional structural constraints. These systems require specialised methodologies, technical expertise and sustained financial resources, which are not uniformly accessible across actors. Their complexity shapes participation patterns within the system, with technical processes largely controlled by specialised agencies and service providers. As a result, access to carbon accounting, certification and market participation is uneven, reinforcing dependence on intermediaries and limiting broader engagement.

The position of forest-dependent communities within the system reflects these structural dynamics. Although they play a central role in carbon generation through forest protection and management, their participation in carbon markets remains largely indirect. Access to information, technical systems and decision-making processes is limited, while engagement in market transactions is typically mediated through external actors. This constrains their ability to influence system design, negotiate terms and capture value.

Organisational characteristics of forest landscapes further affect system functionality. Fragmented landholdings, small-scale management and varying institutional capacities limit the feasibility of implementing carbon activities at scale. In the absence of effective aggregation mechanisms and collective organisational structures, it is difficult to achieve cost efficiency in MRV, certification and market access. This reinforces structural barriers to participation and limits the competitiveness of forest carbon initiatives.

These factors collectively shape an uneven distribution of value across the system. A significant share of financial and decision-making value is concentrated in stages related to project development, certification and market transactions, where local actors have limited presence. Upstream actors, despite generating carbon value, capture a relatively small share of benefits and have constrained influence over system processes.

At a systemic level, these dynamics affect Vietnam's ability to position itself within evolving carbon markets. Increasing requirements on integrity, traceability and social safeguards favour systems that demonstrate coherence, transparency and inclusive participation. Without addressing structural fragmentation, limited access to technical systems and weak positioning of upstream actors, the transition towards higher-value and higher-integrity market participation remains constrained

This problem reflects a system in transition, where institutional arrangements, technical systems and market mechanisms are still being defined and aligned. How these components are organised will determine the extent to which forest carbon systems can function effectively, support equitable participation and contribute to both climate mitigation and broader development outcomes.

2.4 Objectives

This symposium aims to strengthen knowledge and practical understanding of forest carbon systems in Vietnam, with a focus on tropical forest and mangrove ecosystems. It contributes to a clearer understanding of carbon credit concepts in domestic market transactions, particularly the structure and functioning of the forest CCSC, including key processes, actors, and value flows from carbon generation

to market exchange. It further examines the added value generated within carbon systems and the role of watershed-based co-governance in structuring these value chains.

Building on this foundation, the symposium advances analytical and practical understanding of governance arrangements shaping forest carbon systems. It focuses on watershed-based co-governance models that align carbon management with landscape-level ecological and institutional processes, enabling coordination across actors and improving system integration. These discussions inform the design of carbon systems that connect community-based governance with national frameworks and market mechanisms.

The symposium also identifies and explores MRV approaches that ensure technical integrity while remaining operationally accessible. This includes examining pathways for integrating community-based monitoring into national MRV systems through participatory approaches that enhance data generation, validation and transparency. Particular attention is given to balancing credibility, feasibility and cost-effectiveness, while strengthening the role of local actors within carbon accounting processes.

In addition, the symposium initiates a applied research pilot to translate conceptual approaches into operational models. The first pilot focuses on a watershed co-governance model involving 525 forest owners across eight communities managing 9,700 hectares of natural production forest in Cao Quang commune in Quang Tri province.

Finally, the symposium strengthens linkages between policy frameworks, implementation practices and community participation. By connecting regulatory developments with empirical models and locally embedded institutions, it supports the design of forest CCSC that are coherent, scalable and inclusive. This contributes to positioning Vietnam in higher-integrity carbon markets through improved system coherence, transparency and equitable participation.

2.5 Key Questions

The symposium is guided by three central questions.

First, how is the carbon value structured, generated and distributed across the forest CCSC? This examines the roles of key actors, including forest owners, intermediaries and market entities, and how rights, responsibilities and revenues are defined across different stages of the supply chain. It also considers how different forms of value, economic, ecological and governance-related, are created and captured within emerging carbon systems, particularly under increasing requirements for integrity and traceability.

Second, how can forest-dependent communities position as active actors within carbon systems rather than indirect participants? This includes examining mechanisms to strengthen their roles in governance, data generation and decision-making processes, while addressing information and capacity asymmetries. It also considers how participation and benefit-sharing can be structured to reflect legally recognised rights, collective organisation and local institutional capacity within carbon market systems.

Third, what governance arrangements are most effective in linking forest management, carbon accounting and market systems within an integrated framework? This involves assessing models of watershed-based co-governance, multi-level coordination and institutional alignment to support system coherence, scalability and transparency. It also examines how governance, technical systems and organisational structures can be configured to enable inclusive and credible carbon systems in a context of ongoing system formation.

III. UNDERSTANDING THE CARBON CREDIT SUPPLY CHAIN

3.1 Overview of the Supply Chain: Carbon Generation to Market Transactions

Box 1. Forest Carbon Supply Chain and Co-Governance

Forest carbon systems link carbon generation, MRV and certification processes with market transactions, where carbon sequestration is translated into tradable credits exchanged between forest owners and emitters. Governance is maintained through the interaction of multiple actors, including forest owners, intermediaries, government authorities and independent oversight bodies.

The forest carbon credit supply chain (CCSC) comprises a sequence of interdependent technical and institutional processes that connect carbon generation at the forest level with the issuance and exchange of carbon credits. It links land-based activities with accounting systems, certification procedures and market transactions, forming the operational structure through which carbon outcomes are translated into measurable and tradable units.

Carbon generation constitutes the initial stage of the supply chain. It occurs through forest protection, restoration, enrichment and sustainable management practices that maintain or enhance carbon stocks or reduce emissions from deforestation and degradation. These activities take place across diverse forest types and management regimes, including household-managed forests, community forestry systems and state-managed forest areas. The scale, continuity and effectiveness of these practices influence the volume and reliability of carbon outcomes over time.

The next stage involves MRV, which translates biophysical changes in forest systems into quantifiable carbon data. Measurement is conducted through a combination of field-based forest inventories, biomass estimation models and remote sensing technologies. These approaches are used to estimate carbon stocks and monitor changes over time based on standardised methodologies. Reporting ensures that data is documented in a consistent format aligned with recognised protocols, enabling traceability and comparability across projects and jurisdictions. Verification involves independent assessment by accredited entities to confirm that reported data complies with methodological requirements and quality standards. This stage is essential for converting physical changes in forest carbon into validated emission reductions or removals.

Certification follows verification and formalises carbon outcomes into tradable credits. Certification bodies assess whether projects meet established criteria, including additionality, permanence, leakage control and compliance with environmental and social safeguards. Based on verified data and compliance assessment, carbon credits are issued under recognised standards applicable to voluntary or compliance markets. Certification processes require detailed documentation, adherence to protocols and periodic reassessment to maintain credit validity over time.

Aggregation functions as a cross-cutting component within the supply chain. It involves consolidating carbon outcomes across multiple forest areas, actors or management units into a single project or programme. Aggregation enables coordination of data collection, standardisation of methodologies and reduction of per-unit transaction costs associated with MRV and certification. It is typically organised

through cooperatives, community-based organisations, project developers or other intermediary structures that coordinate activities across dispersed forest areas. Effective aggregation depends on clear organisational arrangements, consistent data systems and mechanisms for coordinating participation among multiple actors.

The final stage involves market transaction, where certified carbon credits are transferred to buyers through contractual arrangements or trading platforms. Transactions may occur in voluntary markets, compliance systems or through bilateral agreements, depending on the applicable regulatory framework. Market processes define pricing, delivery schedules, contractual obligations and risk allocation between parties. Intermediaries, including brokers and service providers, may facilitate transactions by connecting supply with demand, structuring agreements and managing administrative processes.

Across these stages, the CCSC operates as a connected system in which outputs from one stage serve as inputs for the next. The integrity and functionality of the overall system depend on the consistency of methodologies, the reliability of data and the coordination of actors and processes. Disruptions or inconsistencies in one stage can affect subsequent stages, influencing the quality, eligibility and transferability of carbon credits.

In practice, the implementation of CCSC involves interactions between multiple technical systems and institutional arrangements. Data flows from field-level measurements to reporting systems, verification processes and certification platforms, requiring interoperability and standardisation. Organisational structures are required to coordinate activities across actors, particularly in contexts where forest management is fragmented across multiple landholders and administrative units.

The CCSC therefore provides a structured framework for organising carbon-related activities from generation to exchange. It defines how carbon outcomes are measured, validated and converted into economic value, while establishing the sequence of processes required for participation in carbon markets. Understanding this structure is essential for analysing how different components of the system function and how processes are coordinated across stages.

3.2 Key Actors

The CCSC involves a set of actors operating across different stages of carbon generation, accounting, certification and market exchange. These actors perform distinct but interconnected roles, and their interactions determine how processes are coordinated and how the system functions in practice.

Forest owners represent the starting point of the supply chain. This group includes individual households, local communities, community forestry organisations and state forest management entities holding legally recognised rights to use and manage forest land. They implement forest protection, restoration and sustainable management practices that generate carbon outcomes. Their activities form the biophysical basis of the system, as carbon stocks are maintained or enhanced through land use decisions and long-term stewardship.

Community-based organisations, cooperatives and forest owner groups operate as coordinating entities at the local level. They organise participation among households and communities, consolidate forest areas and facilitate collective management practices. These structures support coordination of field activities, enable data collection at scale and serve as organisational interfaces between local actors and external technical or institutional processes. Their effectiveness depends on governance arrangements, organisational capacity and clarity of roles within the system.

Project developers and technical service providers play a central role in designing and implementing carbon projects. They develop project documentation, select and apply methodologies, and organise MRV processes in accordance with recognised standards. These actors coordinate data collection, manage reporting systems and prepare submissions for verification and certification. They often operate as intermediaries between forest owners and carbon markets, translating technical requirements into operational procedures and ensuring compliance with standards.

Verification bodies function as independent entities responsible for assessing the accuracy and reliability of reported carbon data. They conduct audits based on established methodologies and standards, reviewing field measurements, data processing procedures and documentation. Verification ensures that carbon outcomes meet required levels of accuracy, consistency and transparency before proceeding to certification. These entities are accredited under specific standards and operate according to defined protocols.

Certification bodies are responsible for issuing carbon credits based on verified outcomes. They evaluate compliance with criteria such as additionality, permanence and safeguards, and formalise emission reductions or removals into tradable units. Certification establishes the eligibility of carbon credits for participation in market systems and requires periodic reassessment to maintain validity over time.

Government agencies operate across multiple levels and functions within the CCSC. They establish legal and regulatory frameworks, define carbon accounting rules and oversee implementation of carbon-related mechanisms. National authorities develop policies and standards, while sub-national agencies support implementation, coordination and enforcement. Public institutions may also manage data systems, register carbon credits or facilitate integration with national greenhouse gas accounting systems.

Market actors include buyers, brokers and intermediaries who facilitate the exchange of carbon credits. Buyers may consist of private companies, public institutions or financial entities seeking to offset emissions or meet regulatory requirements. Brokers and service providers connect supply with demand, support contract negotiation and manage transaction processes. These actors operate within market frameworks that define pricing, contractual conditions and delivery requirements.

Financial institutions and investment entities may also participate by providing capital for project development, MRV implementation and certification processes. Their involvement supports the mobilisation of resources required to operationalise carbon activities and sustain system functioning over time.

Across the supply chain, actors are connected through flows of data, finance and contractual relationships. Forest owners generate carbon outcomes, which are measured and documented through technical processes managed by project developers. Verification and certification entities assess and formalise these outcomes, enabling their transfer through market transactions facilitated by intermediaries and buyers. Government agencies provide the regulatory and institutional framework within which these interactions take place.

The organisation of actors across these stages shapes how the CCSC operates in practice. Their roles define responsibilities for data generation, process management and system oversight, while their interactions determine coordination across technical and institutional processes. Understanding these actor roles and relationships is essential for analysing how the supply chain is structured and how activities are implemented across different contexts.

3.3 Value Creation and Distribution

Value distribution within the CCSC is determined by how actors participate across stages of carbon generation, validation and market exchange, and by their access to technical processes, information systems and market interfaces. While value is generated progressively along the supply chain, its allocation varies depending on roles, capabilities and positioning within the system.

At the upstream level, forest owners and communities generate the foundational value through forest protection, restoration and sustainable management. These activities maintain and enhance carbon stocks, providing the biophysical basis for emission reductions or removals. However, this value remains latent until it is quantified and validated through subsequent stages. Upstream actors typically operate at the level of land management and ecological processes, with limited direct engagement in technical and market functions.

As carbon outcomes move into MRV processes, value becomes measurable and standardised. Actors involved in measurement, data processing and reporting contribute to the transformation of biophysical changes into quantified carbon units. Verification further consolidates this value by confirming data accuracy and compliance with methodological requirements. Participation in these stages requires technical expertise, access to methodologies and data systems, and the ability to manage complex reporting procedures.

Certification establishes the formal status of carbon units and enables their transfer within market systems. Actors involved in certification processes manage compliance with standards, documentation and validation cycles. This stage determines whether carbon outcomes can be recognised as tradable credits, linking technical validation with market eligibility.

