The Rice Paper: Adaptation Finance acceleration for Agriculture under the mechanism of Food Security and Food Sovereignty strategy

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Abstract

The potential risks posed by food insecurity significantly threaten peace and stability which necessitates mobilizing sustainable finance to strengthen food security through financial mechanisms like **Share of Proceeds from Food Commodity Trading**, **Adaptation Finance for Climate Resilience**, **Parametric Insurance (Weather Index Insurance)**, **Public-Private Partnerships (PPP)**, and **Disaster Recovery Bonds**. Integrating the national reserve system into a broader financing strategy can help secure funds needed to enhance food sovereignty, boost sustainable production, and maintain affordability for vulnerable communities. Furthermore, this paper proposes a framework that use adaptation finance to support technological advancements in agriculture, thereby improving data and benchmarking capabilities to reduce Vietnam's need to reduce dependency on external technology sources and build local capacity for satellite monitoring and climate resilience. The proposed mechanisms recognize the existing challenges in mobilizing financial resources for the national reserve system's growth and outline a proactive approach to commodify adaptation finance strategies to mitigate the economic impacts of climate-induced disruptions. This includes creating a dedicated fund using proceeds from key agricultural exports to finance climate adaptation initiatives, investing in resilience-building technologies, and incentivizing private sector participation through public-private partnerships. The ultimate goal is to reduce carbon emissions, generate carbon credits, and support Vietnam's green transition, contributing to the long-term resilience and stability of Vietnam's food sovereignty and global food security.

Context / Preface

Objective

To design an integrated adaptation finance mechanism that combines **Share of Proceeds from Food Commodity Trading**, **Adaptation Finance for Climate Resilience**, **Parametric Insurance (Weather Index Insurance)**, **Public-Private Partnerships (PPP)**, and **Disaster Recovery Bonds** to strengthen food security and food sovereignty in Vietnam and its trading partners. We also present a stimulation for the projected gains from mechanisms above to establish a **baseline fund value** that can be readapted and readjusted over time. The proposed mechanism aims to enhance **national food reserves** while building **resilience to climate-related disruptions**, ensuring **sustainable** and **equitable solutions** to address the growing risks posed by climate change. This approach will enable countries to meet their own food security needs while supporting others in times of crisis, contributing to **global resilience** with **food affordability** and **accessibility for all**. The ultimate goal is to reduce carbon emissions through encouraging sustainable agricultural practices and leveraging carbon credit generation to further incentivize environmentally friendly initiatives, paving the way towards lower carbon footprint across the agricultural sector.

Definitions

Concept	Defining Body	Definition
Natural disaster - Thiên tai	UNSD, 2008	• a situation or event, which overwhelms local capacity, necessitating a request to the national or international level for external assistance. • an unforeseen and often sudden event that causes great damage, destruction and human suffering.
	Regulation on Natural Disaster Prevention and Control No. 33/2013/QH13	Natural disasters are **abnormal natural phenomena** that can cause damage to **people, property, the environment, living conditions, and socio-economic activities**, including: storms, tropical depressions, whirlwinds, lightning, heavy rain, floods, flash floods, inundation, landslides due to rain or runoff, land subsidence due to rain or runoff, storm surge, saltwater intrusion, heatwaves, droughts, severe cold, hail, frost, earthquakes, tsunamis, and other types of natural disasters.
Natural disaster risk - Rủi ro thiên tai		The potential damage that natural disasters can cause to people, property, the environment, living conditions, and socio-economic activities.
Natural disaster prevention and control - Phòng, chống thiên tai		Systematic process that includes activities for prevention, response, and recovery from the consequences of natural disasters.
Adaptation finance	World Resources Institute	Finance for actions that help communities reduce the risks they face and harm they might suffer from climate hazards like storms or droughts.
Adaptation - Thích ứng	UNFCCC	Adjustments in ecological, social or economic systems in response to actual or expected climatic stimuli and their effects.
	Article 90 of the Law on Environmental Protection 2020	Activities aimed at enhancing the resilience of natural and social systems, minimizing the negative impacts of climate change, and taking advantage of the opportunities that climate change presents.

Integration of international finance in international climate mechanisms:

Paris Agreement	Article 6 of the Paris Agreement p.7 Under Article 6.4 of the Paris Agreement, a share of proceeds is collected from carbon credit transactions to support adaptation efforts in vulnerable developing countries. For example:

	1. **Funding for Adaptation**: A fixed percentage of the revenue from carbon credit sales is contributed to the Adaptation Fund, which finances adaptation projects and programs in developing countries that are particularly vulnerable to the adverse effects of climate change. 2. **Administrative Costs**: The share of proceeds may also cover administrative expenses to ensure the efficient operation of carbon markets and the implementation of related mechanisms.
SDGs	• SDG 2: Zero Hunger • SDG 12: Responsible Consumption and Production • SDG 13: Climate Action • SDG 17: Partnerships for the Goals
National NDC	**Emission Reduction Targets for the Agriculture Sector (p. 10, Table 3)**: • **Unconditional Contribution**: The agriculture sector aims to reduce **12.4 MtCO2eq** by 2030, which is equivalent to a **1.3% reduction** compared to the Business-As-Usual (BAU) scenario. This reduction is projected to require a financial investment of **USD 2,122.8 million**. • **Conditional Contribution**: With international support, the agriculture sector targets a reduction of **50.9 MtCO2eq**, equivalent to a **5.5% reduction** compared to BAU. This reduction would need an estimated investment of **USD 16,102.2 million**. **(BAU Scenario Emissions for Agriculture Sector (p. 6, Table 1)**: • **2014**: Emissions were **89.8 MtCO2eq**. • **2020**: Emissions were projected to increase to **104.5 MtCO2eq**. • **2025**: Emissions were projected to reach **109.2 MtCO2eq**. • **2030**: Emissions are expected to rise to **112.1 MtCO2eq** under the BAU scenario.

1. Food crises and national impact

Food security and political stability are deeply connected, with food insecurity often serving as a catalyst for civil unrest and prolonged conflicts. As illustrated in the context of various countries, regions with high levels of food insecurity, particularly those experiencing protracted crises, are almost three times more likely to face instability and conflict compared to other developing nations. For example, countries with a significant proportion of undernourished people are **40% more likely** to relapse into conflict within a decade. The impact of food insecurity on political stability becomes even more pronounced during times of extreme price hikes, as seen during the Arab Spring. Consequently, ensuring food security is a matter of addressing hunger and a strategic investment in peace and stability.

