

**Assessment of Country's Readiness and
International Experience for Carbon Trade Exchange Design**

FINAL REPORT
(Final Submission)



Hanoi, 2024

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International Experience for Carbon Trade Exchange Design**

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(Draft)

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COLOPHON AND DISCLAIMER

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Disclaimer

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EXECUTIVE SUMMARY

The background of the Assignment

The emission trading scheme offers a cost-effective means for countries to reduce greenhouse gas emissions by putting a price on emissions through a market-based approach. Viet Nam decided to develop a domestic carbon market based on trading of emission allowances and carbon credits in the 2020 Law on Environmental Protection.

Decree 06/2022/ND-CP of the Government on mitigation of GHG emissions and protection of the ozone layer defines that the trading of emission allowances and carbon credits in the carbon market shall be performed on a carbon trade exchange (CTX), which is scheduled for pilot operation from 2025 and official operation in 2028. The Ministry of Finance (MOF) is assigned to coordinate the establishment and development of the CTX and formulate financial management mechanisms for the operation of the carbon market in Viet Nam.

To support MOF and line ministries with the establishment and operation of the CTX, the Energy Transition Partnership (ETP) under the United Nations Office for Project Services (UNOPS) implemented the Assignment on Assessment of Country's Readiness and International Experience for Carbon Trade Exchange Design. The objective of the Assignment is to provide MOF with: (i) the key takeaways from international experiences in CTX; (ii) a comprehensive understanding of the country's existing relevant legal, institutional framework, and infrastructure conditions and the gaps to be fulfilled for the establishment and operation of the CTX; (iii) recommendations on a suitable option and implementation roadmap for the establishment and operation of the CTX in Viet Nam.

International experiences in the establishment and operation of the CTX

The Assignment looked at 21 existing ETSs in the world with operating CTXs to select case studies based on six criteria (years of operation, contextual similarity, traded volume, transaction price, use of carbon credits, and linking) for the in-depth analysis of international experience concerning legal, institutional, and infrastructure requirements for the CTX. After the multi-criteria analysis, four ETSs with the highest rankings were selected, namely UK ETS, New Zealand ETS, California ETS, and Korea ETS. Selected case studies have fulfilled several of the following criteria: a long history of ETS operation (at least more than 5 years), high contextual similarity to Viet Nam (ETS at the national level, located in Asia, with a developing economy), and top traded volume of allowances (over 20 million tCO₂) with efficient transaction prices (over USD 10). Among the chosen ETSs, some ETSs allow the use of carbon credits and have linkages to other ETSs. The multi-criteria analysis aimed to ensure that the selected case studies have a similar country context with Viet Nam and can offer the most relevant experiences for the establishment and operation of the CTX.

The review of international experience showed that a robust regulatory framework is a cornerstone of a credible CTX. Each country established its exchange under a dedicated law, supported by comprehensive regulations and guidelines governing allowance trading, market oversight, and participant compliance. Aligning this framework with international standards further bolstered transparency and market integrity.

None of the case-studies opted for the creation of a new exchange, instead leveraging existing financial platforms within their jurisdictions. Among them, only California utilized the Western Climate Initiative program as an auction platform, the remaining countries conducted auctions through designated carbon trade exchanges. Additionally, the secondary market structure varied, with California and New Zealand featuring multiple platforms, while Korea and the UK employed a single exchange model. Besides the exchanges, i.e. auctioning platform and secondary trading platform(s), the emission trading registry and the resettlement and clearing house are the most important infrastructure for the ETS and operate in connection to the CTX.

However, the case studies also revealed implementation challenges, ranging from market volatility and oversight issues to regulatory gaps. These challenges, in turn, spurred the development of robust compliance measures, enhanced market surveillance mechanisms, and required effective risk management strategies to mitigate volatility and ensure regulatory adherence. Additionally, the importance of strong institutional capacity, coupled with active stakeholder engagement, emerged as crucial for effective exchange and market management as well as for promoting an inclusive and transparent system. Viet Nam can learn from their rich experiences ranging from the case studies to create a reliable and robust governance and policy framework; apply a cost-effective and efficient institutional arrangement approach and infrastructure to establish the CTX and the carbon market; and foresee and prepare solutions in advance to ensure seamless market operation.

The context for the establishment and operation of the CTX in Viet Nam

Viet Nam has developed the legal and institutional framework for the carbon market and the CTX, most importantly through the 2020 Law on Environmental Protection and Decree 06/2022/ND-CP. Besides, there is also existing infrastructure based on exchanges for trading securities under the Vietnam Exchange (VNX) and for trading commodities under the Mercantile Exchange of Viet Nam (MXV). However, there remain gaps for Viet Nam to address to move forward with the establishment and operation of the CTX.

- In terms of legal gaps, the cap and the benchmark for allocation of allowances are not defined. There are no specific regulations on criteria for evaluating and determining the eligibility of the carbon credits. The Monitoring, Reporting and Verification (MRV) system has not been fully developed (there is a lack of guidance for GHG inventory in the transport and construction sectors and a list of verification entities is not promulgated). There is a need to develop legal regulations for the establishment of the registry, the establishment

and operation of the CTX, and the establishment of financial mechanisms and measures for market management and oversight.

- Regarding institutional gaps, it is necessary to formulate the charter for the designation of the national authorities to administer the operation of the registry and the CTX. The collaboration mechanism between the Ministry of Natural Resources and Environment (MONRE) and MOF, and the criteria for the assessment and approval of “other organizations and individuals” to be eligible for investment and participation in the domestic carbon market should be clearly defined.
- In terms of infrastructure, several crucial components necessary for the operation of the ETS are either not yet in place or are lacking. These include the national registry system, a comprehensive support system for ETS implementation encompassing a national database on GHG inventory data from covered facilities to manage and monitor emission caps, tools for allowance allocation, a centralized system for MRV of GHG emissions and reductions, as well as the CTX and the allowance auction platform.

Options for the establishment and operation of the CTX in Viet Nam

To find solutions to address the above-mentioned legal, institutional, and infrastructure gaps, different options were provided to conceptualize the establishment of the operation of the CTX, which laid the foundation for formulating the corresponding recommendations in terms of legal, institutional, and infrastructure aspects. The table below demonstrates options for the establishment and operation of the CTX in Viet Nam.

Summary Table 1: Options for the establishment and operation of the CTX in Viet Nam

No.	Categories	Option 1	Option 2
I	Establish the CTX	Establish the CTX based on the infrastructure system of the securities exchange. This option is advantageous in terms of leveraging existing infrastructure, manpower, and resources.	Develop the CTX model independent from the stock exchange system, managed by MONRE. This option can ensure unified market management authority by MONRE.
II	Operate the CTX		
II.1	For structuring the primary market	Free allocation of allowances for all covered entities (and certification of carbon credits eligible for transactions on the secondary market). This option has the advantage of reducing the financial burden for the ETS-covered entities.	Free allocation of allowances combined with auctioning (and certification of carbon credits eligible for transactions on the secondary market). This option provides more incentives for enterprises to take GHG mitigation actions (since otherwise they have to pay for emissions at a higher cost than a completely free allocation system) and makes the market more active and liquid.

II.2	For structuring the secondary market	Trading both allowances and carbon credits on a centralized system with separate panels for allowances and carbon credits. The advantages of this option include more transparent market information (in terms of transacted prices and volumes) and more reliable transactions (due to the involvement of the clearing infrastructure) since the market is highly regulated.	Trading only allowances on a centralized system. In parallel, carbon credits can be purchased from the domestic or international voluntary carbon market. This option offers more flexibility to allow linkage to the international carbon market.
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Recommendations for the establishment and operation of the CTX in Viet Nam

Based on the gap analysis and identification of different options to address the gaps, the Consultant held consultation meetings with 06 relevant institutions, including MOF, MONRE, VSDC, SSC, HNX, and HOSE from 27-29 November 2023, and a wide stakeholder consultation workshop was organized on 30 November 2023 to consult the stakeholders about the recommended option for establishment of the CTX in Viet Nam. The table below illustrates recommended solutions for the establishment and operation of the CTX as per the results of stakeholder consultation.

Summary Table 2: Recommended solutions for the establishment and operation of the CTX in Viet Nam

No.	Categories	Recommendations
1	Recommended legal solutions	<ul style="list-style-type: none"> • MONRE will perform unified management of the carbon market, including establishing the registry system for allowances and carbon credits; setting regulations for the MRV system and requirements for allowances, carbon credits, and market participants; deciding on the scope of utilizing the stock exchange system when the market participants engage in trading allowances and carbon credits in the secondary market; • CTX will be established based on utilizing the services from the stock exchange system managed by MOF (with the participation of SSC, VNX, VSDC, etc.). <p>Based on the proposed legal solutions, the proposed legal documents to be developed in the near future include the following:</p> <ul style="list-style-type: none"> • Decree issued by the Government on establishing and operating the pilot CTX; • Decision issued by the Prime Minister assigning MONRE to develop and manage the carbon market; • Decision issued by the Prime Minister to assign the operation of the pilot CTX to VNX, VSDC, and MONRE; • Decision issued by MOF on adjusting the operating regulations of VNX and VSDC related to the pilot CTX;

		<ul style="list-style-type: none"> • Other guiding documents for procedures to operate the CTX.
2	Recommended institutional solutions	<ul style="list-style-type: none"> • MONRE: playing the leading role in the development and management of the carbon market, including the development and operation of the national registry system and the operation of the CTX; • MOF: collaborating with MONRE for the design, development, and operation of the CTX, playing the leading role in the financial management of the carbon market, providing directions for SSC, VNX, and VSDC to fulfill the requirements for carbon transactions; • VSDC: collaborating with the National Registry System for application/account management, performing depository, clearing and settlement for carbon transactions; • VNX: assigning the suitable stock exchange (HNX or HOSE) to provide a trading platform for the execution of carbon transactions.
3	Recommended infrastructure solutions	<ul style="list-style-type: none"> • Develop the national registry, a primary and secondary trading platform for trading, and a centralized MRV system to track the compliance of the covered entities. • Based on the review and selection of a specific model for the operation of the CTX in the next phase, further details of the infrastructure for the CTX would be envisioned.

It should be noted that the domestic carbon market and CTX are new concepts in Viet Nam. Capacity building is thus crucially important and needs to be provided throughout the process of preparation for ETS as well as the pilot operation and official operation of the ETS (together with the review and improvement process). Therefore, under the Assignment, a questionnaire survey was conducted to identify the knowledge gaps and format preferences for the organization of the plan for a carbon market master class, and a detailed design of the training was also developed. Learning from the experiences of existing ETS and CTX will help Viet Nam to learn from the success and avoid the shortcomings of the operating systems to effectively design and operate a suitable model for Viet Nam.

ABBREVIATION

CARB	California Air Resources Board
CME	Chicago Mercantile Exchange
COP	United Nations Climate Change Conference of the Parties
CTX	Carbon Trade Exchange
DCC	Department of Climate Change
EI	Environment and Ecology Institute
EEX	European Energy Exchange
ESG	Environmental, Social, and Governance
ETP	Southeast Asia Energy Transition Partnership
ETS	Emission Trading Scheme
GHG	Greenhouse gas
GreenCIC	Green Climate Innovation Company Limited
HNX	Hanoi Stock Exchange
HOSE	Hochiminh Stock Exchange
ICE	International Exchange
K-ETS	Korea Emission Trading Scheme
KRX	Korea Exchange
LEP 2020	Law on Environmental Protection 2020
MOF	Ministry of Finance
MOIT	Ministry of Industry and Trade
MONRE	Ministry of Natural Resources and Environment
MRV	Monitoring, Reporting and Verification
NDC	Nationally Determined Contribution
NZX	New Zealand Exchange
OTC	Over the counter
SSC	State Securities Commission
UNFCCC	United Nations Framework Convention on Climate Change
UNOPS	United Nations Office for Project Services
VNX	Vietnam Stock Exchange
VSDC	Viet Nam Securities Depository and Clearing Corporation
WCI	Western Climate Initiative, Inc.