At the transaction stage, value is realised through exchange with buyers. Market actors, including intermediaries and brokers, facilitate pricing, contract structuring and transfer of credits. These processes define financial returns and determine how value is converted into revenue flows. Access to market information, negotiation capacity and contractual arrangements influence the outcomes of this stage.

The distribution of value across these stages reflects differences in access to technical systems, information and market interfaces. Actors involved in MRV, certification and transaction processes operate within structured technical and institutional frameworks, while upstream actors are primarily engaged in land-based activities. This separation of functions shapes how value is allocated and how participation is structured across the system.

Information asymmetry is a central factor influencing value distribution. Data generated through MRV processes determines credit volumes and compliance status, while market information influences pricing and transaction conditions. Actors with greater access to these information flows are positioned to manage processes and engage more directly in decision-making related to value realisation.

Transaction costs further affect value allocation. Costs associated with data collection, verification, certification and market participation are distributed across actors depending on their roles. These costs include technical assessments, documentation, auditing and contractual processes. The scale of implementation influences cost efficiency, as larger aggregated systems can reduce per-unit costs compared to fragmented approaches.

Institutional arrangements also shape value distribution. Organisational structures such as cooperatives, project developers or intermediary entities coordinate activities across actors and stages. These

structures manage data flows, represent participants in technical processes and facilitate interaction with certification and market systems. Their role in organising participation influences how value is channelled and allocated across different actors.

Temporal factors influence how value is distributed over time. Carbon outcomes are generated and verified over extended periods, requiring repeated cycles of measurement, reporting and validation. The timing of credit issuance and transactions affects when value is realised and how it is distributed across participants. Long-term project cycles also require sustained engagement from actors across stages.

In practice, value distribution within the CCSC reflects the interaction of ecological processes, technical systems and institutional arrangements. It is shaped by the organisation of roles, access to information and the structure of participation across stages. Understanding these dynamics is essential for analysing how value flows through the system and how different actors engage with carbon-related activities.

3.4. Added Value Outcomes

Beyond financial value captured within CCSC, forest carbon systems generate additional forms of value that extend beyond market transactions. These added value outcomes reflect how carbon systems interact with ecological processes, social relations, economic structures and governance systems. Understanding these dimensions is critical for assessing the broader contribution of forest carbon beyond carbon pricing and credit issuance.

First, forest carbon systems contribute to the strengthening of ecological capital. Activities associated with carbon generation—such as forest protection, restoration and sustainable management—support the conservation of forest ecosystems, enhance biodiversity and improve soil quality. In watershed landscapes, these processes contribute to water regulation and the stability of hydrological systems. Increased biomass and improved ecosystem functions also enhance carbon sequestration capacity and contribute to atmospheric regulation. These outcomes position forest carbon systems as integral to ecosystem restoration and long-term environmental resilience.

Second, carbon systems generate social capital through the reconfiguration of relationships among actors. Transparent and accountable processes linking forest owners, carbon buyers, public authorities and intermediaries contribute to building trust and strengthening cooperation. Community-based governance models further reinforce collective organisation, local accountability and shared decision-making. These dynamics are particularly important in contexts where participation, information access and institutional trust influence the effectiveness and legitimacy of carbon systems.

Third, forest carbon systems provide a basis for strengthening economic capital beyond direct carbon revenues. By linking carbon finance with sustainable forest management and local production systems, they create opportunities for developing circular and green economic activities. This includes the integration of forest-based livelihoods, agroecological practices and value-added production systems that reinforce local economies while maintaining ecological integrity. In this sense, carbon systems can act as enabling mechanisms for broader economic transformation rather than isolated revenue streams.

Finally, forest carbon systems contribute to the formation of governance capital, reflected in improved institutional arrangements and policy coherence. The integration of carbon accounting, forest management and market mechanisms requires coordination across sectors and levels of governance. This process can strengthen institutional capacity, clarify roles and support the development of regulatory frameworks aligned with national development objectives. In the Vietnamese context, these dynamics contribute to shaping a market system that balances economic efficiency with social inclusion and state oversight

These four dimensions of added value—ecological, social, economic and governance—highlight that forest carbon systems function not only as market mechanisms but as integrated socio-ecological systems. Their effectiveness depends not only on the generation of carbon credits but also on how these broader values are sustained, coordinated and embedded within system design and implementation.

3.5 Implications for Vietnam

The structure and functioning of the CCSC carry direct implications for how Vietnam organises its forest carbon system and positions itself within evolving carbon markets. These implications relate to system coherence, institutional coordination, participation structures and the ability to meet increasing requirements on integrity and transparency.

A first implication concerns the need to organise carbon-related mechanisms into a coherent system rather than maintaining parallel and loosely connected arrangements. Existing instruments, including PFES, REDD+ programmes, voluntary carbon projects and emerging domestic carbon market frameworks, operate with different methodologies, reporting systems and institutional configurations. The CCSC highlights the importance of aligning these components across stages of carbon generation, MRV, certification and transaction. Without such alignment, inconsistencies in data, duplication of processes and gaps between project-level implementation and national accounting systems are likely to persist.

Institutional coordination across sectors and administrative levels is a second key implication. The CCSC involves interactions between forestry management, climate policy, environmental regulation and market systems. Responsibilities for these functions are currently distributed across multiple agencies, requiring clear definition of roles and mechanisms for coordination. Effective system operation depends on how these institutional arrangements are structured, including linkages between national frameworks, provincial authorities and local implementation entities. Strengthening coordination mechanisms is necessary to ensure consistency in standards, data management and system oversight.

The organisation of technical systems, particularly MRV, represents another critical implication. MRV processes determine how carbon outcomes are measured, reported and validated, and therefore influence system credibility and eligibility within carbon markets. In the Vietnamese context, this requires developing standardised methodologies, ensuring compatibility between project-level MRV systems and national greenhouse gas accounting frameworks, and establishing data management systems that support consistency and traceability. Accessibility of MRV processes is also a key consideration, as technical complexity and cost affect how different actors can participate in the system.

Aggregation emerges as a central organisational requirement within the CCSC. Forest landscapes in Vietnam are characterised by fragmented landholdings and diverse management arrangements, which limit the feasibility of implementing carbon activities at scale. Aggregation mechanisms, including cooperatives, community-based organisations and programme-level approaches, are necessary to consolidate forest areas, coordinate data collection and reduce transaction costs associated with MRV and certification. The design and governance of these aggregation structures influence how participation is organised and how processes are managed across dispersed actors.

Participation structures within the CCSC also have important implications. Forest-dependent communities and local actors play a fundamental role in carbon generation through forest management activities. However, their participation in technical processes and market transactions is mediated through organisational and institutional arrangements. Strengthening participation requires improving access to information, technical systems and decision-making processes, as well as establishing organisational models

that enable collective engagement. This includes clarifying roles within aggregation structures and ensuring that local actors are effectively represented in system implementation.

Data systems and information flows represent another critical dimension. The CCSC depends on consistent and reliable data across stages, from field-level measurements to reporting, verification and certification. Establishing interoperable data systems, standardised reporting formats and clear data governance arrangements is necessary to support system functionality. Data management also relates to transparency and accountability, as information on carbon outcomes, credit issuance and transactions must be accessible and verifiable across actors.

Transaction processes and market interfaces introduce additional implications. Participation in carbon markets requires the ability to engage with buyers, manage contractual arrangements and comply with delivery conditions. This involves not only technical readiness but also institutional capacity to negotiate, manage risks and ensure compliance with market requirements. The organisation of transaction processes influences how carbon credits are transferred and how financial flows are managed within the system.

Temporal dimensions of the CCSC further affect system design. Carbon projects operate over multi-year cycles, requiring sustained implementation of forest management practices and repeated MRV processes. Certification and credit issuance occur periodically, while market transactions may follow different timelines. This requires institutional arrangements capable of managing long-term processes, ensuring continuity of data and maintaining compliance with standards over time.

The CCSC also highlights the importance of integrating carbon systems with broader policy frameworks. Forest carbon activities intersect with national strategies on climate change, forestry, land use and rural development. Aligning carbon market mechanisms with these policies supports consistency in implementation and enables synergies with existing programmes. This includes coordination with PFES and REDD+ mechanisms, as well as integration with national greenhouse gas inventories and reporting systems.

Financial and capacity-related considerations are also relevant. Implementation of CCSC requires investment in technical systems, including MRV infrastructure, data management platforms and certification processes. It also requires strengthening capacities of public agencies, technical service providers and local organisations. These investments influence system functionality and determine how effectively different actors can participate in carbon-related activities.

Overall, the CCSC provides a structured framework for understanding how carbon systems can be organised and how processes are coordinated across stages. For Vietnam, its implications point to the need for system integration, institutional alignment, accessible technical processes and effective aggregation mechanisms. How these elements are organised will shape the functionality of the carbon system, the coordination of actors and the implementation of carbon-related activities across different contexts.

IV. WORKSHOP DESIGN AND METHODOLOGY

4.1 Format Expert symposium

he workshop is designed as an expert symposium to facilitate structured dialogue among policymakers, researchers and practitioners on forest carbon systems in Vietnam. The format combines analytical

presentations, thematic panel discussions and plenary sessions to ensure both depth of technical exchange and synthesis across perspectives.

Presentations provide the analytical foundation for the symposium. Experts introduce evidence on carbon market development, MRV systems, governance arrangements and community-based approaches. These inputs clarify key concepts, methodologies and policy developments, and highlight practical experiences from Vietnam and comparable contexts. The presentation format enables focused examination of specific components of the carbon credit supply chain, including technical, institutional and market dimensions.

Panel discussions are organised around thematic areas, bringing together speakers with complementary expertise to examine key issues from multiple perspectives. Panels facilitate critical discussion on governance models, MRV implementation, value distribution and participation of forest-dependent communities. This format allows comparison of approaches, identification of constraints and exploration of potential solutions, particularly in integrating technical systems with institutional and social considerations.

Plenary sessions are used to synthesise insights across presentations and panels. These sessions enable participants to engage in open discussion, validate key findings and identify areas of convergence and divergence. Plenary exchanges support consolidation of core messages, including challenges, opportunities and implications for policy and practice.

The overall methodology emphasises a multi-stakeholder and evidence-based approach. By combining technical analysis with participatory dialogue, the symposium aims to generate insights that are both analytically grounded and relevant for implementation. This structure ensures that discussions move beyond isolated perspectives towards a more integrated understanding of forest carbon systems..

4.2 Participants

Dưới đây là bản **đã chỉnh về thì hiện tại**, đồng thời tinh chỉnh nhẹ để đảm bảo **logic chặt – thuật The symposium brings together a diverse group of stakeholders directly involved in forest carbon systems. Policymakers from central and sub-national agencies participate to provide perspectives on regulatory frameworks, carbon market development and alignment with national climate and forestry strategies. Their involvement ensures that discussions are grounded in current policy processes and implementation realities.

Researchers contribute analytical insights on carbon accounting, MRV methodologies, governance models and ecosystem dynamics. Their inputs support evidence-based discussion and help clarify technical requirements and methodological considerations relevant to forest carbon systems.

Representatives of forest-dependent communities and community forestry groups participate as key actors in carbon generation. Their contributions provide practical perspectives on forest management, local governance arrangements and constraints in accessing carbon market mechanisms.

Non-governmental organisations facilitate dialogue across stakeholder groups, contribute experience in community engagement and support analysis of governance and inclusion issues. Private sector actors, including project developers and carbon market participants, provide insights on project design, certification processes, financing and market dynamics.

4.3 Approach

The symposium applied a multi-stakeholder approach to reflect the complexity of forest carbon systems, which involve interactions between governance, technical processes and market dynamics. Participants from government, research institutions, communities, civil society and the private sector engaged in structured dialogue to examine how different actors contribute to and are affected by carbon market development. This approach enables identification of coordination gaps across institutions and highlighted the need for alignment between policy frameworks, implementation mechanisms and market requirements.

A participatory approach is adopted to ensure that perspectives from forest-dependent communities and local organisations were incorporated into the analysis. Rather than treating communities solely as implementers, the discussions position them as key actors in carbon generation and governance. This facilitated reflection on practical constraints related to land tenure, technical capacity and access to carbon market systems, and allowed the identification of locally grounded solutions, including collective organisation and participatory monitoring.

The symposium is structured around an evidence-based approach, drawing on research findings, policy analysis and implementation experience. Presentations and discussions were informed by existing carbon initiatives, including MRV systems, REDD+ programmes and voluntary carbon projects. This ensures that the dialogue is grounded in empirical evidence and practical experience rather than conceptual assumptions. It also supported comparison across approaches and identification of conditions required for scaling.

A co-governance framing is applied to integrate these perspectives into a coherent analytical lens. This framing emphasises share responsibilities among state agencies, local institutions and market actors in managing forest carbon. It recognises that effective carbon systems require coordination across administrative levels and ecological scales, particularly at watershed and landscape levels. By focusing on co-governance, the symposium moved beyond sector-specific approaches towards a more integrated understanding of how carbon markets can be designed and implemented to support both environmental integrity and equitable participation.

