Forest Carbon Partnership Facility (FCPF)
Carbon Fund

ER Monitoring Report (ER-MR)

ER Program Name and Country:	**Emission Reduction Program in North Central Region, VIET NAM**
Reporting Period covered in this report:	**01-01-2018 To 31-12-2019**
Number of FCPF ERs:	**16,217,520 tCO_2-e**
Quantity of ERs allocated to the Uncertainty Buffer:	**1,785,088 tCO_2-e**
Quantity of ERs allocated to the Reversal Buffer:	**3,284,561 tCO_2-e**
Quantity of ERs allocated to the Pooled Reversal buffer:	**1,026,425 tCO_2-e**
Date of Submission:	**01-06-2021**
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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ANNEXES

LIST OF ABBREVIATIONS

AD	Activity Data
AGB	Above Ground Biomass
CPMU	Central Program Management Unit
DARD	Department of Agriculture and Rural Development (provincial level)
DONRE	Department of Natural Resources and Environment (provincial level)
EF	Emission Factor
EMPF	Ethnic Minority Planning Framework
ER	Emission Reduction
ERP	Emission Reduction Program
ERPD	Emission Reduction Program Document
ERPA	Emission Reduction Purchase Agreement
ESMF	Environment and Social Management Framework
FCPF	Forest Carbon Partnership Fund
FGRM	Feedback Grievance Redress Mechanism
FIPI	Forest Inventory and Planning and Institute
FMCR	Project of Forestry Sector Modernization and Coastal Resilience Strengthening
FORMIS	Forestry management Information System
FPD	Forest Protection Department
GHG	Green House Gas
LUP	Land Use Planning
MARD	Ministry of Agriculture and Rural Development
MOF	Ministry of Finance
MONRE	Ministry of Natural Resources and Environment
MOLISA	Ministry of Labour, Invalids and Social Affairs
MPI	Ministry if Planning and Investment
MMR	Measurement, Monitoring and Reporting
MRV	Measurement, Reporting and Verification
NCR	North Central Region
NDC	Nationally Determined Contribution
NRAP	National REDD+ Action Plan
PPC	Province People Committee
PPMU	Provincial Program Management Unit
PRAP	Provincial REDD+ Action Plan
PSC	Program Steering Committee
QA	Quality Assurance
QC	Quality Control
RF	Removal Factor
RPF	Resettlement Policy Framework
SESA	Strategic Environment and Social Assessment
SFCs	State Forest Companies
VNFOREST	Vietnam Administration of Forestry

1 IMPLEMENTATION AND OPERATION OF THE ER PROGRAM DURING THE REPORTING PERIOD

1.1 Implementation status of the ER Program and changes compared to the ER-PD

The planned interventions for ERP implementation include 4 components that are: (1) *Component 1*: Strengthening enabling conditions for emissions reduction; (2) *Component 2:* Promoting sustainable management of forests and carbon stock enhancement; (3) *Component 3*: Promotion of climate smart agriculture and sustainable livelihoods for forest dependent people; and (4) *Component 4*: Program management and emission monitoring. The program is on track and there are no changed in the implementation of the planned components and activities compared to the ERPD. The following describes the implementation status of ERP for 2018-2019.

Component 1: The activities have implemented include law enforcement to control deforestation and forest degradation; development of legal documents for forest management; review of forest planning and review of hydropower plants list for construction and other project on forest conversion. The national budget for implementing activities in component 1 in 6 provinces over 2018-2019 was 32 billion VND (or **1.4 million USD**).

Component 2: Focus on investment in forest protection and management; reforestation, forest enhancement. Total forest areas are paid for protection is 4M ha with total budget of 27 million USD, of which 57% is from payment for forest environmental services. Total estimated budget invested in component 2 is **36 million USD over 2 years 2018-2019** in six provinces of the ERP area.