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I. INTRODUCTION

I.1. The role of a carbon trade exchange in an emission trading scheme

An emission trading scheme (ETS) offers a cost-effective means to reduce greenhouse gas (GHG) emissions by putting a price on the emissions through a market-based approach. The allowances and credits, which are the two main commodities in an ETS, can be traded in three ways: (i) direct trade between liable entities; (ii) trade facilitated by a broker (over-the-counter (OTC) trade), and (iii) exchange-based trade (ICAP, 2021b).

Country experiences show the key roles of a CTX include the following:

(i) Market access: A CTX provides a centralized platform for a wide range of participants, which may include emitters, carbon project developers, financial institutions, and investors, to participate and trade allowances and carbon credits in the carbon market. This broadens the pool of potential buyers and sellers, increasing market liquidity (ICE, 2022).

(ii) Transparency and accountability: A CTX posts both the volumes traded and the prices at which the transactions occur instantaneously. This enhances transparency and accountability in the carbon market (Ecoeye, 2023). Participants can trust that transactions are executed fairly and reported accurately.

(iii) Market oversight and regulation: A CTX often operates under regulatory oversight to ensure the integrity of the trading system (Ecoeye, 2023). It enforces rules and regulations to prevent fraud, market manipulation, and other forms of misconduct.

(iv) Market data and analysis: A CTX often provides data and analysis on market trends, trading volumes, and price movements (Ecoeye, 2023). This information can be valuable for market participants, regulators, and policymakers in making informed decisions related to regulation development, investment, and trading in the carbon market.

(v) Innovation and product development: A CTX can introduce new financial instruments and products, such as futures and options contracts, to help participants manage their carbon risks effectively. These financial instruments can hedge against future carbon price volatility (ICE, 2022).

The CTX operates in close connection with the registry system of the ETS. While the registry records and monitors the allocation, transfer, and surrender of allowances (and carbon credits) (ICAP, 2021b), the CTX creates a centralized platform (like a marketplace) to facilitate the transactions of allowances (and carbon credits), provide transparent price signals, and ensure reliable transactions for market participants, which are important for compliance carbon market.

I.2. CTX development in Viet Nam

Viet Nam has actively committed to international agreements and has demonstrated ambition in reducing emissions. In the latest updated Nationally Determined

Contribution (NDC) in 2022, Viet Nam committed to reducing total GHG emissions by 15.8% by 2030 compared to the Business-As-Usual scenario with domestic resources and can reduce up to 43.5 % when there is international support through bilateral and multilateral cooperation and implementation of new mechanisms under the Paris Agreement of the United Nations Framework Convention on Climate Change (UNFCCC) (The Government, 2022b). Furthermore, at the United Nations Climate Change Conference of the Parties in 2021 (COP26), Viet Nam also made a strong commitment to achieving net-zero emissions by 2050. These ambitious pledges have demonstrated Viet Nam's determination to align with global objectives in the quest for a sustainable and resilient future.

To realize these ambitions, Viet Nam has laid a robust legal framework. The 2020 Law on Environmental Protection (LEP 2020) introduced provisions for the organization and development of the domestic carbon market (National Assembly, 2020). Under LEP 2020, Decree No. 06/2022/ND-CP, issued on 07 January 2022, by the Government on mitigation of GHG emissions and protection of the ozone layer details the organization and development of the domestic carbon market. Accordingly, from now until the end of 2027, Viet Nam will establish regulations related to carbon credit management and trading activities, GHG emission allowances as well as operation of a CTX and is expected to establish and pilot CTX from 2025 and officially operate it in 2028. The Ministry of Finance (MOF) is assigned to coordinating the establishment and development of CTX and formulating a financial management mechanism for the operation of the carbon market in Viet Nam (The Government, 2022a).

I.3. The scope of the Assignment

To support MOF and line ministries with the establishment and operation of the carbon trade exchange in accordance with the Environmental Protection Law 2020 and Decree No. 06/2022/ND-CP, the Energy Transition Partnership (ETP) under the United Nations Office for Project Services (UNOPS) implemented the Assignment "Assessment of Country's Readiness and International Experience for Carbon Trade Exchange Design". The Assignment has the following objectives:

- To provide MOF with a thorough understanding of the country's existing relevant legal framework, institutional arrangements, and infrastructure conditions and the gaps to be fulfilled for the CTX establishment and operation;
- To provide MOF key takeaways from international experiences in CTX, particularly of countries with comparable circumstances or with successful CTX;
- To recommend a suitable option and implementation roadmap for the establishment and operation of the CTX in Viet Nam.

The Assignment was conducted by a Consultant consortium led by the Environment and Ecology Institute (EEI), collaborating with Green Climate Innovation Company Limited

(GreenCIC), Ecoeye Co., Ltd, South Pole, and international experts subcontracted by EEI. The Assignment consists of 8 main tasks presented and marked by the partner in charge in the Figure below. The Assignment has been conducted over a period of 8 months, from August 2023 to 15 March 2024.

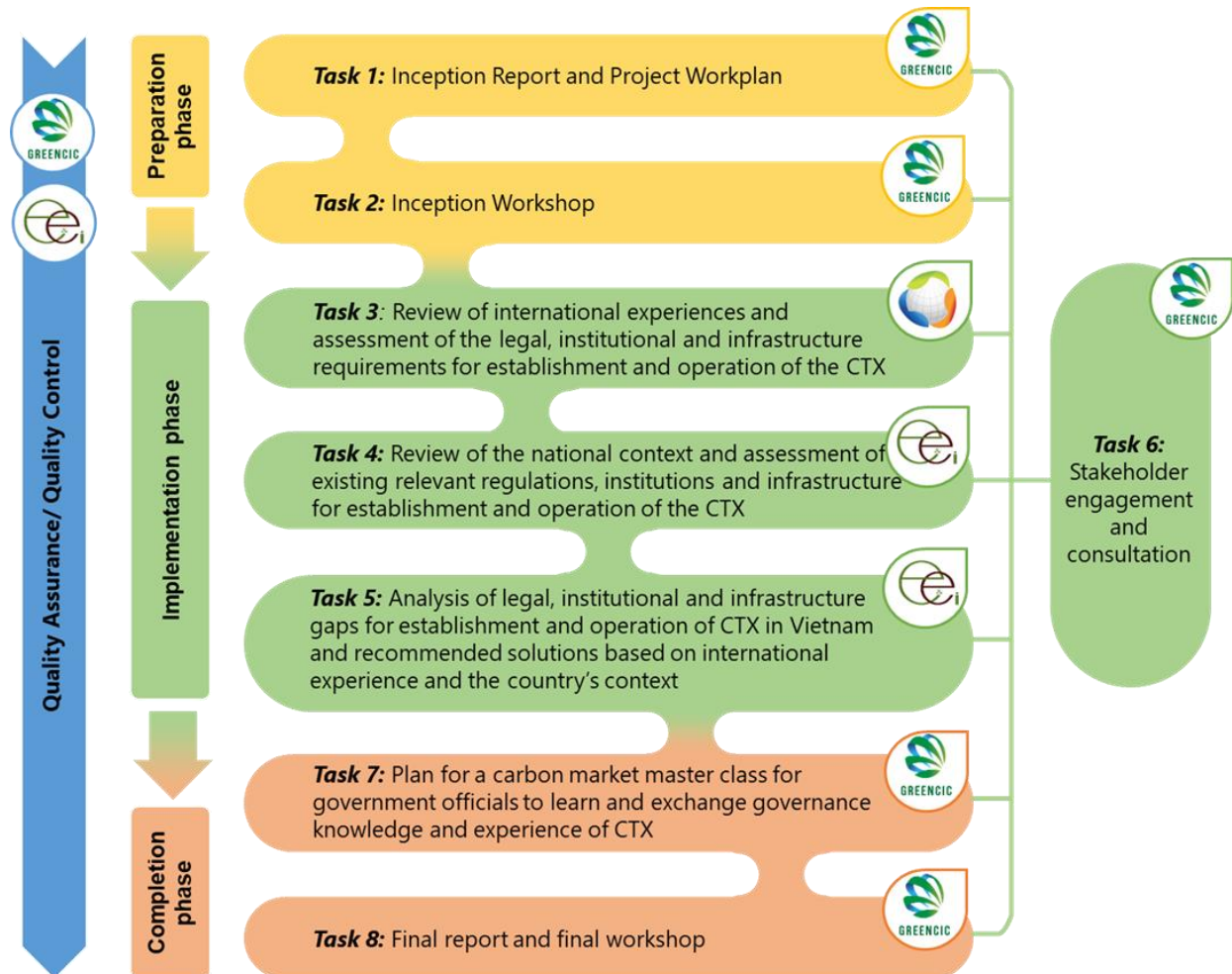


Figure 1: List of tasks under the scope of the Assignment and project management structure

I.4. Objectives and Structure of the Report

The Final Report is developed under the scope of Task 8: Final report and final workshop, to provide key findings of the Assignment, which includes:

- i) Review of international experiences and assessment of the legal, institutional, and infrastructure requirements for the establishment and operation of the CTX;
- ii) Review of national context and assessment of existing relevant regulations, institutions, and infrastructure for establishment and operation of the CTX;
- iii) Analysis of legal, institutional, and infrastructure gaps for the establishment and operation of CTX in Vietnam and recommended solutions based on international experience and the country's context.

II. International experiences and assessment of legal, institutional, and infrastructure requirements for the establishment and operation of the CTX

To derive valuable lessons for Viet Nam's establishment and operation of the CTX, the Consultant conducted a review of best case studies of CTX operating under ETS, focusing on various aspects of legal, institutional, and infrastructure requirements.

II.1. Approach to select case studies

As of 2023, there are 28 ETSs in force at various levels of government, from city-level to supranational-level, of which 21 ETSs are using exchanges to trade allowances (and carbon credits). To select relevant case studies from the list of operating ETSs for further in-depth assessment, the Consultant utilized the multi-criteria analysis (MCA) with the following key criteria:

- **Years of operation:** The selected case studies have undergone a sufficiently long operating period (at least more than 5 years) to provide meaningful experiences for Viet Nam.
- **Contextual similarity:** The selected case studies have a similar context (economic status, geography, jurisdictional scale) to Viet Nam.
- **Traded volume and transaction price:** The selected case studies show the active involvement of market participants in the transactions through the traded volume of allowances (over 20 million tCO₂) with efficient transaction prices (over USD 10).
- **Use of carbon credits and linking:** According to Decree No. 06/2022/ND-CP, the domestic carbon market in Viet Nam allows the use of carbon credits and considers possible linking with the international carbon market. The selected case studies should include the use of carbon credits for offsetting, and relevant linking experiences were preferable.

The MCA resulted in the selection of four case studies, including the UK, New Zealand, California, and Korea, for further analysis in terms of legal, institutional, and infrastructure requirements for the CTX.

II.2. Analysis of legal, institutional, and infrastructure requirements for the CTX

Based on four selected case studies, the Consultant conducted an in-depth assessment regarding legal, institutional, and infrastructure frameworks of CTX establishment and operation in each case study. A summary of the key aspects of legal, institutional, and infrastructure requirements for the CTX in four case studies is provided in the Table below:

Table 1: Summarize key aspects of legal, institutional, and infrastructure requirements for the CTX in 4 case studies

Aspects	NZ ETS	K-ETS	UK ETS	California ETS
Start of Operation	2008	2015	2021	2012
Legal aspects				
Key Legal Framework	Climate Change Response Act 2002	Framework Act on Low Carbon Green Growth (2015) Framework Act on Carbon Neutrality and Green Growth for Coping with Climate Crisis (2021)	Climate Change Act 2008	AB 32 Global Warming Solutions Act of 2006
ETS Legal Framework	Climate Change Response (Emissions Trading) Amendment Act 2008	Act on the Allocation and Trading of Greenhouse Gas Emission Permits	Greenhouse Gas Emissions Trading Scheme Order 2020	California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms
CTX legal framework	Climate Change (Auctions, Limits and Price Controls for Units) Regulations 2020	Enforcement Decree of the Emissions Trading Act	Greenhouse Gas Emissions Trading Scheme Order 2020	California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms
Institutional aspects				
Market Monitoring and Oversight	Ministry of Environment – Regulatory framework Environmental Protection Authority – registry and compliance	Ministry of Environment – overall market oversight and regulatory framework Ministry of Finance – lead the allocation committee	UK ETS Authority – national market oversight Each regulatory body of UK nations – compliance	California Air Resources Board – market oversight and regulations

	Ministry of Primary Industries – forestry sector of the ETS	(composed of related ministries) in setting ETS cap Greenhouse Gas Inventory and Research Center – registry management		
CTX operation	New Zealand Exchange (NZX) & European Energy Exchange (EEX) – platform and trading oversight	Korea Exchange (KRX) – platform and trading oversight	Recognized auction platform, currently the InterContinental Exchange – trading oversight	Western Climate Initiative – operation of auctions and registry management
Market Participants	Mandatory entities, voluntary entities	Compliance entities, limited financial entities	Compliance entities, non-compliance parties, financial entities	Compliance entities, non-compliance parties, financial entities
Market structure & infrastructure				
Market structure	Primary – auction Secondary – spot, forward *Carbon credits developed through eligible domestic removal activities are treated as NZUs and can be used for compliance	Primary – auction Secondary – spot, offset credits *Offset credit usage has quantitative and qualitative limitations	Primary – auction Secondary – spot, futures, options *No offset credits allowed but CORSIA offsetting and use of carbon removals under consideration	Primary – auction Secondary – spot, futures, options, offset credits *offset credit usage has quantitative and qualitative limitations
CTX(s)	NZX/ EEX – primary Several trading platforms are available for the secondary market	KRX – primary and secondary	International Exchange (ICE) – primary and secondary	Western Climate Initiative, Inc. (WCI) Auction Platform – primary

				ICE, Chicago Mercantile Exchange (CME), Nodal Exchange – secondary
Key infrastructure	Emission trading register	Offset registry system	Emission Trading Registry	ETS registry (Compliance Instrument Tracking System Service – CITSS)
	Auction platform	Emission trading registry system	Auction platform	Offset project registry
	Decentralized secondary trading platforms	Auction platform	Exchange-based secondary trading platform	Auction platform
	Resettlement and clearing infrastructure	Exchange-base secondary trading platform	Resettlement and clearing infrastructure	Decentralized secondary trading platforms
		Resettlement and clearing infrastructure		Resettlement and clearing infrastructure

Source: The Consultant (2023)

Based on the analysis of key aspects regarding legal, institutional, and infrastructure requirements for the establishment and operation of the CTX in the four case studies, the following lessons are drawn for Viet Nam:

(i) The legal aspects

In terms of legal aspects, a robust regulatory framework emerges as the cornerstone of a credible carbon trade exchange, as evidenced by all four international case studies. Each country established its exchange under a dedicated law, supported by comprehensive regulations and guidelines governing allowance trading, market oversight, and participant compliance. While the law sets high-level implementation power and enforcement for the ETS, there is also flexibility in the under-law regulations to allow the system to adjust over the implementation period(s). Aligning this framework with international standards further bolstered transparency and market integrity. In all four case studies, the establishment of the CTX was regulated in an under-law regulation, and the commodities traded on the CTX, i.e. allowances (and carbon credits) are considered as financial instruments (UK, New Zealand) or subject to regulations for the financial market (Korea, California).

(ii) The institutional aspects

Regarding institutional set-up, in all four case studies, the Ministry of Environment plays the most important role in monitoring and overseeing the ETS and the CTX. Depending on inter-ministerial relationships, collaboration with the Ministry of Finance, key sectoral-in-charge authorities, and other relevant institutions is required.

(iii) The infrastructure aspects

The market structure in all four case studies includes a primary market that operates for the auctioning of allowances and a secondary market that operates for the trading of allowances and carbon credits. Notably, none of the countries opted for the creation of a new exchange, instead leveraging existing financial platforms within their jurisdictions. While California utilized the WCI program as an auction platform, the remaining countries conducted auctions through designated carbon trade exchanges. Additionally, the secondary market structure varied, with California and New Zealand featuring multiple platforms, while Korea and the UK employed a single exchange model. While all the exchanges in the four case studies serve the primary functions to enable trading in the compliance market, the exchanges also cover transactions in the voluntary carbon market. The transactions in the voluntary carbon market are not strictly regulated in all of the four case studies since carbon credits are usually considered normal commodities, while allowances are assets created by the Government. Besides the exchanges, i.e. auctioning platform and secondary trading platform(s), the emission trading registry and the resettlement and clearing house are the most important infrastructure for the ETS and operate in connection to the CTX.

Despite current market independence, all four countries demonstrate either past experience or legal provisions for international market linkages, suggesting a proactive approach towards global connectivity. This forward-thinking stance positions these markets for future integration and collaboration.

III. National context and assessment of existing regulations, institutions, and infrastructure for the establishment and operation of CTX in Viet Nam

In certain countries, CTX operations closely resemble those of the securities exchange (e.g., KRX, NZX) or commodities exchange (e.g., EEX, ICE). Consequently, when assessing the national context and evaluating the CTX, it is crucial to account for the pre-existing regulations, institutions, and infrastructure that pertain to the carbon market, securities exchange, and commodities exchange.

The following table provides a summary of the national context and assessment of existing relevant regulations, institutions, and infrastructure for the establishment and operation of the CTX, encompassing aspects from the carbon market and CTX, securities exchange, and commodities exchange in Viet Nam.

Table 2: The national context and assessment of existing regulations, institutions, and infrastructure for the establishment and operation of CTX in Viet Nam

Carbon market and CTX	Stock exchanges	Commodities exchange
Legal framework		
<p>LEP 2020:</p> <ul style="list-style-type: none"> Article 91: Identify seven GHGs; the organization and development of the domestic carbon market is defined as one of the measures for GHG emission reduction effort in Viet Nam; Article 139: Provide details about the organization and development of the domestic carbon market, including scope, participants, the basis for allocation of allowances, responsibilities of the Government, the Ministry of Natural Resources and Environment (MONRE), MOF, facilities subject to mandatory GHG inventory <p>Decree 06/2022/ND-CP dated 07 January 2022 on regulating GHG emission reductions and ozone layer protection:</p> <ul style="list-style-type: none"> Article 12: Regulate allocation of allowances and endorsement of 	<p>The Law on Securities (Law No. 70/2006/QH11) was promulgated in 2006 and later amended and supplemented in 2010, and then revoked and replaced by the Law on Securities in 2019 (Law No. 54/2019/QH14): Regulate the procedures and participants in the securities market; the organization and functions of State Securities Commission (SSC), Viet Nam Securities Depository and Clearing Corporation (VSDC), the Viet Nam Exchange (VNX). Accordingly, SSC is affiliated with MOF to support MOF in the state management of securities and the securities market, including management and supervision of VNX and VSDC. The organization and operation of the stock exchange in Viet Nam are centrally performed by VNX and the registration, depository, offsetting, and payment are centrally performed by VSDC.</p> <p>Decree No. 75/1996/ND-CP: Establish SSC on 28 November 1996</p> <p>Decree No. 48/1998/ND-CP on securities and the securities market: Set the first legal document for the establishment of the securities market in Viet Nam</p> <p>Decision No. 127/1998/QD-TTg: The Hochiminh City Securities Trading Center and the Hanoi Securities Trading Center were both established in 1998. Then, the Hochiminh City Securities Trading Center operated in 2000 and the Hanoi Securities Trading Center operated in 2005</p>	<p>The 2005 Commercial Law: Define the functions of the commodities exchange</p> <p>Decree No. 158/2006/ND-CP detailing the Commercial Law regarding commodities purchase and sale through the commodities exchange and the more recent revisions and amendments under Decree No. 51/2018/ND-CP:</p> <ul style="list-style-type: none"> Regulate the commodities exchanges, including mechanisms for their formation. So far, the Mercantile Exchange of Viet Nam (MXV) is the only entity granted with license from Ministry of Industry and Trade (MOIT) and operating for trading commodities at national level Regulate MOIT is responsible for management of commodities exchanges Regulate the establishment, functions and obligations of the clearing house and the commodities delivery center <p>Decree No. 52/2013/ND-CP with amendments under Decree No. 85/2021/ND-CP: define “e-commerce website” and other regulations on e-commerce</p>

Carbon market and CTX	Stock exchanges	Commodities exchange
<p>carbon credits and allowances to be traded on the CTX;</p> <ul style="list-style-type: none"> Article 16: Regulate participants in the domestic carbon market; Article 17: Regulate development roadmap, and timeline for implementation of the domestic carbon market; Article 19: Roles and functions of the CTX Article 21: Responsibilities of MOF and MONRE for development of the domestic carbon market <p>Decree No. 45/2022/ND-CP dated 07 July 2022 on penalties for administrative violations in the environmental protection area: Regulate penalties related to violations concerning GHG inventory reports and mitigation reports.</p> <p>Decision No. 01/2022/QD-TTg dated 18 January on providing for the list of sectors and GHG-emitting facilities subject to mandatory GHG inventory: 1,912 facilities in four economic sectors: (i) industry and trade, (ii) transport, (iii) construction, and (iv) natural resources and the environment (NRE), i.e. waste, which is subject to conducting GHG inventory</p>	<p>Decision No. 189/2005/QD-TTg of the Prime Minister: The Viet Nam Securities Depository Center (VSD) was established in 2005, which was later on transformed and re-structured into the current Viet Nam Securities Depository and Clearing Corporation (VSDC)</p> <p>Decision No. 599/2007/QD-TTg of the Prime Minister: The Hochiminh City Securities Trading Center was transformed into the current Hochiminh Stock Exchange (HOSE) in 2007</p> <p>Decision No. 01/2009/QD-TTg of the Prime Minister: The Hanoi Securities Trading Center was transformed and restructured into the current Hanoi Stock Exchange (HNX)</p> <p>Decision No. 37/2020/QD-TTg on the establishment of VNX: HOSE and HNX became subsidiaries in which 100% of the charter capital was held by VNX</p> <p>Circular No. 134/2017/TT-BTC: Provide guidelines for e-transactions on the securities market</p> <p>Circular No. 120/2020/TT-BTC: Give details about the trading of listed and registered shares, fund certificates, corporate bonds, and secured warrants listed on securities trading systems.</p> <p>Circular No. 57/2021/TT-BTC and the recent revision and amendment under Circular No. 69/2023/TT-BTC: Regulate that HOSE will be responsible for the consolidated trading market for stocks, investment fund certificates, and right certificates by the end of 2026 while HNX will be responsible for the consolidated trading market for bonds and derivatives</p>	

Carbon market and CTX	Stock exchanges	Commodities exchange
Institutional framework		
<ul style="list-style-type: none"> • MONRE: Set caps, allocate allowances, and endorse carbon credits; pilot operation and official operation of CTX; management, oversight, MRV, and linking • MOF: Establish domestic carbon market; develop and establish CTX; formulate financial and management mechanism • Ministries, ministerial agencies, and provincial People's Committee: Collaborate with MONRE and MOF; support the development of the carbon market; engage in public awareness rising; • Market participants: Large emitters; carbon credits owners; traders/investors. 	<ul style="list-style-type: none"> • MOF: Have the responsibility for the state management of the securities market • SSC: Under MOF, directly manage and supervise securities activities and the securities market • HOSE, HNX under the management of VNX: responsible for organizing securities listing, trading, and auctions • VSDC: Provide registration, depository, clearing, and settlement services for listed securities and public company securities • Securities companies: Under the management and monitoring of SSC, providing one, several, or all of the following operations: securities brokerage, securities dealing, securities issuance underwriting, and securities investment advisory • Investors: Make investments in the securities market; buy, sell, or hold securities directly influence prices and market trends 	<ul style="list-style-type: none"> • MOIT: Take charge of commerce and domestic commodities market, perform state management of trading commodities through the commodities exchanges • Commodities exchanges (MXV): Select commodities for trading on the commodity exchange; Organize, operate, and manage the trading of commodities on the exchange; etc. • Members of Commodities Exchanges: Perform trading of commodities on the commodities exchange and only intermediary members are allowed to perform brokerage for trading of commodities on the commodities exchange. • Clearing house: Receive deposits from members; ensure correct payment for trading activities • Commodities delivery center: Store the commodities; deliver the commodities; etc. • E-commerce trading floors: Provide information for enterprises, and organizations who provide the service of the e-commerce trading floor; provide information on commodities, and services while selling the commodities and providing the services on the e-commerce trading floor; Provide information about business status to the State competent authorities if requested;

Infrastructure framework

Current regulations in Viet Nam haven't specified the infrastructure requirements needed for establishing and operating the carbon market and CTX at the national level.

The securities company platforms
The stock exchange
The settlement bank
VSDC

E-commerce trading floors
The settlement bank
The clearing house
The commodities exchange (MXV)
Commodities delivery center
International commodities exchanges

IV. Analysis of legal, institutional, and infrastructure gaps for the establishment and operation of the CTX in Viet Nam and recommendations

The legal, institutional, and infrastructure gaps were drawn from a comprehensive examination of international practices and the domestic landscape concerning the establishment and operation of a CTX, based on which, recommendations were proposed to bridge the gaps for effective establishment and operation of the CTX in Viet Nam.

IV.1. Analysis of legal, institutional, and infrastructure gaps for the establishment and operation of CTX in Viet Nam

IV.1.1. Legal gaps

The assessment of the national context in Viet Nam reveals that while the legal framework for the carbon market and the CTX exists, it lacks the comprehensiveness necessary to facilitate the effective establishment and operation of these mechanisms.

Existing regulations provided relevant definitions of allowances and carbon credits, some design elements, and key principles for the MRV system and the CTX. The roadmap for the development of the carbon market was also defined under Decree No. 06/2022/ND-CP.

However, the existing gaps pose challenges for the existing regulations to address the complexity and requirements for the effective operation of the carbon market. The legal gaps identified from the review of the national context from different angles are detailed as follows.

Regarding the traded commodities:

- There is a lack of data to establish the emission cap and develop a benchmark for the allocation of allowances. Based on regulations under LEP 2020 and Decree No. 06/2022/ND-CP, the first GHG inventory reports at the facility level will be submitted to MONRE only by the end of March 2025. For effective design of the ETS, it is required to collect GHG emissions data from facilities for at least three years to establish a reliable baseline. Using benchmarking as a method for the allocation of allowances would need robust data from different industrial sectors and require a long time to negotiate with the stakeholders in the industries to agree on the benchmark and the allocation method.
- There are no specific regulations on the criteria for evaluating and determining the eligibility of the carbon credits to be traded on the market.
- The nature of allowances and carbon credits, i.e. whether they are financial products or normally traded commodities, are not yet defined under the current regulations. This poses difficulties in choosing relevant legal regulations to be applied for the transactions of allowances and carbon credits.
- Carbon ownership is not clearly defined. According to Decision No. 130/2007/QĐ-TTg of the Prime Minister on some mechanisms, and financial policies for Clean Development Mechanism (CDM) projects, the carbon credits from the projects will belong to the project

owners and they are free to sell the carbon credits from their projects on the carbon market. However, there are no clear regulations on carbon ownership for state-owned projects or projects that are implemented from the State budget or loans. The ownership of allowances which are assets purely created by the Government is not regulated.

Regarding the compliance requirements:

- While guidance on the Monitoring, Reporting and Verification (MRV) system is crucial to ensure compliance with emissions caps and prompt action by enterprises to prevent exceeding allocated allowances, there remains a notable gap in implementation. Despite the requirements outlined in Decree No. 06/2022/ND-CP, only MONRE, MOIT, and the Ministry of Agriculture and Rural Development have issued circulars to guide MRV systems in the waste management, industry and trade, and forestry and agriculture sectors, respectively. However, the Ministry of Transport and the Ministry of Construction have yet to develop guidelines for their respective sectors.
- While Decree No. 06/2022/ND-CP defines requirements for verification entities, the list of verification entities has not yet been published on the website of the national authority on climate change.
- The fee for GHG emissions exceeding the allocated allowances has not yet been defined, and it is not clear whether the violation is considered an administrative default or not

Regarding the national registry system: Leveraging from international experience, the national registry system is a key component that enables the operation of the ETS and the CTX, however, until now, there are no specific provisions in the existing regulations that mention the establishment and operation of the registry system for the domestic carbon market as well as its main design features in Viet Nam.

Regarding the designation and operation charter for the CTX: The options for CTX establishment and the suitable structure for the operation of the carbon market have not been clearly defined.

Regarding market management and oversight: There are no clear provisions on market management and oversight in the existing regulations under LEP 2020 and Decree No. 06/2022/ND-CP.

IV.1.2. Institutional gaps

Regarding market participants in the domestic carbon market, Decree No. 06/2022/ND-CP identifies three groups of participants in the domestic carbon market including “Other organizations and individuals involved in investment, trading activities of allowances and carbon credits in the carbon market”, however, the criteria for assessing and approving the eligibility of "other organizations and individuals" remains undefined.

In terms of the national authorities to govern the CTX, while MOF is tasked to take the lead in the establishment of the CTX, MONRE is assigned to take the lead in the pilot operation and official operation of the CTX. There exists a gap in delineating clear roles and responsibilities between the two ministries.

Furthermore, existing regulations under LEP 2020 and Decree No. 06/2022/ND-CP do not specifically address the development and operation of the registry system. Although there are plans to establish a national registry system under the Partnership for Market Implementation (PMI) project by September 2024, there is currently no provision for assigning a national registry administrator to manage its operation and ensure linkage with the CTX.

IV.1.3. Infrastructure gaps

Currently, the national registry system has not yet been in place, which is expected to be operational by September 2024.

There is not yet a comprehensive system to support the ETS implementation, including the national database on GHG inventory data of covered- facilities to manage and monitor the emission cap, tools for allocation of allowances, etc.

The CTX and the allowance auction platform have not yet been developed.

A centralized system for MRV of GHG emission and GHG emission reductions is not yet in place.

IV.2. Recommendations for the establishment of the CTX in Viet Nam

IV.2.1. Options for the establishment and operation of the CTX in Viet Nam

The review of the national context and the gap analysis showed that overall, the development of CTX in Viet Nam can be based on the utilization of the existing exchanges or the development of a brand-new one.

As indicated above, the existing exchanges for securities or commodities can be utilized. International case studies showed that for a CTX to operate effectively, it must encompass not only trading services but also clearing and payment functions. Consequently, a basic e-commerce trading platform falls short of meeting these system requirements. The most viable option lies in leveraging existing securities exchanges such as VNX (HOSE or HNX) or commodities exchanges like MXV.

Under Decree No. 06/2022/ND-CP, only MOF and MONRE are assigned for the development, pilot operation, and official operation of the CTX. Therefore, the commodities exchange under the management of MOIT would not fit in the overall existing legal and institutional framework for the domestic carbon market and CTX in Viet Nam. Moreover, the securities exchange has been in operation for a much longer period than the commodities exchange (HOSE and HNX were established in 1998 while MXV was established in 2018). The securities market is also much more mature and active with about 7,000,000 domestic trading accounts and nearly 45,000 foreign trading accounts (HOSE, 2023) while there are only about 22,000 accounts in the commodities market operated by MXV (MXV, 2022).

For the latter option to develop a brand-new separate exchange for carbon trading, it would be more convenient for MONRE, as a national authority in charge of the generation of allowances and carbon credits, of MRV and pilot operation and official operation of the CTX to develop a new exchange based on their own requirements. Therefore, the two options for the establishment of the CTX in Viet Nam are presented in the Table below:

Table 3: The comparison of suitable options for the establishment of CTX in Viet Nam

Option	Option 1	Option 2
Description	Establish a CTX based on the infrastructure system of the stock exchange	Develop a carbon trade exchange model independent from the stock exchange system, managed by the MONRE
Advantages	<p>Leverage the existing infrastructure framework of the Vietnamese securities market leads to:</p> <ul style="list-style-type: none"> • No need to establish a new unit/organization; • Leverage experience in organizing and operating the trading market of the Stock Exchanges. This includes refining management methods, enhancing transaction oversight, and optimizing the information disclosure system. 	<ul style="list-style-type: none"> • In accordance with the provisions of Clause 2, Article 21 of Decree No. 06/2022/ND-CP; • Ensure unified management of the market; • Connecting and sharing information in the process of managing market transactions between agencies under the MONRE will be more convenient than between agencies under different ministries.
Disadvantages	<ul style="list-style-type: none"> • Not aligned with regulations on the responsibilities of ministries in developing the domestic carbon market regulated in Decree No. 06/2022/ND-CP; • Allowances and carbon credits are not types of securities; • The securities management agency organizes and operates CTX (a commodity established by MONRE, and MONRE determines supply and demand) will create certain difficulties and problems. 	<ul style="list-style-type: none"> • MOF cannot propose the establishment of a unit/organization under MONRE to operate, supervise, and manage CTX; • Proposing the establishment of a new unit/organization under MONRE (immediately after the issuance and enforcement of Decree No. 68/2022/ND-CP regulating the functions, tasks, powers, and organizational structure of the MONRE) is not feasible; • It would be challenging to ensure the implementation schedule for the pilot operation from 2025.

Source: Compiled by the Consultant (2023)

Along with the above options for the establishment of the CTX, there are also different options for designing the market structure for trading allowances and carbon credits.

Based on international experiences, for the primary market, there are two options for the operation of the CTX which are illustrated in the Table below.

Table 4: Comparison of suitable options for the structure of the primary carbon market in Viet Nam

Option	Option 1	Option 2
Description	Allocation of free allowances to all market participants (MONRE, along with relevant key ministries, is responsible for allocating free allowances)	Combination of free allocation and auctioning of allowances on the exchange (MONRE, along with relevant key ministries, is responsible for allocating free allowances. MONRE is responsible for deciding the volume of allowances for auctioning)
	Certification of carbon credits eligible for participating in the secondary market	
Advantages	Reduce the financial burden for entities when participating in the carbon market because, in the primary market, entities are allocated free allowances.	Create excitement in the primary market when entities participating in the market have to allocate money to participate in the allowances auction. This leads to: <ul style="list-style-type: none"> • Increase liquidity, and ensure the market operates effectively; • Increase the motivation of businesses in efforts to reduce GHG emissions.
Disadvantages	<ul style="list-style-type: none"> • Fail to create incentives for entities in the mission of reducing GHG emissions because entities do not have to allocate money to receive allowances in the primary market; 	Entities participating in the market will need to pay a price for the allowances and to pay fees for participating in the allowances auctions.

	<ul style="list-style-type: none"> Many entities only choose to participate in the primary market, making the secondary market less vibrant. 	
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Source: Compiled by the Consultant (2023)

International case studies also showed two options for the operation of the secondary market for the CTX under centralized and decentralized models, which are presented in the Table below.

Table 5: Comparison of suitable options for the structure of the secondary carbon market in Viet Nam

Option	Option 1	Option 2
Description	Trading allowances on a centralized exchange	
	Trading of carbon credits on a centralized exchange (together with allowances)	Trading of carbon credits voluntarily in the domestic or international carbon market (separated from the centralized exchange for allowances)
Advantages	<ul style="list-style-type: none"> Reduce transaction risk; Provide transparent information about trading prices and volume 	More flexible for linking with domestic and international voluntary carbon market.
Disadvantages	Limit flexibility of the system, especially related to linking with the international carbon market.	<ul style="list-style-type: none"> Higher risk due to unstandardized transaction agreements; Less transparency in terms of price and volume as well as other market information.

Source: Compiled by the Consultant (2023)

In any case, the functions of the registry system should be covered for the following purposes:

- Allocating of allowances to covered entities;
- Certifying the types of carbon credits eligible to participate in the carbon market;
- Connecting with the MRV system of emissions of the covered entities to ensure obligations are met;
- Transferring unused GHG emission allowances in the previous year to the following years within the same compliance period;
- Borrow the allowances allocated for the next year to be used in the previous year within the same compliance period;
- Using carbon credits from projects under carbon credit exchange and offset mechanisms to offset GHG emissions exceeding the allocated allowances within a compliance period;
- Connecting with the management and oversight system to perform penalties in case of violations.

Based on the gap analysis and identification of different options to address the gaps, the Consultant held consultation meetings with 06 relevant institutions, including MOF, MONRE, VSDC, SSC, HNX, and HOSE from 27-29 November 2023, and a wide stakeholder consultation workshop was organized on 30 November 2023 to consult the stakeholders about the recommended option for establishment of the CTX in Viet Nam. Detailed information on the stakeholders involved in these consultations is documented in Task 6 of the Assignment, with a summarized overview provided in Appendix 2. The following sections will integrate stakeholder suggestions to formulate recommendations for the establishment and operation of the CTX in Viet Nam.

IV.2.2. Recommendations for the establishment of the CTX in Viet Nam

The review of international case studies suggested that leveraging existing infrastructure, manpower, and resources of the securities market will offer a cost-effective and efficient approach to establishing the carbon market. Stakeholder consultation indicated significant challenges for MONRE in establishing a new unit or organization to oversee the CTX within a 1-2 pilot timeframe. Additionally, MONRE could face a substantial workload, including developing and operating the registry, setting caps, allocating allowances, certifying carbon credits, and establishing the necessary database and MRV system, etc. Proposing revisions to Decree No. 68/2022/ND-CP on MONRE's functions and structure shortly after its implementation could be also challenging. Therefore, the recommended option for the establishment of the CTX in Viet Nam is to harness the existing system of the stock exchange.

IV.2.2.1. Legal recommendations

It should be noted that the current legal framework for the securities market does not cover the trading of allowances and carbon credits on the carbon market. No provisions

within the Law on Securities in 2019 and Decree No. 155/2020/ND-CP of the Government guiding the implementation of the Law on Securities as well as relevant guiding Circulars and Decisions establishing SSC, VNX mention the carbon market.

Therefore, to accommodate the timeline for the establishment and pilot operation of the CTX from 2025, the revision of the Law is not recommended because revision procedures would not be able to be completed within 1 year. The recommended legal solution is that:

- MONRE will perform unified management of the carbon market, including establishing the registry system for allowances and carbon credits; setting regulations for the MRV system and requirements for allowances, carbon credits, and market participants; deciding on the scope of utilizing the stock exchange system when the market participants engage in trading allowances and carbon credits in the secondary market;
- CTX will be established based on utilizing the services from the stock exchange system managed by MOF (with the participation of SSC, VNX, VSDC, etc.)

The proposed legal documents to be developed in the near future to realize this option include the following:

- Decree issued by the Government on establishing and operating the pilot CTX;
- Decision issued by the Prime Minister assigning MONRE to develop and manage the carbon market;
- Decision issued by the Prime Minister to assign the operation of the pilot CTX to VNX, VSDC, and MONRE;
- Decision issued by MOF on adjusting the operating regulations of VNX and VSDC related to the pilot CTX;
- Other guiding documents for procedures to operate the CTX.

IV.2.2.2. Institutional recommendations

As mentioned above, MONRE will use the services of the stock exchange system under MOF to operate the CTX. Therefore, the specific roles and functions of VNX and VSDC in the carbon market will depend on the scope that MONRE would need to utilize the service of the stock exchange system for carbon trading.

Based on the review of the current country's context and discussion with relevant stakeholders, the recommended institutional arrangements are as follows:

- **MONRE:** playing the leading role in the development and management of the carbon market, including the development and operation of the national registry system and the operation of the CTX;
- **MOF:** collaborating with MONRE for the design, development, and operation of the CTX, playing the leading role in the financial management of the carbon market, providing directions for SSC, VNX, and VSDC to fulfill the requirements for carbon transactions;

- **VSDC**: collaborating with the National Registry System for application/account management, performing depository, clearing and settlement for carbon transactions;
- **VNX**: assigning the suitable stock exchange (HNX or HOSE) to provide a trading platform for the execution of carbon transactions.

The following figure describes the generally recommended institutional arrangements based on this option:

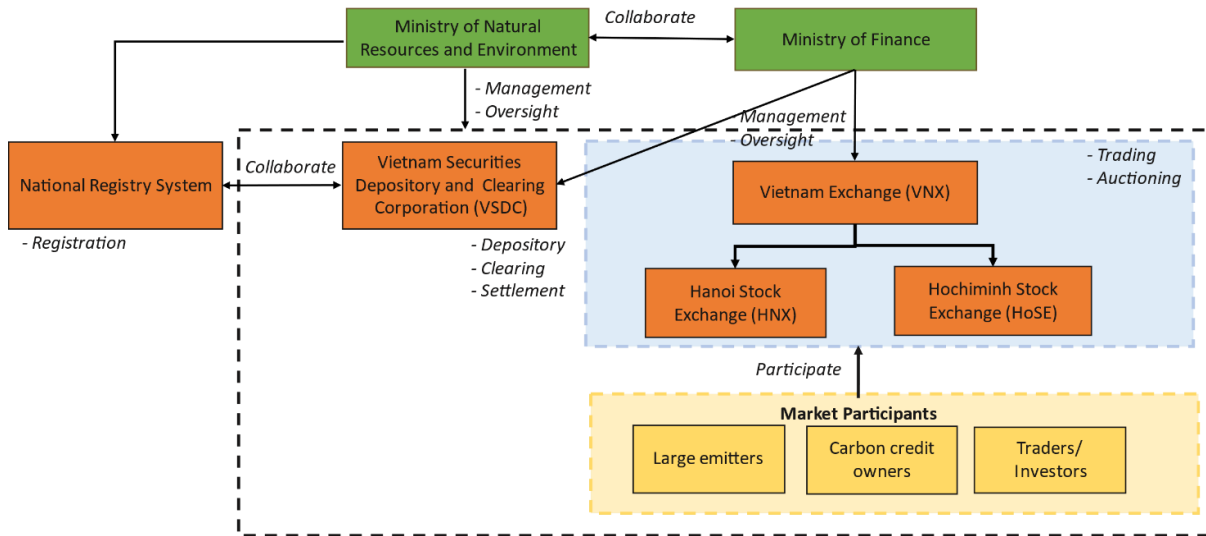


Figure 2: Recommended institutional arrangements for the CTX

Source: Compiled by the Consultant (2023)

IV.2.2.3. Infrastructure recommendations

Based on the international experiences for the operation of the CTX, the flow of allowances and credits in the carbon market and relevant transactions are as follows:

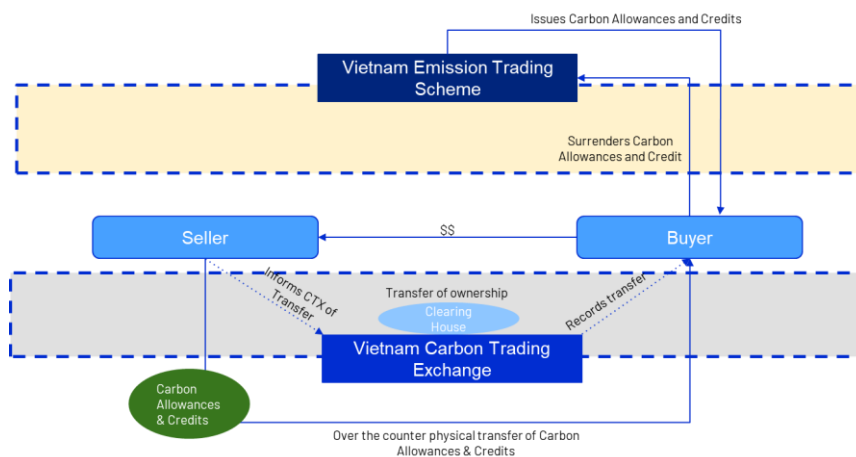


Figure 3: The CTX trade flow

Source: Compiled by the Consultant (2023)

One of the considerations for the Viet Nam CTX is whether it intends to provide future linkage and interoperability functions with other countries. International experience showed that working with the likes of the Climate Action Data Trust registry would be something to consider if the intention is to have future linkages with other national CTX.

In terms of national capacity, discussions with VSDC, HNX, and HOSE showed that further investment is needed for the existing infrastructure of the stock exchange to accommodate carbon transactions. The scale of investment would depend on the scope of service that MONRE will utilize for the operation of the CTX. However, this is considered a manageable task. In fact, HNX already had a similar experience when they launched a dedicated trading platform for privately placed corporate bonds in July 2023 while HOSE also shared that under the KRX project, they already learned the experience from Korea to operate the carbon exchange.

IV.2.3. Recommendations for the operation of the CTX

As mentioned earlier, the CTX only provides a centralized trading platform for participants in the domestic carbon market of Viet Nam to perform selling and purchasing of allowances and carbon credits more transparently and reliably than the traditional over-the-counter method. Therefore, the CTX cannot be established and existed in a vacuum. For the operation of the CTX, it is necessary to develop a full-fledged system for trading allowances and carbon credits in the carbon market, including the legal framework (rules, mechanisms), institutional framework (identification of roles and responsibilities of relevant actors), and infrastructure (different systems that are connected to and support carbon transactions).

International experience showed that the operation of the carbon market does not follow a fixed model but needs frequent adjustment based on the performance of the market and the overall socio-economic circumstance of the country in each period of time.

Therefore, the following table presents the recommended solutions to fill the gaps and the suggested timeframe for implementation of such solutions based on the schedule for the pilot operation of the CTX from 2025 as per Decree No. 06/2022/ND-CP. Further recommendations for the official operation of the CTX would depend on the results of the pilot operation once available.

Table 6: Recommended solutions to fill the gaps for the pilot operation of the CTX and suggested timeframe

No.	Recommended solutions	Time frame	Governmental authorities in charge	Notes
I	Legal framework			
I.1	Develop legal document(s) to define the scope, establish emission cap, define ratio for reserve & auctioning (if applicable) for the pilot operation of the CTX	As early as possible 2024	MONRE	For pilot operation in 2025, the scope for pilot operation should be identified earlier and data should be collected in 2024.
I.2	Develop legal document(s) to guide methods for allocation of allowances and discuss with stakeholders participating in the pilot operation to reach a consensus	As early as possible 2024	MONRE	This needs to be done after data are collected from facilities covered in the pilot operation phase
I.3	Develop legal document(s) to define carbon ownership	June 2024	MONRE	The Prime Minister requested MONRE to develop a Decree on carbon credit management
I.4	Develop legal document(s) to guide the criteria and procedures to certify allowances and carbon credits eligible for trading in the carbon market	June 2024	MONRE	The Prime Minister requested MONRE to develop a Decree on carbon credit management
I.5	Develop legal document(s) to establish and regulate the operation of the national registry system	September 2024	MONRE	Based on information from the consultation meeting with MONRE
I.6	Develop legal document(s) to establish and regulate the operation of the CTX	By the end of 2024	MONRE and MOF	Details are discussed in the previous section

No.	Recommended solutions	Time frame	Governmental authorities in charge	Notes
I.7	Develop legal document(s) to define the financial mechanism for the operation of the carbon market	By the end of 2024	MOF	For pilot operation in 2025
I.8	Develop legal document(s) to define the measures for management and oversight of the market operation, including measures to handle violations, cost containment, market flexibility mechanisms, etc.	By the end of 2024	MONRE	For pilot operation in 2025
II	Institutional framework			
II.1	Establish procedures for organizations and individuals to participate in the carbon market	By the end of 2024	MONRE	For pilot operation in 2025
II.2	Assign the national registry administrator and define a collaborating mechanism with the CTX	By the end of 2024	MONRE and MOF	For pilot operation in 2025
III	Infrastructure framework			
III.1	Develop infrastructure for the national registry system	By the end of 2024	MONRE	For pilot operation in 2025
III.2	Develop infrastructure for CTX and auction platform (if applicable)	By the end of 2024	MOF	For pilot operation in 2025
III.3	Develop the database and MRV system	By the end of 2024	MONRE	For pilot operation in 2025

Source: Compiled by the Consultant (2023)

Besides, given that the domestic carbon market and CTX are new concepts in Viet Nam, capacity building emerges as a pivotal necessity. Therefore, under the Assignment, a questionnaire survey was conducted to identify the knowledge gaps and format preferences for the organization of the plan for a carbon market master class, and a detailed design of the training was also developed. Details of the capacity need assessment survey and the plan for the carbon market master class are presented in Appendix 3.

IV.2.4. Implementation roadmap for the establishment and operation of the CTX

The detailed implementation timeframe for the establishment and pilot operation of the CTX was defined in the previous section. To meet the timeline for the pilot operation of the CTX from 2025, there is only about 1 year for different national authorities (MONRE, MOF, etc.) to take action to fill in the legal, institutional, and infrastructure gaps.

As for the overall timeline, all preparation work for the operation of the CTX will be completed in 2024 as mentioned above, and the time from 2025-2027 is to perform a pilot operation. The pilot operation scale may be different depending on the availability of the data and the resources, and the willingness and readiness of the participants. It is recommended to start on a smaller scale to reduce cost and to allow flexibility in the system.

Based on the results of the pilot operation, the improvements needed in the legal, institutional, and infrastructure framework for CTX are to be identified and executed for the full operation of the carbon market in 2028.

The following figure describes the overall roadmap for the establishment and operation of the CTX in Viet Nam.

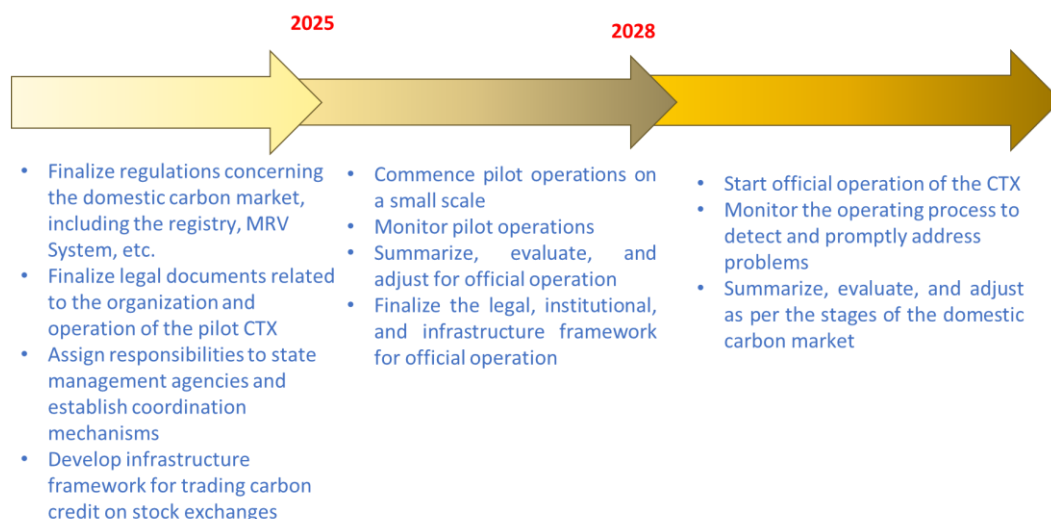


Figure 4: Roadmap for establishment and operation of the CTX

Source: Compiled by the Consultant (2023)

CONCLUSIONS

The CTX, as a centralized platform for handling transactions of allowances and carbon credits, is defined in LEP 2020 and is required to come into pilot operation from 2025. This is a challenging task for Viet Nam to accomplish within more than a year, given the fact that the legal, institutional framework and infrastructure for the domestic carbon market has not been fully developed. Under this Assignment, the Consultant reviewed international experiences and the national context of Viet Nam and assessed the legal, institutional, and infrastructure gaps for the establishment and operation of the CTX. Different options for addressing the identified gaps were proposed and consulted with relevant stakeholders and the recommendations were provided in this Report.

Overall, for a cost-effective and efficient approach, it is recommended that Viet Nam should make the best use of the existing infrastructure, manpower, and resources to establish the CTX rather than reinventing the wheel. However, different options have their own advantages and disadvantages. Relevant national authorities of Viet Nam (MONRE and MOF) should discuss and agree on the selected option that is most suitable for Viet Nam to move to the next steps. Then it is necessary to review, revise, and update the existing regulations accordingly to reflect the changes needed to operate the CTX as designed.

This Assignment is the first study on the establishment and operation of the CTX in Viet Nam. It provides an empirical base for the conceptualization of the CTX to ensure compatibility with the existing national context and be in line with international best practices. In the next phase, it is necessary to perform further assessment to identify a detailed design and specific model for the pilot operation of the CTX. The selected model for pilot operation should also be based on the careful review and assessment of potential social, economic, and environmental impacts. Other aspects that require deeper studies in the next phase include the feasibility of the application of advanced technologies (like blockchain) for the operation and management of the CTX, the monitoring, and oversight of trading on the CTX to ensure transparency and effectiveness, and the management of costs and revenues associated with the operation of the CTX.

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APPENDICES

Appendix 1: Final Workshop

1. Workshop organization

The aim of the Final Workshop was to present the outcomes of the Assignment, including: (i) recommendations for the establishment and operation of the CTX in Viet Nam; (ii) capacity need assessment for the carbon market master class for line ministries and other organizations involved in the establishment of Viet Nam's domestic carbon market. Another aim of the workshop was to discuss the next steps based on the outcomes of the Assignment.

The proposal for the Final Workshop was also submitted to MOF together with the Inception and Consultation Workshop proposals in September 2023. After approval from MOF and relevant ministerial agencies, the proposal was submitted to ETP in November 2023. Invitation letters issued by MOF were sent to stakeholders via post and email afterward. In parallel with the approval and invitation process, the Consultant developed workshop materials and proactively prepared for the logistics, such as attendance list, venue, and interpretation. The Final Workshop was organized on 21 December 2023 and attracted 57 offline participants and 51 online participants. The workshop minutes is presented in the following section.

2. Workshop minutes

a. Time: 14:00 – 17:00 (ICT), 21/12/2023

b. Location: Grand Vista Hotel, 146 Giang Vo St., Ba Dinh, Hanoi

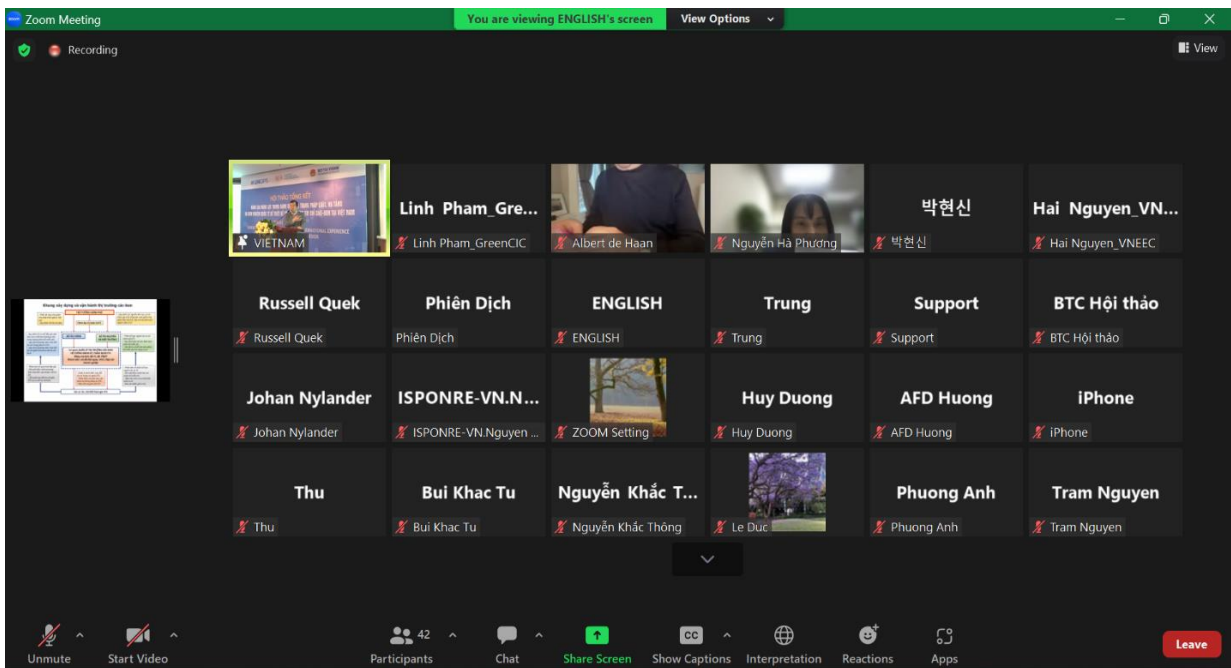
c. Participants: A list of workshop attendees is included in Appendix 3.

- Onsite participants: 57 (39 female, 18 male)
- Online participants: 51
- Honored participants:
 - To Nguyen Cam Anh, Deputy Director General of the Legal Department, MOF
 - Phillip Rose, Fund Director of ETP-UNOPS (online)
 - Do Manh Toan, Country Program Coordinator in Viet Nam, ETP-UNOPS
 - Luong Quang Huy, Head of Greenhouse gas emissions mitigation and Ozone layer protection Division, Department of Climate Change (DCC), MONRE
 - Nguyen Thi Hue, Deputy Director of the Securities Market Development Department, SSC
 - Pham Trung Minh, Member of The Board of Members, VSDC
- Important stakeholders include participants from ETP-UNOPS, MOF, MONRE, Ministry of Transport (MOT), Ministry of Industry and Trade (MOIT), Ministry of Planning and Investment (MPI), VCCI, international organizations, enterprises, financial institutions and banks, and other relevant stakeholders.
- Member of Consultant team:
 - EEI: Pham Phan Dung, Nguyen My Hoang

- GreenCIC: Nguyen Hong Loan, Pham Phuong Linh, Hoang Thuy An
- Carbon Rooster (online): Albert de Haan
- Ecoeye (online): Maureen Lee, Huynh Shin Park
- South Pole (online): Russel Quek Kai Zhi



Appendix Figure 1: Participants at the Final Workshop



Appendix Figure 2: Online participants of the Final Workshop

d. Agenda

Time	Activity	Presenter
13:30 – 14:00	Registration for workshop	The Consultant
14:00 – 14:15	Opening remarks	<ul style="list-style-type: none"> • Representative of MOF • Representative of ETP
14:15 – 14:45	Regulations on greenhouse gas emissions mitigation and carbon market development	Representative of the DCC, MONRE
14:45 – 15:30	Recommendations for the establishment and operation of the CTX in Viet Nam and implementation roadmap	Mr. Pham Phan Dung, EEI, the Consultant
15:30 – 15:45	Q&A Section	All participants
15:45 – 16:00	Photo session & Tea break	All participants
16:00 – 16:20	Capacity needs assessment for carbon market and establishment, operation of CTX	Ms. Nguyen Hong Loan – GreenCIC, the Consultant
16:20 – 16:50	Plenary discussion on the Assignment's outcomes and next steps	All participants
16:50 – 17:00	Wrap-up and closing remarks	<ul style="list-style-type: none"> • Representative of ETP • Representative of MOF

e. Contents

1. Opening remarks

Ms. To Nguyen Cam Anh, Deputy Director General of the Legal Department, MOF:

Ms. Cam Anh started her opening remark by warmly welcoming all participants to attend the workshop. She then provided an overview of the project activities, emphasizing the project's goals, as well as the objectives of the workshop to share the results of the "Assessment of Country's Readiness and International Experience for Carbon Trade Exchange Design " project. She stressed that this session would serve as an opportunity for the Legal Department to continue developing the CTX establishment and operation roadmap, as well as the need for capacity building and training in the CTX and the carbon market. The discussion also covers the ongoing and future topics that need further development and implementation.

Mr. Phillip Rose, the Fund Director of the Energy Transition Partnership: He extended a warm welcome to participants gathered for the final workshop of the project "Assessment of Country's Readiness and International Experience for Carbon Trade Exchange Design." He also expressed his appreciation for the support and collaboration from the Legal Department of MOF.

He emphasized that the project "Assessment of Country's Readiness and International Experience in Carbon Trade Exchange Design" is one of the ETP's activities in Viet Nam to support the development of the Viet Nam carbon market according to the government's agenda. With MOF, this technical assistance is expected to open up a long-term cooperation between UNOPS/ETP and the ministry until 2028, in which, ETP will support the ministry in analyzing international experience, country's contexts, and gaps, recommending appropriate policy and technical solutions and providing impact assessment for the potential policy, serving as the basis for the ministry's decision on how the carbon market and its management should be designed and implemented. The success of the cooperation will contribute to Viet Nam's net-zero by 2050 ambition and the country's commitment when joining the Paris Agreement to reduce GHG emissions by 15.8% unconditionally and 43.5% conditionally by 2030.

2. Presentations

Presentation slides and related information about the workshop can be found at the link [CTX Final Workshop – Google Drive](#).

Mr. Luong Quang Huy, Director of Division of GHG Emission Reduction and Ozone Layer Protection, DCC, MONRE: Regulations on greenhouse gas emissions mitigation and carbon market development

The presentation focused on 5 main points:

- Viet Nam's commitments on climate change
- Law on Environmental Protection 2020
- Decree No.06/2022/ND-CP of the Government on greenhouse gas emission mitigation and ozone layer protection
- Decision No.01/2022/QD-TTg of the Prime Minister on the list of sectors, and facilities subject to greenhouse gas inventory
- Regulation on organizing and developing the carbon market

Mr. Pham Phan Dung – EEI: Recommendations for the establishment and operation of the CTX in Viet Nam and implementation roadmap

The presentation focused on the main points:

- Key elements of the carbon market
- Key activities and findings
- Different options for the establishment and operation of the carbon trade exchange in Viet Nam
- Gap analysis and recommendations for the establishment and operation of the carbon trade exchange in Viet Nam
- Implementation roadmap

Ms. Nguyen Hong Loan – GreenCIC: Capacity needs assessment for the carbon market and establishment and operation of CTX

The presentation focused on the 4 main points:

- Updates on Project progress
- Capacity needs assessment on carbon market and CTX
 - Approaches and methodologies
 - Key findings
- Plan for a carbon market master class for government officials to learn and exchange governance knowledge and experience of CTX.
- Conclusions

3. Discussion and Q&A

Question/comment	Initial response from the Consultant team
When will MONRE complete regulations for the carbon market?	@Luong Quang Huy, DCC: We are currently working on proposing amendments to Decree 06. We expect to issue the revised version in 2024, providing more detailed regulations on the scope of the carbon market. From there, specific guidance documents will be issued.
How are entities engaged to participate in the carbon market?	@Luong Quang Huy, DCC: Through legal capacity-building programs, entities ardently endorse engagement in the carbon market, recognizing its positive influence on their reputation. Every business must incorporate Environmental, Social, and Governance (ESG) principles into their reports, establishing a connection to the carbon market, and thereby potentially augmenting their standing. While their comprehension of the carbon market might not be comprehensive, they acknowledge the potential benefits of participating in it.
Currently, there are two allowances allocation systems: (i) Allocating	@Luong Quang Huy, DCC: If they have unused allowances, they can potentially

allowances to enterprises under Decision 01/2022/QD-TTg; and (ii) Allocating allowances to enterprises within the scope of ETS. If an enterprise falls outside the allowance allocation framework within the ETS scope, what benefits do they receive?	trade the surplus allowances on the carbon market.
Are there any regulations governing the conversion of waste collection and recycling activities, especially regarding plastics, into carbon credits?	@Luong Quang Huy, DCC: Circular No. 17/2022/TT-BTNMT might provide further information.
How to avoid carbon credit duplication in the international carbon market?	@Luong Quang Huy, DCC: The Department of Climate Change issues carbon credit certificates through voluntary mechanisms. Projects seeking participation in these mechanisms must undergo appraisal based on their respective methodologies. Once the credits have been utilized for NDC purposes, they will be cancelled.
What is the role of commercial banks in this market? Can they be an investor?	@Consultant: Banks can have two roles in the carbon market: (i) Banks can finance project developers. (ii) Banks are intermediaries in the carbon credit trading

4. Closing remarks

Mr. Do Manh Toan – Country Program Coordinator of ETP: The workshop gathered valuable insights, providing a comprehensive overview of the roadmap for designing the CTX. We appreciate everyone's participation and contributions. Numerous activities need to be executed within a short timeframe, and it's crucial to have collaborative support to accomplish them. We suggest that MOF engages in discussions with relevant parties to select suitable options to establish CTX. ETP will continue discussions with stakeholders to further develop technical support and hopes to continue cooperating with MOF.

Ms. To Nguyen Cam Anh – Deputy Director General of the Legal Department, MOF: We deeply appreciate the active participation of all participants. Utilizing these findings to develop the CTX and financial policies is essential. The collaboration of related

stakeholders is highly significant, and we hope for their continuous support. We thank UNOPS - ETP and look forward to ongoing collaboration in future activities.

3. Workshop attendance registration list

Appendix Table 1: Final Workshop attendance list

No	Attendee Name	Gender	Organisation Name	Position/Role in Organisation
1	Do Manh Toan	Male	ETP	Country Program Coordinator
2	To Nguyen Cam Anh	Female	Legal Department, MOF	Deputy Director General
3	Tran Hong Nhung	Female	Legal Department, MOF	Officer
4	Do Thanh Lam	Male	Legal Department, MOF	Officer
5	Vu Thanh Huyen	Female	Legal Department, MOF	Officer
6	Dang Thi Thuy	Female	Legal Department, MOF	
7	Nguyen Thi Hue	Female	State Securities Commission, MOF	Deputy Director, Market Development Department
8	Ta Thanh Cong	Male	State Securities Commission, MOF	Officer
9	Pham Trung Minh	Male	Viet Nam Securities Depository and Clearing Corporation	Member of the Board Member
10	Luu Trung Dung	Male	Viet Nam Securities Depository and Clearing Corporation	Head of Department of Research, Development and International Cooperation
11	Nguyen Thien Huong	Female	National Institute for Finance	Researcher
12	Truong Thi Thanh Huong	Female	Vietnam Exchange	Deputy Head of Development Strategy Department
13	Pham Thuy Nga	Female	General Department of Taxation	Head of Department
14	Luong Quang Huy	Male	Division of GHG Emission Reduction and Ozone Layer Protection, DCC, MONRE	
15	Pham Nam Hung	Male	Department of Climate Change	Officer
16	Dao Minh Trang	Female	The Viet Nam Institute of Meteorology, Hydrology and Climate Change (IMHEN)	Researcher
17	Nguyen Thi Thu Trang	Female	Ministry of Foreign Affairs	Officer
18	Ly Quynh Anh	Female	Institute of Development Strategy, Ministry of Planning and Investment	Officer

19	Vu Thanh Thao	Female	Institute of Development Strategy, Ministry of Planning and Investment	Officer
20	Luu Linh Huong	Female	Department of Science, Technology and Environment, Ministry of Construction	Specialist
21	Dang Ngoc Thuan	Male	Ministry of Public Security	
22	Nguyen Tien Huy	Male	Office for Business Sustainable Development	Director
23	Nguyen Thi My Hoang	Female	EEl	Executive Vice Director
24	Pham Phan Dung	Male	EEl	Leader of the Consultant
25	Nguyen Hong Loan	Female	GreenCIC	
26	Pham Phuong Linh	Female	GreenCIC	
27	Hoang Thuy An	Female	GreenCIC	
28	Pham Thuy Linh	Female	GreenCIC	
29	Pham Thi Ngoc Anh	Female	BIDV	
30	Do Kim Thanh	Female	BIDV	Head of Derivative Product Management and Development Department
31	Pham Thanh Tung	Male	BIDV	Deputy Head of Financial Institutions
32	Mai Thanh Nghi	Male	BIDV	Officer of Financial Institutions
33	Truong Dinh Hung	Male	BIDV	Officer of Financial Institutions
34	Nguyen Van Nga	Female	Vietcombank	Customer relationship management, Financial Institutions
35	Truong Dieu Linh	Female	Vietcombank	Director of Financial Institutions
36	Nguyen Thi Hai Yen	Female	Agribank	Officer of Financial Institutions
37	Tran Van Anh	Female	Agribank	Head of Policy Committee
38	Nguyen Thi Thanh Huong	Female	Agribank	
39	Tran Minh Hoang	Male	VPBank	Sustainable finance expert
40	Nguyen Thi Thanh Hang	Female	VP Bank	
41	Nguyen Duy Don	Male	TP Bank	Officer
42	Nguyen Thi Hang	Female	VietinBank	ESG & Sustainable Finance Specialist
43	Pham Thi Thu Hang	Female	Standard Chartered Bank	
44	Pham Thi Ha	Female	Australian Embassy	
45	Tom Thornley	Male	British Embassy Hanoi	First Secretary, Climate and Nature

46	Nguyen Thi Minh Tam	Female	Expertise France	
47	Dang Hong Hanh	Female	VNEEC	Co-founder & Director
48	Pham Duc Dat	Male	VNEEC	Project Assistant
49	Duong Anh Dung	Male	PoA Carbon	Manager
50	Bui Phuong Anh	Female	PoA Carbon	Project Assistant
51	Dang Tra My	Female	PoA Carbon	Project Assistant
52	Ha Nhat Linh	Female	BowerGroupAsia Company	
53	Nguyen Tuan Minh	Female	VietCycle Company	
54	Luu Ngoc Chau	Female	VietCycle Company	Officer
55	Nguyen Thi Hai Yen	Female	Energy Company	
56	Nguyen Thi Quyen	Female		Interpreter
57	Bui Nguyet Anh	Female		Interpreter

Appendix 2: Stakeholder engagement and consultation

Based on the gap analysis and identification of different options to address the gaps, the Consultant held consultation meetings with 06 relevant institutions, including MOF, MONRE, VSDC, SSC, HNX, and HOSE from 27-29 November 2023, and a wide stakeholder consultation workshop was organized on 30 November 2023 to consult the stakeholders about the recommended option for establishment of the CTX in Viet Nam.

In terms of the legal framework, the key concerns from the stakeholders include: i) the Law on Securities has no provisions related to the carbon market; ii) LEP 2020 and Decree No. 06/2022/ND-CP currently lack details about the scope of the carbon market, the creation, and management of commodities traded in the carbon market, i.e. emission allowances and carbon credits.

In terms of institutional arrangements, the fact that Decree No. 06/2022/ND-CP assigns MOF to develop and establish the CTX while MONRE to organize the pilot and official operation of the CTX creates complexity in choosing a suitable conceptual model for the establishment of the CTX. Therefore, in the Consultation Mission, two options for the establishment of the CTX in Viet Nam were presented to the stakeholders: (1) Establish the CTX based on the existing securities exchange, and MONRE will hire the services of the securities system, and (2) Develop a brand-new CTX independent from the stock exchange system which will be operated and managed by the MONRE.

According to the discussion with the key stakeholders, there was a broad consensus among stakeholders that option 1 was preferred because it saves time for preparation (to establish the CTX and pilot from 2025) and can make use of the existing experiences and infrastructure of the securities system. VSDC, HNX, and HOSE shared in the consultation meetings that they have adequate experience, resources, and technical capacities to develop the technology system for the CTX.

In terms of infrastructure, the biggest concern was that there is no national registry for allowances and carbon credits in Viet Nam, which is crucial to create the commodities to trade in the carbon market. DCC shared that the registry is under development and shall be ready by September 2024.

To fill in the identified gaps, the recommendations from the stakeholder consultation were:

- On the legal aspect: it was recommended not to revise the Law(s) because this would take a lot of time and would not ensure the timeline to establish and pilot the CTX from 2025. Therefore, only under-law regulations should be revised. Decree No. 06/2022/ND-CP would be revised to provide further details about the CTX and the roles and responsibilities of involved institutions, including MONRE and MOF, and the use of the securities exchange for the CTX.

- On the institutional aspect: MONRE should clearly define the scope of the services of the securities exchange that will be used for the CTX. Then it would be necessary to revise the relevant Prime Minister's decisions and/or Government's decrees to add provisions relating to the roles and responsibilities of VSDC and stock exchanges in the carbon market.
- On the infrastructure aspect: the national registry system for allowances and carbon credits should be developed and be compatible with the depository system operated by VSDC to ensure effective operation. Once assigned, the exchange in charge of operating the CTX would develop relevant infrastructure for the CTX.

Overall, the stakeholders stressed the importance of close collaboration between MOF and MONRE to discuss and decide on the basic elements of the CTX model and clearly define the roles and responsibilities of relevant agencies and organizations before moving on to the next steps, including completing the legal framework, institutional arrangements and developing the infrastructure system.

Appendix 3: Plan for a carbon market master class

For the development of the carbon market master class, a capacity need assessment survey was conducted on relevant institutions that are involved in the development of the domestic carbon market and the CTX in Viet Nam to identify the knowledge gaps and format preferences for the organization of the plan for a carbon market master class. Based on the results of the capacity need assessment, the design of a carbon market master class for government officials was developed with details of participants, contents, location, duration, expected achievement, and estimated costs.

1. Questionnaire survey

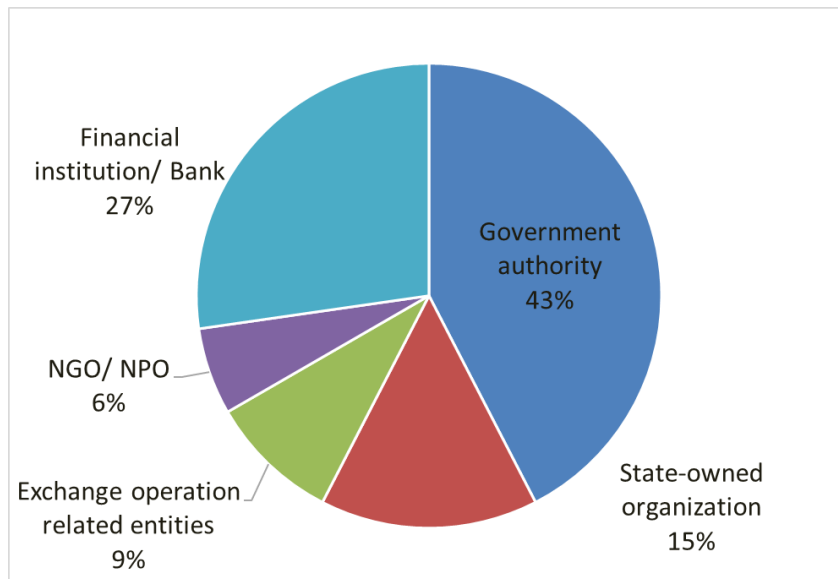
Based on the stakeholders mapping and the recommendations for the establishment and operation of the CTX in previous tasks, the Consultant identified potential institutions and organizations to participate in the capacity need survey. These include government agencies and relevant organizations/ institutions that will be responsible for the design as well as administration, monitoring, and supervision of the CTX.

A questionnaire was developed to identify the knowledge gaps and format preferences for the organization of the plan for a carbon market master class, which includes the following questions:

1. What are the current roles and responsibilities of the institution?
2. What are their expected roles and responsibilities in relation to the establishment and operation of the CTX?
3. What is their current knowledge?
4. What do they expect to learn more to effectively prepare for their future role?
5. What is the desired format for the organization of the master class?

The questionnaires were distributed via post and email on the 7th and 8th November. Via post, the questionnaires were sent to 53 agencies and organizations. Via email, the questionnaires were sent to 74 representatives.

As of 17 November 2023, 33 representatives from 23 agencies and organizations in both the public and private sector responded to the survey. The figure below presents the type of organizations participating in the questionnaire survey.



Appendix Figure 3: Type of organizations participating in the survey

2. Findings

Based on the survey results, the following findings were identified:

First, the Governmental officials participating in the survey are aware of their roles in the future domestic carbon market in Viet Nam and interested in participating in capacity-building activities.

Second, a majority of the Governmental officials participating in the survey have undertaken general knowledge about the carbon market and CTX. Therefore, they need advanced training in detailed knowledge for the actual design and operation of the domestic carbon market in Viet Nam. The topics as ranked from the decreasing level of interest, include: i) carbon trade exchange; ii) allowance auction; iii) emission trading registry; iv) impact assessment and performance review; v) cap setting and allocation of allowances; vi) MRV; vii) Stakeholder engagement; and viii) GHG inventory.

Third, to gain detailed knowledge and experience and ensure wide coverage, it is necessary to select different country- models for the training. Korea is the country of the most interest, followed by the UK, California, New Zealand, EU, China, Japan, and Southeast Asia.

Fourth, legal and institutional aspects are considered more important for Government officials since they are public institutions and are tasked with legal development and State management functions. Practical operation and technical design are also expected to be covered in the training, with less intensity.

Lastly, the capacity-building activities should be conducted in hybrid mode and should last from 1-2 weeks. The training can be intermittently organized to allow Governmental officials to perform other duties.

3. Plan for a carbon market master class

Based on the findings of the capacity need assessment, the Consultant proposed that the training contents of the carbon market master class will include three parts: i) Prep session (introductory and general theoretical knowledge); ii) Main session (deep dive into international practical experience) and iii) Wrap-up session. The main session will deep dive into international experience and be organized in the form of study tours to different countries that are currently operating ETS and CTX. A general program was developed while the detailed programs were provided for four master courses in the United Kingdom, California, New Zealand, and Korea. These are the top 4 countries voted by participants and are considered to provide the most successful and relevant case studies for Viet Nam, based on the analysis of the previous tasks. Depending on the sessions, the organization of each session will range from a half-day to a week-long course, covering both general knowledge and advanced training with practical experience.

Appendix Table 2: General design of the carbon market master class

	Prep session	Main session (Deep dive into experiences of existing ETSs with operating CTX)	Wrap-up session
Form	Hybrid	Offline	Offline
Duration	1 – 2 week(s)	1 -2 weeks for each system	1/2 day after each course
Mode	Intermittent	Intensive	Intensive

A) Prep session

Prep session, or general knowledge capacity building, aims to understand the current knowledge of the participants and their targets through the learning process. More importantly, it also aims to ensure the same level of knowledge among participants.

The prep session can be organized both online and offline. Depending on the results of the initial knowledge survey at the beginning of the session, the contents of the general knowledge training, as well as the number of topics covered, can be adjusted.

Overall, this prep session is proposed to cover 2 – 4 topics per week in 1 – 2 weeks. Each learning period will last for 2 – 3 hours and cover 2 – 3 topics. This design allows flexibility for the participants while ensuring the quality of the class, thus, it will be able to target a wider range of stakeholders.

The prep sessions will cover the following topics at a basic level:

- 1) General assessment of the knowledge of participants

- 2) Understanding participants' objectives
- 3) Introductory: Climate Policy Toolbox – Theory and Practice
- 4) Introductory: The fundamentals of cap and trade (ETS)
- 5) Introductory: The fundamentals of the crediting mechanism
- 6) Registry, Monitoring, Reporting and Verification
- 7) Allocation of allowances: Options, Implication and Experience
- 8) Market operation, oversight, revenue use and linking
- 9) Stakeholder engagement
- 10) Impact assessment, review, and improvement

B) Main session – Deep dive into experiences of existing ETSs with operating CTX

After the prep session, the participants should have the same level of knowledge of the carbon market and the CTX. With a solid foundation of the carbon market and the CTX, key officials from relevant governmental agencies and organizations will be ready for advanced training where they can learn more about detailed and practical implementation aspects and experiences of countries that have successfully launched their ETSs and CTXs.

The objectives of the main session are to understand the design of ETS in different contexts through deep-dive into case studies and learn lessons from practical operations of ETS in different contexts through deep-dive into case studies.

The main session will be designed in the form of study tours to different countries, each course for a duration of one or two weeks (traveling time not included). Each study tour will comprise different meetings and events that cover country-specific ETS's key systems and design elements, governance and implementation experiences, and lessons learned. The hosts for the meetings will include governmental agencies and organizations responsible for the ETS, research institutions, and other organizations and companies in the field.

The general agenda for the main course in the country(ies) selected for the study tour is recommended as follows:

[Appendix Table 3: Proposed general training agenda in each country selected for the study tour](#)

Day	Time	Contents
Day 1	Morning (AM)	<p><i>Pre-course introduction:</i></p> <ul style="list-style-type: none"> • Opening remarks • Introduction of the group • Structure of the course <p><i>Stakeholder Engagement process</i></p> <ul style="list-style-type: none"> • Importance of active stakeholder engagement for ETS design and acceptance

		<ul style="list-style-type: none"> • Outreach strategies and options for stakeholder involvement • Experiences with stakeholder engagement in the ETS of the selected country
	Afternoon (PM)	<p>Introduction to the ETS</p> <ul style="list-style-type: none"> • Development history and implementation of the ETS • Key design elements • Experiences and lessons learned
Day 2	AM	<p>The ETS authorities</p> <ul style="list-style-type: none"> • Institutional arrangements and responsibilities • Governance and practical implementation • Experiences and lessons learned
	PM	<p>The ETS registry</p> <ul style="list-style-type: none"> • Design and functionality (processes, transactions, data, accounts, and linkage, etc. in the registries) • Technical implementation and management of the registries • Experiences and lessons learned
Day 3	AM	<p>GHG inventory</p> <ul style="list-style-type: none"> • Availability and quality of GHG emissions data and measures to obtain new or additional data • Management of data, ensuring reliability and transparency of data • Research and analysis for cap setting and allocation strategies • Experiences and lessons learned <p>Cap setting and allocation</p> <ul style="list-style-type: none"> • Allocation choices and flexibility mechanisms for compliance (banking, borrowing, and offsetting, etc.) • Approach to cap setting • Changes in allocations over the phases, experiences, and lessons learned
	PM	<p>Monitoring, Reporting and Verification (MRV)</p> <ul style="list-style-type: none"> • Defining MRV and understanding its importance • Challenges in ensuring accurate MRV, particularly administrative capacity constraints • Involvement of third parties • Lessons learned
Day 4	AM	<p>Allocation of Allowances</p> <ul style="list-style-type: none"> • Allocation choices: free allocation, free allocation with consignment, and auction • Advantages and disadvantages of different allocation methods • Dealing with new entrants, closures • Lesson learned <p>Auctions and Auction Design</p>

		<ul style="list-style-type: none"> • Types of auctions, advantages, and disadvantages of different methods • Technical implementation and lessons learned • Use of auction revenue and lessons learned
	PM	<p><i>Carbon Trade Exchange, depository, and settlement</i></p> <ul style="list-style-type: none"> • CTX establishment and operation • Transactions, products, and terms of participation • Depository and settlement mechanisms • Market stability measures, e.g. floor price • Challenges and lessons learned • Linking with other carbon markets
Day 5	AM	<p><i>Financial management mechanisms:</i></p> <ul style="list-style-type: none"> • Price Determination Mechanisms • Risk Management
	PM	<p><i>Impact Assessment and Performance Review</i></p> <ul style="list-style-type: none"> • Why accurate information on ETS impacts and performance matters • Predicting the costs and benefits of an ETS: different approaches and their advantages/disadvantages • Measuring the performance of an ETS: methods, requirements, advantages and disadvantages • Experiences and lessons learned

C) Wrap-up session

After the organization of each course in the selected system, a wrap-up session will be held. The objectives of the session are to learn feedback from participants about the course and to identify improvements for future capacity-building activities. The session will last half a day with the following activities:

- General assessment of the knowledge of participants after the master course;
- Feedback from participants on the achievement of their objectives;
- Feedback from participants on the overall organization of the course;
- Identify improvements and topics for future capacity-building activities.

Participants will be able to see their improvement through a comparison of the assessment results before and after attending the master class. Also, based on the feedback of the participants, the gaps in the content and organization of the current master class, as well as the need for additional training will be identified and addressed in future capacity-building activities.