V. SUMMARY OF SESSIONS

5.1 Opening: Framing the Transformation

The opening session positions forest carbon within a broader transition towards circular and regenerative economic models. Rather than treating natural resources as inputs for extraction, the discussion emphasises the need to manage ecological systems as renewable assets that sustain long-term value. Forest ecosystems are framed not only as carbon reservoirs but as integrated systems providing multiple functions, including biodiversity conservation, water regulation and livelihood support. In the Vietnamese context, this framing is particularly relevant given the strong interdependence between forest ecosystems, rural livelihoods and landscape-level environmental functions.

This perspective challenges conventional approaches to carbon markets that focus primarily on quantifiable emission reductions. It highlights the limitations of treating carbon as a standalone commodity detached from broader ecological and social systems. Instead, the session emphasises that carbon value is embedded within landscape-level processes and cannot be effectively managed through isolated, project-

based interventions. This aligns with observed fragmentation in existing carbon initiatives, where project-based approaches often fail to capture system-wide dynamics and long-term value creation.

The discussion also underscores the importance of shifting from short-term, transaction-driven models towards approaches that prioritise sustainability, resilience and system coherence. This includes recognising the interdependence between carbon, ecosystems and local economies, and aligning carbon initiatives with long-term land-use and development strategies. Such a shift is critical for addressing imbalances in value distribution and strengthening linkages across the carbon credit supply chain.

The key implication is that carbon governance must be approached as a systemic issue rather than a purely market-based mechanism. Effective carbon systems require integration of ecological management, institutional coordination and market instruments, ensuring that carbon finance supports both environmental integrity and sustainable development outcomes. This systemic approach is also essential for strengthening Vietnam's positioning in emerging carbon markets, where increasing emphasis is placed on high-integrity credits, transparency and demonstrable co-benefits.

5.2 Carbon Market and Policy Perspectives

This session examines policy and institutional approaches to carbon markets from both national and international perspectives, focusing on how carbon systems are framed within broader development strategies, governance arrangements and implementation contexts.

Discussions highlight that carbon markets are increasingly positioned as instruments for mobilising finance to support forest protection, ecological restoration and rural development. Rather than being treated solely as offset mechanisms, carbon systems are considered within wider economic and policy frameworks linking natural resource management with long-term development pathways. This framing emphasises the role of policy design in determining how carbon-related activities contribute to broader socio-economic and environmental objectives, including sustainable land use, biodiversity conservation and rural livelihoods.

Contributions also reflect the current stage of development of Vietnam's carbon market system. Regulatory frameworks continue to evolve, while existing mechanisms such as PFES, REDD+ and voluntary carbon projects operate alongside emerging domestic carbon market structures. This coexistence of multiple instruments involves different standards, data systems and institutional arrangements, shaping how carbon activities are implemented across contexts. Variations in methodologies, reporting requirements and institutional roles influence project design, data management and coordination across levels.

From a technical perspective, the session highlights the role of MRV systems in establishing the credibility of forest carbon credits. MRV processes combine remote sensing technologies, field-based measurements and independent verification to generate and validate carbon data. These systems provide the basis for quantifying carbon outcomes, ensuring consistency in reporting and supporting verification against recognised standards. Their design influences data quality, traceability and compliance within certification processes.

International experience presents during the session provides insights into the role of regulatory frameworks and institutional systems in supporting carbon markets. Examples from other countries illustrate the importance of standardised methodologies, verification procedures and structured systems for credit issuance and transaction management. These arrangements support coordination across actors,

enable consistency in implementation and provide mechanisms for managing data, compliance and credit flows within market systems.

At the same time, discussions address social dimensions of carbon market implementation. Challenges related to participation, access to information and knowledge gaps among Indigenous Peoples and Local Communities (IPLCs) are highlighted. Engagement in carbon systems requires not only technical capacity but also access to information, understanding of processes and the ability to interact with institutional structures. Strengthening carbon literacy and improving access to relevant information are identified as critical for enabling broader participation.

The role of participatory approaches within technical and governance processes is also examined. Integrating participatory elements into MRV systems and project implementation supports data collection, improves local understanding of carbon processes and facilitates coordination between technical actors and local stakeholders. These approaches influence how information is generated, shared and used across the system.

The session also reflects ongoing developments in global carbon markets, including increasing emphasis on additionality, permanence, traceability and safeguards. These evolving standards influence how carbon credits are evaluated, how projects are designed and how market participation is structured. Compliance requires adjustments in methodologies, documentation and verification processes, as well as alignment with recognised standards.

Across contributions, the session illustrates how carbon market systems are shaped by interactions between policy frameworks, technical processes and social considerations. Policy design influences system structure and coordination, technical systems determine how carbon outcomes are measured and validated, and social factors affect how actors participate. Together, these dimensions define how carbon activities are organised and implemented across contexts.

The perspectives presented highlight the diversity of approaches to carbon market development and the range of factors shaping system design and operation. They provide a basis for understanding how different elements interact and how carbon systems evolve in response to changing policy, technical and market conditions..

5.3 MRV Systems and Participation

This session focuses on Measurement, Reporting and Verification (MRV) systems as a central component of carbon market implementation, examining their technical design, operational requirements and implications for participation across different actors.

From a technical perspective, MRV is presented as a structured framework for quantifying, reporting and verifying forest carbon stocks and emission reductions. It combines field-based forest inventories, biomass estimation models and remote sensing data to generate consistent and measurable carbon information. Reporting processes organise this data according to recognised standards, while independent verification ensures accuracy and compliance with methodological requirements. These elements collectively support the production of verifiable carbon outcomes that can be assessed within certification systems.

The session highlights the importance of methodological consistency and data reliability in MRV implementation. Standardised approaches to measurement and reporting enable comparability across projects and facilitate integration with broader accounting systems. The use of remote sensing technologies alongside field-based data collection allows monitoring across large forest areas, while verification procedures provide assurance regarding data quality and adherence to established protocols.

Contributions also address the scale at which MRV systems are implemented. Applying MRV at broader ecological scales, such as watershed or landscape levels, improves consistency in data collection and reduces duplication across fragmented forest areas. Aggregation of multiple forest management units enables shared measurement systems, supports coordinated reporting and improves efficiency in verification processes. This approach requires coordination among actors and alignment of methodologies across participating units.

At the same time, the session examines challenges related to accessibility of MRV systems. Technical complexity, cost requirements and specialised knowledge are identified as key factors influencing participation. Engagement in MRV processes requires understanding of measurement techniques, data management and reporting procedures, which are not uniformly available across actors. These factors shape how different groups interact with MRV systems and how responsibilities are distributed across technical and organisational roles.

Discussions also explore approaches to expanding participation in MRV implementation. Participatory models are presented as a means of involving local actors in data collection and monitoring activities. These approaches include training community members in forest measurement techniques, integrating local ecological knowledge into monitoring processes and establishing mechanisms for local engagement in reporting activities. Such practices influence how data is generated and how information flows within the system.

Evidence shared during the session indicates that, with appropriate training and guidance, local actors can contribute to field measurements and monitoring activities with results comparable to those obtained by external technical teams. This has implications for how MRV processes are organised, particularly in contexts where forest areas are managed by multiple smallholders or communities. Participation in measurement activities supports data collection across dispersed areas and reduces reliance on external technical resources.

The session also highlights the relationship between technical systems and institutional arrangements in MRV implementation. Data generated through measurement and reporting processes is integrated into broader systems for verification, certification and accounting. This requires coordination between local actors, technical service providers and institutional entities responsible for data management and oversight. The organisation of these relationships influences how MRV systems function across stages of the supply chain.

In addition, discussions address the role of information access and capacity in shaping participation. Engagement in MRV processes depends on access to technical knowledge, training opportunities and information on system requirements. Capacity development and information sharing are identified as critical factors influencing how actors engage with MRV systems and how responsibilities are distributed across roles.

Overall, the session provides a detailed examination of MRV systems as both technical and organisational components within carbon market implementation. It highlights how measurement methodologies, data systems, verification processes and participation structures interact to shape how carbon information is generated, validated and used within broader system processes.

5.4 Governance, Aggregation and Market Linkages

This session focuses on institutional arrangements and organisational models for implementing forest carbon activities, with particular attention to governance structures, aggregation mechanisms and linkages to market processes across contexts.

Contributions examine the organisation of carbon activities within landscape and watershed contexts. Forest carbon implementation often spans multiple administrative units, forest types and tenure arrangements, requiring coordination across actors and levels. Approaches based on watershed or landscape boundaries are presented as operational units for planning, monitoring and coordination, enabling alignment between ecological processes and institutional arrangements. These approaches support consolidation across dispersed forest areas and provide a basis for integrating data collection, reporting and implementation functions.

Aggregation mechanisms are discussed as a key organisational component. Community-based organisations, cooperatives and programme-level structures serve as vehicles for consolidating participation among households and local actors. These structures facilitate coordination of field activities, enable shared use of technical systems and support interaction with verification and certification processes. Aggregation also allows standardisation of methodologies and documentation across participating units, which is necessary for managing carbon activities at scale.

The session highlights different institutional configurations used to organise aggregation. In some cases, project developers or intermediary entities coordinate technical processes, including MRV implementation and documentation. In other contexts, local organisations take on coordination roles, managing participation and facilitating communication between actors. These arrangements influence how responsibilities are distributed, how data is managed and how processes are implemented across supply chain stages.

Discussions also address governance arrangements at multiple levels. National frameworks define regulatory requirements and methodological standards, while sub-national authorities support implementation and coordination within jurisdictions. Local organisations and community structures manage operational activities at field level. The interaction between these levels shapes implementation and allocation of responsibilities across actors.

Linkages between aggregation structures and market processes are also examined. Aggregated carbon outputs are channelled through project- or programme-level arrangements that connect to certification bodies and market actors. These linkages involve contractual relationships, documentation requirements and coordination of credit issuance and transfer processes. Intermediary actors may facilitate these connections by managing communication between supply-side organisations and buyers or brokers.

The session further considers how governance arrangements influence data flows and information management. Aggregation structures often function as nodes for collecting, consolidating and transmitting data from field-level activities to technical and institutional systems. This includes coordination of measurement activities, management of reporting formats and interaction with verification processes. The

organisation of data flows shapes how information is processed and how actors engage with technical systems.

In addition, contributions highlight the role of institutional capacity in implementing governance and aggregation structures. Effective coordination requires organisational capabilities in management, communication and technical understanding. Capacity development across public agencies and local organisations influences how governance arrangements operate and how responsibilities are executed.

The session also addresses interactions between carbon activities and existing institutional mechanisms. In some contexts, carbon implementation builds on existing forestry programmes or environmental service schemes, using established structures for coordination and management. These linkages influence how carbon-related processes are integrated into existing systems and how actors transition across activities.

Overall, the session provides an overview of how governance structures, aggregation mechanisms and market linkages are organised within forest carbon systems. It illustrates a range of institutional and organisational approaches, highlighting how different configurations shape coordination, participation and implementation across contexts.

VI. CROSS-CUTTING INSIGHTS AND SYSTEM IMPLICATIONS

6.1 Carbon Credits as Governance Instrument

Assigning economic value to carbon alters how forest systems are organised. When carbon outcomes are monetised, resource management decisions shift from short-term extraction towards activities that maintain or enhance carbon stocks. This creates a direct linkage between financial incentives and land-use practices, influencing how forests are managed across different actors and locations.

The structure of carbon credit systems shapes how these incentives operate. Rules on eligibility, methodologies and verification determine which activities qualify, how outcomes are measured and who can participate in implementation. Where standards are clearly defined and consistently applied, actors adjust practices to align with system requirements. Conversely, inconsistencies in rules or gaps in institutional coordination lead to uneven application of incentives and fragmented implementation.

Control over technical processes influences how governance functions in practice. Actors responsible for measurement, data processing, verification and certification manage critical stages where carbon outcomes are validated and formalised. This positioning enables them to influence project design, data interpretation and compliance processes. As a result, authority within the system is partly determined by access to technical systems and the capacity to operate within them.

This distribution of control affects how value flows across the supply chain. Actors engaged in validation and certification processes participate directly in stages where carbon outcomes are converted into tradable units, while upstream actors remain focused on land-based activities. The organisation of these roles determines how economic and decision-making functions are allocated across the system.

Governance arrangements also shape how participation is structured. Where roles, rights and responsibilities are clearly defined, actors can coordinate activities, access technical processes and engage with system requirements. Where such arrangements remain unclear, participation depends on

intermediary structures and external coordination. This affects how different actors interact with the system and how responsibilities are distributed across stages.

Institutional design further influences how information flows are managed. Data generated through measurement and reporting processes must be processed, validated and transferred across actors and systems. The organisation of data management—who collects, controls and transmits information—affects how decisions are made and how processes are coordinated. This creates a linkage between technical systems and governance functions.

Benefit-sharing arrangements represent another outcome of governance design. The allocation of revenues from carbon transactions depends on rules governing distribution, management of funds and accountability mechanisms. Where these arrangements are formalised and transparent, they provide a basis for coordinating participation and managing financial flows. Where they are not clearly defined, distribution outcomes vary depending on organisational structures and contractual arrangements.

Temporal dimensions also influence governance. Carbon systems operate over extended periods, requiring sustained compliance with standards, repeated verification cycles and long-term coordination among actors. Institutional arrangements must therefore support continuity in implementation, data management and contractual obligations across multiple cycles.

Overall, the organisation of carbon credit systems establishes a set of relationships between incentives, technical processes and institutional arrangements. These relationships determine how actors engage with the system, how processes are coordinated and how outcomes are generated and distributed across different stages.

6.2 MRV as a Hybrid System

The interaction between technical requirements and participation conditions determines how MRV operates in practice. Where MRV systems are designed primarily around standardisation and compliance, participation tends to concentrate among actors with access to technical expertise, data infrastructure and financial resources. This concentrates operational control in stages related to data processing, verification and certification, shaping how actors engage with the system and how responsibilities are distributed.

At the same time, the organisation of MRV influences how knowledge is generated and shared. Measurement and reporting processes produce data that underpins carbon accounting, while verification establishes its acceptance within formal systems. Control over these processes affects how information flows across actors and how decisions are made regarding project design, implementation and credit issuance. Where access to methodologies, tools and data systems is limited, participation in these processes becomes mediated through specialised entities.

The introduction of participatory elements changes how these dynamics operate. When local actors are involved in data collection and monitoring activities, information generation becomes more distributed across the system. This affects both the scale and organisation of measurement processes, particularly in contexts with dispersed forest management. Participation in field-level monitoring can expand data coverage, support continuous observation and enable coordination across multiple management units.

This shift also affects cost structures within MRV implementation. Distributed data collection through local actors can reduce reliance on external technical teams for field measurements, particularly in large or fragmented forest areas. Aggregated monitoring approaches enable shared systems for data collection

and reporting, improving efficiency in verification processes. The organisation of MRV at broader scales therefore influences both operational costs and system efficiency.

At the same time, integrating participatory elements introduces additional requirements for coordination and standardisation. Data generated through different actors and locations must be aligned with recognised methodologies and reporting formats. This requires mechanisms for training, quality control and data validation to ensure consistency across the system. The effectiveness of participatory MRV therefore depends on how these coordination processes are organised and maintained.

Institutional arrangements play a central role in shaping these interactions. The design of MRV systems determines how responsibilities for measurement, reporting and verification are allocated across actors. Where roles are clearly defined and supported by organisational structures, coordination between local actors, technical service providers and verification entities can be managed more effectively. Where such arrangements are unclear, implementation depends on ad hoc coordination, affecting data consistency and system performance.

The integration of technical and participatory components also influences how actors engage with decision-making processes. Participation in data generation provides entry points for engagement in broader system functions, including project planning and implementation. This affects how information is interpreted and how different actors interact within the system, linking technical processes with organisational dynamics.

Temporal factors further shape MRV as a hybrid system. Measurement and reporting occur periodically over extended project cycles, requiring continuity in data collection and system operation. The involvement of local actors in monitoring activities can support sustained data generation, while centralised systems ensure consistency in reporting and verification over time. Balancing these elements is necessary to maintain both continuity and reliability in MRV processes.

Overall, MRV operates through the interaction of technical systems, organisational arrangements and participation structures. Its design influences how data is generated, how processes are coordinated and how actors engage with different stages of carbon accounting. The combination of these elements determines how MRV functions across contexts and how responsibilities and activities are distributed within the system.

6.3 Central Role of Local Communities

The position of local communities within the CCSC shapes how power and value are distributed across the system. While carbon outcomes originate from forest management activities, control over subsequent stages—measurement, validation and market exchange—determines how this value is formalised and realised. This separation between value generation and value control structures participation and influences how actors engage with the system.

Where communities are not directly involved in technical and market stages, decision-making authority shifts towards actors managing data systems, verification processes and transactions. These actors influence how projects are designed, how data is interpreted and how carbon outcomes are translated into tradable units. As a result, control over technical processes becomes closely linked to control over both information and financial flows.

This dynamic affects how value is allocated across the supply chain. Communities contribute to the underlying carbon asset through long-term land management, but their engagement in stages where value

is quantified and exchanged remains limited. The distribution of roles across stages therefore determines how economic returns are structured and how benefits are channelled through the system.

Access to information and technical systems is a key factor shaping this distribution. Participation in MRV processes, data management and reporting provides entry points into system operations. Where such access is limited, engagement in these processes depends on intermediary structures that manage technical functions. This affects how communities interact with carbon systems and how responsibilities are distributed across actors.

The organisation of aggregation structures influences how these dynamics are mediated. Collective arrangements can consolidate participation, coordinate activities and provide interfaces with technical and institutional systems. The design of these structures determines how representation is organised, how data is managed and how interactions with verification and certification processes are conducted. This, in turn, affects how value flows are structured within collective systems.

Knowledge asymmetries further shape participation conditions. Engagement in carbon systems requires understanding of methodologies, reporting requirements and contractual arrangements. Where access to such knowledge is uneven, differences in bargaining capacity emerge across actors. These differences influence how agreements are structured, how risks are allocated and how value is distributed through contractual relationships.

Institutional recognition also affects how roles are defined. The extent to which communities are recognised within governance frameworks determines their ability to engage in system processes beyond implementation activities. Formal recognition within organisational and institutional arrangements influences access to decision-making processes, data systems and benefit-sharing mechanisms.

Temporal factors reinforce these dynamics. Carbon systems operate over extended periods, requiring continuous implementation of forest management activities and repeated validation cycles. While communities sustain long-term ecological functions, involvement in periodic stages such as verification and transaction remains limited. This temporal separation between continuous contribution and episodic engagement affects how value is realised over time.

These interactions link power, information and value within the CCSC. Control over technical systems shapes access to information, which in turn influences participation in decision-making and distribution of benefits. The organisation of roles across stages therefore determines how authority is structured and how value flows are managed within the system.

Addressing these dynamics requires adjustments in how participation is organised across technical, institutional and market processes. Expanding access to data systems, strengthening organisational structures and clarifying roles within governance arrangements can influence how actors engage with the system. These changes affect not only participation conditions but also how value is structured and distributed across the supply chain.

6.4 System Fragmentation

Fragmentation shapes how processes interact across the CCSC and directly affects system performance. When governance arrangements, technical systems and market interfaces operate without alignment, coordination across stages becomes inconsistent. This results in discontinuities between carbon generation, data validation and market exchange, affecting how activities are implemented and how outputs are transferred across the system.

At the operational level, fragmented implementation leads to parallel processes that are not interoperable. Differences in methodologies, reporting formats and data systems reduce comparability across initiatives and complicate consolidation of carbon outcomes. This increases the need for additional verification and reconciliation steps, raising transaction costs and extending implementation timelines. The absence of shared systems also limits the ability to aggregate activities across sites and actors.

Across the supply chain, separation of functions affects how information flows are managed. Data generated at field level must pass through multiple stages of processing, validation and certification. Where coordination between these stages is weak, data inconsistencies emerge, requiring repeated adjustments and verification. This reduces efficiency in MRV implementation and affects the reliability of outputs used in certification and transaction processes.

Fragmentation also influences cost structures. Dispersed implementation across small units increases per-unit costs for measurement, reporting and verification, particularly in contexts with fragmented forest ownership. Lack of aggregation requires duplication of technical processes across sites, limiting economies of scale. These cost dynamics affect the feasibility of implementing carbon activities across broader areas and reduce efficiency in system operation.

Institutional fragmentation affects how responsibilities are executed across levels. Where roles are distributed without clear coordination mechanisms, overlaps and gaps emerge in implementation. This affects how standards are applied, how data systems are managed and how processes are monitored. Inconsistent application of rules across jurisdictions further complicates integration of outputs into broader accounting and market systems.

Disconnections between technical systems and local actors influence participation patterns. Where access to methodologies, data systems and reporting processes is limited, engagement in technical stages is mediated through external actors. This separation affects how information is generated and transmitted, and shapes how responsibilities are allocated across actors within the system.

Fragmentation also affects temporal coordination. Carbon activities require alignment between continuous land management, periodic measurement cycles and transaction schedules. Where these processes are not synchronised, delays occur between data generation, validation and credit issuance. This affects the timing of value realisation and introduces uncertainty into system operations.

At a systemic level, these effects accumulate and reduce overall coherence. Inefficiencies in data management, increased transaction costs and limited interoperability constrain the ability to scale activities and coordinate across actors. The system operates as a set of disconnected processes rather than an integrated structure, affecting both functionality and consistency of outputs.

Addressing these consequences depends on how coordination is organised across components. Alignment of methodologies, integration of data systems and clarification of institutional roles influence how processes connect across stages. Improving these linkages affects not only operational efficiency but also how activities are structured and implemented across the system.

6.5 Strategic Direction: From Fragmented Pilots to an Integrated System

Moving from dispersed pilots to an integrated carbon system requires organising existing components into a connected operational structure. The transition is defined by how activities across generation, MRV,

certification and transactions are linked through consistent processes and coordinated implementation, rather than expanded as standalone initiatives.

At the supply chain level, integration depends on establishing continuity across stages. Outputs from carbon generation must align with measurement systems, which in turn must connect seamlessly with verification, certification and transaction processes. This requires compatibility of methodologies, standardisation of reporting formats and interoperability of data systems so that information can move across stages without duplication or reprocessing. Integration therefore reduces discontinuities in implementation and improves consistency in outputs across projects and programmes.

Institutional arrangements must support these linkages. Coordination across national frameworks, sub-national authorities and local implementation structures determines how standards are applied and how processes are managed. Functional connections between agencies and levels enable alignment of technical procedures with administrative processes, ensuring that implementation is consistent across contexts. Embedding carbon processes within existing land-use and forest management systems further supports continuity between policy and practice.

Aggregation provides an operational mechanism for structuring this integration. Consolidating forest areas and participants into coordinated units enables shared application of methodologies, joint data systems and collective interaction with verification and certification processes. Aggregation also supports synchronisation of activities across sites, allowing measurement, reporting and validation cycles to be organised more efficiently. The design of aggregation structures influences how coordination is managed and how actors interface with technical and institutional systems.

Integration also requires alignment of data management systems. Information generated from field-level activities must be processed, stored and transferred across stages in a consistent manner. Establishing unified data frameworks and shared platforms supports traceability, reduces inconsistencies and enables coordination between technical and institutional actors. Data alignment is therefore central to linking operational processes across the supply chain.

Participation structures must be incorporated within this system architecture. Organising how actors engage across stages—through aggregation mechanisms, local organisations and institutional arrangements—determines how responsibilities are distributed and how activities are coordinated. Integration involves connecting participation in field-level implementation with engagement in technical and organisational processes, ensuring that roles across stages are linked rather than isolated.

Temporal coordination is another component of system integration. Carbon activities operate across different timelines, including continuous land management, periodic measurement cycles and transaction schedules. Aligning these timelines enables smoother progression from data generation to credit issuance and exchange. This reduces delays between stages and supports more predictable system operation.

Market interfaces also need to be connected within the system structure. Aggregated and certified carbon outputs must be linked to transaction mechanisms through clear contractual and procedural arrangements. Integration ensures that supply from coordinated implementation can be transferred efficiently to market channels, with consistent documentation and delivery conditions.

6.6 From Commitment to Action

Building on the strategic shift towards an integrated carbon system, the next challenge lies in operationalising this transition in practice. This requires translating policy commitments and system design

into functioning institutional arrangements, technical processes and locally embedded implementation models.

Operationalisation begins with strengthening community-based governance as the foundation of implementation. Legally recognised forest users, including households and communities, must be organised through collective structures such as cooperatives and community networks to enable coordinated forest management and participation in carbon-related processes. These structures provide the operational interface through which local actors engage with technical systems and market mechanisms, transforming dispersed forest management into an organised system of participation.

Participatory approaches to measurement, reporting and verification (MRV) are central to making carbon systems functional at the local level. Integrating community-based monitoring into MRV processes enables direct involvement of forest owners in data generation and validation. This improves accessibility, reduces dependency on external actors and enhances transparency in carbon accounting. At the same time, ensuring consistency with national standards and methodologies is essential to maintain system credibility.

Watershed-based organisation provides a practical scale for implementation. Forest carbon processes are linked to ecological functions that extend across multiple forest users and administrative units. Coordinating forest management and MRV activities at the watershed level enables shared data systems, consistent methodologies and more efficient verification processes. It also facilitates coordination among local actors, technical institutions and authorities within a defined ecological system.

Effective implementation also depends on strengthening local capacity and institutional readiness. This includes improving carbon literacy, enabling understanding of technical processes and supporting participation in decision-making. Enhancing the capacity of community-based organisations and local intermediaries is critical to ensure that participation is meaningful and sustained over time.

Operationalisation further requires establishing clear procedural linkages between local implementation and national systems. This includes defining how locally generated data is integrated into national carbon accounting, how verification processes are conducted and how benefits are distributed in practice. Clarity in these operational processes reduces uncertainty and enables more consistent system functioning.

Moving from commitment to action, therefore, depends on embedding carbon systems within locally grounded institutions while ensuring that technical processes are accessible and operational. The effectiveness of this transition will be determined by how well governance, MRV and organisational structures function together in practice, enabling participation, transparency and sustained system performance.