Table 1. Key results and investment for component 2 for 2018-2019

ID	Investment activities	Intervention area (ha)	Investment (USD)
1	Forest protection	4,055,470	27,811,359
2	Resolution of forest and land conflict	445	5,000
3	Allocation of forests and forest contract for protection to communities	427,504	617,689
4	Support development of sustainable forest management plan after allocation	452,570	244,821
5	Natural forest area applied sustainable forest management	290,995	332,688
6	Shifting short-term plantation to long term plantations for sawn-logs	19,594	177,898
7	New plantation for saw logs	14,330	2,135,082
8	Natural assisted forest regeneration and enrichment planting	5,150	576,869
9	Afforestation of protection and special use forests	2,076	2,672,222
10	Compensation forest planting for converted forests	1,282	1,597,810
Total (2018 - 2019)		5,269,416	36,171,438

Source: Reports of DARDs in NCR (2020)

Component 3: The implemented activities focus on supporting livelihood generation and improve income for forest dependency. Over 2 years implementation, the provinces invested in bamboo development (77 ha), 98 ha for non- timber forest products in forest areas, several free-deforestation agriculture cultivation models and 65 good practice model (Vietgap) for rice production. Those activities are implemented mainly in Quang Binh and Quang Tri provinces and total budget for this component is **about 686,051 USD**.

Component 4: The important activity implemented is emission monitoring. The government provides budget for implementation of national forest monitoring which provide data for monitoring emission in the ERP area and preparing this MMR and other technical guidelines. Ministry of Agriculture and Rural Development (MARD) leads the implementation of this ERP and coordinates relevant programs and budget for ERP implementation. The estimated budget used over 2018-2019 is **about 1.5 million USD**.

During the implementation of ERP, the mitigation of potential reversal is implemented. The guidelines for reversal management was provided. The strategy for reversal management includes:

- Identification of potential reversal area which is based on forest change monitoring. The potential for reversal includes: (1) Expansion of commercial (particularly industrial crops) and subsistence agriculture; (2) Construction of Hydro Power Plant; (3) Small-scale infrastructure development including roads, small hydro power plants, water supplies, etc.; (4) Others (forest fires, typhoons etc.)
- Publish the land use plan related to planned land use change, for example rubber development plan, hydro-power construction plan etc.
- Law enforcement implementation through cross-sector collaboration, including monitoring implementation of land use plans, environmental impact assessment, land use conflicts resolution, diversifying livelihood options for forest dependents etc.
- Measure and report emissions associated with reversal.

To minimize potential displacement within the country, the actions were taken following requirements of implementing Directive 13/CT-TW dated 12 January 2017 of Central Party Committee on strengthening forest management and protection and Resolution 71/NQ-CP of the Government dated 8 August 2017 to implement Directive 13/CT-TW. All provincial party committee and authority have issued its resolution and action plan to reinforce forest management and protection, provide incentive policies for agriculture development. The key actions are: (1) Propagate to local people and communities on forest protection and development; (2) Set up collaborate mechanism between line forces, including forest rangers, border guard forces, police, customs, local authorities and forest owners in protecting the forests and controlling illegal logging and forest conversion; (3) Working closely with bordering provinces to jointly implement forest protection activities in the bordering areas; (4) Organize annual meeting for review and improvement of forest management and protection; (5) Review land use conversion plan, focusing on hydro power plant construction for replanning and monitoring.

Regarding the potential transboundary displacement, Vietnam has signed and implemented MoU with Lao PDR on joint activities to protect the forests and control illegal wood and forest-based products. In addition, the provinces in ERP having the borders with provinces in Lao (Bolikhamxay and Khammoune provinces) also have similar joint cooperation. Vietnam and Lao had just made a review on collaboration results over 2017-2022 and are now preparing a new collaboration plan for a period of 2023-2028[1]. The report on Vietnam-Lao collaboration results 2017-2022 is available in Vietnamese and can be shared with Auditors.

All details and results of these activities are reported by all 6 provinces in NCR and these reports are available in Vietnamese. As the results of emission monitoring reported in technical REDD+ report attached to BUR3 of Vietnam (submitted on 16 April 2021, available at UNFCCC website[2]), reveals reduced emissions and enhanced removals in Vietnam over the period 2014-2018. That means (emissions)

[1] The report on Vietnam-Lao cooperation review for 2017-2022 is available in Vietnamese and can be shared separately upon the request.

[2] https://unfccc.int/documents/273504

displacement is fully controlled. For the future, Vietnam committed to implement the Glasgow Declaration and the action plan is being prepared for final approval by end of 2022. The objective of the plan is to basically reverse deforestation by 2030, reducing 70% of emissions and enhancing removal by 30% nationally.

There is no major events (forest fires, natural disasters etc.) causing deforestation and other program interventions that lead to higher emissions and lower removals compared to emission and removals reference level. The results of emission and removals estimates reported in MR demonstrate the results. As the data of MARD, the fired forest area at country level is 2,449 ha per year over the peiod of 2010-2017 and that is 1,728 ha per year for 2018-2019. The more detailed national stasticcs shown in table below.