1.1 the Arab spring: when rising food prices spark conflict

The Arab Spring which resulted in **thousands of deaths and billions of dollars lost** was mainly driven by **significant rises in food prices**, particularly the cost of flour and other staples. By 2010, global food prices had surged, affecting many countries in the **Middle East** and **North Africa** where bread, made from wheat flour, is a critical staple food. The price of wheat nearly doubled in the months leading up to the uprisings due to poor harvests, droughts, and speculation in global markets.

In Tunisia, for example, rising flour prices directly impacted food affordability, contributing to widespread unrest. Similarly, in Egypt, the high cost of flour and bread played a central role in fueling discontent against the Mubarak regime.

- Death casualties: ~61,000 but the exact number varies due to the size of the affected regions and differences in data collection
- Finance casualties: 100 billion dollars + 600 billions dollars in growth loss = 700 billions
- Main involved countries' population: Tunisia 12.36 + Syria 22.13 + Libya 6.812 + Egypt 111 = 152.302 millions
    - Externality loss: **~4,600 USD per capita** of potential growth loss.
- Implications of Arab spring on food security and political stability

Extreme weather events & food production decline	• Between 2010 and 2011, extreme weather events, such as **droughts in Russia and China**, drastically reduced global cereal production. • **Cereal production** in Egypt fell from **22.8 million tonnes** in 2009 to **19.5 million tonnes** in 2010, due to weather

	disruptions. Similarly, **Syria's cereal production** dropped from **4.7 million tonnes** in 2009 to **3.2 million tonnes** in 2010.
Effects of increased food prices:	• Global food prices soared by **40%** by late 2010, largely due to extreme weather affecting global supply. This spike in prices put immense pressure on countries like Egypt, where the government relied heavily on food imports. • Egypt, Syria, and Morocco had populations where **40-50%** of household incomes were spent on food, making these countries particularly vulnerable to food price increases.
Food Insecurity as a Catalyst for Unrest:	• In Egypt, food inflation reached **18.9%** between January 2010 and January 2011, significantly reducing the purchasing power of families, especially the poorest, who were already spending more than half of their income on food. • Rising bread prices in Egypt, where **45-55% of wheat** was imported, contributed to widespread protests that culminated in the deposition of President Mubarak.

Source: Soffiantini, 2020

1.2 Vietnam's COVID-19 rice export ban: balancing domestic and global needs

- 25 March 2020 until the end of May 2020: Vietnam has **temporarily suspended rice exports** for the government to assess domestic supplies during the COVID-19 pandemic.

1.2.1 Countries impacted

- 42 countries were affected (Global Trade Alert).

1.2.2 Impact on global markets

Overall impact on global food security	• Vietnam supplies about **15% of the world's rice exports**, and the decision to halt exports led to global supply chain disruptions, causing a sharp increase in international rice prices. • This had a profound impact on rice-importing countries like the Philippines and African nations, which rely heavily on Vietnamese rice.
Surge in global rice prices	• Following the export ban, international rice prices surged by **23-25%**, adding significant pressure on countries that depend on Vietnamese rice to meet their food security needs. • The price hikes were especially problematic for low-income countries, as rice is a staple food in many of these regions. African nations, such as **Côte d'Ivoire** and **Angola**, witnessed a **15-20%** increase in rice prices during the ban period.
Financial and agricultural risks implied	• The financial impact of the ban was also felt domestically, as Vietnamese rice farmers and exporters experienced revenue losses during the export ban. While the ban helped stabilize Vietnam's domestic supply, farmers were deprived of lucrative opportunities in international markets where demand was soaring.

Source: Valera et. Al, 2024

1.3 Yagi Typhoon

- **200 tons of rice** from national reserves were released to support localities affected by Typhoon No. 3.
- **100 tons** were allocated to the Ministry of Defense (General Department of Logistics).
- **100 tons** were allocated to the Ministry of Public Security (Cục Trang bị và Kho vận - H03).
- Rice was dispatched from the **Từ Liêm Reserve Warehouse** in Hanoi.
- The rice was transported by the Ministry's vehicles to the affected areas, following the Prime Minister's directive (Telegraph No. 90/CĐ-TTg).
- The distribution was coordinated and completed by **September 12, 2024**.
- The Ministry of Defense coordinated with the General Department of State Reserves to manage the **quality control** of the rice and ensure timely delivery.
- The process was regulated under **Circular No. 51/2020/TT-BTC**, ensuring compliance with the national guidelines for reserve distribution.
- The operation included **24/7 monitoring** by the DTNN to manage disaster response and minimize damage from the typhoon.

Source: Chinh Phu, 2024

2. Vietnam's Strategic Position in Global Food Security

2.1 Overview

- Vietnam is the world's **third-largest rice exporter** and continues to increase her export amount. (Statista, 2024)
    - In the first seven months of 2024, Vietnam exported **5.18 million tons** of rice, **earning $3.27 billion**, marking a 5.8% increase in volume and a 25.1% increase in value compared to the same period in 2023. (Communist Party of Vietnam, 2024)
- Vietnam's **agricultural export turnover** in 2024 will likely reach $**54-55 billion.**
- There are 7 exports with respective revenues exceeding 1 billion USD which are coffee, rubber, rice, fruit and vegetables, cashew nuts, shrimp, and timber (Nhan Dan Online, 2024) but for this research paper, we focus on 6 exports that is **coffee, rubber, rice, cashew nuts, fisheries/seafood, and salt:**

Export Type	Top Trading Partners	Value (2023)	Carbon Emissions	Remarks
Coffee	Germany ($332.07M), Italy ($262.12M), Japan ($236.45M), United States ($218.92M) Source: Statista, 2024	$4.18bn	0.37 metric tons of CO2e per metric ton 583,860tons CO_2e (26.3 million 60-kilogram Statista 2023)	Value of coffee exports from Vietnam in the first nine months of 2023, by country of destination
Rubber	China ($329M), India ($213M), South Korea ($76.2M), Taipei ($68.7M), Turkey ($67.8M)	$2.89bn	0.6 tons of CO2e per metric ton 1.3 million metric tons 780,000 tons CO_2e	Highlighted are the fastest growing markets
Rice	Philippines ($1.38B), China ($429M), Cote d'Ivoire ($333M), Ghana ($230M), Malaysia ($197M)	$4.67bn	44 million metric tons of CO_2e*	Vietnam's rice export volume reached 4.68 million tonnes (up 10.4%), generating 2.98 billion USD (up 32%)
Cashew Nuts	United States ($972.36M), China ($476.92M), Netherlands ($347.35M), Germany ($130.81M), United Kingdom($110.65M) Source: World Bank, 2019	$3.60bn	36.74 kg CO_2e/kg 343.3 thousand metric tons 12,612,682 metric tons	Up 24.9% in volume and 17.4% in value
Fisheries	EU ($652M - First 8 months of 2023), China ($4.873bn - First 10 months of 2023), US ($188.13M October 2023),	$8.97bn	3.9 million tons 9.7 kg CO_2e/kg	

	South Korea: $451.4 million USD (October 2023) Source: Thuy San Viet Nam, 2024		37,830,000 metric tons of CO_2e	
Salt	United States ($912k), Canada ($754k), Japan ($706k), South Korea ($497k), and Kuwait ($240k)	$3.84M	0.06 kg CO_2e/kg 648,700 metric tons 38,922 metric tons of CO_2e	

- Vietnam export values by countries:
  - Exports to **Asia** amounted to $**13.9 billion**, growing by **17.8%**.
  - Exports to the **Americas** reached $**6.6 billion**, an increase of **20%**.
  - Exports to **Europe** were $**3.7 billion**, rising by **32.8%**.
  - Exports to **Africa** reached $**565 million,** an increase of **17.1%**.
  - Exports to **Oceania** reached $**405 million,** grew by **18.2%**.
- **The US (20.7%), China (20.2%) and Japan (6.7%)** remained the 3 largest markets for Vietnamese agricultural exports. (Quoc Phong Thu Do, 2022)
- International organizations (UN, FAO, etc.) recognize Vietnam's importance, particularly in providing grain alternatives like rice to regions affected by the Russia-Ukraine conflict, such as Africa. (Quoc Phong Thu Do, 2022)
- **The Mekong Delta** is critical to both domestic and global food security due to its role as the largest rice-producing region in Vietnam, contributing approximately **50% of Vietnam's rice production** and accounting for **90% of its rice exports**. (Tran Trong Phuong et al. 2024)
- The region is a global food hub, and disruptions—due to climate change, salinity intrusion, or flooding—pose a serious threat to global food markets, especially in countries reliant on Vietnam's rice exports like the Philippines and many African nations. (Tran Trong Phuong et al. 2024)

2.2 Financial risks in negligence of adaptation initiatives in agriculture

- Vietnam has the **3rd largest adaptation finance needs** according to the nation's NDC and National Adaptation Plan (UNEP, 2023)
- Total financing needs are estimated at around **$254 billion** from 2022 to 2040 (World Bank, 2022)
  - **$219 billion: upgrading private assets and public infrastructure** such as the Vietnam Irrigated Agriculture Improvement Project (case study used below) or sustainable shrimp farming.

    - **$35 billion: social programs** (such as building local capacity in community-based disaster risk management.)
- 1,091 climate-related projects (2013-2017) summed to **6.13 billion USD** (CARE, 2020).
- Cost of climate change adaptation is estimated to reach **3-5% of national GDP / year** by 2030 (CARE, 2020)
- Without proper adaptation and mitigation measures, it is estimated climate change will cost Vietnam about **12% to 14.5% of GDP** by 2050 (World Bank, 2022)
- Actual significant financial loss has been observed from the recent Yagi typhoon:
    - Damages are estimated at **VND81.5 trillion (US$3.31 billion)** across northern Vietnam, or **twice as much** as previous estimates (VNExpress, 2024) with negative effects on economic growth.

3. Food security and food stock (Kho du tru quoc gia)

3.1 Overview: Vietnam's national reserves/stock

- The reserve system is being restructured into a two-tiered system, with:
    - **Tier 1**: Backbone warehouses with capacities of up to **30,000 tons**.
    - **Tier 2**: Smaller warehouses with capacities below **10,000 tons**.
- From 2013 to 2019, the national reserves grew at an average annual rate of **1.42%**, with a total capital investment of **833.6 billion VND** allocated to infrastructure development.
- Despite this growth, the total national reserve level remains lower than the targets set in the national reserve development strategy for 2020.
- Since the implementation of the National Reserve Law in 2013, the reserves have been able to meet **100% of emergency response requirements** for natural disasters, fires, and disease outbreaks.
- The absence of a comprehensive reserve strategy until 2030 and inconsistencies in related regulations, such as the State Budget Law and Procurement Law, have caused delays in implementing reserve projects and hindered strategic planning.
- Future goals aim to increase the national reserve-to-GDP ratio from its current low level to **1.5% by 2035** and **2% by 2045** by enhancing resource mobilization and diversifying funding sources, including **engaging private sector participation**.

Source: Dang Cong San, 2023 & National Institute of Finance, 2009
3.1.1 Law No. 22/2012/QH13 (Vietnam's National Reserve Law)

Purpose: The State forms and uses national reserves to actively meet unexpected and urgent requirements on prevention, control and overcoming the consequences of **natural disasters, disasters,** fires and epidemics; serving national defence and security.

3.1.1a - Different roles among the ministries

Ministry of Finance	Ministry of Defense
• Role: The Ministry of Finance has the **central role** in managing the national reserves including **overseeing the overall system (**budget allocation, purchasing, and maintaining the financial aspects related to reserve management.) • Goods Managed: The Ministry of Finance directly oversees **civil goods, including emergency supplies, food (staples like rice and wheat)**, rescue equipment, and **relief materials used for natural disasters**, economic shocks, and emergencies like pandemics.	• Role: The Ministry of Defense is tasked with managing goods related to national security and defense needs. They coordinate the **stockpile needed for military operations during crises** and defense mobilizations. • Goods Managed: These include **military supplies, equipment, and fuel** for **defense** purposes. They manage items that support the armed forces in times of **conflict or military emergencies**.
MARD (Ministry of Agriculture and Rural Development)	**Ministry of Public Security (Bộ Công An)**
• Role: MARD focuses on **managing agricultural goods essential for food security and post-disaster recovery.** • Goods Managed: Agricultural reserves such as seeds, fertilizers, livestock feed, and **essential crops (like rice)** to ensure **food security and agricultural recovery following a disaster**.	• Role: Bộ Công An manages reserves related to public security and **maintaining internal order during emergencies** or crises. • Goods Managed: This ministry is **responsible for goods necessary for public safety**, including security equipment, protective gear, and communication tools needed during times of civil unrest or large-scale emergencies.

3.1.1b - Items in the reserve

Article 27. List of national reserve goods
1. Items in the list of national reserve goods must meet the national reserve objectives specified in Article 3 of this Law and one of the following criteria:
a) Being strategic, essential goods, frequently used, and having the effect of responding promptly in sudden and urgent situations;
b) Being special, irreplaceable goods;
c) Being supplies, equipment, and goods to ensure national defence and security, for which domestic production has not yet met the requirements in terms of quantity, quality, and type.

2. The list of national reserve goods includes:
a) Food;
b) Rescue and relief supplies and equipment;
c) Common industrial mobilization supplies;
d) White salt;
dd) Fuel;
e) Industrial explosives;
g) Plant seeds;
h) Plant protection drugs;
i) Chemicals for disinfection, sterilization, environmental cleaning, treatment of domestic water sources and in aquaculture;
k) Drugs for disease prevention and control for humans;
l) Drugs for disease prevention and control for livestock, poultry, crops, and aquaculture;
m) Supplies, equipment, and goods for national defence and security.

3.1.1c - Distribution of the reserve

Physical Reserves:

- According to the law, each ministry manages **separate physical reserves** that correspond to their specific areas of responsibility.

A total of **39 new national reserve points** have been established according to the approved plan.

- **Ministry of Finance**: **23 new reserve points**.
- **Ministry of Defense**: **3 new reserve points**.
- **Ministry of Public Security**: **6 new reserve points** and upgraded **2 existing reserve points**.
- **Ministry of Agriculture and Rural Development**: **4 new reserve points** and allocated **15 additional points**.
- **Ministry of Industry and Trade**: Rented **25 reserve points**.

- **Ministry of Health**: Established **1 new reserve point**.

- Warehouses are located in high, safe areas with convenient transportation access to ensure quick and efficient release and restocking of goods.
- The national reserve warehouse system has been progressively improved through new constructions, upgrades, and repairs, ensuring it meets the "**4 on-site" requirements (personnel, equipment, logistics, and command)**.
- Key completed projects managed by the Ministry of Finance include:
    - **Thủy Nguyên reserve warehouse** (Northeast region): Built on nearly **70,000 m^2** of land.
    - **Đông Anh reserve warehouse** and **Hòa Bình reserve warehouse** (Hanoi region).
    - **Nghi Lộc reserve warehouse** (Nghệ Tĩnh region).
    - **Hòa Vang reserve warehouse** (Đà Nẵng region).
    - **Linh Đa reserve warehouse** (South-Central region).
    - **Long An reserve warehouse** (Ho Chi Minh City region).

Source: Thoi Bao Tai Chinh Viet Nam, 2024

3.1.1d - Capacity of the reserve

- Total storage capacity for food, materials, and goods: **961,545 m^2**.
- Storage capacity for petroleum and medical equipment: **1,551,000 m^3**.
- Capacity development goal:
    - Increase total reserve capacity to be at least **1% of GDP** by 2010.
    - Reserve cash to constitute **20% of total reserves**, ensuring rapid procurement and restocking.
- The system requires **more funding** to meet strategic reserve goals, modernize storage facilities, and adopt new preservation technologies for improved efficiency and safety.

Source: Tap Chi Tai Chinh, 2024 & National Institute of Finance, 2009

3.1.1e - Value of the reserve

- In the first six months of 2023, the Ministry of Finance issued national reserve goods with a total value of about 896 billion VND, including 62,393 tons of national reserve rice with a value of about 748 billion VND and materials and equipment worth about 148 billion VND.
- Investment allocation:

- Total capital investment for **infrastructure development** from 2011-2020: **1,890 billion VND**.
- However, this investment only met **20% of the total required investment** as per the approved plan.

Source: Tap Chi Tai Chinh, 2024

- The reserve system plays a critical role in stabilizing prices and markets by intervening with the release of goods when necessary, helping to mitigate the effects of price volatility seen during economic shocks (e.g., in 2008 when food prices surged in Ho Chi Minh City).
  Source: National Institute of Finance, 2009

3.1.1f - Reserves of rice:

- In 2024, the **General Department of National Reserves (DTNN)** approved a plan to purchase a total of **220,000 tons of rice** for the national reserve system.
- Each **regional reserve department** is tasked with organizing rice purchases and ensuring the rice is stored in the national reserves on time, following the timelines specified in their contracts.
- The quality standards for the rice to be stored are based on Decision No. **164/QĐ-TCDT** dated April 8, 2024, which outlines the criteria for selecting suppliers.
- For departments that have not yet completed the rice purchasing plan, they are required to **survey local rice market prices** and submit a purchase plan to DTNN headquarters for approval.
- Quality control of rice entering the national reserves is enforced through Document No. **514/TCDT-KHCNBQ**, dated April 25, 2024, to ensure that all rice meets the required quality standards before being accepted into storage.
- The procurement was divided into **196 bidding packages**, and in the first round (May 8, 2024), **31 bidders** participated, with **22 bidders** winning contracts to supply **114,700 tons of rice**, achieving **52% of the planned target**.
- The rice quality standards are defined in **Circular No. 78/2019/TT-BTC** dated November 12, 2019, specifying that the rice must be **long-grain type with 15% broken content**, harvested from the winter-spring crop in Southern Vietnam in 2024, and meet the quality standards stated in **QCVN 06:2019/BTC**.

3.1.2 Differences in responsibilities and criteria for using stock – MARD vs Ministry of Finance for rice reserve:

- Both the **Ministry of Finance** and the **Ministry of Agriculture and Rural Development (MARD)** have roles in managing rice within the national reserve system, but their responsibilities and purposes differ:
    - **Ministry of Finance**: Manages rice and other staple food reserves primarily for **emergency relief** and **economic stabilization** purposes, such as addressing food shortages during natural disasters or economic shocks.
    - **MARD**: Manages agricultural reserves, including rice, to ensure **food security** and the **recovery of agricultural production** after natural disasters. Their focus is more on maintaining a stable agricultural supply chain and ensuring food availability in rural areas.

3.1.3 Criteria to Access and Use Reserves:

Article 35: Accessing Reserves Based on the Prime Minister's Decision

The Prime Minister decides to access and release goods from the national reserve in the following situations	When the **Chairman of the Provincial People's Committee** declares an outbreak of disease or other significant local emergency. For **disaster prevention and response** (e.g., floods, droughts, earthquakes) and **disaster relief**, such as providing food during famine or disaster relief materials.
	When there is a need to **stabilize the market** in case of sudden, sharp increases or decreases in the prices of essential goods.
	To meet **defense and national security requirements**.
Procedure for Accessing Reserves	In case of natural disasters or local emergencies, the relevant authorities (e.g., provincial leaders) must submit a written request to the Prime Minister.
	For market stabilization, the **Minister of Finance** or another authorized ministry head must provide a proposal to the Prime Minister for approval.
	For defense needs, the **Ministry of Defense** or **Ministry of Public Security** submits a request to the Prime Minister via the Ministry of Finance.

Article 36: Emergency Situations for Immediate Access

- The **Ministry of Finance**, **Ministry of Defense**, **Ministry of Public Security**, and **MARD** can decide to release goods in cases of extreme urgency, such as sudden natural disasters or unforeseen national security threats, without waiting for the Prime Minister's decision.

- The authorized ministries must notify the Prime Minister within 3 days of taking action and are held accountable for ensuring the proper use of the goods released.

3.1.4 Current challenges faced by national reserves:

- Current reserve capacity is still insufficient compared to GDP targets: **0.8% - 1.0% by 2025**, **1.5% by 2035**, and **2% by 2045**, which limits the ability to respond proactively to emergencies.
- Resources **primarily rely on the central government budget**, and efforts to engage local budgets and private sector resources have been largely ineffective.
- National reserves often have to **contract out storage and maintenance services**, which provides only partial relief to the national budget.
- The National Reserve Development Strategy for 2030 has not yet been issued by competent authorities, causing difficulties in allocating resources, and developing a Master Plan for the national reserve system for the period 2021-2030, with a vision to 2050, and 5-year, 3-year and annual plans for national reserves. (Dang Cong San, 2024)
- The management of the reserve system has faced difficulties, such as **outdated item categories and a lack of timely updates**, leading to mismatches in stock allocation and inefficient use of financial resources.

3.2 EU's framework for food security

3.2.1 Overview and possible implications for Vietnam

- The EU is the biggest provider of climate finance in the world. In 2022, €28.5 (70%) billion from public sources and an additional €11.9 (30%) billion of private finance are mobilised to support developing countries in the fight against climate change. (EU,2024)
    - Sources include: the EU budget, the European Development Fund and the European Investment Bank
- The EU allocates **€8 billion (2020-2024)** for global food security, primarily focusing on providing emergency relief to vulnerable countries facing food crises.
- The EU prioritizes maintaining an **open and predictable trade environment** for agricultural goods, avoiding unjustified trade barriers.
- The EU ensures food affordability within member states by utilizing mechanisms such as **VAT reductions** and **targeted financial support** for the most deprived populations.

-> Similar affordability measures can be implemented within Vietnam's reserve system, such as subsidizing staple food prices or using stock to stabilize domestic prices.

3.2.2 Black Sea Grain Deal collapse and possible implications for Vietnam

- The collapse of the Black Sea Grain Deal was caused by over-reliance on a single export route.
  -> Vietnam should **maximize the benefits of its multiple logistical channels** (e.g., road, rail, and maritime) via **agreements with neighbouring countrie**s.
- When the deal collapsed, Ukraine faced stockpiling issues, and farmers reduced sowing due to export uncertainty.
  -> Vietnam should **maintain flexible reserve management policies** to **prevent excessive stockpiling** and ensure that farmers continue production. The national reserves should also consider **detailed policies** for releasing stock when exports are hindered.
- A significant portion of Ukrainian grain went to high-income countries, leading to criticism of the lack of support for low-income nations.
  -> Vietnam should ensure that its food reserve policies prioritize **affordability** and **accessibility** for domestic consumers while balancing export commitments. Policies should be in place to avoid internal food shortages when exports are high.

  Source : The Guardian, 2023

4. Mechanisms to strengthen food security: Insurance

Acknowledging Vietnam's indispensable role in national and global food security yet is also one of the top five nations most susceptible to climate change, insurance schemes such as the Weather Index Insurance can be introduced and promoted to decrease the climate risk involved post-natural disasters for all stakeholders.

4.1 Relevant national insurance regulations

4.1.1 Decision No. 13/2022/QĐ-TTg - IMPLEMENTATION OF AGRICULTURAL INSURANCE ASSISTANCE POLICIES

- Regulates the implementation of agricultural insurance support policies in accordance with **Decree No. 58/2018/NĐ-CP.**
- **Scope**: Applies to individuals and organizations involved in planting rice, rubber, pepper, cashew, and coffee; breeding buffalo, cows, and pigs; and aquaculture of black tiger shrimp, white-leg shrimp, and tra fish.

- **Beneficiaries**:
    - Poor and near-poor households receive maximum insurance support levels.
    - Non-poor households and agricultural organizations receive maximum support when meeting specific criteria.
- **Location covered**: specific provinces.
- **Risks Covered**:
    - **Natural disasters** for all agricultural products, including storms, floods, drought, landslides, and tsunamis.
    - **Epidemic risks** for rice and livestock; however, no epidemic coverage is provided for rubber, pepper, cashew, coffee, or aquaculture.
- **Implementation Period**: Effective from June 24, 2022, to December 31, 2025.
- **Funding**: The central government provides maximum support to local governments as regulated in Decision No. 127/QĐ-TTg dated January 24, 2022.
    - The maximum support level is 90% of agricultural insurance premiums.
- Farmers have limited awareness of risk management and the benefits of agricultural insurance.
- Unstable incomes limit their ability to afford insurance premiums. (National Institute of Finance, 2023)
- Current insurance products, such as those for rice, buffalo, and shrimp, are not diverse or attractive enough for farmers, limiting their uptake. (National Institute of Finance, 2023)
- Vietnam's agriculture is characterized by small-scale, fragmented production that does not follow standardized technical processes, making it challenging for insurers to offer coverage. (National Institute of Finance, 2023)
- The number of agricultural insurance contracts issued so far is insufficient to support the principle of risk pooling ("many pay for a few") that insurance companies depend on. (National Institute of Finance, 2023)
- **Further research on financial policies** supporting agricultural insurance development is essential for effective policy-making and market growth in the coming years. (National Institute of Finance, 2023)

4.2 Overview of Weather Index Insurance:

- Definition: Weather Index Insurance (WII) provides payouts based on a **predetermined weather index** (e.g., rainfall levels or temperature), rather than **individual farm-level** damage assessments, simplifying the process and reducing administrative burdens.

- WII can be integrated into a **broader risk layering strategy**, where risks are shared between different levels (farmers, government, and insurers) in which manageable risks are retained at the local level while larger, catastrophic risks are transferred via insurance mechanisms.

OPPORTUNITIES	CHALLENGES
Simplified payouts based on weather indices reduce the need for individual farm loss assessments, lowering costs.	Lack of **reliable and accurate meteorological data** in rural areas which makes designing precise insurance indices difficult.
Reduced administrative costs make WII more accessible to smallholder farmers, helping protect livelihoods.	**Initial setup and implementation are costly** due to the need for capacity building and technical support for farmers and local insurers.
Scalable to cover large areas and many farmers without the need for complex loss adjustment processes.	Significant **technical expertise** is required to design the appropriate weather indices
Lower **insurance premiums** and make agricultural insurance affordable to rural farmers in Vietnam.	WII is **highly dependent on weather data** accuracy, and inconsistencies in data collection could affect the effectiveness of the insurance scheme.
Financial protection against extreme weather conditions **reduces farmers' vulnerability to income loss** caused by unpredictable climate patterns. This financial stability enables them to invest in more sustainable agricultural practices, further enhancing their resilience.	

Source: The World Bank (2011)

4.3 Case Study (Sinnarong, 2022) **Weather Index Insurance in Thailand**

Context: Thailand designed and implemented **WII** to address the adverse impacts of climate change on key economic crops, such as rice, oil palm, sugarcane, and rubber. The design was based on weather indices like temperature and rainfall to provide payouts during extreme conditions without the need for farm-level loss assessments.

4.2.1 Key Features of Thailand's WII:

- For rice production in the **Northeast**, WII reduced risk by **7.45% in 2018** and is projected to reduce risks by **up to 12.68%** by 2090. Similar reductions were noted for oil palm and rubber production in the **South**.
- **Risk Reduction Performance (RRP)** for rubber is projected to increase by **up to 13.44%** by 2090, demonstrating the system's capacity to buffer against long-term climate risks.
- WII has effectively reduced income variance for insured farmers across various crops, making it a key tool in managing **income stability** in regions highly vulnerable to climate variability. For rice farmers, income variance was reduced by more than **7%**.

4.2.2 Scaling

- Thailand's model offers important lessons on scaling WII across different crop types and regions. Vietnam, with its diverse agricultural landscape, could benefit from a tailored WII program covering multiple crops, including **rice**, **coffee**, and **rubber**, to mitigate the unique risks faced by each sector.
- The Thai experience suggests that **collaboration between the public and private sectors** is crucial to scaling WII, involving banks, insurers, and agricultural cooperatives.

4.2.3 Recommendations for Vietnam:

- Design WII schemes specifically for Vietnam's key agricultural sectors—rice, coffee, and rubber—based on localized climate data.
- Invest in expanding Vietnam's weather station network, particularly in rural and high-risk areas, to reduce basis risk and ensure accurate WII payouts.
- Ensure that WII schemes are affordable and accessible by implementing **subsidy programs** targeted at smallholder farmers, potentially leveraging adaptation finance mechanisms.
- Develop strong public-private partnerships to support the development and scaling of WII, drawing lessons from Thailand's experience in engaging multiple stakeholders.

4.3 Recent scenario of WII in Vietnam

- About **40% of the total production value of the Mekong Delta**, equivalent to **6.8 billion** USD, can be protected by index insurance. (Hillridge, 2024)
- WII scheme has been introduced in Vietnam by the following entities:

4.3.1 Bảo hiểm Quân đội (MIC):

MIC is to pay insurance to the Insured in the event that the total cumulative rainfall in **any seven (07) consecutive days in a month** at the Insured Location exceeds the **Trigger Threshold***. Accordingly:

- These seven (07) consecutive days must be in the same month; and
- The compensation amount paid for each Trigger Threshold and the payment amount in a month shall not exceed the insurance amount for each month; and
- MIC will only pay compensation for **one** Insurance Event in a month. If a (01) month has more than one period of seven (07) consecutive days in which the total cumulative rainfall exceeds the Trigger Threshold, MIC will pay the compensation amount corresponding to the period of seven (07) consecutive days with **the highest total cumulative rainfall**.

**Information on Trigger Threshold (Ngưỡng kích hoạt) not found*

4.3.2. Hillridge Insurance Technology Company (Australia):

4.3.2.1 Weather Index Insurance – Drought Insurance

(in collaboration with MSIG Insurance Company Vietnam and the Australian Department of Foreign Affairs and Trade (DFAT))

- The minimum premium for an index insurance contract is 65 USD, the insurance period is 3 months; and the maximum compensation can be up to over 1 thousand USD, depending on weather risks.
- Over 200 insurance contracts have been issued for coffee growers in the Central Highlands provinces. (vung Tay Nguyen)

Source: MONRE, 2024,Hillridge Drought Insurance, 2024

4.3.2.2 Typhoon Index Insurance

- The insurance **utilizes satellite data to measure the severity of storms** and calculate the **distance** from the storm to the insured farm.
- Data is collected from the **University Corporation for Atmospheric Research (UCAR**) and **storm classification by Vietnam's MONRE**.
- **Compensation Calculation**:
    - Farmers can receive compensation within 10 days.
    - Payments are triggered automatically based on specific parameters (e.g., wind speed and proximity of the storm) without the need for lengthy damage assessments.
- **Hiep Thuan Agricultural Cooperative, Quang Nam Province**, became the first customer to purchase Storm Index Insurance for more than 150 hectares of acacia forest.

Source: Bao Minh 2024, Hillridge 2024

5. Mechanisms to strengthen food security: establishing a fund for Vietnam's food sovereignty

This **fund** is designed to **enhance national resilience** against **natural disasters** and **climate-related risks** through **broad community participation**, part of which can be **allocated** to support the **development of the National Reserve (kho dự trữ quốc gia)**. The **obstacle** to the **development and expansion progress** of the **National Reserve** has been largely attributed to **limited funding sources** which rely primarily on **government allocations**. The **additional capital** from this fund can be **channelled** to **accelerate the establishment** and **expansion** of the **reserve** for the formation of a **responsive system** capable of addressing **emergency needs** and **safeguarding food sovereignty**.

The responsibility of **managing and allocating** the **adaptation fund** should remain with **central banks**. **Central banks** have the **expertise and capacity** to **oversee fund distribution** and ensure that the **resources** are directed to areas that will **maximize impact**. The **central banks** can manage the **funds** and allocate resources to selected **major banks**, such as **Agribank** and **MBBank**, because of their **extensive reach** and **experience in financing agricultural projects**. These banks can then provide access to **adaptation finance** for their clients, particularly in **high-risk agricultural sectors** that are critical to **food security**. This approach utilizes the **PPP approach** via the strengths of both **public and private financial institutions**, ensuring that the fund is managed with **transparency and efficiency**. Through this structure, the fund can support the implementation of **climate resilience projects** while encouraging all stakeholders to adopt **sustainable financing practices**.

5.1 Regulation no. 55/2015/NĐ-CP - Credit policy for agricultural and rural development

Legal entities	• **Cooperatives and cooperative unions** operating in rural areas or participating in agricultural production and business activities.
	• **Enterprises operating in rural areas** except for
	  ○ Real estate businesses.
	  ○ Mining enterprises.
	  ○ Electricity production units.
	  ○ Enterprises in industrial parks and export processing zones that are not directly involved in agricultural activities.

	• **Enterprises supplying agricultural inputs** for production and those involved in production, purchasing, processing, and consumption of agricultural products and by-products.
Loan types	• Loans for agricultural production activities from production, purchasing, processing, to consumption. • Loans for industrial production, trade, and service provision in rural areas. • Loans for seed production in cultivation, animal husbandry, aquaculture, and forestry. • Loans to develop rural industries and support the National Target Program for New Rural Development. • Loans for the living needs of rural residents. • Loans according to Government programs related to agriculture and rural development.
Exclusions	• Real estate businesses, mining enterprises, electricity production units, and enterprises in industrial parks and export processing zones are not eligible.
No collateral requirement	• Farmers can borrow up to **200 million VND** without collateral to support agricultural and rural development activities.

5.2 Overview of suggested mechanisms for the fund

MECHANISM	PURPOSE	BENEFITS	APPLICATION FOR VIETNAM
Share of Proceeds from Food Commodity Trading: A small percentage of each transaction in food commodities (e.g., 1-2% of the trade value) is set aside and directed into a National Food Security Reserve Fund. The commodities involved can include grains, rice, pulses, and other staples that form the backbone of food security systems.	To create a sustainable funding source for national food reserves.	Stable funding for reserves, support for domestic and international needs	Can be applied to rice, coffee, and other key agricultural commodities, leveraging Vietnam's role as a top global exporter.
Adaptation finance for climate resilience: Part of the	To invest in climate-resilient agricultural	Reduced vulnerability to climate impacts,	Use for funding drought-resistant crops, irrigation

funds collected through the Share of Proceeds mechanism can be used to finance climate adaptation projects aimed at enhancing food security.	practices and infrastructure.	improved food security	systems, and infrastructure improvements in the Mekong Delta.
PPP: Establish a PPP adaptation trust fund where the government, private sector, and impact investors co-finance national and regional adaptation projects related to food security. - Contributions from CSR programs, along with the proceeds from food trading, will be pooled into this trust fund.	To engage the private sector in financing and implementing food security projects.	Additional resources, innovation in project execution	Establish PPPs for building food storage facilities or investing in sustainable farming technologies.
Disaster recovery bonds: resilience bonds specifically targeting food security infrastructure to finance projects that build resilient supply chains, ensure stable food reserves, and improve agricultural resilience to climate change.	To finance projects that enhance agricultural resilience and food supply chains.	Long-term funding, resilience building	Issue bonds to support the expansion of reserve storage capacities and modernization of logistics networks.
Carbon credit: tradable certificates representing the right to emit one ton of carbon dioxide or the equivalent amount of another greenhouse gas. They are part of a market-based approach to incentivize reductions in greenhouse gas emissions.	To promote sustainable agricultural practices by compensating for emissions reductions and enabling funding for climate-resilient projects.	Agricultural and forestry projects that sequester carbon or reduce emissions (e.g., reforestation, soil management, methane reduction from rice paddies) can generate carbon credits.	Facilitate carbon credit schemes in Vietnam that reduce methane emissions in the Mekong Delta's rice production and support sustainable forestry in the Central Highlands

5.2 Stimulation – projected contributions

Referring to the Table in Chapter 3.1 of the six chosen export markets value is 2023, the total export value of 2023 is $24,313,840,000:

Export Type	Value
Coffee	$4,180,000,000.00
Rubber	$2,890,000,000.00
Rice	$4,670,000,000.00
Cashew Nuts	$3,600,000,000.00
Fisheries	$8,970,000,000.00
Salt	$3,840,000.00
Total	**$24,313,840,000.00**

By applying relevant interest rates, we will anticipate the following results:

5.2.1. Trading interest:

The first scenario focuses on the **insertion of trading data** to establish an **insurance-backed finance mechanism**. The mechanism will use **interest loan rates** provided to **intermediary agents** (**nha dai ly**), who act as **middle buyers** between **farmers** and **final buyers**. These agents already receive loans at a **preferential interest rate of 3%**, thus, can be incentivized or made mandatory through **tiered commission rates** based on **sustainable compliance** (e.g., **0.1%**, **0.2%**, or **0.3%** of their transaction value).

Projected annual contribution:

Rate	Extracted value
0.10%	$24,313,840.00
0.20%	$48,627,680.00
0.30%	$72,941,520.00

5.2.2 Share of proceeds:

This scenario evaluates the **total transaction value** by applying a **"share of proceeds" model**. Under this model, a portion of **1%, 2%, and 3%** of the overall transaction value (e.g., **15 trillion VND**) will be redirected to a **financial pool** that supports **adaptation finance** for **food security**. The **share of proceeds** would be extracted from **the overall transaction revenue** of key agricultural exports. This approach addresses **externality pricing** and emphasises the **value of investing in preventive measures** to mitigate devastating losses and strengthen adaptation projects against climate impacts and natural disasters, ultimately safeguarding long-term profitability and resilience. This **revenue** is intended to build a **sustainable financing stream**.

Projected annual contribution:

Rate	Extracted value
1.00%	$243,138,400.00
2.00%	$486,276,800.00

5.2.3 Fund as part of the CSR of Top 500 enterprises and SMEs (a):

- The General Statistics Office of Vietnam (GSO) estimated the number of SMEs in Vietnam as of June 2022 was nearly 870,000.

Projected annual contribution if each SME contributes 500,000 VND as part of their CSR Program:

870,000 enterprises x 500,000 VND = 435,000,000,000 VND

435,000,000,000 VND = **17,708,154.00 USD**

Projected annual contribution of each Top 500 companies in Vietnam contribute $10,000 USD as part of their CSR program:

500 enterprises x 10,000 USD = **5,000,000 USD**

Total projected annual contribution of SME and top 500 enterprises:

17,708,154.00 USD + 5,000,000.00 USD = **22,708,154 USD = (a)**

5.2.4 Top 10 countries importing Vietnam's rice

The top 10 countries that rely on Vietnam's rice export for domestic food security are to contribute $20 per tonne of rice imported from Vietnam. The below stimulation applies the rice export value and weight of 2022 based on the data from the Observatory of Economic Complexity. This value is calculated with the total rice export of Vietnam in 2022, 7,100,000 million tonnes. The results are as follows:

		2022 export value	% of export	Export by tonnes	Projected gain
1	**Philippines**	$1,380,000,000.00	43.30%	3,074,300	$61,486,000
2	**China**	$429,000,000.00	13.50%	958,500	$19,170,000
3	**Cote d'Ivoire**	$333,000,000.00	10.50%	745,500	$14,910,000
4	**Ghana**	$230,000,000.00	7.23%	513,330	$10,266,600
5	**Malaysia**	$197,000,000.00	6.19%	439,490	$8,789,800
6	**Singapore**	$53,400,000.00	1.68%	119,280	$2,385,600
7	**Indonesia**	$52,800,000.00	1.66%	117,860	$2,357,200
8	**Hong Kong**	$39,800,000.00	1.25%	88,750	$1,775,000
9	**South Korea**	$35,500,000.00	1.12%	79,520	$1,590,400
10	**Cambodia**	$31,400,000.00	0.99%	70,290	$1,405,800
	Total	**$2,781,900,000.00**	**87.42%**	**6,206,820**	**$124,136,400**

$124,136,400 USD = (b)

5.2.5 Carbon Credit for Forest, Agroforestry, and Agriculture

The carbon credit market in Vietnam holds a lot of potential considering that Vietnam is capable of selling some 40 million carbon credits for a revenue of **200 million USD annually** (Vietnam+, 2024). To capitalize on this opportunity to reduce its reliance on external technologies and develop its own autonomy in areas such as satellite monitoring and advanced data systems, it is essential to design an effective reporting mechanism, establish clear governance structures for funds and borrowers, and address challenges related to data integrity and technology adoption. This market can benefit from investments in IoT, data analytics, and satellite technology to ensure accurate measurement, reporting, and verification (MRV) of emissions reductions. As the country reduces its carbon emissions, it increases the volume of carbon credits available for trading, creating a positive feedback loop that encourages further emissions reductions.

Furthermore, linking the capacity of funding to the capacity for reduction is critical for achieving sustainable growth in the carbon credit market. Vietnam can invest 1-2% of the revenue directly into developing new technologies and strengthening institutional capacities for data management and benchmarking by utilizing proceeds from carbon credits. Such initiatives will support emission reduction goals and create a robust framework for expanding the carbon credit market.

In this context, the carbon credit market becomes a powerful tool for mobilizing sustainable finance and strengthening food security through mechanisms like Share of Proceeds from Food Commodity Trading and Adaptation Finance for Climate Resilience. Establishing a strong carbon credit market also means more opportunities for Vietnam to align with global standards and attract international investments. Thus, building a resilient carbon credit market contributes not only to the country's green transition but also to enhancing its long-term economic stability and environmental sustainability.

Presently, the market value of carbon credit in Vietnam is that:

- Forestry alone can bring 57 million carbon credits, or 52 million tons of CO2 which can be sold to international organizations. (Vietnamnet, 2024)
- Vietnam is participating in the carbon credit market in both voluntary* and mandatory markets**, but are mainly in the process of **implementing voluntary** carbon credits according to the **government's commitments by 2028.** (WINCOLAW, 2024)
- The agricultural sector accounts for **10% of Vietnam's GHG emissions** under the BAU (Business as Usual) scenario, and has a mitigation potential of **6.8 million tons CO2eq by 2030** with domestic resources.

** private actors voluntarily buy and sell carbon credits that represent removals or reductions of greenhouse gases (GHGs) in the atmosphere.*

*** the marketplace where any company issues certain carbon credit numbers on a yearly basis*
Source : (USAID, 2022)
If we extract 1% or 2% from the potential annual 200 million USD potential of Vietnam's 40 million carbon credits, we will have the projected annual contribution as follow:

$200,000,000 USD x 1% = **$2,000,000 USD**
$200,000,000 USD x 2% = **$4,000,000 USD**

5.2.6 5,000 VND to Ensure National Food Security Fund:

Each number of capita within Vietnam's workforce is obligated or encouraged to send **5,000 VND monthly or 60,000 VND annually** to the fund to support **disaster prevention and relief efforts**. This fund promotes **broad community participation** towards **national resilience** to **natural disasters** and **climate-related risks**. In 2023, Vietnam's workforce recorded 52,4 million people. (Vietnam Briefing, 2024)

Projected annual contribution:

60,000 VND x 52,400,000 capita = 3,144,000,000,000 VND

3,144,000,000,000 VND = **127,987,209.60 USD** (as of 30 September) = **(c)**

6. Analysis & Results

From Chapter 2.2, we observe that 1,091 climate-related projects (2013-2017) summed to **6.13 billion USD** (CARE, 2020) as the estimated received climate finance spanning four years. Therefore, the average received finance is **1.53 billion USD per year.**

The table below draws six scenarios with the independent variables being the trading interest ranging from 0,1% - 0.3% and the share of proceeds ranging from 1% - 2%. By combining these yields from trading interest, share of proceeds, and part of the carbon credit with (a), (b), and (c), a projected fund of the lowest **$544,284,003,60** or the highest **$838,050,083.60** has been generated which accounts for nearly **35.44% or 54.50%** of the average received climate finance per year.

	Trading Interest (%)	Share of Proceeds (%)	(a) + (b) + (c)	Extracted Value - Trading Interest	Extracted Value - Share of Proceeds	1-2% of Carbon Credit	Total Contribution
1	0.10%	1.00%	$274,831,763.60	$24,313,840.00	$243,138,400.00	1%: $2,000,000.00	**$544,284,003.60**
2						2%: $4,000,000.00	**$546,284,003.60**
3	0.10%	2.00%		$24,313,840.00	$486,276,800.00	1%: $2,000,000.00	**$787,422,403.60**
4						2%: $4,000,000.00	**$789,422,403.60**
5	0.20%	1.00%		$48,627,680.00	$243,138,400.00	1%: $2,000,000.00	**$568,597,843.60**

6						2%: $4,000,000.00	**$570,597,843.60**
7	0.20%	2.00%		$48,627,680.00	$486,276,800.00	1%: $2,000,000.00	**$811,736,243.60**
8						2%: $4,000,000.00	**$813,736,243.60**
9	0.30%	1.00%		$72,941,520.00	$243,138,400.00	1%: $2,000,000.00	**$592,911,683.60**
10						2%: $4,000,000.00	**$594,911,683.60**
11	0.30%	2.00%		$72,941,520.00	$486,276,800.00	1%: $2,000,000.00	**$836,050,083.60**
12						2%: $4,000,000.00	**$838,050,083.60**

7. Conclusions

Our objective is to establish a **baseline fund value** that can be readapted and readjusted over time to align with the evolving capacity of each participant and ensure that financing levels correspond to the actual financial ability of each counterpart. Investing in and establishing dedicated funds with green transition obligations will enable Vietnam's agriculture sector to achieve significant progress towards sustainable production while simultaneously securing national food security. The steer towards heightened food sovereignty through self-established financial mechanisms—such as adaptation finance, parametric insurance, and share of proceeds—Vietnam can reduce its reliance on ODA and international aid. This suggested approach empowers the country to take ownership of its food security agenda and warrants that funds are sourced from within and aligned with national priorities. Additionally, integrating carbon credits and prioritizing carbon reduction will enable Vietnam to generate additional revenue through carbon trading, creating a positive feedback loop that incentivizes further emissions reductions. Establishing a robust carbon credit market will provide essential financial support for sustainable agricultural development while positioning Vietnam as a leader in climate action and sustainable agriculture. In the long run, the agricultural sector can finance sustainable practices, support climate adaptation, and create a resilient food system that meets the needs of its people, all while maintaining autonomy in funding and policy direction. This strategy can reinforce Vietnam's leadership in global food markets while also setting a precedent for sustainable agricultural financing for the nation's long-term stability and self-reliance.

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