VII. RISKS AND SAFEGUARDS IN CARBON MARKET DEVELOPMENT

7.1 Key Risks

Risks in Vietnam's forest carbon system emerge through interconnected causal dynamics across technical, institutional and market dimensions, shaping participation, value distribution and long-term system performance . These risks are not isolated conditions but evolve through reinforcing relationships between system components, influencing how actors engage with the carbon supply chain and how outcomes are produced over time.

A first risk arises from the interaction between technical complexity and access conditions. The high requirements of MRV systems, combined with specialised methodologies and cost-intensive processes, limit the ability of local actors to directly engage in data generation, reporting and verification. As a result, technical processes are predominantly managed by external service providers and project developers. This concentration of technical functions reduces the role of upstream actors in system operations and shifts participation towards mediated forms of engagement. Over time, this dynamic consolidates control over critical processes in stages where carbon outcomes are validated and formalised.

A second risk relates to information asymmetry and its effect on bargaining capacity. Uneven access to knowledge on carbon accounting, market conditions and contractual arrangements constrains the ability of local actors to assess risks and engage effectively in negotiations. This results in contractual relationships that are structured and managed by actors with greater access to information and technical expertise. The distribution of value is therefore influenced by differences in knowledge and negotiating power, affecting how financial flows are allocated and how benefits are realised across the system.

A third risk is linked to institutional conditions, particularly land and forest tenure arrangements. Where tenure is unclear, overlapping or insufficiently formalised, the definition of carbon rights becomes uncertain. This affects eligibility for participation, creates ambiguity in benefit-sharing arrangements and increases transaction risks. In such contexts, intermediary actors often assume roles in structuring agreements and managing compliance, which further distances local actors from direct engagement in system processes. This dynamic affects both participation and the stability of long-term investment in carbon activities.

A fourth risk emerges from the organisation of implementation structures. The coexistence of multiple mechanisms operating under different standards, methodologies and data systems leads to inconsistencies across projects and programmes. These differences require additional coordination and verification efforts, increasing transaction costs and extending implementation timelines. Fragmented processes limit the ability to consolidate activities at scale and reduce efficiency in system operation, affecting both technical performance and institutional coordination.

A fifth risk is associated with market dynamics and uncertainty. Changes in standards, fluctuating demand and evolving buyer requirements influence pricing and access conditions within carbon markets. These variations affect the predictability of revenue flows and introduce uncertainty into project planning and implementation. For actors with limited financial resilience, particularly at the local level, dependence on uncertain carbon income can create additional exposure to risk, affecting both livelihoods and long-term engagement in carbon activities.

These risks are interconnected and reinforce each other across the system. Limited access to technical systems contributes to dependence on intermediaries, which interacts with information asymmetry to shape contractual outcomes and value distribution. Institutional uncertainty further strengthens this dependence, while fragmented implementation increases costs and reduces efficiency. Market variability amplifies these effects by affecting the stability of value realisation across stages.

At a systemic level, these interactions influence how the carbon supply chain operates. They shape the distribution of roles, the coordination of processes and the flow of information and value across actors. The cumulative effect is a set of structural conditions that affect both system functionality and participation over time.

Addressing these risks requires interventions that engage with underlying causal relationships rather than isolated outcomes. Adjustments in technical accessibility, information flows, institutional clarity and coordination mechanisms influence how these dynamics evolve and how actors interact within the system.

7.2 Safeguards FPIC

Safeguards function as operational conditions that shape how participation, value distribution and accountability are structured within forest carbon systems . Their role is not limited to risk mitigation but extends to defining how actors engage with system processes and how outcomes are governed across stages of the supply chain.

Free, Prior and Informed Consent (FPIC) establishes the basis for participation by requiring that engagement in carbon activities is voluntary and grounded in access to relevant information. Its application affects how decisions are made at the outset of project development and how communities interact with implementation processes over time. Where FPIC is consistently applied, participation is structured through formalised consent processes that define the terms of engagement and provide reference points for subsequent interactions.

Benefit-sharing arrangements determine how financial flows from carbon transactions are allocated and managed. The structure of these mechanisms influences how revenues are distributed across actors and how contributions are recognised within the system. Clear allocation rules, defined management procedures and accessible reporting structures affect how value flows are organised and how accountability is maintained. The institutional platforms through which benefit-sharing is implemented shape how decisions on allocation and distribution are carried out.

Participatory MRV introduces a linkage between technical processes and actor engagement. Involving local actors in measurement and monitoring activities affects how data is generated and how information circulates across the system. This participation changes the organisation of data flows and influences how technical processes are connected with local implementation. The integration of participatory elements requires coordination mechanisms to maintain consistency in data while enabling distributed involvement across actors.

Carbon knowledge affects how actors engage with system requirements and processes. Access to knowledge on carbon accounting, contractual arrangements and system operations influences the ability of participants to interpret information and interact with technical and institutional structures. Variations in knowledge levels shape how actors understand system functions and how they position themselves within different stages of the supply chain.

Institutional accountability determines how rules are applied and monitored across the system. Clear assignment of responsibilities across agencies, project developers and verification entities affects how compliance is ensured and how processes are overseen. Mechanisms for monitoring, reporting and addressing grievances influence how actors respond to system requirements and how issues are managed during implementation.

The interaction between these elements shapes how safeguards function within the system. FPIC structures initial engagement, benefit-sharing mechanisms organise value allocation, participatory MRV connects technical processes with actor participation, carbon literacy influences understanding and engagement, and accountability mechanisms govern compliance and oversight. These elements operate in relation to each other, affecting how processes are coordinated and how actors interact across stages.

The effectiveness of safeguards depends on how they are integrated within governance frameworks and operational processes. Alignment between legal provisions, institutional arrangements and implementation practices influences how safeguards are applied across contexts. Embedding safeguards within system design affects how participation is structured, how value is distributed and how accountability is maintained over time.

Operationalising safeguards requires coordination across technical, institutional and organisational components. This includes aligning safeguard requirements with data systems, reporting processes and implementation structures, as well as ensuring that roles and responsibilities are clearly defined across actors. The organisation of these elements determines how safeguards function in practice and how they influence system performance.

In the Vietnamese context, the application of safeguards is linked to existing legal and institutional frameworks governing forest management and emerging carbon market systems. Their implementation affects how actors engage with carbon activities, how processes are coordinated and how outcomes are managed across the supply chain.

VIII. IMPLEMENTATION PATHWAYS FOR VIETNAM

8.1 Phase 1: Pilot – Community Forestry Models and Participatory MRV

The first phase focuses on piloting community-based forest carbon models to test technical, institutional and financial feasibility under real conditions. Community forestry provides an appropriate entry point, as existing local management structures enable coordination of forest protection, restoration and sustainable use. Pilot initiatives prioritise areas with established community tenure and active forest management practices to ensure operational readiness. Forest owners are positioned as central actors, supported by community forestry cooperatives and local enterprises that organise implementation. These actors form the operational nodes of the carbon supply chain, enabling direct engagement with measurement systems, governance processes and market interfaces.

A core component of this phase is the implementation of participatory MRV systems. Community-based monitoring enables field data collection across dispersed forest areas, supporting continuous observation and improving coverage of measurement activities. With appropriate training and simplified methodologies, local actors can carry out forest measurements and reporting tasks, contributing to data generation at lower cost. Integrating local ecological knowledge with field measurements and remote sensing supports consistency in monitoring and strengthens the continuity of data across cycles. These pilots provide a basis for testing how participatory approaches can be integrated within standardised MRV systems.

Pilot design also includes testing of aggregation structures to coordinate participation and implementation. Collective organisational models, including cooperatives and community-based institutions, enable consolidation of forest areas and alignment of activities across participants. These structures facilitate shared application of methodologies, coordinated data collection and interaction with verification and certification processes. Aggregation also supports the organisation of reporting systems and reduces per-unit costs associated with MRV and certification.

Governance arrangements are tested through these organisational structures. Pilot models define roles and responsibilities across local organisations, technical service providers and institutional actors, establishing coordination mechanisms for implementation. These arrangements determine how data is

managed, how processes are sequenced and how actors interact across stages of the supply chain. The pilots therefore provide an opportunity to assess how governance structures operate in practice under different conditions.

Safeguards are incorporated into pilot implementation as operational requirements. FPIC processes structure participation at the outset, while benefit-sharing mechanisms define allocation and management of financial flows. Community participation in decision-making is integrated through organisational arrangements, supported by capacity development and access to information. Carbon literacy activities enable participants to engage with technical and contractual aspects of carbon systems, supporting informed interaction with project processes.

Two applied pilot models illustrate how these approaches are implemented across different contexts. The first model focuses on a watershed forest landscape in Cao Quang commune, Quang Tri province, where community forestry institutions manage approximately 9,700 hectares of upstream forest. Local organisations coordinate forest management activities, data collection and engagement with technical processes. This model provides a setting for testing co-governance arrangements, aggregation mechanisms and participatory MRV within a landscape-based system.

The second model focuses on low-emission rice production in the Mekong Delta, building on locally adapted production systems that integrate indigenous knowledge, local seed varieties and context-specific practices. This model applies emission reduction approaches within agricultural systems, linking production practices with measurement and reporting processes. It provides a basis for examining how crop-based carbon activities can be organised and connected to broader carbon systems.

Together, this pilot model enables testing of carbon systems across forest and agricultural landscapes. They generate operational evidence on how community-based governance, participatory MRV and aggregation mechanisms function under different ecological and institutional conditions. The pilots also provide insights into cost structures, data management processes and coordination requirements across stages.

The objective of this phase is to produce practical evidence on implementation models, organisational arrangements and technical processes. Results from pilot activities inform the development of standardised approaches for scaling, supporting alignment of methodologies, coordination mechanisms and participation structures in subsequent phases.

8.2 Phase 2: Institutionalisation – Policy Integration and Governance Frameworks

The second phase focuses on embedding pilot models into formal policy frameworks and governance structures to enable coordinated implementation at national scale. The objective is to organise carbon activities within a unified system that links carbon accounting, forest management and market participation across sectors and administrative levels. This phase consolidates operational experience into institutional arrangements that support consistency, coordination and scalability.

Policy integration centres on aligning existing mechanisms with emerging carbon market regulations. Instruments such as PFES, REDD+ and voluntary carbon initiatives are incorporated within a common framework through harmonised methodologies, compatible data systems and consistent reporting requirements. Alignment between project-level MRV processes and national greenhouse gas accounting enables continuity of data across scales and reduces the need for parallel systems. Standardisation of

reporting formats and verification procedures supports comparability of outputs and facilitates integration across programmes.

Institutional frameworks define how roles and responsibilities are distributed across actors. Clear assignment of functions for forest owners, cooperatives, technical service providers and public agencies establishes how activities are coordinated across stages of the supply chain. Governance arrangements specify responsibilities for data management, compliance oversight and interaction with certification and market systems. Defined roles support coordination between actors and reduce overlaps or gaps in implementation.

Benefit-sharing and data governance are incorporated within these frameworks. Rules for allocation of revenues, management of funds and reporting of financial flows determine how value is distributed across participants. Data governance arrangements define ownership, access and responsibilities for data management, influencing how information is generated, stored and transferred across systems. These elements shape how financial and information flows are organised within the system.

Multi-level coordination mechanisms connect national frameworks with local implementation. Institutional linkages between central agencies, provincial authorities and local organisations enable consistent application of standards and procedures across jurisdictions. Watershed- and landscape-based approaches provide operational units for coordinating forest management, data collection and reporting across ecological boundaries. These arrangements support alignment between technical systems and governance structures across levels.

Institutionalisation also involves strengthening organisational and technical capacities required for implementation. Public agencies require capacity to manage regulatory frameworks, oversee data systems and coordinate across sectors. Cooperatives and community organisations require capabilities to organise participation, manage data collection and interface with technical and institutional processes. Capacity development supports the consistent application of methodologies and procedures across actors and locations.

Information systems form a central component of institutionalisation. Integrated data platforms support collection, storage and transfer of information from field-level measurement to reporting, verification and accounting systems. Interoperable systems enable coordination between actors and reduce inconsistencies across datasets. Data systems also support transparency by providing structured access to information across stages of the supply chain.

Safeguards are embedded within governance frameworks as operational requirements. Procedures for consent, participation, benefit allocation and accountability are incorporated into institutional arrangements and implementation processes. These provisions influence how actors engage with the system and how responsibilities are managed across stages.

Temporal coordination is addressed through alignment of implementation cycles. Measurement, reporting, verification and issuance processes are organised within consistent timeframes to support continuity across stages. This enables smoother progression from data generation to certification and transaction, improving predictability in system operation.

The outcome of this phase is the establishment of an integrated governance framework that connects policy instruments, technical systems and organisational arrangements. This framework supports coordinated implementation across actors and levels, enabling carbon activities to operate within a consistent and scalable system structure.

8.3 Phase 3: Scaling – Market Linkage and Private Sector Engagement

The third phase focuses on scaling carbon systems through structured linkage to markets and expanded engagement of private sector actors. Building on established governance frameworks and standardised processes, this phase connects aggregated carbon supply with domestic and international demand. The emphasis is on operationalising transactions at scale while maintaining consistency across supply chains, data systems and institutional arrangements.

Market linkage requires alignment between certified outputs and market requirements. Carbon credits must be issued under recognised standards and supported by consistent documentation, verification records and traceable data. Alignment of project outputs with compliance and voluntary market criteria enables participation in different market channels. This includes ensuring compatibility of credit formats, registry systems and reporting procedures with buyer requirements and transaction platforms.

Transaction processes are organised through structured contractual arrangements. These define pricing mechanisms, delivery schedules, verification cycles and responsibilities across parties. Aggregated supply enables bundling of credits, improving efficiency in transaction management and reducing administrative complexity. Coordination between supply-side organisations and market actors supports timely transfer of credits and alignment with contractual conditions.

Private sector actors contribute to system scaling through demand generation, financing and operational support. As buyers, they provide market access and revenue streams linked to carbon credits. As investors or partners, they may support project development, data systems and certification processes. Their engagement introduces requirements for compliance, reporting and risk management, influencing how projects are structured and implemented. Clear governance arrangements define how these actors interact with domestic systems and how responsibilities are allocated.

Aggregation structures remain central in linking local production with market demand. Collective organisation of forest areas enables coordination of certification processes, consolidation of credit volumes and interaction with market actors at scale. These structures manage data flows, coordinate reporting and facilitate communication between local participants and external actors. Their design affects how negotiation processes are conducted and how contractual arrangements are managed.

Market participation also depends on the organisation of information flows. Data on credit volumes, verification status and transaction conditions must be accessible and consistent across actors. Information systems support communication between supply-side organisations, intermediaries and buyers, enabling coordination of transactions and monitoring of delivery conditions. Access to market information influences how actors engage with pricing, contracts and timing of transactions.

Risk management is incorporated within scaling processes. Contractual arrangements include provisions related to delivery obligations, verification outcomes and market conditions. Organisational structures manage these risks through coordination of data systems, monitoring of implementation and alignment with certification requirements. These processes influence how stability is maintained across transaction cycles.

Capacity development supports effective engagement with market systems. Actors require the ability to manage contracts, interpret market conditions and coordinate technical and administrative processes. Strengthening organisational capacity within aggregation structures and supporting institutions enables more consistent interaction with market actors and improves management of transaction processes.

Temporal coordination is required to align production, verification and transaction cycles. Carbon credits are issued periodically based on verified outcomes, while transactions may follow specific schedules linked to contractual agreements. Synchronising these timelines supports continuity between supply generation and market exchange, reducing delays and improving predictability of system operation.

The outcome of this phase is the establishment of operational linkages between coordinated carbon supply and market systems. These linkages connect production, validation and transaction processes within a consistent framework, enabling carbon activities to function at scale.

8.4 Key Enablers

The transition towards integrated and scalable forest carbon systems in Vietnam depends on a set of enabling conditions that address structural constraints across governance, technical capacity, finance and coordination. These enablers are interdependent and must be developed in parallel to ensure that carbon market participation is both effective and equitable. Together, they function as system-level conditions that determine the performance, scalability and inclusiveness of forest carbon systems.

Secure land tenure is a foundational requirement for any forest carbon system. Clearly defined and legally recognised rights over forest land and associated carbon assets determine who can participate, who receives benefits and who is accountable for long-term management outcomes. In many upland and watershed areas, tenure arrangements remain fragmented, overlapping or insufficiently formalised, particularly for community-managed forests. This creates uncertainty for both communities and investors, limits access to carbon market mechanisms and increases risks of conflict. Strengthening tenure clarity and recognition of community rights is therefore essential to enable participation, support long-term stewardship and establish credible benefit-sharing arrangements. Secure tenure also underpins value capture by clarifying ownership of carbon assets and rights to associated revenues.

Capacity building is required across multiple levels to operationalise carbon systems. At the community level, forest owners need technical skills in forest measurement, monitoring and reporting, as well as a practical understanding of carbon market mechanisms. Evidence shows that with appropriate training, communities can participate effectively in MRV processes, generating reliable data at lower cost while integrating local ecological knowledge. Strengthening carbon literacy is equally important to enable communities to assess risks, understand contractual arrangements and engage in negotiations with external actors. At the institutional level, public agencies, cooperatives and local organisations require capacity to manage data systems, coordinate implementation and enforce regulatory frameworks. Without these capabilities, technical systems remain inaccessible and governance arrangements difficult to implement. Capacity development is therefore essential to reduce asymmetries in knowledge, improve bargaining power and enable more balanced participation across the supply chain.

Access to finance is a critical enabler for scaling forest carbon initiatives. Carbon projects require upfront investment for project design, MRV system development, certification and coordination across actors. These costs are often beyond the reach of communities and local organisations. Blended finance approaches, combining public funding, climate finance and private investment, can help reduce entry barriers and distribute risks. At the same time, financial mechanisms must be structured to ensure that revenues are shared equitably and reinvested in forest management and community development. Without appropriate financial design, there is a risk that value is captured primarily by intermediaries rather than by carbon-generating actors. Well-designed finance mechanisms are therefore essential for improving value distribution and supporting long-term system sustainability.

Coordination platforms are necessary to align actors, policies and technical systems across sectors and administrative levels. Forest carbon systems involve multiple stakeholders, including forestry authorities, environmental agencies, local governments, communities, research institutions and private sector actors. As highlighted in discussions on watershed governance, multi-stakeholder platforms can facilitate coordination at landscape level, enabling alignment of MRV systems, data sharing and joint planning. These platforms also support policy dialogue, standard setting and integration of pilot initiatives into national carbon market frameworks. Effective coordination strengthens system coherence and enables more efficient functioning of the carbon supply chain.

Beyond coordination, governance coherence is required to link these enabling conditions within a consistent system. This includes aligning land tenure policies with carbon rights, integrating capacity development into institutional frameworks and ensuring that financial mechanisms support both market access and local participation. Strengthening accountability mechanisms across actors is also essential to ensure that these enablers function effectively in practice. Governance coherence ensures that technical, financial and institutional components operate as an integrated system rather than isolated elements.

Together, these enabling conditions provide the foundation for transitioning from fragmented pilot initiatives to an integrated forest carbon system. Without secure tenure, capable institutions, accessible finance and coordinated governance, carbon market development will remain limited in scale and uneven in impact. With these enablers in place, Vietnam can strengthen both the technical and institutional basis for high-integrity, inclusive and scalable forest carbon systems. This also enables Vietnam to enhance competitiveness, improve system credibility and secure long-term value in global carbon markets.

IX. POLICY RECOMMENDATIONS

9.1 Governance

Establish a coherent governance framework that clearly defines carbon rights, institutional roles and benefit-sharing arrangements across national and local levels, ensuring alignment among forestry, environment and sub-national authorities to reduce fragmentation and enable consistent implementation. This framework should align technical systems, market mechanisms and institutional responsibilities across the carbon supply chain. Clear allocation of responsibilities for carbon accounting, MRV oversight and market participation is essential to improve coordination and accountability across actors. Such clarity also supports more efficient value flows and reduces asymmetries in control across the system.

Carbon rights must be explicitly linked to land tenure to recognise forest owners, including communities, as legitimate rights holders with decision-making authority. Governance arrangements should enable participation in planning, implementation and revenue management, rather than limiting communities to operational roles. Strengthening carbon rights is critical for improving both value capture and the position of communities within the supply chain.

Governance frameworks should recognise community forest cooperatives and community entrepreneurs as legal and operational entities representing forest owners within the carbon supply chain, enabling participation in market transactions, MRV processes and governance mechanisms. These entities function as organisational nodes linking local actors with technical systems and market interfaces, strengthening representation, coordination and accountability within carbon systems.

Transparent and standardised benefit-sharing mechanisms should allocate carbon revenues based on contributions and performance, embedded within cooperative and community-based structures with clear

rules on distribution, reinvestment and accountability to strengthen equity and system credibility. Well-designed benefit-sharing mechanisms are essential to ensure fair value distribution, strengthen incentives for long-term participation and support access to higher-integrity carbon markets.

9.2 MRV

Strengthen MRV systems by reducing costs and improving accessibility while maintaining technical integrity. Standardised methodologies should be simplified where feasible and aligned with national carbon accounting frameworks to avoid duplication, ensure data consistency and reduce transaction burdens for project implementation. MRV systems should function as a control point within the carbon supply chain, determining eligibility for certification, market access and value realisation.

Integrating community-based monitoring within MRV systems is essential to improve efficiency and inclusion. Trained communities can generate reliable data at lower cost while contributing local ecological knowledge, enhancing data accuracy and monitoring continuity. Participatory MRV should combine field measurements with remote sensing and independent verification, supported by investments in training, data systems and technical assistance to enable effective engagement of local actors and ensure scalability. Strengthening participatory MRV reduces asymmetries in data access, improves the position of local actors within the supply chain and supports more equitable value distribution. It is also essential for enabling Vietnam to meet the requirements of higher-integrity carbon markets, where transparency, accuracy and inclusiveness are increasingly required.

9.3 Market Access

Strengthen market access by supporting cooperative and community-based structures that enable participation at scale, addressing constraints from fragmented forest holdings that limit the feasibility of individual carbon projects. Aggregation through cooperatives allows consolidation of forest areas, coordination of MRV processes and more efficient access to certification and carbon markets, while maintaining community ownership and collective management. Market access should be understood not only as entry into carbon markets, but as positioning within higher-value segments where quality, scale and credibility determine returns.

Cooperative models can mobilise large forest areas, reduce transaction costs and improve the ability to meet technical and market requirements. Policy support should prioritise legal recognition of aggregation entities, including forest cooperatives, community forest management groups, forest owner associations, and village-level forest management boards, as well as provide technical assistance for project development and facilitate direct linkages with buyers. Strengthening negotiation capacity and access to market information is also necessary to improve pricing, contract conditions and overall value capture for forest-dependent communities. By strengthening aggregation and negotiation capacity, these measures improve bargaining power, reduce dependence on intermediaries and enable more equitable value distribution across the supply chain. They are also critical for enhancing Vietnam's competitiveness in high-integrity carbon markets.

9.4 Policy Alignment

Align emerging carbon market regulations, particularly Decree 29/ND-CP, with existing forestry, climate and land-use policies to ensure coherence across institutional frameworks and avoid parallel systems. This requires clarifying linkages between national carbon market mechanisms, PFES and REDD+, and harmonising carbon accounting rules, MRV standards and reporting systems across sectors. Consistent policy integration reduces duplication, improves data comparability and strengthens regulatory clarity for

both public and private actors. Policy alignment should enable more efficient coordination across the carbon supply chain and improve transparency of value flows.

Policy alignment should also integrate watershed-based governance as an operational scale for forest carbon management, linking ecological processes with institutional coordination. Watershed-level approaches enable shared MRV systems, consistent methodologies and reduced verification costs across multiple forest actors. Embedding this approach within policy frameworks strengthens coordination across administrative levels, supports aggregation and enables more efficient and scalable implementation of forest carbon systems. Such alignment is also critical for improving system credibility, reducing transaction costs and enabling Vietnam to meet the requirements of higher-integrity carbon markets, where consistency, transparency and regulatory clarity are essential.

X. CONCLUSIONS

The development of forest carbon systems in Vietnam is fundamentally a question of system organisation rather than project expansion. The central issue is how to structure relationships between governance, technical processes and market mechanisms so that carbon activities operate as a coordinated system. The effectiveness of this system depends on whether these components function in alignment, enabling continuity from carbon generation to validation and exchange, or remain disconnected, limiting efficiency and coherence.

At the core of this transition is the organisation of the carbon credit supply chain as an integrated structure. This requires linking ecological processes with data systems, institutional arrangements and transaction mechanisms in a consistent manner. Integration is not only a technical requirement but an institutional condition that determines how actors interact, how processes are sequenced and how outputs are transferred across stages. The system therefore functions as a configuration of interdependent elements, where alignment across components directly influences performance and scalability.

This configuration shapes how value is structured within the system. The relationship between carbon generation, data validation and market exchange determines how value is transformed and realised. Where these stages are coordinated, value flows can be managed more transparently and efficiently. Where they remain fragmented, value is redistributed through discontinuities in processes, affecting both efficiency and predictability of outcomes. The organisation of the supply chain is therefore inseparable from the organisation of value.

Participation is embedded within this system architecture. The positioning of actors across stages defines how they engage with processes and how responsibilities are distributed. Access to technical systems, data and market interfaces determines the extent of participation in different stages, influencing both operational roles and interaction with system functions. Organisational structures, including aggregation mechanisms and local institutions, mediate these relationships by linking actors to technical and institutional processes.

Technical systems, particularly those related to measurement and validation, operate as connectors between ecological processes and market functions. Their design determines how data is generated, how it is processed and how it is recognised within certification and transaction systems. The organisation of these systems influences not only data consistency but also how actors interact with information flows and how processes are coordinated across stages.

Spatial organisation also influences system functionality. Aligning carbon activities with ecological units such as watersheds enables coordination of forest management, data collection and reporting across landscapes. This supports consistency in methodologies, improves efficiency in implementation and enables aggregation across dispersed forest areas. Spatial alignment therefore connects ecological processes with governance and technical systems.

The transition to a coordinated system introduces a structural shift in how carbon activities are implemented. Moving from isolated initiatives to integrated arrangements changes how processes are connected, how actors interact and how outcomes are produced. This shift requires aligning methodologies, data systems and institutional roles so that activities across different contexts can operate within a common framework.

Within this transition, the role of governance is to organise relationships across actors and stages, ensuring that responsibilities, data flows and processes are coordinated. The role of technical systems is to provide consistency and traceability across stages, linking field-level activities with verification and certification. The role of market mechanisms is to connect validated outputs with demand through structured transactions. The interaction of these roles defines how the system operates in practice.

Vietnam's strategic pathway is therefore determined by how these elements are configured. A system characterised by alignment, interoperability and coordinated participation enables consistent implementation and scalable operation. A system characterised by fragmentation and disconnection limits integration across stages and reduces efficiency in system functioning. The distinction lies not in the presence of individual components, but in how they are organised and connected.

The transition towards an integrated carbon system is thus a process of system design and coordination. It requires establishing linkages across governance frameworks, technical systems and market interfaces, and organising participation through structures that connect actors to these processes. The outcome is a system capable of operating across scales, maintaining consistency in implementation and supporting coordinated interaction among actors.

In this context, forest carbon systems represent an evolving institutional and technical configuration. Their development depends on how effectively components are aligned, how processes are integrated and how actors engage across stages. The long-term functionality of the system is therefore determined by its internal coherence and its capacity to operate as a connected structure rather than a collection of separate initiatives.

ANNEXES

Opening: Circular Econoy

Dr. Le Xuan Nghia, March 20th, 2026

Circularity is the fundamental law of existence in the Universe. All living things are interdependent across infinite space and time. The life cycle of birth, growth, decline, and death of one being is linked to others', i.e., all beings are interconnected within the unified circularity of the Universe. No one individual can exist independently as a separate self without causing harm to others.

Unfortunately, in the market economy, humanity has regarded the individual self as the driving force of development, separating itself from the circular cycle to pursue wealth, power, and the so-called "happiness". Consequently, humanity has caused suffering for itself and for other living things.

- With their intelligence, humanity has "rapidly and efficiently" exploited and depleted natural resources to produce more and consume more, while ignoring the unjust destruction of countless other species. In other words, we are destroying the very things that created us.
- As natural resources are regarded as the foundation of prosperity, the competition among humans has become fiercer, a life-or-death fight. As a result, humans have built arsenals including nuclear weapons that are capable of destroying human civilisation eight times over.
- In the era of digital technology and artificial intelligence (AI), this fierce competition is getting even harder to control, and the risk of losing control is evident. In other words, we are moving faster and more "equally" to the brink of self-destruction (where every individual "self" on social media appears equally empowered).

Luckily, a ray of hope has emerged to save humans – the era of green economy, green consumption, and circular economy. Though still in its early stages, it has quickly gained the global consensus, except for certain powerful vested interests. Humans, therefore, are once again forced to use market principles to accelerate this green transformation. Accordingly, those who destroy the environment (known as CO2 emitters) will be punished while those who protect it (through reducing emissions or absorbing CO2) will be rewarded. Thus, the carbon credit market has been established.

What is the ultimate goal of the green transformation? It aims to return humans to the principle of circularity. To this end, humans will live more simply, use fewer resources, and gradually reduce their impact on the environment.

When humans respect circularity and embrace simplicity, the carbon credit market is no longer necessary, so is the competition for resources, and destructive arsenals will disappear. This envisions a future in which humans transcend intelligence and selfishness towards insight.

The philosophy of circularity has constituted the core of Buddhist teachings for thousands of years. If the green transformation prevails worldwide as predicted by the renowned physicist. Albert Einstein (1879 – 1955), then Buddhism would become the global religion of humanity.

Biography

Dr. Le Xuan Nghia (born 1952) is a preeminent Vietnamese economist and a leading authority on national financial and monetary strategy. He holds a Doctorate from Merseburg University of Technology, Germany, and conducted post-doctoral research at Harvard University. Over a career spanning four decades, Dr. Nghia has served as a pivotal advisor to six Prime Ministers of Vietnam and one Prime Minister of Laos, significantly influencing regional macroeconomic policy.

His distinguished public service includes roles as the Vice Chairman of the National Financial Supervisory Commission (2008–2012) and Director of the Banking Strategy Development Department at the State Bank of Vietnam (1997–2008). Since 1991, he has remained a core member of the National Financial and Monetary Policy Advisory Council. In the private sector, he has contributed his expertise to the Board of Directors of various financial institutions, including National Citizen Bank (NCB). Currently, Dr. Nghia serves as an advisor to the Prime Minister and President of the Consultant on Development Institute (CODE), where he continues to provide strategic insights on banking reform, inflation management, and sustainable economic development towards Green Circular Economy. www.codeinter.org / E: lxnghia@codeinter.org/ phamvietthang8@gmail.com /M: + 84 (0) 9879 07363.

CONCEPT NOTE: Carbon Credit Supply Chain, Added Value Outcomes and Up-Stream Watershed Forest Owner Co-Governance Strategy - 2025-2035 Visionary Planning

Tran Thi Lanh, August 20th, 2025

Abstract

This Symposium discusses the nature of carbon, carbon trading, carbon credits, and the carbon credit supply chain from forest owners to carbon emitters. It recommends a system of Co-Governance involving the active participation of five stakeholders: forest owners, carbon emitters, an independent arbitrator, government authority and government media.

It defines these actors and their respective roles in the carbon credit supply chain in sharing responsibility for reducing greenhouse gas emissions. It points out the 'added value outcomes' of this Co-Governance as enhanced ecological, social, economic and political capital. Finally, it provides details of its legislative basis for this Co-Governance Strategy. The objects of the Symposium are defined as developing a clear understanding of carbon, carbon trading, carbon credits, the carbon credit supply chain, carbon credit pricing, and the benefits of forest carbon credit Co-Governance.

Biography

Tran Thi Lanh is an ecological anthropologist and independent researcher at Waikato University, New Zealand. She is the founder of a strategic network of six organisations—TEW, CHESH, CIRD, SPERI, CODE, and CENDI—dedicated to the empowerment of indigenous communities. Her work specialises in watershed rainforest co-governance rooted in indigenous customary law, advocating for CO2 Justice and biodiversity enrichment through the lens of community livelihood identity and sovereignty.

By prioritising the endogenous capacity of indigenous groups, Mrs Lanh focuses on fostering community solidarity economies and self-determination. A pioneer in empirical climate science, she authored the landmark study, "Carbon Stock in Above-Ground Biomass Tropical Rainforests in North-Central Vietnam." Through her research and organisational leadership, she continues to promote sustainable ecological co-management and the rights of indigenous peoples in the Mekong Region. A4 Ngoc Khánh Science Village/ 12C Pham Huy Thong, Giang Vo, Hanoi; www.speri.org / www.co2justice.org; E: ttlanh@speri.org/ Mobile +84 9043 19858

KEYNOTE SPEAKER: Carbon Credit Supply Chain, Added Value Outcomes and Watershed Co-Governance Strategy

Dr. Tran Van Viet, March 5th, 2026

Abstract

Vietnam's commitment to achieving net-zero greenhouse gas emissions by 2050 represents a fundamental shift in national development thinking, governance priorities, and international positioning. Beyond a climate pledge, NetZero 2050 is increasingly shaping Vietnam's economic restructuring, sectoral transformation, and resource governance. This essay provides an in-depth analysis of the carbon credit supply chain in Vietnam, with a particular focus on forest-based and nature-based solutions, added-value outcomes, and watershed co-governance as an integrated strategy for the 2025–2035 period. It argues that carbon credits should not be treated merely as compensatory instruments for emissions, but as strategic assets capable of catalysing rural development, ecosystem resilience, and institutional innovation. By embedding carbon markets within watershed-based governance frameworks and aligning them with national development objectives, Vietnam can move "from vow to action," mitigate the risks of dependency and low-value participation in global carbon markets, and leverage carbon finance to support a resilient, inclusive, and sovereign pathway toward NetZero 2050.

Biography

Dr. Tran Van Viet is a Vietnamese public servant, researcher, and writer specialising in environmental governance, rural development, and economic policy. He holds a PhD in anthropology and forestry from the University of Canterbury (2020), a Master of Forestry from the Australian National University, and a Graduate Diploma in Environment and Management. His academic background integrates forest science with interdisciplinary approaches to policy and social science.

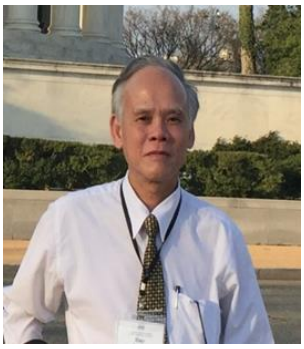
Dr. Tran's professional career began in 2002 at the Department of Agriculture and Rural Development of Nghe An Province, focusing on forest management, biodiversity conservation, and community-based governance for a decade. Since 2013, he has served at the central level within a policy and strategy commission of the Communist Party. Following an institutional merger in December 2024, he now works in the Economic Division, contributing to policy analysis on national development, having previously served in the Agriculture, Environmental and International Economic Integration divisions. An award-winning writer, he received the Vietnam National Press Award First Prize in 2015. His published work covers sacred forests, local knowledge, and policy research, bridging practical governance experience with academic scholarship. The Central Committee for Policy and Strategy of the Communist Party of Vietnam; No.105B – 107 Quán Thánh, Ba Đình, Hà Nội; E: vietlnna@gmail.com / Mobile: + 84 9888 45675

Participatory Measurement, Reporting, And Verification (MRV)

For Forest Carbon Credit Recognition: Collaboration Among Community Forest Owners And Stakeholders In Watershed Forests Of Vietnam

Prof. Dr. Bao Huy, March 14th, 2026

Abstract



This paper discusses the methods and stakeholder roles in Measurement, Reporting, and Verification (MRV) for forest carbon credit recognition, and the importance of involving local communities in Vietnam's watershed forests for managing forest carbon credits effectively.

It describes forest carbon measurement methods; stakeholder roles; forest MRV systems for providing a scientific, transparent and credible framework for validating forest carbon stocks and changes over time; and the importance of local community participation in MRV for enhancing data credibility, reducing costs, and promoting social legitimacy in MRV.

It concludes that for effective forest carbon recognition in watershed forests, it is essential to include local communities in collaborative participation in MRV for forest carbon credit recognition. It leverages diverse knowledge, skills, and management capabilities, maximises resource use, enhances transparency, credibility, and local ownership, promoting sustainable forest management, livelihood security, and equitable benefit distribution.

Biography

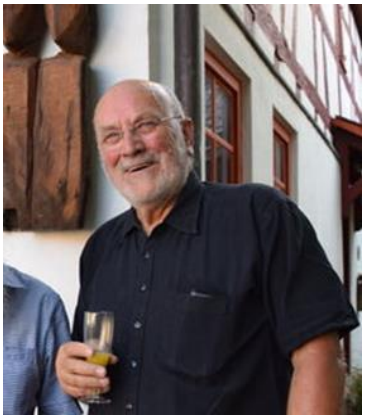
Prof. Dr. Bao Huy is a distinguished Independent Researcher and Consultant at Forest Resources & Environment Management Consultancy (FREM), and a Scholar at Oregon State University, USA. With a career dedicated to tropical forest ecology and climate change mitigation, he is a leading expert in forest carbon sequestration, community forestry, and the rehabilitation of degraded tropical natural forests. Recognising his exceptional impact, he was awarded the Honorary Fellow of the Centre for People and Forests (RECOFTC)—the organisation's highest honour for outstanding contributions to people-centred forestry in Asia and the Pacific.

Professor Huy currently serves as a member of the Program Advisory Committee (PAC) for RECOFTC and CIFOR-ICRAF, focusing on forest landscape governance in Southeast Asia. His extensive leadership includes serving as Chair of the Social Forestry Training Network Vietnam (2000–2015), the Vietnam Network for Agroforestry Education (2002–2020), and the Southeast Asia Network for Agroforestry Education (2014–2020). Since 2018, he has been a vital member of the Mekong Expert Group on ASEAN Agroforestry Development. His profound expertise in the intersection of forest carbon dynamics and community-based governance makes him a pivotal voice in advancing sustainable carbon credit supply chains and watershed co-governance strategies. https://baohuy-frem.org/; E: baohuy.frem@gmail.com /Mobile: +84 98 308 4145

Subsistence Security Versus Landscape Destruction in A Changing World

Prof. Dr. Friedhelm Göltenboth, February 2026

Abstract



To secure the most basic rights for a decent living in the biosphere of the globe, we need to engage ourselves on a local, regional, and even global level.

The six most important basic rights are: a healthy and safe environment, healthy water and food, land and sustainable land uses, adequate housing and rural and urban development, appropriate fair trade conditions and market access, plus adequate education and freedom of belief.

It is said that we lack an intuitive sense, an instinct that tells us when the biosphere is in danger. The global biosphere seems to be no longer able to sustain the familiar and comfortable world we have taken for granted. The gap between the very poor and the very rich is widening daily. And there are symptoms everywhere that we are speeding up "on a highway to hell", as Mr. Guterres, the Chairman of the United Nations, expressed it once.

One symptom is the rising CO2 content in our atmosphere, leading to a heating process globally: At the end of the glacial period about 12,000 years ago, the CO2 content was 180 ppm; at the beginning of industrialisation, about 150 years ago, it was 278 ppm; today (December 2025) it is 426 ppm. As a result, we are facing worrying weather anomalies, such as torrential rains causing destructive flooding, landslides sweeping away entire communities, droughts destroying crops and threatening even water supplies to megacities like Theran, fires destroying vast areas, including even suburbs of towns like Los Angeles or Athenes, leading to millions of environmental refugees.

Last year's 30th COP conference, after the 1992 Rio Environmental Conference, brought again no tangible result on a global scale. And administrations like the present one in the USA are even adding to these global problems in a very destructive way, hurting all of us.

One urgent problem to be addressed is the ongoing destruction of natural forests, either by poverty-driven factors, but mainly by profit and greed-driven factors called clear- felling and replacement of highly diverse forests with monocultures.

As a result, more and more landscapes, e.g., in Northern Vietnam, are threatened to become uninhabitable because the soil is depleted of nutrients, soil erosion is extremely high, and water retention capacity is very low; the self-regeneration capacity of forested areas is almost zero.

What can be done, what needs to be done? The following contributions to possible solutions should be considered and started immediately:

- Enforcement of rehabilitation of local natural environments through replanting at least 10% of any plantation area with a variety of indigenous local tree species
- Strict protection of still existing natural forests
- Establishment of biocorridors between forested areas
- Protection of seed-providing "Mother trees"

- Applying "Rainforestation Farming" principles wherever possible to combine subsistence improvement and securing with landscape and biodiversity protection, rehabilitation, and climate change mitigation.

One promising new option will be discussed: how to generate an income from a standing forest without felling any trees by participating in the Voluntary Carbon Stock Market by selling respective carbon stocks in the form of CO2 certificates to the local business community, urged to reduce their CO2 footprint to meet respective government requirements. By this means, a standing tree is given an economic value for forest owners, not only a felled one. This is a very promising new option to generate income while protecting biodiversity and contributing to climate change mitigation.

We still have a chance to stop on the path to catastrophe and keep the global biosphere in a state of a beautiful, satisfactory home for all creatures, but we need to act now.

The so-called alpha societies or biosphere people have to change as rigorously, mainly by means of sustainable retreat, to enable others, so-called "ecosystem societies", to move on with sustainable development.

"Zero soil agriculture" and "tissue-cultured food" are not a solution, but a nightmare.

Let's hope for the best, but be prepared for the worst, because "Nature does not need man, but man needs Nature!"

Biography

Prof. Goeltenboth serves at the University of Hohenheim, Germany and is Scientific Advisor to NatureLife-International, a German-based organisation working on environmental protection and sustainable development. Prof. Friedhelm Goeltenboth is an expert in indigenous tree-based reforestation, specialising in tropical ecology and agroforestry with around three decades of experience in 'closest to nature' landscape restoration following the Rainforestation Farming model.

He who, on behalf of NatureLife-International, over many years has voluntarily taken care of our SPERI team and young grassroots farmers farming in sensitive watershed areas. He has supported our strategy and helped us in solving difficulties when we have faced them. Over the decades since 2010, Professor Goeltenboth has freely provided face-to-face teaching and online training in Rainforest Farming, Nurturing of Local Seeds, and Carbon restoration strategies. Prof. em. Dr. Friedhelm Göltenboth; University of Hohenheim, Stuttgart; NatureLife-International, Stuttgart, Hauptstr.9 D 72147 Nehren, Germany; Email: friedgoelten@gmx.de

Carbon Credits In Australia

Dr. John Quayle, February 2026

Abstract

Carbon credits have become a central instrument in Australia's climate policy framework, supporting emissions reduction through market-based incentives and contributing to national commitments under the Paris Agreement and Australia's legislated net-zero target by 2050. The Australian Carbon Credit Unit (ACCU) market, administered by the Clean Energy Regulator, issues tradable credits for verified emissions reductions and removals from activities such as native vegetation regrowth, soil carbon management, methane capture, and carbon capture and storage. Demand for ACCUs has strengthened following reforms to the Safeguard Mechanism, highlighting both the opportunities and challenges associated with market integrity, governance, and long-term emissions outcomes.

These Australian market developments offer relevant lessons for emerging forest and land- based carbon initiatives in Vietnam. Community forestland holders in Vietnam manage extensive forest areas that are critical for climate mitigation, biodiversity conservation, and rural livelihoods, yet many remain excluded from carbon, biodiversity, and restoration finance due to fragmented land management and limited technical capacity. Establishing a Community Forest Cooperative in Vietnam would provide an effective institutional mechanism to aggregate up to 10,000 or more hectares of community forestland, strengthen democratic governance, and enable access to results-based environmental finance while maintaining community ownership.

Under Vietnamese cooperative law, the cooperative could coordinate forest protection, restoration, and sustainable management activities supported by robust monitoring.

Reporting with a verification system that combines community-based monitoring, remote sensing, and periodic independent verification is necessary. This structure enables participation in forest carbon markets, biodiversity, and ecosystem service payment schemes with restoration finance while ensuring transparency and accountability. Revenues would be shared equitably, with the majority distributed directly to member households based on land contribution and stewardship performance, and remaining funds reinvested in cooperative operations, community development priorities, and long-term forest restoration.

Building on the HEPA Farmers Field School as an applied research and learning platform, SPERI can pilot this cooperative-based approach by formalising participatory monitoring, permanent sample plots with repeat measurements to demonstrate high-integrity forest, soil, and agroforestry carbon sequestration. Integrating strong social co-benefits such as Indigenous participation, biodiversity enhancement, and food security positions this model as a scalable pathway for Vietnam–Australia cooperation on climate solutions with relevance for voluntary local and international carbon markets.

Biography

Dr. John Quayle is a senior environmental lawyer and veterinary surgeon with over 50 years of experience in environmental protection, sustainable agriculture, and carbon markets. A graduate of the Queensland University of Technology (LLB, Environmental Law), he is the founder of the Indonesian Rainforest

Foundation and Managing Director of PT Indo Reco Asia. His career focuses on international project structuring, carbon credit program development, and large-scale cross-border negotiations.

Dr. Quayle's work spans major reforestation initiatives across Java, Sumatra, Kalimantan, and Bali, alongside carbon credit projects in Kalimantan. A key aspect of his expertise involves Indigenous land, native title, and cultural heritage agreements. Notably, as Managing Director of PT Indo Reco Asia, he transformed a community cottage industry into large-scale international sales and marketing operations, delivering substantial and sustained income growth to previously impoverished local village communities. Additionally, he manages Mariefields, a certified organic permaculture farm in New South Wales. Throughout his career, he advocates a pragmatic approach to sustainability, recognising that economic development, community wellbeing and environmental protection must advance together with corporations and business interests. Mariefields Organic Certified Honey; Land for Wildlife; www.mariefields.com.au /john.quayle1945@gmail.com /Mobile: + 61 (0) 400 299 444

The Importance Of Humanistic Participatory Measurement, Reporting, and Verification (MRV) And Carbon Credit Literacy For Forest Carbon Projects

Dr. Yingshan Lau, March 2026

Abstract

The technically demanding and complex nature of making carbon commensurable has the effect of in/excluding indigenous peoples and local communities (IPLCs) who live in and depend on forest landscapes. Many IPLCs remain unaware of how much carbon their forests contain due to their limited access to technical knowledge about forest carbon measurement and the associated costs of hiring consultants. This form of injustice is on top of ongoing criticisms regarding unfair benefit-sharing and superficial participation in forest carbon projects. Against this backdrop, two interrelated interventions are proposed. First, a humanistic approach to participatory measurement, reporting and verification (MRV) of forest carbon is beneficial. Second, enhancing the carbon credit literacy of IPLCs is necessary. When supported by land tenure clarity, these two interventions can potentially empower farmer-forest owners in Vietnam to make more meaningful decisions regarding whether and how they should engage in forest carbon trading.

Biography

Yingshan is a Research Fellow in the project 'Climate Governance of Nature-based Carbon Sinks in Southeast Asia' (CGSEA), focusing on forests. As a geographer and socio-hydrologist curious about nature-society interactions, her interests encompass traditional ecological knowledge, forests, water, agriculture and sustainable rural development in Southeast Asia. Dr. Lau holds a PhD in Geography from the National University of Singapore, where she utilised participatory action research to understand environmentally-beneficial traditional/local practices in the Kuang Si Waterfall's watershed area, in Louangphabang, Laos.

Previously, Yingshan worked for PUB, Singapore's national water agency, where her portfolios included masterplanning for the Active, Beautiful, Clean Waters Programme, community relations, and a secondment to the Centre for Liveable Cities. YINGSHAN@nus.edu.sg

Journey to Engage Corporations and State-Owned Enterprises in the Net Zero 2050 Program

Nguyen Quang Huy, March 2026

Abstract

Cao Quang Commune (formerly) is now part of the newly established Tuyen Hoa administrative unit, covering a total natural area of 11,440 hectares, in which 9,119 hectares are natural production forests, while the remainder consists of protection forests and agricultural land. The forest cover rate has reached 85.44%. Official statistics on local livelihoods indicate that 55% of the total income is derived from these natural production forests. Land-use rights for the production of forest land have been allocated to all households across 8 villages in accordance with the Land Law. These areas are managed under internal regulations developed by the forest owners themselves, aligned with the Law on Forestry and under the guidance of the local government.

Notably, all forest owners in the 8 villages reached a consensus to establish the Cao Quang Community Forestry Cooperative (www.comfore.net). The Cooperative's Charter was drafted by the forest owners to ensure it both reflects their specific local contexts and complies with the Law on Cooperatives. Consequently, the forest owners have organised themselves into 65 forest owner groups with a practical and convenient regulatory system, operating under a culture of democracy, volunteerism, solidarity, and a bottom-up hierarchical structure.

As a result, the natural forest ecosystem—which had been depleted by over-exploitation between 1999 and 2010—has successfully recovered to a "medium" and "rich" stock status. Since 2018, the forest monitoring schedule for the 65 groups has become a protocol, with each group patrolling twice a month. In cases of minor infractions, groups resolve the issues internally through reminders. For violations causing forest damage or breaching the Law on Forestry, the group leader informs the village authorities and calls a village meeting with neighbouring groups. More serious cases are reported by the village to the Commune People's Committee and the local Forest Rangers. Severe violations of the Law on Forestry are broadcast on the commune's public radio for community awareness, and the authorities handle the matter according to legal provisions.

Quarterly, all 65 forest owner groups hold a general meeting to share experiences and discuss challenges and opportunities, providing a foundation for 6-month and 1-year action plans. Thanks to a co-management institution based on autonomy and voluntary cooperation involving individual owners, forest-owner groups, village heads, commune authorities, and local Forest Rangers, the production forest land has consistently restored its natural canopy on limestone mountains. This achievement can be regarded as the best restoration model across the six provinces of the North Central Coast.

Biography

Mr Nguyen Quang Huy is the former Standing Vice Chairman in charge of Agriculture and Forestry. Following his retirement in 2025, he currently serves as the Chairman of the Cao Quang Community Forestry Cooperative, located in Tuyen Hoa Commune, Quang Tri Province. www.comfore.net/nqhuy@comfore.net; huycaoquang@gmail.com; Mobile: + 84 (0) 815100884

Symposium Agenda

Carbon Credit Supply Chain, Added Value Outcomes And Watershed Co-Governance Strategy

(April 6th 2026)

Time	Activity	Responsible
08:00 – 08:30	Registration	CODE (Bang, Duong)
08:30 – 08:40	Opening and Introduction	Dr. Le Xuan Nghia
08:40 – 09:00	Carbon Credit Supply Chain and Co-Governance Strategy (Vietnam Context)	Dr. Tran Van Viet, Central Policy and Strategy Commission
09:00 – 09:30	Subsistence Security versus Landscape Degradation in a Changing World	Prof. Goeltenboth (NLI)
09:30 – 09:45	Circular Economy	Dr. Le Xuan Nghia
09:45 – 10:15	Carbon Credits in Australia	Dr. John Quayle
10:15 – 11:00	Discussion	—
11:00 – 11:10	Coffee Break	Coffee and Tea
11:10 – 11:30	Participatory Measurement, Reporting and Verification (MRV) for Forest Carbon Credits	Prof. Bao Huy
11:30 – 11:45	Community-Based Forest Co-Governance in Cao Quang, Quang Tri	Nguyen Quang Huy
11:45 – 12:00	Decree 29/ND-CP/2026	Ministry of Agriculture and Environment
12:00 – 13:30	Lunch	—
13:30 – 14:00	The Importance of Participatory MRV and Carbon Credit Literacy	Dr. Yingshan Lau, National University of Singapore
14:00 – 17:00	Plenary Discussion and Detailed Action Plan	Dr. Le Xuan Nghia & Dr. John Quayle
17:00 – 17:30	Closing, Group Photo and Farewell	Loc Van Vin