Table 2. Statistical data on forest area, reforestation, forest fires and timber harvest 2010-2019

Year	Area of forest[a] (ha)	Area of natural forest [a] (ha)	Area of plantation [a] (ha)	Area of reforestation/ afforestation in NCR[b] (ha)	Area of forest fires[c] (ha)	Timber harvested in NCR[d] (million m^3)
2010	2,807,204	2,127,332	679,872	54,900	6,723	1,195.9
2011	2,830,695	2,129,536	701,160	45,600	1,598	1,310.8
2012	2,879,640	2,167,625	712,015	43,200	2,091	1,520.3
2013	2,900,378	2,178,878	721,499	49,700	1,156	2,015.8
2014	2,914,280	2,175,541	738,739	52,000	3,157	2,277.7
2015	3,044,868	2,235,974	808,894	58,400	1,076	2,691.0
2016	3,111,376	2,250,614	860,763	60,000	3,320	3,109.0
2017	3,098,806	2,235,093	863,713	65,200	472	3,789.8
2018	3,103,601	2,222,455	881,146	67,600	739	4,018.1
2019	3,116,921	2,216,455	900,466	61,500	2,717	4,298.4

[a] http://www.kiemlam.org.vn/Desktop.aspx/List/So-lieu-dien-bien-rung-hang-nam/

[b] https://pxweb.gso.gov.vn/pxweb/vi/N%c3%b4ng,%20l%c3%a2m%20nghi%e1%bb%87p%20v%c3%a0%20th%e1%bb%a7y%20s%e1%ba%a3n/N%c3%b4ng,%20l%c3%a2m%20nghi%e1%bb%87p%20v%c3%a0%20th%e1%bb%a7y%20s%e1%ba%a3n/V06.43.px/?rxid=233fabd8-1944-4ff7-95c7-d398784412b3

[c] https://www.gso.gov.vn/du-lieu-va-so-lieu-thong-ke/2019/04/tinh-hinh-kinh-te-xa-hoi-thang-12-va-nam-2010/; https://www.gso.gov.vn/du-lieu-va-so-lieu-thong-ke/2019/12/tinh-hinh-kinh-te-xa-hoi-thang-muoi-hai-va-nam-2011/; https://www.gso.gov.vn/du-lieu-va-so-lieu-thong-ke/2019/12/tinh-hinh-kinh-te-xa-hoi-thang-muoi-hai-va-nam-2012/; https://www.gso.gov.vn/du-lieu-va-so-lieu-thong-ke/2019/07/tinh-hinh-kinh-te-xa-hoi-nam-2013/; https://www.gso.gov.vn/du-lieu-va-so-lieu-thong-ke/2019/07/tinh-hinh-kinh-te-xa-hoi-nam-2014/; https://www.gso.gov.vn/du-lieu-va-so-lieu-thong-ke/2020/11/bao-cao-tinh-hinh-kinh-te-xa-hoi-quy-iv-va-nam-2015/; https://www.gso.gov.vn/du-lieu-va-so-lieu-thong-ke/2019/05/bao-cao-tinh-hinh-kinh-te-xa-hoi-nam-2016/; https://www.gso.gov.vn/du-lieu-va-so-lieu-thong-ke/2019/10/bao-cao-tinh-hinh-kinh-te-xa-hoi-nam-2017/; https://www.gso.gov.vn/du-lieu-va-so-lieu-thong-ke/2019/04/thong-cao-bao-chi-ve-tinh-hinh-kinh-te-xa-hoi-quy-iv-va-nam-2018/; https://www.gso.gov.vn/du-lieu-va-so-lieu-thong-ke/2019/12/bao-cao-tinh-hinh-kinh-te-xa-hoi-quy-iv-va-nam-2019/)

[d] https://pxweb.gso.gov.vn/pxweb/vi/N%c3%b4ng,%20l%c3%a2m%20nghi%e1%bb%87p%20v%c3%a0%20th%e1%bb%a7y%20s%e1%ba%a3n/N%c3%b4ng,%20l%c3%a2m%20nghi%e1%bb%87p%20v%c3%a0%20th%e1%bb%a7y%20s%e1%ba%a3n/V06.45.px/?rxid=233fabd8-1944-4ff7-95c7-d398784412b3)

1.2 Update on major drivers and lessons learned

The analysis of drivers causing deforestation and forest degradation in the reference period indicated that the main identified drivers in the accounting area are: (1) Planned conversion of mainly poor natural forests to rubber and other agricultural land uses; (2) Planned conversion of mostly poor natural forests

to tree plantations; (3) Unplanned conversion of forests due to encroachment; (4) Impacts from hydropower and infrastructure development; (4) Illegal and legal logging; and (5) Other minor causes.

The implementation of ERP has addressed and reduced drivers and causes for deforestation and forest conversion and degradation compared to that in the period of 2016-2017. Most drivers and causes associated with deforestation, forest conversion and degradation are effectively controlled. However, the conversion of forests to infrastructure development (road, power lines, etc.) has increased making a total forest loss of 1,777 ha for 2018-2019. As regulations, such converted area is required to replant the forests to compensate the loss area. **The key lessons learned for effective control of deforestation and forest conversion are strong legal framework directed by highest legal level (government and prime minister) and the effective collaboration of line ministries and departments across levels**.

Table 3. Changes in deforestation, forest conversion and degradation 2016-2019 in ERP

TT	Deforestation and forest degradation	2016-2017	2018- 2019
1	Converted forest for hydro power plants (ha)	168	55
2	Forest conversion for infrastructure construction (ha)	842	1,777
3	Burned and damaged forests by forest fire (ha)	250	1,140
4	Damaged forests caused by typhoons and disease (ha)	34,296	156
5	Forest loss by rubber plantation development (ha)	0	0
6	Forest loss caused by coffee, fruit trees development (ha)	1	196
7	Forest conversion for crop agriculture (ha)	12	5
8	Illegal logging area (ha)	1,606	963
9	Illegal timbers (m^3)	61,962	3,044
10	Number of cases recorded for forest conversion, illegal logging and encroachment (cases)	1,078	456

Source: Reports of DARDs in NCR (2020)

2 SYSTEM FOR MEASUREMENT, MONITORING AND REPORTING EMISSIONS AND REMOVALS OCCURRING WITHIN THE MONITORING PERIOD

2.1 Forest Monitoring System

Organizational structure, responsibilities and competencies, linking these to the diagram shown in the next section

Organizational structure of agencies associated with MMR is provided in

Figure 1. The MMR is an integral part of the overall M&E system for the ER-P, other issues, for example, monitoring of safeguards is covered separately and is integrated into the M&E system.

Figure 1: Responsibility of the relevant Ministries, agencies and localities

1) Ministry of Agriculture and Rural Development (MARD)
MARD acts as manager of the ER P and organizes a central PMU to manage the implementation of the ER-P

2) Vietnam Administration of Forestry (VNFOREST)
The VNFOREST will supervise the forest monitoring process in the Accounting Area, including:
*Cooperate with the CPMU in selecting suitable national and international consultants; *Connect with People's Committees, branches and agencies of provinces in MMR implementation at provincial level; *Organize annual and final quantity and quality checks of the MMR system and receive outcomes and register carbon certificates for the Accounting Area *Updates the central forest database annually.

3) Program Management Unit (CPMU)
Provide support to MARD in activities such as
*Approval of the MRV implementation plans in six provinces, and review technical issues, procedures and guidance on field measurement, field data collection, quality control, biomass estimation methods, and technical guidelines of each specific work step *Supports MARD in for the approval of cost estimates and in identification of financial resources *Selects national service providers and national consultant teams for implementing change detection using satellite imagery for the ER-P, field verification and update of forest cover maps, accuracy assessment of the land cover change map, calculation of emission reduction, uncertainty assessment of emission reduction results *Selects international consultants for validation of emission reduction results

4) Provincial People Committees and Provincial Program Management Units
Provincial People Committees (PPCs) of the six provinces in the Accounting Area will be the owner of the provincial program. Each PPC will establish a Provincial Program Management Unit (PPMU) to manage all the work in that province. The PPMU will:
*Support the PPCs in establishing provincial MMR teams to verify the potential changes identified by remote sensing and update the confirmed changes to the provincial forest database *Cooperate with the PMU to develop resource plans (human resource and financial resources) for MRV implementation at the provincial level

5) Forest Inventory and Planning Institute (FIPI)
FIPI has been implementing the NFIMAP and this data was used to develop the FREL/FRL for the ER-P. FIPI is also the main agency to implement the forest inventory step of the National Forest Inventory and Statistics (NFIS) for the period 2011-2016 and has a mandate to implement the improved NFIMAP in the future, it is therefore expected that FIPI will implement the following work:
*Develop standard technical guidelines including a field data collection and survey manual; satellite imagery processing manual; QA/QC guidelines and forms; field data management and processing manual *Conduct of forest change detection using remote sensing *Organize field inventory and quality control *Conduct training and support knowledge transfer to provincial MMR teams on forest monitoring, measurement, field verification and update of activity data and forest cover maps; *Provide guidance to national consultants on estimating emission reduction for the Accounting Area, uncertainty assessment of emission reductions

6) Support from central specialized agencies
The central specialized agencies such as Vietnam Academy of Forest Science (VAFS) and Vietnam National University of Forestry will act as potential service providers for the following tasks:
*Conduct a quality assurance for the field inventory implemented by FIPI *Conduct an accuracy assessment of land cover change map 2015-2020 in the Accounting Area *Provide potential national consultants on estimating emission reduction for the Accounting Area, uncertainty assessment of emission results

7) Local communities
Local communities are expected to participate in the monitoring, pilots are now in place in three provinces in the NCR and they are planned for all provinces to introduce the commune PFMS to mobile and electronic equipment such as tablets for forest monitoring system that will link with FORMIS

Article 34.4 of the current Forestry Law (2017), which specifies that "Forest owners shall have to conduct forest statistics and submit to the inspection by, specialized forestry agencies at provincial level for forest owners being organizations, at district level for forest owners being households, individuals or village communities…". Therefore, local communities can participate in the monitoring system either:

- Directly, as forest owners (individual households or collectively as village communities under community forest management); or

- Indirectly as subcontracted service providers to larger state-managed forest owners (e.g. state forest companies or protected area management boards).

The selection and management of GHG related data and information

The selection of GHG related data and information:
Currently, Vietnam's national forest monitoring system consists of three elements as follows:

(1) National Forest Inventory, Monitoring and Assessment Program (NFIMAP)

Based on a series of Prime Minister's Decisions, NFIMAP has been implemented by FIPI since 1991, with a 5- years inventory cycle. So far, five 5-year cycles (Cycle 1: 1991-1995; Cycle 2: 1996-2000; Cycle 3: 2001-2005; Cycle 4: 2006-2010; and Cycle 5: 2016-2020) have been completed. It was not, however, implemented for the period 2011-2015. This is because a NFIS (see below) is being implemented during this period. The NFIMAP Cycle 5 (2016-2020) has been completed at the end of 2020 and the results have been appraised and approved by VNFOREST. The NFIMAP Cycle 6 (2021-2025) is now being implemented. The Program uses remote sensing in combination with ground surveys to monitor forest resources changes. Each cycle has generated provincial forest cover maps at the scale of 1:100,000; regional forest cover maps at the scale of 1: 250,000; and a national forest cover map at the scale 1:1,000,000. Data from a systematic sample plot system were also collected in each cycle. The forest cover maps and sample plot data of NFIMAP Cycle 3 and Cycle 4 are used for FREL/FRL setting in the Accounting Area. The MMR of the ER-P is based mainly on the NFIMAP. The sample plot data are used for EFs calculation and the forest cover maps of NFIMAP are used for AD generation in the Accounting Area.

(2) National Forest Inventory and Statistics (NFIS) Projects

Based on Prime Minister's Decisions, several NFIS Projects have been carried out in the past and the latest NFIS Project was being implemented during 2011-2016. In the latest NFIS Project, there are two stages in generating the forest cover maps: (i) "Forest survey stage" - interpretation of RS imagery will be used in combination with ground surveys to generate non-cadastral-dossier-based forest cover maps (which are called the "forest inventory maps"); (ii) "Forest statistics stage" - the forest inventory maps will be used as inputs to overlay with the cadastral-based forest owner boundary maps to generate the cadastral dossier-based forest cover maps (which are called the "forest statistics maps"). The forest statistics maps will be printed out as a deliverable to each forest owner for verification and revised as necessary. As the generation of forest statistics maps employs a participatory method, higher accuracy is expected compared to the forest inventory maps.

The scales of forest cover maps are 1:10,000 or 1: 25,000 for the commune level, 1: 50,000 for the district level, and 1: 100,000 for the provincial level. During the forest inventory stage, a system of sample plots is inventoried to estimate the mean volume stocks for each forest type. These sample plot data can also be used to estimate the mean carbon densities in AGB pool for each forest type. The main agency to implement the forest inventory stage is FIPI under MARD. For the forest statistics stage, the main actors are provincial authorities and local forest owners with the technical support from national institutions such as FIPI, Vietnam National Forest University and Vietnam Academy of Forest Sciences.

Due to the coarse frequency (almost every ten years) and the different approach on generating the FCMs, the FCMs of NFIS will not be used to generate the AD the ER-P. However, these FCMs can be used as a reference layer for AD verification and improvement.

(3) Annual Forest and Forestry Land Resources Monitoring and Reporting Program (Program No. 32 or FRMS)

This Program has been conducted by FPD under VNFOREST since 2001 following the Directive No. 32/2000/CT-BNN-KL dated 27/03/2000 by MARD. Based on forest baseline maps of the latest NFIS Project, forest rangers collect information on changes in the communes under their responsibility, and then update these changes in a database. These updates are usually based on reports from forest owners and do not require remote sensing imagery or field surveys. Data are then aggregated through the FPD system from commune to district to province up to the central level. The Program has generated a dataset on area of forest and forestry land, broken down by drivers, forest owners, forest functions, and administrative units. However, this dataset still has some limitations, including: (i) the data are just for forest area; there is no data on forest stocks; (ii) the data on area changes cannot be tracked spatially as they are not associated with maps; and (iii) Recently, with support from JICA, this element has been improved by addressing limitations on accuracy, credibility, transparency and quality assurance of Program no. 32. Where forests are allocated to villages a Village Based Forest Patrolling Team will be established and undertake forest patrols and report to commune-based forest rangers. The team will conduct field measurements of forest change, and submit the collected data to a data server. Satellite images and photographs are used to verify forest changes, and the resulting information is used to update forest cover maps and the use of a tablet-based approach will allow update information to be sent to a data server.

Among the three systems above, NFIMAP is the main source of information to construct FREL/FRL and calculate REDD+ emission reductions. FRMS is not integrated yet to the MRV for REDD+ but contributes alongside NFIMAP to the monitoring of the National REDD+ Action Program, and its provincial plans.

The FRMS is the main data source for official forest area in Vietnam however it is not used for the REDD+ MRV for the following reasons:

- FRMS data was not used for the FREL/FRL construction. Therefore, it couldn't be used for the calculation of REDD+ results for the sake of consistency.
- FRMS mainly provides updates on deforestation and reforestation; it is challenging to obtain timely updates on changes in forest conditions using FRMS system (due to its forest stratification of 98 forest types). Therefore, this prevents calculating reduced emissions from forest degradation and enhanced removals from forest restoration based on FRMS data.
- FRMS doesn't include the measurement of forest plots for monitoring timber volumes and forest carbon stocks as a basis to update EF/RF.

However, FRMS contains invaluable information on forest ownership and especially on new forest plantations which cannot be easily interpreted using medium resolution satellite images. Thus, Vietnam is working on integrating this system into the safeguards information system for REDD+.

The management of GHG related data and information:

All of the GHG related data and information are managed by VNFOREST using an information system. This information system has a GIS database that store all the maps and data collected by the MMR as well as information about the methods, and a web-based information portal to provide information to stakeholders, users and reviewers. Detailed information on key data and methods to enable the reconstruction of the Reference Level, and the reported emissions/removals are documented and made publicly available online via this web-based portal. The following information are made publicly available online ERPA program webpage (English): http://vnff.vn/?hl=en. The specific links to specific data are as follows:

- **MMR1:** http://vnff.vn/erpa-program/mmrs/mmr1?hl=en

- **MC analysis:** http://vnff.vn/erpa-program/mmrs/mc-analysis?hl=en
- **Maps:** http://vnff.vn/erpa-program/data/maps?hl=en
- **Activity data:** http://vnff.vn/erpa-program/data/activity-data?hl=en
- **Accuracy assessment:** http://vnff.vn/erpa-program/data/accuracy-assessment?hl=en
- **Emission factors:** http://vnff.vn/erpa-program/data/emission-factors?hl=en
- **ERPD:** http://vnff.vn/erpa-program/erpd/erpd?hl=en
- **Annex of ERPD:** http://vnff.vn/erpa-program/erpd/annex-of-erpd?hl=en
- **Safeguard:** http://vnff.vn/erpa-program/safeguard?hl=en

Processes for collecting, processing, consolidating and reporting GHG data and information

For the ER-P to be performance-based, a MMR is needed to estimate ERs generated by the ER-P. To be consistent with Decision 11/COP19, the MMR will be built based on existing forest monitoring systems.

As mentioned above, to estimate the emission reductions, the MMR of the ER-P is based on the regional forest cover map of the NCR developed by NFIMAP 2016-2020 to generated AD for period 2015-2019. It also uses the sample plot data located in the NCR and measured by NFIMAP 2016-2020 to calculate the latest EFs.

The ER-P will be nested into the national REDD+ implementation to avoid double accounting of emission reduction and/or removal enhancement at the national level. This means that the FREL and/or FRL of the Accounting Area was nested into the national FREL and FRL to be submitted to the UNFCCC. Similarly, the emission reduction and/or removal enhancement resulting from REDD+ activities in the Accounting Area will be nested into the national REDD+ performance to be reported to UNFCCC as a mitigation action in a technical annex of Biennial Update Report (BUR).

Therefore, in addition to reporting the performance of the ER-P to FCPF Carbon Fund following required template, the ER-P also needs to report biennially its performance to the Vietnam REDD+ Office (VRO), which is the focal point for national REDD+ implementation and has the mandate to oversee and coordinate all REDD+ projects/programs in Vietnam, to be included in a BUR and submitted to UNFCCC. Information to be reported to VRO includes:

- FREL and/or FRL of the Accounting Area, prepared on the basis of agreed guidelines (Decision 12/CP.17 and the FCPF Methodological Framework Document), IPCC methodologies (including the 2003 Good Practice Guidance for Land Use, Land Use Change and Forestry), and other relevant information (historical data, information on methods, approaches, models and assumptions used, pools/gases, and activities included in FREL and/or FRL and the reasons for any omission);
- Information on forest-related emissions/removals resulting from REDD+ activities in the Accounting Area (prepared following agreed guidelines in Decision 12/CP.17 and Decision 13/CP.19 and IPCC methodologies) and other relevant information (information on methods, approaches, models and assumptions used, pools/gases, and activities included and the reasons for any omission); and
- Information on how safeguards are respected and addressed (Decision 1/CP.16) in the ER-P.

The biennial reports on REDD+ performance in the Accounting Area to VRO needs to ensure that:

- There is consistency in methodologies, definitions, comprehensiveness, and information provided between the assessed reference level and the results of the implementation of the activities;
- The data and information provided in the report is transparent, consistent, complete and accurate, and adherence to the guidelines; and
- The results are accurate, to the extent possible.

At present Vietnam has no other ER Program/Projects, so there is no other Program/Project information to track. If in the future Vietnam engages in additional ER Program/Projects, that information will also be maintained in an additional section of the Vietnam REDD web site at **http://vnff.vn/?hl=en.**

Systems and processes that ensure the accuracy of the data and information

The accuracy of field measurement data is ensured and controlled by a quality assurance/quality control (QA/QC) protocol.

The accuracy of AD is ensured by conducting an accuracy assessment of the forest cover map following the method of Olofsson (2014). In the case the overall accuracy of the forest cover map is below a threshold (70%), more ground truthing is conducted to enhance the accuracy of the forest cover map above this threshold.

The accuracy of EF and emission reduction is ensured by organized a scientific committee of 5-7 experts having deep knowledge on REDD+ and GHG inventories to appraise the results.

Design and maintenance of the Forest Monitoring System

In Viet Nam, the Development of Management Information System for Forestry Sector – Phase I (FORMIS I) Project (2009-2013) has developed a system with adequate structure and capacity for integrating and sharing data through standard interfaces. The FORMIS system comprises of three sub-systems: (i) the databases for storing quantitative and qualitative data collected and managed by agencies inside and outside of the FORMIS system; (ii) the platform for providing capacity for integration of existing and new data and applications, security, exposing data and business functionalities in standardized manners; and (iii) the content delivery layer for including different channels such as the portal for delivering the information to the target users and for accessing various applications. However, due to time limitation, only a limited amount of data has been put into the databases of the FORMIS system under FORMIS I Project. The Development of Management Information System for Forestry Sector – Phase II (FORMIS II) