



TECHNICAL REPORT

# Review of Forest Carbon Credit Projects in Viet Nam



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## Acronyms and Abbreviations

CDM	Clean Development Mechanism
CER	Certified Emissions Reductions
CMA3	The third session of the Conference of the Parties
COP	Conference of the Parties
CFP	Carbon Fund Participants (to FCPF)
CORSIA	Carbon Offset and Reductions Scheme for International Aviation
ER	Emission Reductions
EU-ETS	EU Emissions Trading System
FCPF	Forest Carbon Partnership Facility
LULUCF	Land Use, Land Use Change and Forestry
GHG	Green House Gases
GS	Gold Standard
INDC	Intended Nationally Determined Contribution
ITMOs	Internationally Transferred Mitigation Outcomes
IBRD	International Bank of Reconstruction and Development
MARD	Ministry of Agriculture and Rural Development
MONRE	Ministry of Natural Resources and Environment
NDC	Nationally Determined Contribution
PFES	Payment for Forest Environmental Services
REDD+	Reducing Emissions from Deforestation and Forest Degradation
tCO <sub>2</sub> -eq	Tons of carbon dioxide equivalent
UK-ETS	UK Emissions Trading System
UNFCCC	United Nations Framework Convention on Climate Change
VCM	Voluntary Carbon Market
VCS	Verified Carbon Standard
VNFF	Vietnam Forest Protection and Development Fund
WCI	Western Climate Initiative
FIPI	Forest Inventory and Planning Institute

# 1 Introduction

The Paris Agreement is a legally binding international treaty on climate change. It was adopted by 196 Parties at the UN Climate Change Conference of the Parties (COP21) in Paris, France, on 12 December 2015. Its overarching goal is to limit the temperature increase to 1.5°C (Article 2) above pre-industrial levels. This is the global legal instrument that stipulates the responsibilities of all parties concerning their climate change response through the implementation of the Nationally Determined Contributions (NDCs). An NDC is a voluntary and self-determined commitment of the parties under the framework of the Paris Agreement towards the goal of climate change mitigation and adaptation. The Paris Agreement also promotes voluntary cooperation among countries to meet NDC targets through the establishment of an international carbon market in its Article 6.

As a party to the Paris Agreement, Viet Nam submitted its Intended Nationally Determined Contribution (INDC) in 2015 and updated its NDC in 2022 (2022 NDC) which sets a target to reduce national GHG emissions by 15.8% (equivalent to 146.3 million tCO<sub>2</sub>-eq) compared to a business-as-usual (BAU) scenario, using domestic financial resources. The contribution could increase up to 43.5% (approximately 403.7 million tCO<sub>2</sub>-eq) if Viet Nam received sufficient international support. To meet the target of the 2022 NDC, Viet Nam has developed a number of strategies and legal frameworks and has implemented initiatives, plans and programmes to reduce GHG emissions in the following sectors: energy; agriculture; land use, land use change and forestry (LULUCF); industrial processes and waste, of which the contribution of the LULUCF sector under the unconditional scenario of the NDC is set to reach 84.47 million tCO<sub>2</sub>-eq from 2021 to 2030. These figures increase to 106.31 million tCO<sub>2</sub>-eq under the condition of sufficient international support. Because it is the only sector with negative GHG emissions, LULUCF plays an important role in implementing the NDC.

In the LULUCF sector, forest ecosystems play a key role in both reducing CO<sub>2</sub> emissions and increasing carbon sequestration. Seven GHG emission mitigation solutions have been proposed in the NDC, including: (i) protection of natural forests in mountainous areas, (ii) protection of coastal protection forests, (iii) restoration of special-use and protection forests, (iv) improvement in the quality and carbon stock of poor natural forests, (v) improvement of the productivity and carbon stock of large timber plantations, (vi) scale up of agroforestry models to improve carbon stocks and conserve soil, and (vii) sustainable forest management and forest certification.

Considering the importance of forest carbon sequestration and storage services for GHG emission reduction (ER) and sustainable forest development, the Ministry of Agriculture and Rural Development (MARD) is developing and implementing projects and programmes to transfer and trade forest carbon credits in different ecological-economic zones of Viet Nam. The main ones include (i) the programme to reduce GHG ER in the period of 2018-2024 in six provinces of the North Centre of Viet Nam (Thanh Hoa, Nghe An, Ha Tinh, Quang Binh, Quang Tri, and Thua Thien Hue), financed through the Forest Carbon Partnership Facility (FCPF), (ii) the programme to reduce GHG emissions in the period of 2022-2026 in the Highland and South Centre of Viet Nam (proposing to join the LEAF Coalition) and (iii) the programme in collaboration with the company SK Forest (Korea). At the provincial level, the People's Committee of Quang Nam is preparing a proposal for the pilot scheme for trading forest carbon credits in the province in accordance with the official letter No. 3479/VPCP-NN issued by the Government Office.

However, regarding forest carbon credit trading in the context of Viet Nam, there are a number of key questions that need to be answered, such as (i) What forest carbon credit trading mechanisms have been and can be applied to Viet Nam?, (ii) What are the required contributions to the NDC from the LULUCF sector, forest carbon credit projects that have been and are being implemented, and

provinces and ecological-economic zones?, (iii) What is the available amount of credits from forest carbon credit projects that can be traded? (iv) What are the benefit-sharing mechanisms and the roles and responsibilities of stakeholders in the implementation of carbon credit projects?

The VN-SIPA project is supporting VNFOREST to review forest carbon credit projects in Viet Nam. This report is the result of the abovementioned reviewing process to propose recommendations for implementing forest carbon credit trading in Viet Nam, contributing to the fulfillment of NDC as well as mobilising financial resources for forest protection and development.

## 2 Objectives and Methods

### 2.1 Objectives

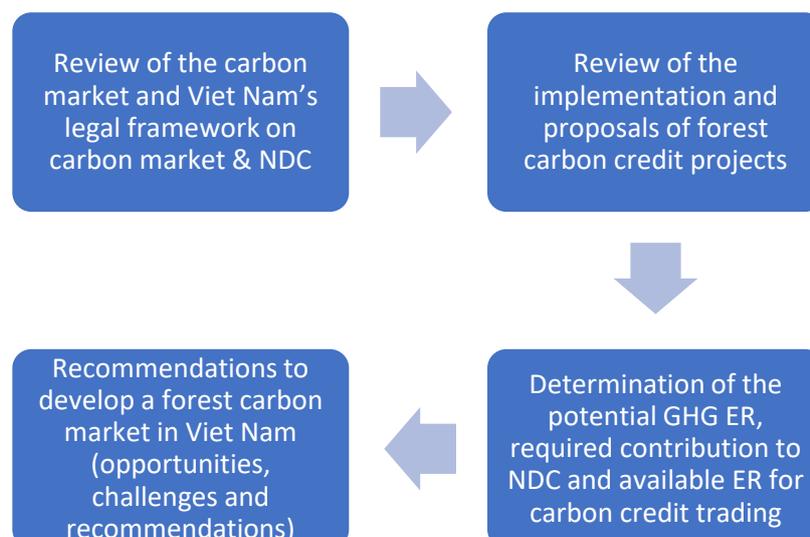
The goal of this assignment is to provide an overview of forest carbon credit projects and propose solutions and recommendation towards more opportunities and sources in implementing mitigation targets in relation to forestry. The specific objectives of this assignment are to:

- i) Review the status of forest carbon credit projects in Viet Nam, consisting of the following projects:
  - o Existing projects under implementation and that have been finalised
  - o Forest carbon credit projects in preparation in Viet Nam
- ii) Analyse the potential of forest carbon credits to contribute to Viet Nam's NDC and to trade externally. This could include challenges, driving factors and opportunities for developing and promoting forest carbon credit projects in Viet Nam.
- iii) Propose solutions to balance forest contributions to the NDC and trading forest carbon credits externally and recommendations towards effective and sustainable forest carbon credit development in Viet Nam.

### 2.2 Methods

#### a) Steps to conduct this assignment

The following diagram shows the steps and methods of the study.



## b) Data sources, data limitations and assumptions

For estimating the required contribution to the NDC as well as the available amount of ER for carbon credit trading, the three main parameters are:

- i) Potential GHG ER in the LULUCF sector and forest carbon credit projects
- ii) Required contribution to the NDC of the LULUCF sector and forest carbon credit projects
- iii) Available amount of ER for carbon credit trading

The key data sources that were used in this report include:

- i) The potential amount of carbon credits from ER and carbon storage nationwide in the period of 2021-2030 is from the updated report on estimation of forest carbon ER potential prepared by the Forest Inventory and Planning Institute (FIPI) in 2022. The data on potential amount of GHG ER of the forest carbon credit projects is based on the figures of the projects' documents, reports, agreements and proposals.
- ii) The required contribution to the NDC of the LULUCF sector is based on the data on GHG ER plan for the agriculture and rural development sector for the period of 2023-2030, projected to 2050 of MARD and the technical report on the updated NDC (2022). The required contribution to NDC of every province is estimated based on the data and figures of the technical report for the development of the drafted Implementation Plan for Emission Reduction in the LULUCF sector for the period of 2021-2030 (Vu Tan Phuong et al., 2021). The required contribution of each project to the NDC is then estimated by adding up the total of the required contributions to NDC of the provinces in each project site.
- iii) The estimated amount of carbon credits of individual projects which can be traded is the difference between the overall ER and the required NDC contribution of each project.

*Assumptions: All the parameters on carbon credit are calculated for the period of 2021-2030.*

## c) Calculation methods

- i) Calculating potential GHG ER of the forest carbon credit projects

If a project is implemented in the period of 2021-2030, the data of the project will be used. If the project period is not in the same timeframe, the potential ER is simply estimated by the following formula:

$$\text{Total ER between 2021-2030} = ((\text{Project}^{\wedge} \text{ER}) / (\text{number of project years})) * 10$$

For example, forest carbon credit project A has the total estimated ER for period 2021-2025 is 10 million tCO<sub>2</sub>-eq, then the estimated total ER of the project for the period 2021-2030 will be equal to 20 million tCO<sub>2</sub>-eq (= (10/5)\*10).

- ii) Calculating the required NDC contribution for individual forest carbon credit projects:
  - Step 1: Determine potential contribution to the NDC of every province from the Report on the Implementation Plan for Emission Reduction in the LULUCF Sector for the Period of 2021-2030 (Vu Tan Phuong et al., 2021).
  - Step 2: Determine the required contribution to the NDC of every forest carbon credit project by adding up the potential contributions to the NDC of all the provinces in the project site.

These figures are estimated for two scenarios: Unconditional and conditional scenario.

- iii) Estimating available ER for carbon credit trading of each forest carbon credit project

Available ER for carbon credit trading = potential GHG ER - required contribution to the NDC

These figures are estimated for two scenarios: Unconditional and conditional scenarios.

# 3 The Carbon Market and Viet Nam's GHG Emission Reduction Policy

## 3.1 Overview of the Carbon Market

### 3.1.1 Carbon Pricing

The carbon market is set up for trading GHG ER to meet the goal of reducing GHG emissions to combat climate change. Carbon pricing is an important tool in the carbon market. According to World Bank (2022), “carbon pricing is an instrument that captures the external costs of greenhouse gas (GHG) emissions—the costs of emissions that the public pays for, such as damage to crops, health care costs from heat waves and droughts, and losses from flooding and sea level rise—and ties them to their sources through a price, usually in the form of a price on the carbon dioxide (CO<sub>2</sub>) emitted”, thereby creating an incentive for direct GHG ER or investing in GHG emission removal from the atmosphere (for example through forest carbon sequestration and carbon capture and storage) through carbon credit trading. There are three most commonly used carbon pricing instruments/mechanisms: (i) carbon tax, (ii) Emissions Trading System (ETS) (also known as Carbon Quota Exchange System), and (iii) a credit system/mechanism (carbon credit exchange and offset) (Nguyen Van Minh, 2022).

The **carbon tax** is often levied on fossil fuels (e.g. coal, oil, and gas) with the aim of reducing and eliminating the use of them. If the government imposes a tax, fossil fuel users must pay for the climate damage caused by CO<sub>2</sub> and other GHGs emitted into the atmosphere. When the tax is set at a high enough level, it can limit fossil fuel user’s behaviour and promote a shift to non-carbon fuel uses. This tax is usually levied on the number of units (e.g. liters/ton) of fossil fuels consumed. The environmental protection tax on petroleum consumption in Viet Nam is an example of a carbon tax.

The **Emissions Trade Mechanism (ETS)**<sup>1</sup>, is a market mechanism that allows entities (countries, companies, etc.) that emit GHGs into the atmosphere to sell their allowances for emissions (emission permits) to each other through a Cap and Trade (CAT) system. In this system, the government sets up an upper limit (maximum level) of emissions (cap) for some economic sectors and then issues trade allowances (trade) for each company through an auction or free allocation approach according to specific criteria. An emitter having more emissions than their quota must purchase the right to emit more, while a company that does not use up the quota can sell its remaining allowances to other companies. Thus, emitters can trade their emission allowances to get to the desired quota in the carbon markets. Price per unit of carbon emissions is determined by supply-demand principles on the carbon market. It forms the trading mechanism called Emission Quota and Trading Mechanism (Cap and Trade). Most ETS markets for industrial sectors follow this mechanism, e.g. the EU-ETS in Europe, California Cap and Trade in USA, ETS in China).

The **credit mechanism** (also known as the Baseline and Credit System) does not have a fixed limit on emissions, but emitters that reduce their GHG emissions more than their baseline level can earn credits<sup>2</sup> for the difference and can then sell the certified credits to others for them to comply with regulations they are subject to. This is the basis for the carbon offsetting mechanism, also known as the credit mechanism. GHG ER projects generate tradable carbon credits through this mechanism,

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<sup>1</sup> Some authors divide ETS into 2 categories: (i) Cap and Trade System and (ii) Credit Mechanism (also known as the Baseline and Credit system). This report considers the credit mechanism as an individual mechanism based on the classification method of Nguyen Van Minh (2022).

<sup>2</sup>A carbon credit is a tradable certificate or permit representing the right to emit a set amount of carbon dioxide or the equivalent amount of a different GHG equivalent to 1 ton of CO<sub>2</sub> (tCO<sub>2</sub>-eq) (Environmental Protection Act , 2020).

for example within the framework of the Kyoto Protocol through the Clean Development Mechanism (CDM), the Joint Implementation (JI) mechanism, and the emission trading (ET) mechanism, within the framework of the Paris Agreement<sup>3</sup> through Internationally Transferred Mitigation Outcomes (ITMOs) under Article 6.2, the mechanism to contribute to the mitigation of GHG emissions and support sustainable development (Article 6.4<sup>4</sup>), bilateral cooperation mechanisms such as the Vietnam-Japan Joint Credit Mechanism (JCM) and mechanisms outside the United Nations Framework Convention on Climate Change (UNFCCC) based on carbon standards (e.g. Gold Standard (GS) and Verified Carbon Standard (VCS)). Most of the forest carbon credit projects in the world have been implemented in accordance with this credit mechanism.

### 3.1.2 Carbon Market

In essence, the carbon market is a market for emission allowances/carbon credits that can be traded and acts as a carbon credit exchange. Emission permits/carbon credits can be exchanged, bought and sold on the basis of supply and demand. Thus, a carbon market is a commodity market established for trading emissions quotas/carbon credits. The carbon market can be classified into international carbon market and a domestic carbon market, or into a compliance carbon market and a voluntary carbon market (VCM).

An **international carbon market** was firstly established in the framework of the Kyoto Protocol and bloomed in European, North American, and Asian countries. The 2015 Paris Agreement also made use of international carbon markets. Particularly, Article 6 of the Paris Agreement has allowed its participants to trade emission allowance to reach NDC targets. Some of the international ER mechanisms include: (i) Mechanisms under the Kyoto Protocol, like the CDM, (ii) the EU Emissions Trading System (EU-ETS), which requires EU members to reduce emissions based on an intra-regional exchangeable emission quota allocation, (iii) the Marrakesh Agreement, (iv) the Carbon Offset and Reductions Scheme for International Aviation (CORSIA). The global carbon market has become an important financial source for ER projects (Bui Thu Thuy et al., 2021).

A **domestic carbon market** has been developed in many countries, aiming at reducing emissions to meet national ER targets, such as carbon markets of the United States (e.g. Regional GHG Initiative (RGGI), Western Climate Initiative (WCI), Midwest GHG Reduction Treaty (MGGRA), Chicago Climate Exchange (CCX)); UK-ETS; French carbon market; Chinese markets (such as Chinese ETS – experimental period, China Forestry Exchange (CFEX) using Panda voluntary carbon standard; Korean market (K-ETS), New Zealand market (NZ-ETS). Viet Nam plans to set up a domestic carbon market according to the exchange mechanism of GHG emission quotas and carbon credits.

**Compliance carbon markets** are established for parties which have the obligation to reduce emissions. At the international level, it is based on the commitments of countries under the UNFCCC to achieve GHG reduction targets. The Kyoto Protocol requires the parties to fulfil their commitment on the ER through three main mechanisms adopted in the Marrakesh Accord in 2001, including (i) a market mechanism for emissions or ETS, (ii) the CDM, and (iii) a co-implementation mechanism. Accordingly, countries that emitted less than their emission quotas/committed amounts can sell these the surplus quotas to countries with excess emission levels through the emission market mechanism. The CDM allows developed countries to finance projects for reducing GHG emissions in developing countries, thereby increasing the amount of emission quotas in their countries. This is considered an effective tool to help developing countries to participate in the Kyoto Protocol, in order to improve technological capacity in these countries, and at the same time to solve the issue of

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<sup>3</sup> Article 6 of the Paris Agreement also establishes the basis for promoting supportive cooperation among countries through a non-market approach (Article 6.8).

<sup>4</sup> This mechanism is developed based on the CDM.

harmonising between the economic development and the environment protection in developed countries. Similarly, the co-implementation mechanism also allows a member country to implement a project in another country in order to receive additional emissions quotas in return. The process of trading carbon credits follows market price principles. On the domestic level, a carbon market is established by each country (even at state level) by setting emission limits for each sector and then for each emitter in order to achieve the target of the national emissions reduction. Most of domestic compliance carbon markets follow the ETS mechanism (e.g. UK-ETS; NZ-ETS, K-ETS, EU-ETS, or RGGI).

The **Voluntary Carbon Market (VCM)** is based on bilateral or multilateral cooperation agreements between organisations, companies, or countries on a voluntary basis. On the VCM, ER can be achieved for example in the sectors of renewable energy, energy conversion or efficiency, and forestry. On the VCM, companies and organisations can purchase carbon credits to increase their environmental recognition. Any entity (company, organisation, or government, even an individual) that wants to reduce GHG emissions can join this market. The common motivation for purchasing carbon credits is social responsibility and public relations of the buyers. The private sector can buy carbon credits directly from projects, companies or from a carbon fund (e.g. the World Bank Biocarbon Fund). Carbon credit validation and verification are usually implemented by a third-party body in compliance with the carbon standard agreed between the buyer and the seller. According to Guigon and BlueNext (2010), a VCM has the key following characteristics:

- Established outside of governmental regulatory scheme by firms and individuals voluntarily buying carbon offsets to reduce their GHG emissions for branding and regulation anticipation purposes.
- Provide toolkits and financial resources to address the challenges in the existing carbon market such as delays in international agreements or not being able to participate in other trading mechanisms.
- Forest projects have potential and easy access to VCM market, especially afforestation and reforestation, and Reducing Emissions from Deforestation and Forest Degradation (REDD+) projects.
- Implementation and participation in the VCM also provide capacity building for stakeholders, including government, private sector, and community, to emerging compliance carbon markets in the future.

Depending on the requirements carbon credit buyers, sellers of ER must comply with voluntary carbon standards to participate in the VCM. These standards have been established to provide procedures, rules, and tools for developing, verifying, and crediting ER projects.

### 3.1.3 Structure of the VCM

In economic terms, carbon credits are tradable commodities. Carbon credits are generated, sold, transferred and purchased by private and public actors with different roles in the carbon market. The supply and demand structure of the market is depicted in figure 1.

- **Carbon credit supply:** Project and programme managers design and implement mitigation activities that are registered under a GHG crediting standard and generate carbon credits. Activity managers may be non-profit or profit-oriented private project developers, local private or community landowners, municipalities and public agencies. To create a VCM project, developers design a project or programme, consult with government entities and local communities, comply with carbon standard requirements to receive certification, establish

monitoring systems and sell credits to buyers or intermediaries. In cooperation with local communities or civil society organisations, programme/project developers can recruit investors to provide upfront financing or engage other participants. The government may mobilise advance financial resources for VCM projects/programmes from the public budget or funded programmes.

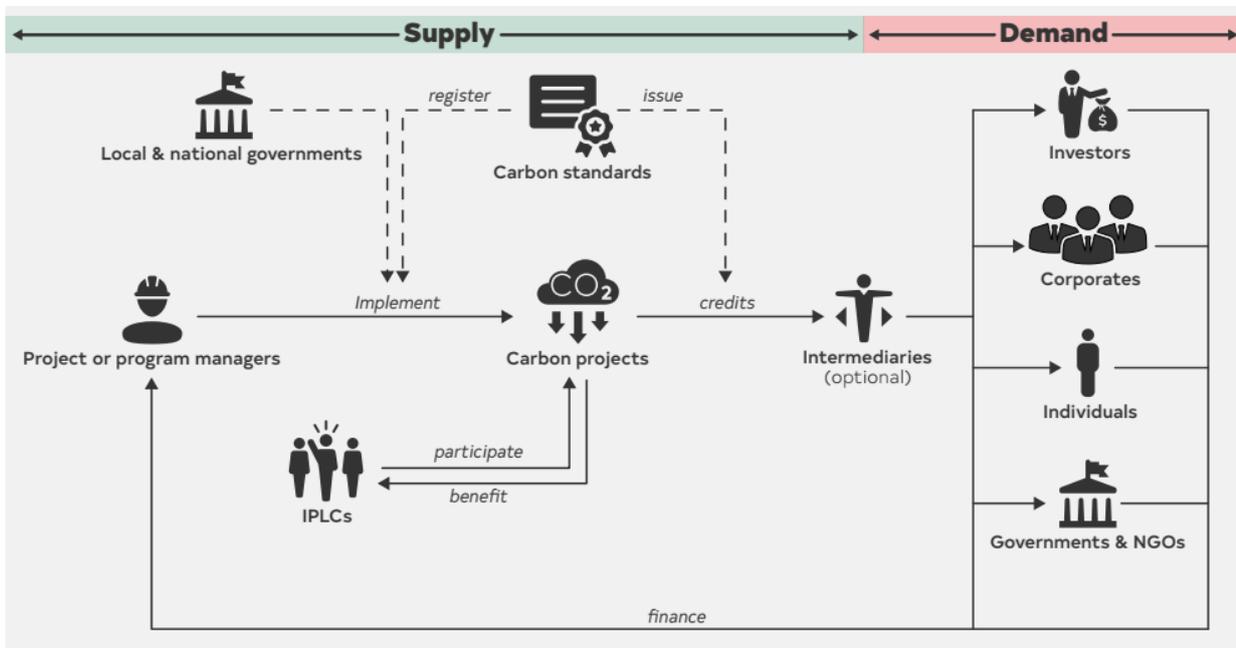


Figure 1: VCM structure (Dyck et al. 2023)

- **Carbon credit demand:** Buyers of most carbon credits on the voluntary market are private individuals, corporations or governments that voluntarily engage in the market to offset their GHG emissions. Governments, non-governmental organisations and individuals also purchase VCM carbon credits to offset emissions from flights, events or the production of goods and services.
- **Investors and intermediaries** operate on both the supply and demand side by investing in projects and by purchasing carbon credits. Market intermediaries generally are for profit companies, acting as traders or fund managers that manage carbon credit portfolios. They play the role of connecting buyers and sellers in a carbon credit project. Investors are private companies, organisations or individuals that work with intermediaries or project developers to finance carbon credit projects/programmes, often in exchange for a guaranteed quantity and price of credits generated from projects/programmes.
- **Carbon standard organisations**, most of which are individual private carbon standard organisations, participate in the VCM by setting requirements that projects and programmes must fulfil to generate tradable carbon credits.
- **Governments** can regulate the carbon market by establishing legal frameworks, verification systems and social or environmental project standards (safeguards), determining carbon rights and benefit-sharing mechanisms, ensuring the alignment between the VCM and the national commitments under the Paris Agreement and setting regulations on the domestic carbon market or carbon pricing mechanisms.
- **Indigenous People and Local Communities (IPLC) and enterprises** (such as forest management boards in Viet Nam) hold land, forest or carbon rights or have customary/traditional access to lands where emissions reduction activities take place. As

land managers, IPLC and companies are on the supply side of the carbon market. They may directly engage in the project development or participate through benefit-sharing agreements. It can include all forest owners, including communities, individual households, forestry enterprises and forest management boards.

- **Carbon standards** are at the heart of the operation of the VCM. Carbon standard organisations provide and administer the rules and requirements for VCM projects and programmes, certify and issue carbon credits, and facilitate trade of carbon credits. A carbon standard refers to the complete set of rules, procedures and methods according to which certified carbon credits are generated and issued. Carbon standards are developed and governed by carbon standard organisations, usually international non-governmental organisations (NGO) that consist of a standard setting arm, a regulatory arm, and a system of validation and verification usually undertaken by third parties. Governments can also develop or support the development of national carbon standards, such as the UK Woodland Carbon Code or the Thailand Voluntary Emissions Reduction Programme. Carbon standards vary in their approaches, methods and requirements. The main carbon standards calculated by relative volumes of carbon credits issued until 2020 include: Verified Carbon Standard (VCS, 68.5%), Gold Standard (GS, 20.1%), Climate Action Reserve (CAR, 8.3%) and American Carbon Registry (ACR, 3.1%). Additionally, the Plan Vivo Standard is a specific standard for community and small-scale projects. There are also several standards for voluntary domestic carbon markets developed in some countries such as Thailand, the UK, or even at state level, for example in California and Colombia. In 2020, a new standard was developed for REDD+ projects, called the REDD+ Environmental Excellence Standard (ART/TREES) and the first letter of intent for credits certified under ART/TREES was signed in November 2021. More recently, VCS has developed some methodologies/versions for REDD+ projects (e.g. VM0006, VM0007, VM0009, VM0015, and VM0037) and the CDM under the UNFCCC.

**Table 1: Selected Carbon Standards**

Clean Development Mechanism (CDM)	The CDM is part of the Kyoto Protocol and aims to create economic efficiency while also delivering development co-benefits for less developed nations. The CDM has been successful in generating many offsets, although it is debatable whether it has delivered co-benefits.
Gold Standard (GS)	Like the CDM, the GS aims to enhance the quality of carbon offsets and increase their co-benefits. However, unlike the CDM, the GS also requires the CDM additionality tool for small-scale projects.
Voluntary Carbon Standard 2007 (VCS 2007)	VCS 2007 aims to be a common quality standard to reduce the burden of cost and administrative procedures.
VER+	VER+ offers a similar approach to the CDM for project developers and projects outside of the scope of the CDM.
Chicago Climate Exchange (CCX)	CCX was a pioneer in establishing a US carbon market.
Voluntary Offset Standard (VOS)	VOS closely follows CDM requirements and aims to decrease risks for offset buyers on the VCM.

Climate, Biodiversity (CCBS)	Community & Standards	CCBS aims to support sustainable development and conserve biodiversity. However, CCBS is only a project design standard, and thus cannot verify quantified ER.
Plan Vivo		Plan Vivo aims to provide sustainable rural livelihoods through carbon finance. It verifies and sells ex-ante credits only. Third-party verification is not required but recommended.

Source: Kollmuss et al (2008), cited in Pham Thu Thuy et al. (2021)

### 3.1.4 Role of the Government in the VCM

As noted above, the VCM is based on private carbon standards. However, governments can engage in and influence the VCM in different roles, including:

- As a regulator: The most important role of the government is to establish a legal framework and a national carbon registration system (Pham Thu Thuy et al., 2021). In addition, governments have important roles in defining carbon rights, promoting benefit-sharing mechanisms, environmental investment policies and IPLC policies and establishing linkages between climate regulations and the VCM, such as between a carbon tax and carbon credits to create a domestic VCM, as well as setting environmental and social practice standards (safeguards).
- As a supporter: Governments can finance VCM programmes/projects and support large-scale programmes such as REDD+ to reduce GHG emissions. If the project is certified in accordance with a carbon standard, the government can generate and sell carbon credits in the VCM. The government can also integrate programmes/projects into the national REDD+ programme.
- As a promoter: Governments can have a significant influence on the VCM by either encouraging or discouraging the development of VCM projects. By encouraging the development, government can use the VCM to drive investment into sectors or regions that are underfinanced, such as forestry and agroforestry. Governments can direct financial flows from the VCM to priority areas or policies where financial resources are needed, such as land/forest restoration and conservation by defining criteria for engagement and recognizing VCM standards and methods for each sector. For example, the Growing Climate Solution Act in the US provides information and capacity support for farmers and forest owners to engage in projects and voluntary forest carbon markets.

### Forest Carbon Market

Forest ecosystems play an important role in combating and mitigating the effects of climate change through two mechanisms: (i) reducing CO<sub>2</sub> emissions by reducing deforestation and forest degradation and (ii) improving carbon storage by afforestation and natural forest growth. Forestry is, therefore, a sector with great potential to participate in the carbon market. The forest carbon market is being promoted by the international community as an effective financing mechanism to reduce emissions from deforestation and forest degradation, and to protect forests and other carbon sinks such as peatlands and wetlands. The forest carbon market is considered a particular type of carbon market while forest carbon credits are also traded in other carbon markets.

The forest carbon market includes two main types of projects: reduction of deforestation and forest degradation (REDD+) and other forest carbon credit projects such as Afforestation, Reforestation and Revegetation (ARR) and Improved Forest Management (IFM). REDD+ projects focus on reducing emissions from deforestation and forest degradation, conservation and enhancement of forest carbon stocks and sustainable management of forests. Payments can be made through a results-based mechanism (jurisdictional REDD+) or through the carbon market like the VCM (mostly

project-based REDD+). The other forest carbon credit projects encompass a broad range of activities such as the establishment of new forests, restoration of forests that have been cleared, agroforestry and enhancement of forest carbon stock in production forests and can operate in both voluntary and compliance carbon markets. While the CDM under the Kyoto Protocol only included afforestation and reforestation projects, the Paris Agreement formally recognised the need to conserve existing forests (i.e. REDD+) in its Article 5.

After the establishment of the CDM and REDD+, the forest carbon market has grown significantly. According to Ecosystem marketplace – the Forest Trend initiative, up to the year of 2021, the total global commitment for REDD+ readiness, implementation and result-based payment projects/programmes is approximately 5.4 billion USD. The report also estimates that the size of global forest carbon market has reached 4,447.8 million USD only for the period from 2007 to 2019, of which about 2,740.8 million USD is under market mechanisms (including 379.2 million USD in VCM and 2,333.6 million USD under the compliance market) and 1,717 million USD under the non-market mechanism through REDD+ programmes (Forest Trend (2021a)). FCPF, a global partnership of governments, businesses, civil society, and Indigenous Peoples focused on activities commonly referred to as REDD+, managed by the World Bank, and the Green Climate Fund (GCF) recently signed more than 1 billion USD for results-based payment contracts for jurisdictional REDD+ projects. The new LEAF Coalition, a public-private initiative supported by the governments of Norway, the United Kingdom, the United States, South Korea and nine companies, has also committed to provide jurisdictional REDD+ result-based payments.

Since 1997, the number of forest carbon credits in compliance markets accounts for approximately 17% of the global carbon credits and 25-50% of the total amount of carbon credits on the VCM, of which REDD+ projects have generated up to 50% of the total forest carbon credits, followed by A/R CDM projects and Improved Forest Management (IFM) projects. This has increased in recent times; in the period of 2015-2019, the forestry sector accounted for 42% of the total global carbon credits, according to Pham Thu Thuy et al (2022).

On average, the price of carbon credit projects is around \$5/tCO<sub>2</sub>-eq. Emergent, a forest finance accelerator and coordinator of the LEAF Coalition, sets a floor price of \$10/tCO<sub>2</sub>-eq. However, CIFOR (2022) has recently pointed out that the global price of carbon needs to reach \$60-\$160 per ton by 2030 to achieve the Paris Agreement target<sup>5</sup>, in which the premium price of tCO<sub>2</sub>-eq for high-quality carbon forests (such as mangrove forests, high biodiversity forests and community support projects) is estimated to be at least 29 USD. The price of forest carbon credits might significantly increase due to high demand to meet the requirements of the Paris Agreement. This might be a good opportunity for the global forest carbon market in general and in Viet Nam in particular.

## 3.2 NDC and the Carbon Market Policy in Viet Nam

### 3.2.1 NDC

Viet Nam submitted its Intended Nationally Determined Contribution (INDC) in 2015 and ratified the Paris Agreement in 2016. The updated 2022 NDC is set to reduce national GHG emissions by 15.8% (equivalent to 146.3 million tCO<sub>2</sub>-eq) until 2030, compared to a BAU scenario, using domestic financial resources (unconditional), and the contribution could increase up to 43.5% (approximately 403.7 million tCO<sub>2</sub>-eq) if Viet Nam received international support (conditional). At COP26, Viet Nam has pledged to achieve net zero emissions by 2050.

The Vietnamese government has allocated an emission reduction target to each sector to reach the 2030 NDC target, of which the target for the LULUCF sector under the unconditional scenario is

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<sup>5</sup> The price of carbon credits in the compliance market is often much higher than the price in the voluntary market.

32.47 million tCO<sub>2</sub>-eq (equivalent to 3.5% of the committed 15.8%) and 46.56 million tCO<sub>2</sub>-eq (equivalent to 5% of the committed 43.5%) under the conditional scenario in the year 2030. The reason LULUCF plays such a significant role in the NDC is because it is the only sector with negative GHG emissions.

### 3.2.2 Viet Nam's Carbon Market Policy

#### Carbon market in Viet Nam

The market for carbon credits in Viet Nam was initiated after the Kyoto Protocol and has been operated in both compliance and voluntary markets according to the following mechanisms:

- Clean Development Mechanism (CDM)
- Carbon offsetting (credit mechanism), including the Joint Credit Mechanism of Cooperation between Viet Nam and Japan (JCM), REDD+, and mechanisms outside the framework of the UNFCCC (according to Carbon Standards VCS and GS)

According to the Ministry of Natural Resources and Environment (MONRE), by 2022, Viet Nam has had 258 carbon credit projects and 13 carbon credit programmes registered under the CDM, of which 77 projects and 3 programmes have received a total of 25,670,728 credits with the estimated total revenue of 2,500 billion VND. Regarding the credit mechanism, there are 14 projects under the JCM with 4,415 credits, 22 projects with 629,934 credits under the VCS and 24 projects with 4,909,354 credits are under the GS.

Regarding forestry, in Viet Nam, there is one afforestation project (closed) under the CDM of more than 300 ha in Cao Phong district, Hoa Binh province. Several projects following the REDD+ mechanism under the UNFCCC framework are being and will be implemented, such as FCPF project in six North Central provinces in the period of 2018-2025 with an estimated ER of 25 million tCO<sub>2</sub>-eq. This project is not market-based but a conditional support programme for the forestry sector. Some other projects are in the preparation phase. For example, the LEAF Coalition project (for the period 2022-2026), for which a Letter of Intent (LoI) was signed between Emergent and MARD in 2021, is designed for forest carbon ER in the South Central region and the Central Highlands. This project applies ART/TREES standard and is expected to generate 5.15 million tons of CO<sub>2</sub>-eq at the fixed price of 10 USD/tCO<sub>2</sub>-eq. The ER project proposed by SK Forest of Korea in the Northern Midlands and Mountainous regions will implement using the VCS. Quang Nam province also proposed a forest carbon credit project for commercial purposes.

#### Viet Nam's carbon market policy

To achieve the national strategic goal on climate change mitigation and the NDC target, Viet Nam has been preparing to issue several documents regarding the carbon market. Viet Nam has participated in carbon market preparation projects quite early. In 2012, Viet Nam became a member of Partnership for Market Readiness (PMR), then engaged in implementation of Vietnam Partnership for Market Readiness projects (VNPMR) in 2015 and participated in Partnership for Market Implementation (PMI) in 2019.

The legal framework for carbon market development has been mentioned in several documents, including:

- Decision no. 1775/QĐ-TTg in 2012 of the Prime Minister on the approval of the plan on the management of GHG emissions and management of carbon credit business activities: Article 1, Clause I, point 1b: "Setting up a domestic carbon market and participating in the global carbon market."
- Resolution no. 24-NQ/TW in 2013 on the active response to climate change, strengthening resource management and environmental protection: "Part III: Key tasks, subsection 2a:

Setting up domestic markets for carbon credit exchange and participation in the global carbon market.”

- The Law on Environmental Protection 2020, Article 139 on organising and developing a domestic carbon market: “The domestic carbon market covers the exchange of GHG emission quotas and carbon credits obtained from the participation in domestic and international carbon credit exchange and offsetting mechanisms in accordance with regulations of law and international treaties to which the Socialist Republic of Vietnam is a signatory.”
- Decree 06/2022/ND-CP on mitigation of greenhouse gas emissions and protection of the ozone layer, clearly stipulates the roadmap for the development of Viet Nam’s domestic carbon market, the organisational structure, functions and tasks of the state management agencies, market scope and participants, regulations on setting emission limits and allocation of GHG emission quotas.

Some specific regulations are as follows:

- i) Domestic carbon market development road map: Article 17 of Decree 06/2022/ND-CP

**Article 17. Development roadmap and deployment time of domestic carbon market**

*1. The period of up to the end of 2027*

*a) Formulating carbon credit management regulations, GHG emission quota exchange and carbon credits; formulating operation rules of the CTX;*

*b) Experiment with carbon exchange and offsetting mechanisms in potential sectors and providing guidance on operation of domestic and international carbon exchange and offsetting mechanisms in accordance with law and the international treaties to which the Socialist Republic of Vietnam is a signatory;*

*c) Establishing and organizing trial operation of the CTX from 2025;*

*d) Carrying out activities in order to improve capacity and raise awareness about carbon market development.*

*2. The period from 2028;*

*a) Organizing official operation of the CTX in 2028;*

*b) Regulation on integration of domestic carbon market into regional and global carbon market.*

- ii) Scope and composition of the domestic carbon market: The Prime Minister issued Decision No. 01/2002/QĐ-TTg dated 18 January 2022 on promulgating a list of GHG emitting sectors and facilities that shall have to conduct GHGs inventories. Appendix II of the decision stipulates that 1,662 establishments in provinces and in 6 different fields (i) energy, (ii) transportation, (iii) construction, (iv) industrial processes, (v) agriculture, forestry, and land use (LULUCF), and (vi) waste). These are potential participants in the exchange and/or trading of carbon credits to achieve designed ER targets.

- iii) Regulations on the exchange of GHG emission quotas and carbon credits in the domestic carbon market (Article 19, Decree 06/2002/ND-CP)

*2. Carbon credits and GHG emission quotas allowed to be traded*

*a) GHG emission quotas prescribed in Clause 2 Article 12 are allowed to be traded on CTX. 1 GHG emission quota unit equals 1 ton of CO<sub>2</sub> equivalent;*

*b) Carbon credits collected from programmes and projects according to the carbon exchange and offsetting mechanisms are allowed to be offset against GHG emission quotas on the trading floor. 1 carbon credit equals 1 ton of CO<sub>2</sub> equivalent;*

*3. Auctions, transfer, borrowing, return of GHG emission quotas and use of carbon credits to offset against GHG emissions*

*d) Facilities may offset carbon credits from projects under the carbon exchange and balancing mechanisms against GHG emissions exceeding the GHG emission quotas allocated in the same commitment period. The amount of carbon credits for offsetting must not exceed 10% of the total GHG emission quota allocated to the facilities.*

In principle, the carbon market of Viet Nam is designed as a compliance market by applying the ETS mechanism. According to the NDC, Viet Nam must reduce the national GHG emissions by 146.3 million tCO<sub>2</sub>-eq by 2030 compared to BAU under the unconditional scenario. If subtracting the required LULUCF contribution to the NDC, the remaining ER of all other sectors is 113.8 million tCO<sub>2</sub>-eq under the unconditional scenario. Therefore, the potential of the LULUCF sector in Viet Nam's carbon market (maximum equal to 10% of the remaining NDC target, according to the regulations at Point d, Clause 3, Article 19 of the abovementioned Decree), is estimated up to 11.38 million tCO<sub>2</sub>-eq can be transacting domestically. This could be a large potential for Viet Nam's forest carbon market.

### **Policies related to forest carbon management and trade in Viet Nam**

Pham Thu Thuy et al (2022)<sup>6</sup> have detailed the key policies on forest carbon of Viet Nam, including:

- **Civil Code 2015 (Viet Nam NA 2015).** Clause 1, Article 105, prescribes property as follows: “Property is objects, money, valuable papers and property rights” (Viet Nam NA 2015). With the regulation of forest carbon in the form of certified carbon credits, carbon can be considered one of a forest’s assets along with timber and non-timber forest products.
- **Forestry Law 2017:** Article 61, Clause 3 “Carbon sequestration and storage of forests, reducing greenhouse gas emissions from deforestation and forest degradation, sustainable forest management, green growth” is one of the five types of forest environmental services.
- Decisions and decrees:
  - Decision No. 419/QD-TTg issued 4 May 2017 on approval of the National REDD+ Action Programme to 2030
  - Decree 156/2018/ND-CP with some articles stipulating regulations on the management and use of forest environmental services (some additional regulations on forest carbon management in the currently being amended decree)

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<sup>6</sup> For details see Pham TT, Tang TKH and Nguyen CC. 2022. *Forest carbon market in Vietnam: Legal basis, opportunities and challenges*. Occasional paper 237. Bogor, Indonesia: CIFOR.

- Decree 08/2022/ND-CP issued in 2022 on Payment for Natural Ecosystem Services (Section I, Chapter X), which stipulates “Forest environmental services of forest ecosystems shall be applied according to provisions of the law on forestry.”
- Decree 107/2022/ND-CP on Piloting Carbon Payment for Forest Environmental Services in the North Central Region with a benefit-sharing mechanism for the pilot forest carbon credit project.

## 4 Overview of Forest Carbon Credit Projects and Programmes in Viet Nam

The first forest carbon credit project in Viet Nam is the AR-CDM afforestation project in Hoa Binh province under the Kyoto Protocol. The project was implemented in 2006 and has come to an end. Currently, there are four forest carbon credit projects in Viet Nam, which are implemented under the framework of UNFCCC:

- Viet Nam is implementing a REDD+ project with FCPF in six provinces (Thanh Hoa, Nghe An, Ha Tinh, Quang Binh, Quang Tri and Thua Thien Hue) in the North Central region. FCPF has committed to purchase 10.3 million tCO<sub>2</sub>-eq with the total value of 51.5 million USD through the Emission Reduction Payment Agreement (ERPA) for the period of 2018-2024 signed between the World Bank and MARD in 2020.
- Viet Nam has recently pledged to implement a REDD+ project with the LEAF Coalition for 11 provinces in the Central Highland and the South Central Coast region of Viet Nam for the 2022-2026 period with estimated ER of 11 million tCO<sub>2</sub>-eq.
- Several projects are at the stage of proposal/feasibility report, such as the pilot commercial forest carbon credit in Quang Nam province (the feasibility report was developed in 2021) and the feasibility report for ER projects in 15 northern midlands and mountainous provinces proposed by SK Forest at the end of 2022.

Most of the four projects are either under implementation or expected to be implemented in forested provinces. Provinces with no project are mostly in Northern and Southern Deltas where there are few forest areas (see Figure 2). The Table 2 briefly summaries the main characteristics of the current forest carbon programmes/projects in Viet Nam.



Figure 2: Location of Forest Carbon Credit Projects in Viet Nam by 2022 (FIPI, 2022)

**Table 2: Overview of Forest Carbon Credit Projects in Viet Nam**

<b>Main Aspects</b>	<b>AR-CDM Project</b> (Report on AR-CDM Hoa Binh project)	<b>FCPF Programme</b> (Decree 107/2022/ND-CP on Piloting Carbon Payment for Forest Environmental Services in the North Central Region)	<b>LEAF Coalition Project</b> (Letter of Intent between MARD, Emergent & LEAF Coalition)	<b>Quang Nam Pilot Project</b>	<b>SK Forest Project</b> (Annual feasibility study)
<b>Location</b>	Cao Phong District, Hoa Binh province	6 North Central provinces (Thanh Hoa, Nghe An, Ha Tinh, Quang Binh, Quang Tri, Thua Thien Hue)	11 provinces in the South Central and Central Highlands (Quang Ngai, Binh Dinh, Phu Yen, Khanh Hoa, Ninh Thuan, Binh Thuan, and Dak Nong, Dak Lak, Gia Lai, Kon Tum, Lam Dong)	Quang Nam	15 provinces (Lao Cai, Yen Bai, Phu Tho, Ha Giang, Tuyen Quang, Cao Bang, Bac Kan, Thai Nguyen, Lang Son, Bac Giang, Quang Ninh, Lai Chau, Dien Bien, Son La, Hoa Binh)
<b>Implementation Period</b>	16 years (since 2006)	2018-2025	2022-2026	Piloting 2021-2025, implementing from 2026	2022-2030 and 2031-2042
<b>Key Interventions</b>	Afforestation and reforestation	Reducing emissions from deforestation and forest degradation and enhancing forest carbon sequestration	Reducing emissions from deforestation and forest degradation and enhancing forest carbon sequestration	Reducing deforestation & forest degradation, enhancing forest carbon sequestration, sustainable forest management	Reducing deforestation & forest degradation, enhancing forest carbon sequestration through afforestation and protection of special-use natural forests and poor forest restoration

Main Aspects	AR-CDM Project (Report on AR-CDM Hoa Binh project)	FCPF Programme (Decree 107/2022/ND-CP on Piloting Carbon Payment for Forest Environmental Services in the North Central Region)	LEAF Coalition Project (Letter of Intent between MARD, Emergent & LEAF Coalition)	Quang Nam Pilot Project	SK Forest Project (Annual feasibility study)
<b>Progress</b>	Completed	The preparation phase was completed and the ERPA signed with the World Bank for 10.3 million tCO <sub>2</sub> -eq MARD is preparing a guideline for implementing Decree 107/2022/ND-CP on Piloting Carbon Payment for Forest Environmental Services in the North Central Region with a Benefit Sharing Mechanism.	Letter of Intent (LoI) signed in 2021 between Emergent (representative of LEAF Coalition) and MARD	Pre-feasibility project	Feasibility study and drafting a Letter of Intent
<b>Vietnamese Managing Agency</b>	Vietnam Forestry University (VNUF) & Research Institute of Forest Ecology and Environment (RCFEE)	MARD & Provincial People's Committees (PPCs)	MARD & PPCs	Quang Nam PPC	MARD & PPCs
<b>Partner/donor</b>	Honda Vietnam company	FPCF/World Bank	LEAF Coalition/Emergent	Quang Nam PPS proposes	SK Forest

<b>Main Aspects</b>	<b>AR-CDM Project</b> (Report on AR-CDM Hoa Binh project)	<b>FCPF Programme</b> (Decree 107/2022/ND-CP on Piloting Carbon Payment for Forest Environmental Services in the North Central Region)	<b>LEAF Coalition Project</b> (Letter of Intent between MARD, Emergent & LEAF Coalition)	<b>Quang Nam Pilot Project</b>	<b>SK Forest Project</b> (Annual feasibility study)
				Terra Global Company	
<b>Carbon Standard</b>	CER in accordance with UNFCCC guidelines	FCPF framework & guideline	ART/TREES	VCS/JNR	VCS
<b>Estimated Potential</b>	<b>ER</b> 61,540 tCO <sub>2</sub> .eq	25 million tCO <sub>2</sub> .eq (for 8 years)  (2021-2030: 31.25 million tCO <sub>2</sub> .eq)	11 million tCO <sub>2</sub> .eq (2022-2026)  (2021-2030: 22 million tCO <sub>2</sub> .eq)	4 million tCO <sub>2</sub> .eq (2021-2025) and a projected 1.2 million tCO <sub>2</sub> .eq per year from 2026  (2021-2030: 10 million tCO <sub>2</sub> .eq)	44.163 million tCO <sub>2</sub> .eq, including 17.62 million tCO <sub>2</sub> .eq (resulting from reduction of deforestation and forest degradation) according to VCS for trading purposes & 26.543 million tCO <sub>2</sub> .eq (resulting from carbon stock enhancement through restoring poor forest & planting protection and special use forest) for the NDC (2022-2030)
<b>Agreed ER Volumes</b>	100%	10.3 million tCO <sub>2</sub> .eq	5.15 million tCO <sub>2</sub> .eq	Not yet defined	Not yet defined

<b>Main Aspects</b>	<b>AR-CDM Project</b> (Report on AR-CDM Hoa Binh project)	<b>FCPF Programme</b> (Decree 107/2022/ND-CP on Piloting Carbon Payment for Forest Environmental Services in the North Central Region)	<b>LEAF Coalition Project</b> (Letter of Intent between MARD, Emergent & LEAF Coalition)	<b>Quang Nam Pilot Project</b>	<b>SK Forest Project</b> (Annual feasibility study)
<b>Committed/Expected NDC Contribution</b>		95% of the 10.3 million tCO <sub>2</sub> -eq (= 9.785 million tCO <sub>2</sub> -eq)	million tCO <sub>2</sub> -eq	No defined NDC contribution (Project objective is to sell all ERs of 4 million tCO <sub>2</sub> -eq in the period of 2021-2025 and 1.2 million tCO <sub>2</sub> -eq each year from 2026.)	26.543 million tCO <sub>2</sub> -eq (potential NDC contribution, not yet committed)
<b>Unit Price/1tCO<sub>2</sub>-eq</b>		5 USD	10 USD (expected)	>=5 USD (expected)	Negotiable
<b>Total revenue</b>		51.5 million USD for 10.3 million tons, 25 million USD more in case of an additional sale of 5 million tCO <sub>2</sub> -eq	51.5 million USD	110 to 130 billion VND/year expected	Not yet defined
<b>Benefit-sharing mechanism</b>	Social funds (50%) and local forestry households (50%)	Defined by Decree 107/2022/ND-CP	Not yet defined	Expected to use PFES mechanism	Not yet defined

- **Carbon trading mechanism:** Of the five discussed projects, the AR-CDM project in Hoa Binh was a small project, applying the carbon credit mechanism of the compliance market under the framework of Kyoto Protocol. The project applied the CER method and is the only project in the forestry sector under the CDM. (Meanwhile, nearly 300 projects/programmes in different sectors have been implemented under the CDM in Viet Nam.) For the remaining four, the pilot project in Quang Nam and SK Forest project are designed based on VCM standards, while the FCPF and LEAF Coalition projects are considered results-based payments. The FCPF project is a non-market project in the form of conditional support for developing countries under the REDD+ mechanism. The LEAF Coalition project applies the ART/TREES standard. After fulfilling the required contribution to the NDC (as a form of non-market payment), the remaining credits can be traded on the carbon market.
- **Carbon standards:** Of the five projects, except for the FCPF project which applies its own methodology, all the remaining four projects apply carbon standards that have been recognised for commercial purposes (e.g., CER, VCS, and ART-TREES). Although in essence, the FCPF project has applied a standard similar to that of UNFCCC and voluntary carbon standards, there are still some differences/inconsistencies. Therefore, the ER credits generated from this project are not eligible to enter the VCM. Currently, many standards (e.g. VCS from Verra) are being developed to calculate, validate and certify carbon credits from project-based and jurisdictional REDD+ projects. For the FCPF project in six South Central provinces, only 10 million tCO<sub>2</sub>.eq have been certified by World Bank's International Bank of Reconstruction and Development (IBRD) (not a carbon standard organisation), of which 95% will be used for the NDC. Thus, more than 15 million tCO<sub>2</sub>.eq remain, compared to the estimated potential amount (out of a total of 25 million tCO<sub>2</sub>.eq ER). In the future, all forest carbon credit projects (including REDD+ projects) should apply market-recognised commercial carbon standards and follow result-based payment mechanism for partly trading ER credits to generate additional financial resources for sustainable forest management.
- **NDC contribution:** According to the updated 2022 NDC, for the period of 2021-2030, the LULUCF sector has to contribute a total of 84.47 million tCO<sub>2</sub>.eq under the unconditional scenario and up to 106.31 million tCO<sub>2</sub>.eq under the conditional scenario. Apart from the A/R CDM project implemented on the small scale, the existing forest carbon credit projects cover most of the forested area of Viet Nam. However, only two projects (FCPF and LEAF Coalition) have pledged to contribute a total 15 million tCO<sub>2</sub>.eq to the NDC (9,785 million tCO<sub>2</sub>.eq from the FPCF project and 5.15 million tCO<sub>2</sub>.eq from the LEAF Coalition project). The SK Forest project has estimated the potential ER volume which may contribute to the NDC but there has been no commitment so far. While the Quang Nam project is designed to use 100% of the potential ER volume for commercial purposes, without contributing any of it.
- **Selling price:** Both the FCPF and the Quang Nam project have established a selling price of 5 USD/tCO<sub>2</sub>.eq. The LEAF Coalition sets the price at 10 USD/ tCO<sub>2</sub>.eq, while the SK Forest has not indicated the price it is willing to pay yet. These are standard rates across the VCM around the world. However, as mentioned above, the price needs to reach up to 60-150 USD/tCO<sub>2</sub>.eq in 2030 to achieve the Paris Agreement's objectives. Because of that, it is necessary to negotiate while balancing out the NDC contribution and the price on the domestic carbon market. In general, carbon credits should not be sold at a fixed and rather low price, especially for commercial forest carbon credit projects. This is to prevent the situation where forest carbon credit projects cannot ensure enough contribution to the NDC and need to compensate by purchasing credits at a higher price, while credits have been sold previously at a lower price. This is a concern that the Vietnamese authorities should consider in approving any new commercial forest carbon credit project.

- **Benefit-sharing mechanism:** The benefit sharing mechanism of the FCPF project is defined in Decree 107/2022 approved by the Prime Minister. The Quang Nam project has proposed a benefit-sharing mechanism with reference to the current regulations on the PFES and the other two have yet to specify the mechanism. For the FCPF project, the payment mechanism is presented in the Figure 3. It is similar to PFES and is suitable for natural forest protection. However, in case of production plantations on bare land that are invested by individuals and households, it should be clarified that forest owners should be entitled to receive the full amount after deducting MRV-related and other administrative/management costs. This is also a matter of carbon rights that calls for a specific regulation or guideline.

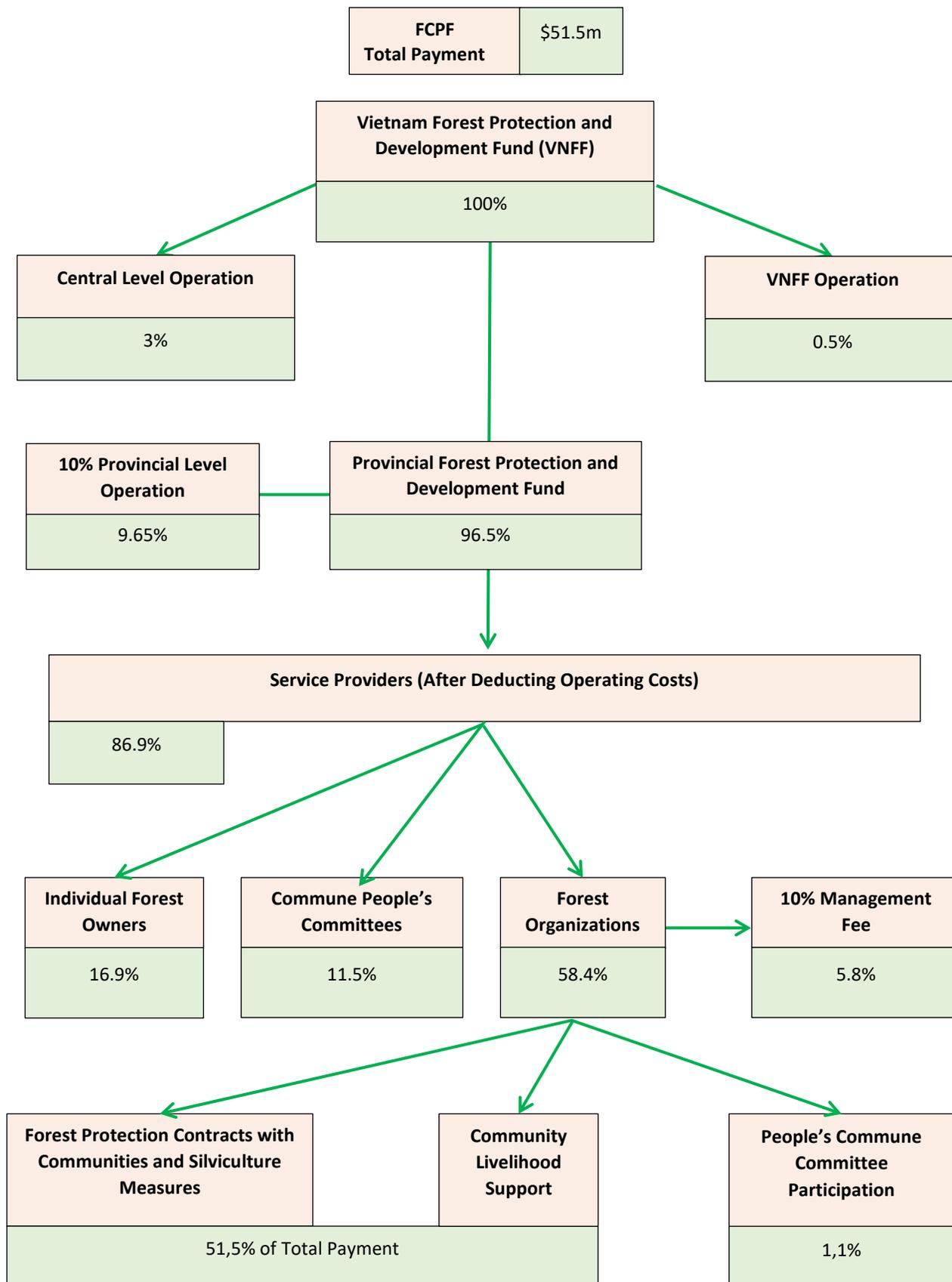


Figure 3: FCPF Project Benefit Sharing Mechanism (MARD, 2022)

# 5 Proposed LULUCF Contribution to the NDC by Provinces in the Ecological-Economic Project Zone

The contribution of GHG emission reduction from the LULUCF sector to the NDC 2022 is stipulated in Decree 06/2022/ND-CP on greenhouse gas emission reduction and ozone layer protection and must be implemented. The contribution is specifically stated in the updated NDC Technical Report 2022. As mentioned above, among forest carbon credit projects that have been or are expected to be implemented, some have committed to contribute to the NDC. Other projects such as the SK Forest and the Quang Nam project, which are in the preparation phase, have not defined their contribution level or their commitments to the NDC. Concerns that need to be addressed include:

1. Regarding forest carbon credit projects with agreed/committed contributions to the NDC, are these contributions enough to meet the requirements for the LULUCF sector based on the updated 2022 NDC?
2. Regarding project/provinces that have not committed to contribute to the NDC or potential project/provinces in the future, what are the required contribution to the NDC?
3. What are the remaining carbon credits of the projects that can be traded on the carbon market after contributing to the NDC?

This section presents estimations for: (i) potential forest carbon ER in the period of 2021-2030, (ii) potential contribution to the NDC of the LULUCF sector, and (iii) estimated contribution to the NDC of the forest carbon credit projects and other provinces that they might be needed to be fulfilled, and (iv) the potential remaining ER volumes for commercial trading of each the project.

## 5.1 Potential Forest Carbon Emission Reduction in the Period of 2021-2030

In the period of 2010-2020, the forested area has significant changed, especially the area of plantation. During this period, Viet Nam's forest cover increased from 39.5% in 2010 to 42% in 2020 with the average increment rate of forest cover of 1% per year. In particular, the plantation area increased significantly from 3.1 million ha in 2010 to 4.4 million in 2020. This means the plantation area increased by 43% during this period with the average of 6% per year (equivalent to 131,477 ha). However, the area of natural forest did not witness a significant change. The area of natural forest decreased by 0.2% (equivalent to 25,631 ha) with the average annual decreasing rate of 2,563 ha.

By the end of 2020, the total forested area categorised by use includes: (i) 2,173,231 ha of special-use forest (2,081,425 ha natural forest; 91,805 ha plantation); (ii) 4,685,504 ha protection forest (4,074,519 ha natural forest; 614,985 ha plantation); (iii) 7,818,480 ha production forest (4,127,240 ha natural forest and 3,691,240 ha plantation forest). The distribution of forest area in ecological regions is presented in Table 3.

**Table 3: Forest Area and Forest Cover by Ecological Regions in 2020**

Regions	Total Forest Area (ha)	Area of Natural Forest (ha)	Area of Planted Forest (ha)	Forest Cover (%)
Nationwide	14,677,215	10,279,185	4,398,031	42.0
Northwest	1,782,210	1,574,797	207,414	46.4
Northeast	3,949,249	2,364,934	1,584,315	56.3
Red River Delta	83,328	46,269	37,059	6.18
4. North Central	3,126,704	2,205,433	921,271	57.4
5. South Coastal	2,443,185	1,570,943	872,242	50.4
6. Central Highlands	2,562,205	2,179,794	382,411	45.9
7. Southeast	480,107	257,122	222,985	19.4
8. Southwest	250,227	79,893	170,334	5.5

(Source: MARD, 2021)

As the above table shows, the forested area is distributed in all eight ecological regions in the country, mainly in the mountainous areas. The sites of the four projects cover five ecological regions: the SK Forest project in the Northwest and the Northeast region, the FCPF project in the North Central region, the LEAF Coalition project in the Coastal region and the Central Highlands and the Quang Nam project in Quang Nam province. In total, the project sites cover 13,863,553 ha of forest (of the country's total 14,677,215 ha of forest). It accounts for nearly 94.5% of the total forest area of Viet Nam.

According to the estimation of FIPI (2022), the potential carbon sequestration enhancement and the potential ER from forested land in the period 2021-2030 are summarised in Tables 4 and Table 5.

**Table 4: Potential Carbon Sequestration, Emission and Net Sequestration from Forested Land in the Period 2021-2030**

Unit: million tons of CO<sub>2</sub>

Year	Sequestration from Natural Forest Growth	Sequestration from Plantation Growth	Emissions from Logging	Net Sequestration from Plantations	Emissions from Loss of Natural Forests	Other Emissions	Net Sequestration
2021	40.35	65.52	45.98	19.54	5.14	0.64	54.12
2022	41.18	69.66	49.44	20.23	4.62	0.64	56.14
2023	42.02	74.06	52.35	21.72	4.16	0.64	58.94
2024	42.88	78.74	55.25	23.49	3.74	0.64	61.99
2025	43.76	83.71	58.16	25.55	3.37	0.64	65.30

Year	Sequestration from Natural Forest Growth	Sequestration from Plantation Growth	Emissions from Logging	Net Sequestration from Plantations	Emissions from Loss of Natural Forests	Other Emissions	Net Sequestration
2026	44.65	88.16	61.07	27.09	3.03	0.64	68.08
2027	45.57	92.84	63.97	28.87	2.73	0.64	71.07
2028	46.50	97.77	66.88	30.89	2.46	0.64	74.29
2029	47.45	102.96	69.79	33.17	2.21	0.64	77.77
2030	48.42	108.42	72.69	35.73	1.99	0.64	81.52

(Source: FIPI, 2022)

Compared to the BAU, the total potential forest carbon ER of LULUCF in the period of 2021-2023 is estimated to be 261.3 million t CO<sub>2</sub>e (see Table 5).

**Table 5: Potential forest emission reductions in the period of 2021-2023**

Year	BAU (million tons of CO <sub>2</sub> )	Emission Potential (million tons of CO <sub>2</sub> )	ER Potential (million tons of CO <sub>2</sub> )
2021	-35.90	-54.12	18.2
2022	-36.40	-56.14	19.7
2023	-36.90	-58.94	22.0
2024	-37.40	-61.99	24.6
2025	-37.90	-65.30	27.4
2026	-40.16	-68.08	27.9
2027	-42.42	-71.07	28.6
2028	-44.68	-74.29	29.6
2029	-46.94	-77.77	30.8
2030	-49.20	-81.52	32.3
<b>Total potential ER for the period of 2021-2030</b>			<b>261.3</b>

(Source: FIPI, 2022)

## 5.2 Potential Contribution to the NDC of the LULUCF Sector

To implement GHG emission reduction in the LULUCF sector, the NDC technical report (updated in 2022) develops seven groups of intervention measures/mitigation options, including:

- F1: Protection of existing natural forests in mountainous areas
- F2: Protection of coastal protection and special-use forests
- F3: Restoration of protection and special-use forests

- F4: Improving the quality and carbon stock of poor natural forests
- F5: Improving productivity and carbon stock of large timber plantations
- F6: Scaling up agroforestry models to improve carbon stocks and conserve soil
- F7: Sustainable forest management and forest certification

According to the report on the potential ER in the LULUCF sector <sup>7</sup> (Vu Tan Phuong et al., 2021), the potential areas for implementation of mitigation interventions are listed in Table 3 and Table 4 for the unconditional and conditional scenarios respectively. For the unconditional scenario, the interventions are designed to apply to a total of 4,731,865 ha; and for the conditional scenario, the proposed area increase up to 8,074,591 ha.

**Table 6: Proposed Area to Implement the National Mitigation Targets in the LULUCF Sector (Unconditional)**

Region	F1	F2	F3	F4	F5	F6	F7	Total
Northwest	899,320	-	18,244	61,981	-	2,170	-	<b>981,715</b>
Northeast	608,977	17,231	7,962	77,635	-	-	-	<b>711,805</b>
Red River Delta	-	10,005	420	2,954	-	-	-	<b>13,379</b>
North Central	479,275	24,513	12,416	27,533	55,245	84	214,964	<b>814,030</b>
South Coastal	485,998	13,435	9,889	16,449	33,386	29	61,517	<b>620,703</b>
Central Highlands	840,049	-	7,422	19,736	-	8,538	-	<b>875,745</b>
Southeast	308,862	54,799	1,714	19,758	6,029	-	128,823	<b>519,985</b>
Southwest	-	181,384	971	12,148	-	-	-	<b>194,503</b>
<b>Nationwide</b>	<b>3,622,481</b>	<b>301,367</b>	<b>59,038</b>	<b>238,194</b>	<b>94,660</b>	<b>10,821</b>	<b>405,304</b>	<b>4,731,865</b>

(Source: Vu Tan Phuong et al, 2021)

**Table 7: Proposed Area to Implement the National Mitigation Targets in the LULUCF sector (conditional)**

Region	F1	F3	F4	F5	F6	F7	Total
Northwest	162,935	87,138	143,002	0	330,010	0	<b>723,085</b>
Northeast	907,885	28,968	203,488	0	0	1,568,089	<b>2,708,430</b>

<sup>7</sup>This report provides input for the NDC determination for the LULUCF sector in the NDC Technical Report (2022).

Red River Delta	12,213	47	5.691	0	0	0	<b>17,951</b>
North Central	1,133,212	20,948	74,192	122,816	1.561	980,258	<b>2,332,987</b>
South Coastal	373,225	11.032	32,904	94,352	1.823	453,678	<b>967,014</b>
Central Highlands	747,699	9,960	63.536	0	157,086	0	<b>978,281</b>
Southeast	125,187	3.573	31,752	5,828	0	158.896	<b>325.236</b>
Southwest	5.616	5	15,986	0	0	0	<b>21,607</b>
Nationwide	3,467,972	161.671	570,551	222,996	490,480	3,160,921	<b>8,074,591</b>

(Source: Vu Tan Phuong et al, 2021)

### Potential emission reduction of the GHG mitigation interventions to contribute to NDC in the LULUCF sector

The estimated potential ER, including the increase of carbon sequestration, is based upon the potential area where mitigation options would be implemented. The estimation considers both the unconditional and conditional scenarios, including the impacts of forest lost, forest degradation and forest quality improvement. According to the NDC Technical Report (updated in 2022) and under the assumption that the implementation area for the seven mitigation options is unchanged, the estimated amount of ER under the unconditional scenario is 84.47 million tons of CO<sub>2</sub>-eq for the period of 2021-2030. Under the conditional scenario, the figures should reach 106.31 million tons of CO<sub>2</sub>-eq. Thus, the figure under the conditional scenario is 1.2586 times (= 106.31 million tCO<sub>2</sub>-eq /84.47 million tCO<sub>2</sub>-eq) higher than the figure under the unconditional scenario for period 2021-2030.

**Table 8: NDC Contribution (unconditional) of the LULUCF Sector**

	Potential ER volume (Million tons of CO <sub>2</sub> -eq)	
	2021-2030	2030
<b>ER interventions</b>		
F1. Protection of existing natural forests in mountainous areas	67.88	26.12
F2. Protection of coastal protection and special-use forests	4.76	1.65
F3. Restoration of protection and special-use forests	0.39	0.16
F4. Improving the quality and carbon stock of poor natural forests	2.88	1.24
F5. Improving productivity and carbon stocks of large timber plantations	1.92	0.93

	Potential ER volume	
	(Million tons of CO <sub>2</sub> -eq)	
	2021-2030	2030
F6. Scaling up agroforestry models to improve carbon stocks and conserve land	0.06	0.03
F7. Sustainable forest management and forest certificate	6.58	2.34
<b>Total</b>	<b>84.47</b>	<b>32.47</b>

(Source: Technical Report of Viet Nam's updated 2022 NDC)

From the results of Table 5 and Table 8, the factor (x) of the contribution to the NDC for the LULUCF sector for the period 2021-2030 is calculated in Table 9.

**Table 9: Factor (X) of Contribution to NDC in the LULUCF Sector for Period 2021-2030**

Potential ER (million tCO <sub>2</sub> -eq)	Required Contribution (unconditional scenario)	NDC	Required Contribution (conditional scenario)	NDC (conditional)	Factor X (unconditional)	Factor X (conditional)
(1)	(2)	(3)	(3)	(4)	(4) = (2)/(1)	(5) = (3)/(1)
261.3	84.47		106.31		0.3233	0.4069

## 5.3 Estimated Contribution to the NDC by Provinces and the Forest Carbon Credit Projects

Table 10 presents the estimation of the contributions to the NDC of the provinces in Viet Nam.

**Table 10: Estimated NDC Contribution by Provinces in Different Ecological Regions of the Forestry Sector**

TT	Ecological Region and Provinces	Potential Area for Implementing ER Interventions (ha)	Potential ER to Contribute to the NDC (million tCO <sub>2</sub> -eq) from the technical report of the 2020 NDC (2021)	Potential ER to Contribute to the NDC (million tCO <sub>2</sub> -eq) estimated based on the 2022 NDC <sup>8</sup>
(1)	(2)	(3)	(4 = (3)*1.023383)	
<b>Nationwide</b>		<b>4,731.865</b>	<b>82.54</b>	<b>84.47</b>

<sup>8</sup> According to the calculation by Vu Tan Phuong et al (2021), the total potential amount of LULUCF's ER contribution to the NDC is 82.54 million tCO<sub>2</sub>-eq for period 2021-2030. But the required LULUCF's ER contribution to the NDC (updated 2022) for this period is 84.47 million tCO<sub>2</sub>-eq, 1.92 million tCO<sub>2</sub>-eq higher than the figure estimated in 2021 (or 2.3383% higher). Therefore, the value of column (4) is calculated by multiplying the value of column (3) with a fixed factor of 1.03383% to obtain a value of 84.47 million tCO<sub>2</sub>-eq as the required NDC contribution for LULUCF sector defined in the updated 2022 NDC.

TT	Ecological Region and Provinces	Potential Area for Implementing ER Interventions (ha)	Potential ER to the NDC	Potential ER to the NDC
			(million tCO <sub>2</sub> .eq) from the technical report of the 2020 NDC (2021)	(million tCO <sub>2</sub> .eq) estimated based on the 2022 NDC <sup>8</sup>
<b>I</b>	<b>Northwest</b>	<b>981,715</b>	<b>15.01</b>	<b>15.36</b>
1	Dien Bien	252,849	4.04	4.13
2	Hoa Binh	51,731	0.79	0.81
3	Lai Chau	299,536	4.57	4.68
4	Son La	377,599	5.62	5.75
<b>II</b>	<b>Northeast</b>	<b>711,805</b>	<b>10.42</b>	<b>10.66</b>
1	Bac Giang	180	0	0.03
2	Bac Kan	55,348	0.78	0.80
3	Cao Bang	82,149	1.21	1.24
4	Ha Giang	155,380	2.35	2.40
5	Lang Son	8,155	0.12	0.12
6	Lao Cai	92,028	1.39	1.42
7	Phu-Tho	12,604	0.17	0.17
8	Quang Ninh	69,896	1.02	1.04
9	Thai Nguyen	10,082	0.11	0.11
10	Tuyen Quang	87,787	1.29	1.32
11	Yen Bai	138,195	1.98	2.03
<b>III</b>	<b>Red River Delta</b>	<b>13,379</b>	<b>0.2</b>	<b>0.2</b>
1	Bac Ninh	0	0	0
2	Ha Nam	870	0.01	0.01
3	Hanoi	542	0.02	0.02
4	Hai Duong	235	0	0
5	Hai Phong	2,772	0.05	0.05

TT	Ecological Region and Provinces	Potential Area for Implementing ER Interventions (ha)	Potential ER to	ER to
			Contribute to the NDC	Contribute to the NDC
			(million tCO <sub>2</sub> .eq) from the technical report of the 2020 NDC (2021)	(million tCO <sub>2</sub> .eq) estimated based on the 2022 NDC <sup>8</sup>
6	Nam Dinh	<b>3,039</b>	0.05	0.05
7	Ninh Binh	<b>747</b>	0.01	0.01
8	peaceful	<b>3.779</b>	0.06	0.06
9	Vinh Phuc	<b>1.396</b>	0.02	0.02
<b>IV</b>	<b>North Central</b>	<b>814,030</b>	<b>18.67</b>	<b>19.11</b>
1	Ha Tinh	<b>115,875</b>	3.79	3.88
2	Nghe An	<b>209,017</b>	4.34	4.44
3	Quang Binh	<b>57,023</b>	1.87	1.91
4	Quang Tri	<b>96,055</b>	2.4	2.46
5	Thanh Hoa	<b>178,735</b>	3.2	3.27
6	Hue	<b>157,327</b>	3.07	3.14
<b>V</b>	<b>South Central</b>	<b>620,703</b>	<b>12.3</b>	<b>12.95</b>
1	Binh Dinh	<b>87.148</b>	2.11	2.16
2	Da Nang	<b>3.571</b>	0.16	0.16
3	Khanh Hoa	<b>110,371</b>	1.96	2.01
4	Phu Yen	<b>78,805</b>	1.95	2.00
5	Quang Nam	<b>314.375</b>	5.33	5.45
6	Quang Ngai	<b>26.431</b>	0.79	0.81
<b>VI</b>	<b>Central Highlands</b>	<b>875,745</b>	<b>13.25</b>	<b>13.56</b>
1	Dak Lak	<b>41,979</b>	0.74	0.76
2	Dak Nong	<b>65,337</b>	0.99	1.01
3	Gia Lai	<b>320,148</b>	4.79	4.90
4	Kon Tum	<b>228.205</b>	3.48	3.56
5	Lam Dong	<b>220.074</b>	3.24	3.32

TT	Ecological Provinces	Region and	Potential Area for Implementing ER Interventions (ha)	Potential ER to Contribute to the NDC (million tCO <sub>2</sub> .eq) from the technical report of the 2020 NDC (2021)	Potential ER to Contribute to the NDC (million tCO <sub>2</sub> .eq) estimated based on the 2022 NDC <sup>8</sup>
<b>VII</b>	<b>Southeast</b>		<b>519,985</b>	<b>9.85</b>	<b>10.08</b>
1	Ba Ria - VT		5.731	0.14	0.14
2	Binh Duong		5.235	0.16	0.16
3	Binh Phuoc		58,625	1.02	1.04
4	Binh Thuan		179,783	4.25	4.35
5	Dong Nai		120,085	1.97	2.02
6	Ho Chi Minh		35,109	0.54	0.55
7	Ninh Thuan		105,834	1.6	1.64
8	Tay Ninh		9,583	0.18	0.18
<b>VIII</b>	<b>Southwest</b>		<b>194,503</b>	<b>2.84</b>	<b>2.91</b>
1	An Giang		2,400	0.04	0.04
2	Bac Lieu		4,493	0.07	0.07
3	Ben Tre		4,217	0.06	0.06
4	Ca Mau		78,535	1.16	1.19
5	Dong Thap		18,186	0.27	2.08
6	Hau Giang		2,703	0.04	0.04
7	Kien Giang		46,105	0.65	0.67
8	Long An		16,971	0.25	0.26
9	Soc Trang		9,712	0.14	0.14
10	Tien Giang		2,489	0.04	0.04
11	Tra Vinh		8,695	0.13	0.13

(Source: Vu Tan Phuong et al (2021), and adjusted by the author for the data in 2022)

Table 10 shows that the totally required contribution to the NDC for the period 2021-2030 of the LULUCF sector is 84.47 million tCO<sub>2</sub>.eq (unconditional scenario).

(i) The **FCPF project** is implementing in six North Central provinces and the total potential ER of the project for the period of 2018-2025 is 25 million tCO<sub>2</sub>-eq and 31.25 million tCO<sub>2</sub>-eq for the period 2021-2030. The total required contribution to the NDC of the provinces in this project is estimated at 19.11 million tCO<sub>2</sub>-eq under the unconditional scenario or 24.05 million tCO<sub>2</sub>-eq under the conditional scenario. So far, the project has committed to contribute 9,785 million tCO<sub>2</sub>-eq to the NDC. Compared with the estimated required contribution to the NDC under the unconditional and conditional scenarios, the committed contribution to the NDC is insufficient, still lacking 9.32 million tCO<sub>2</sub>-eq and 14.26 tCO<sub>2</sub>-eq respectively. Thus, the estimated remaining carbon volume of this project (after subtracting the estimated required contribution to the NDC) is only 12.14 million tCO<sub>2</sub>-eq in case of the unconditional target or just 7.2 million tCO<sub>2</sub>-eq in case of the conditional target.

(ii) The **LEAF Coalition project** site covers eleven provinces in the Central Highlands & South Central regions with the total potential ER of 11 million tCO<sub>2</sub>-eq for the project period (2022-2026). The total estimated ER for the period of 2021-2030 is 22 million tCO<sub>2</sub>e. The required contributions to the NDC is estimated to be 26.52 million tCO<sub>2</sub>-eq under the unconditional scenario or 33.37 million tCO<sub>2</sub>-eq under the conditional scenario, all higher than the potential ER (22 million tCO<sub>2</sub>-eq) of the project. However, the project only committed to contribute 5.15 million tCO<sub>2</sub>-eq to the NDC. So, the committed contribution is too little to reach the estimated required contribution to the NDC and the project should contribute 21.37 million tCO<sub>2</sub>-eq and 28.32 million tCO<sub>2</sub>-eq more to meet the estimated required contributions to the NDC under the unconditional and the conditional scenario. Therefore, this project would have no remaining ER credit for commercial purpose, after subtracting the estimated required contribution to the NDC.

(iii) The **Quang Nam project** has an estimated potential ER of 10 million tCO<sub>2</sub>-eq for the period of 2021-2030, while the estimated required contribution to the NDC for the period is 5.45 million tCO<sub>2</sub>-eq under the unconditional scenario or 6.86 million tCO<sub>2</sub>-eq under the conditional scenario. Nevertheless, the project proposal is designed to sell all the potential ERs without any contribution to the NDC. To meet the NDC requirement, this project should contribute a part of the potential ER to the NDC. The maximum ER volume which could be traded is just 5.55 million tCO<sub>2</sub>-eq under the unconditional scenario or only 3.14 million tCO<sub>2</sub>-eq under the conditional one. These figures are smaller than the project designed ER volume of 10 million tCO<sub>2</sub>-eq for commercial purpose.

(iv) The **SK Forest project** is proposed to be implemented in 15 provinces (Lao Cai, Yen Bai, Phu Tho, Ha Giang, Tuyen Quang, Cao Bang, Bac Kan, Thai Nguyen, Lang Son, Bac Giang, Quang Ninh, Lai Chau, Dien Bien, Son La, Hoa Binh) with a total potential ER of 44.163 million tCO<sub>2</sub>e, of which 26.543 million tCO<sub>2</sub>-eq might be used as a contribution to the NDC. The estimated required contribution to the NDC is 26.02 million tCO<sub>2</sub>-eq under the unconditional scenario or 32.75 million tCO<sub>2</sub>-eq under the conditional one. Thus, the potential contribution volume to the NDC is only 0.52 million tCO<sub>2</sub>-eq higher than the estimated required contribution to the NDC in the unconditional case but falls short of 6.21 million tCO<sub>2</sub>-eq, compared to the estimated required contribution to the conditional NDC target. If subtracting the estimated required contributions to the NDC, the potential remaining ER volume for commercial trading is 18.14 million tCO<sub>2</sub>-eq under the unconditional scenario or just 11.41 million tCO<sub>2</sub>-eq under the conditional one.

**Table 11: Estimated Potential Contribution to the NDC and Tradeable ER Volumes of Forest Carbon Credit Projects (2021-2030)**

Project	Project regions and Provinces	Project estimations		Potential ER estimate for 2021-2030 (m t CO <sub>2</sub> e)	Required contribution to the unconditional NDC target (m t CO <sub>2</sub> e)	Required contribution to the conditional NDC target (m t CO <sub>2</sub> e)	Difference between committed/ designed and required contribution to the unconditional NDC target (m t CO <sub>2</sub> e)	Difference between committed/ designed and required contribution to the conditional NDC target (m t CO <sub>2</sub> e)	Remaining ER volume for trading in unconditional scenario (m t CO <sub>2</sub> e)	Remaining ER volume for trading in conditional scenario (m t CO <sub>2</sub> e)
		Total potential ERs (m t CO <sub>2</sub> e)	Committed /designed NDC contribution (m t CO <sub>2</sub> e)							
		(1)	(2)	(3)	(4)	(5) = (4) * 1,286 <sup>9</sup>	(6) = (2) - (4)	(7) = (2) - (5)	(8) = (3) - (4)	(9) = (3) - (5)
<b>FCPF project</b>	6 North Central Provinces	25	9.785	31.25	19.11	24.05	-9.32	-14.26	12.14	7.20
<b>LEAF Coalition project</b>	11 provinces	11	5.15	22	26.52	33.37	-21.37	-28.22	-4.52	-11.37
<b>Quang Nam project</b>	Quang Nam	5.2	-	10.00	5.45	6.86	-5.45	-6.86	4.55	3.14
<b>SK Forest Project</b>	15 provinces	44.163	26.543 (not yet committed)	44.163	26.02	32.75	0.52	-6.21	18.14	11.41
	<b>Total required NDC contribution of 4 projects (see columns (4) and (5))</b>			<b>107.413</b>	<b>77.10</b>	<b>97.03</b>				
	<b>Total required NDC contribution of the LULUCF sector</b>				<b>84.47</b>	<b>106.31</b>				

<sup>9</sup>The total required NDC contribution of the LULUCF sector for the period of 2021-2030 is 106.32 million tCO<sub>2</sub>-eq under the conditional scenario, while in the unconditional scenario the figure is 84.47 million tCO<sub>2</sub>-eq. So, the figure in the conditional scenario is 1,286 times higher than the figure in unconditional scenario (= 106.31/84.47).

# 6 Recommendations for a Sustainable Forest Carbon Credit Development in Viet Nam

## 6.1 Opportunities and Challenges

### 6.1.1 Opportunities

Viet Nam has several favourable conditions and opportunities for forest credit carbon development:

- i) **Existing policy framework:** The national legal framework for the carbon market in general and forest carbon credits in particular has been initiated, creating an important legal basis to establish the domestic carbon market and participate in international carbon market.
- ii) **National organisational arrangement:** The government has also established an organisational structure for carbon market policy and management with MONRE in charge of the national carbon market management. For the LULUCF sector, MARD's General Department of Forestry is responsible for the state management of forest carbon credit projects and relevant regulations.
- iii) **In an ideal scenario, the forestry sector could potentially provide a large volume of carbon credits for domestic and international carbon markets.** The total estimated potential forest ER for period 2021-2030 is 261.3 million tCO<sub>2</sub>.eq according to FIPI (see Table 5). After subtracting the required contribution of the LULUCF sector to the NDC (84.47 million tCO<sub>2</sub>.eq for the unconditional target or 106.31 million tCO<sub>2</sub>.eq for the condition target), the ER that could potentially be commercialised are significant with 155-178 million tCO<sub>2</sub>.eq for the period of 2012-2030, or 15.5 to 17.8 million tCO<sub>2</sub>.eq per year on average. Yet, the figure from FIPI, 261.3 million tCO<sub>2</sub>.eq, is an idealised estimate in 2022 condition with key assumptions of almost no natural forest loss, natural increment, an increase in plantations and ER interventions.
- iv) **Various international market mechanisms for carbon trading:** In addition to the framework of REDD+ projects that Viet Nam has been implementing, the Paris Agreement (Article 6) establishes new market mechanisms (Article 6.2 and Article 6.4) and non-market mechanisms (Article 6.8) for carbon credit projects. Once Viet Nam meets the requirements of Decision 3 of the Meeting of the Parties of the Paris Agreement (third session of the Conference of the Parties/CMA3) from COP26 on the implementation of Article 6, Viet Nam can engage in the international carbon market with International Transferred Mitigation Outcomes (ITMOs) (Article 6.2) and a mechanism similar to the CDM (Article 6.4) within the UNFCCC framework.
- v) **Domestic carbon market:** Viet Nam has issued a legal framework, specifying a roadmap for the domestic carbon market. Potential emitters are required to comply with emission limits (quota) to reduce their overall GHG emissions. To find the most cost-effective GHG ER, carbon credit exchange and offset is allowed up to 10% of the quota. This is an important opportunity to develop forest carbon credits to meet the domestic carbon demand. As analysed in the previous section, forests are expected to be allowed to provide the domestic carbon market with 11.38 million tCO<sub>2</sub>.eq per year by 2030 (10% of the NDC of all sectors except for LULUCF).
- vi) **High value forest carbon segment:** The selling price of carbon credits in Viet Nam is currently relatively low at the average level of REDD+ projects around the world. However, some forecasts indicate that the price of carbon credits may increase sharply in 2030 (to 60-150 USD/1 tCO<sub>2</sub>) (CIFOR, 2022) due to increasing demand to meet ER requirements of NDCs. In addition, Viet Nam

has forest ecosystems with high value carbon credit potential so the government should invest in improving forest protection and enhancing the forest carbon stock.

- vii) **Experience in REDD+ and PFES implementation:** Viet Nam is a country with rich experience in REDD+ preparation and implementation and a national REDD+ action strategy as well as many provincial REDD+ action plans. Local authority officials have also been trained on REDD+. Moreover, Viet Nam is a leading country in payment for forest environmental services (PFES) where carbon ER and sequestration is a service type. The government issued Decree 107/2022/ND-CP on piloting the transfer of ER results and financial management for the FCPF project. These are important experiences and legal bases for forest carbon credit development, especially in terms of benefit sharing.

### 6.1.2 Challenges

Although there are several opportunities and advantages, Viet Nam still faces some challenges in developing a forest carbon market:

#### i) **Legal framework for forest carbon market**

- In order to access and engage in the carbon market mechanisms under Article 6 of the Paris Agreement, it is still necessary to review and issue legal guidelines to meet the requirements of the agreement, for example the Article 6.2 on ITMOs.
- The implementation of forest management in practice still has some difficulties due to the contradictions between the Forestry Law and the Land Law, for instance regarding land and forest allocation and lease.
- The system of detailed legal documents guiding the forest carbon market is still incomplete and not detailed enough. For example, a national carbon credit registration system, regulations on the allocation of contributions to NDC for each province and technical guidelines on MRV in LULUCF are still lacking. These have resulted in confusion and difficulties for both local authorities and forest carbon credit project developers in determining the contribution to the NDC.

#### ii) **Organisational structure**

- MARD's General Department of Forestry has already appointed focal points for different forest carbon credit projects, but there is still a lack of specific and long-term authorised units with detailed mandates, allocated funds and a master plan to develop policy and implement national strategies, planning, monitoring, registration and reporting related to forest carbon credits. Currently, the focal points mainly implement annual objectives and activities related to the projects and do not have a clear long-term plan for forest carbon credit development.
- The coordination between MARD and MONRE on forest carbon market is still limited.

- iii) **Selling price of forest carbon credits and contribution to the NDC:** The selling price of forest carbon credits is currently not as high as the potential price analysed above. The required contribution of the LULUCF sector to the NDC is quite high, especially for the conditional scenario. For some projects, after deducting the required contribution to the NDC, the amount of credits remaining for trading is rather small. If only focusing on selling forest carbon credits to foreign partners outside the UNFCCC framework mainly for commercial purposes (such as the Quang Nam proposal), without considering the required contribution to the NDC as well as the costs, it could lead to overselling ERs volume at a low price, which may result in the following problems: (i) a shortage of forest ER available for the NDC so the government might even have to buy ITMOs at a higher price to meet the NDC target, and (ii) lack of forest ER for the domestic carbon market which is mandatory and has potentially a significant market size (11.38 million tCO<sub>2</sub>.eq per year). The allocation of carbon credits for the international and the domestic market needs to balance out national and individual province/project's interests and benefits.

- iv) **Diverse and fluctuating carbon market:** The carbon market in general and the forest carbon market in particular are rather diverse. The price fluctuates (VCM often offers lower carbon prices than compliance markets) and varies by standard, pricing mechanism and intermediaries. Because of that, forest carbon suppliers may face many difficulties and disadvantages if they lack readiness and technical capacity. At present, the implementation capacity to design and implement forest carbon credit projects at provincial and local level needs to be improved. In general, knowledge and experience on markets and regulations to engage in the international forest carbon market are still relatively low for almost all foresters in Viet Nam.
- v) **High opportunity cost and low motivation to participate:** For forest owners (especially for production forests and plantations), the potential income from participating in forest carbon credit projects is not very attractive because the income is rather low compared to other forestland uses (such as agricultural cultivation, industrial crops or fruit trees). It is a matter of high opportunity cost of forestland use and low economic incentive when participating in forest carbon credit projects. In addition, high requirements on technical and MRV compliance are rather difficult for forest owners and local authorities.
- vi) **Carbon rights:** Natural forest areas are national resources owned by the state. Non-state owners/users (e.g. households and individuals) of natural forests can benefit from a carbon credit project, however, they do not have ownership rights and rights to transfer ER credits. On the other hand, for plantations established by forest owners, the owners have full carbon rights. In reality, when implementing a carbon credit project, the project area will be a mix of natural forest owned by the state and plantations owned by non-state actors. In Viet Nam, most non-state forest owners are small-scale with limited technical capacity. Because of that, an appropriate mechanism is needed for the involvement of these actors in carbon credit projects. Another issue is that if a PPC transfers carbon rights to MARD under a forest carbon credit project, it is unclear how many carbon credits will be transferred and what will be the benefit-sharing mechanism between PPC and MARD.
- vii) **Benefit-sharing mechanism:** The Vietnamese government is currently developing a guideline for carbon rights exchange and ER result transfer for the FCPF project. The question remains if each project needs to develop its own mechanism or a common mechanism will be developed for national application with detailed regulations and guidelines.

## 6.2 Recommendations for Developing Viet Nam's Forest Carbon Credit Market

To promote the advantages and limit the challenges for the development of Viet Nam's forest carbon market, there are some solution-oriented proposals:

- i) **Forest carbon market orientation**
  - **Engaging in different mechanisms for forest carbon markets:** Most countries aim to access and develop both voluntary and compliance markets. The voluntary market requires stakeholders to comply with international carbon standards. Participation in VCM will help Viet Nam to build an administrative management system for forest carbon registration, monitoring and reporting. Currently, forest carbon credit projects in Viet Nam are mainly REDD+ projects under the framework of UNFCCC according to its own carbon standard. This will also facilitate engagement in the international VCM, and Viet Nam should continue to access, propose and implement REDD+ projects with reliable financial funding sources, contributing to the NDC. Regarding the compliance carbon market, it is related to the emission quotas that countries have to comply to meet the NDC target under the Paris Agreement. This type of market

includes both the domestic and the international carbon market to access financial resources for forest resource management.

- **Diversifying types of carbon credits and targeting high-value carbon market segments:** It is recommended to diversify types of carbon stock such as agroforestry and to target high-value forest carbon (CIFOR, 2022) to increase revenue because Viet Nam has large agroforestry area and many HCVF forest ecosystems that have the potential to sell carbon credits at a premium price (such as mangrove forests, etc.).
- **Prioritising and considering the domestic carbon market:** As analysed above, the domestic carbon market is a compliance one with a market size predicted to reach about 11.38 million tCO<sub>2</sub>-eq by 2030 and the Vietnamese government is in the process of developing the legal framework and specific guidelines for the domestic carbon market. Therefore, the forestry sector with great ER potential can engage in this market as a carbon credit supplier. Focusing on the domestic market has some advantages: (i) it can reduce transaction costs in the carbon exchange and offset because it doesn't require an intermediary, (ii) it contributes to the common national NDC target and (iii) arising issues in implementation can be managed more easily (compared to participation in international carbon market).

#### ii) **Ensuring contribution to the NDC and finding a good balance for forest carbon trading:**

- The NDC is a mandatory requirement that Viet Nam has committed itself to. It should be a mandatory requirement to check whether the ER are needed to fulfill the NDC commitment when approving any forest carbon credit project to avoid overselling or violating the NDC commitments. The remaining forest credits can be exchanged on the carbon market, considering the above recommended carbon market orientations. Furthermore, the ER credits should only be sold for a specific timeframe and not for long periods. Instead, ER should rather be sold in relatively short intervals following with negotiations/market prices.
- It is still preferred to develop REDD+ projects under the UNFCCC framework for the following reasons: (i) These projects tend to contribute a large proportion of ER to the NDC and despite the price not being high, Viet Nam does not lose the carbon rights and can use most generated ER for the national NDC. The commercial selling price, on the other hand, is not guaranteed and is often also low (for example, Quang Nam project offers from 5 USD/1 t CO<sub>2</sub>e), so if the carbon rights are sold off then there is no contribution to the NDC, (ii) since Viet Nam has experience on REDD+ projects, it will be easier for Viet Nam to access and implement carbon credit projects of this type.

#### iii) **Improving mechanisms, policies and organisational structure**

- Finalising regulations on forest carbon policies, such as carbon rights, benefit-sharing mechanisms, policies to formulate and engage the domestic and the international carbon market.
- Regarding carbon rights and the benefit-sharing mechanism, it is necessary to issue regulations and guidelines on forest carbon rights for stakeholders, especially non-state actors (e.g. private and households), PPCs and MARD, as well as the carbon right authorisation and transfer between project participants. The rights and responsibilities of provincial authorities as a key stakeholder also need to be clearly identified to comply with the NDC, share the benefits and meet MRV requirements.
- Developing a regulation and/or guideline on benefit-sharing mechanisms which can be applied for all forest carbon credit projects with detailed regulations and descriptions for ease of implementation for provinces and forest owners. If not, the minimum would be issuing a specific technical guideline on the method, content and procedures to develop a benefit-sharing mechanism for a carbon credit project.

- Reviewing and finalising legal documents to meet specific requirements and actively engage in international carbon market in accordance with the guiding provisions (CMA) to be eligible to join the market mechanisms under Article 6.2 (ITMOs) and Article 6.4, as well as non-market financial access mechanisms for forest carbon under Article 6.8 of the Paris Agreement.
  - Establishing a national carbon credit registration system for forest carbon credit projects in coordination with MONRE.
  - Issuing regulations on the required contributions from each province's LULUCF sector to the NDC and monitoring the implementation of NDC contribution for each forest carbon credit project.
  - Establishing a specialised long-term division/unit for forest carbon credits under MARD with defined functions, tasks, and budgets.
- i) **Finalising documents and technical guidance on forest carbon credits** such as the MRV system, the Enhanced Transparency Framework (ETF) and the specialised information system on forest carbon market to enhance the capacity of the domestic carbon market and supporting its engagement with the international carbon market.
- ii) **Continuing to improve the capacity** of stakeholders in both technical and trading aspects to meet requirements for implementing forest carbon credit projects and engaging in both domestic and international markets.

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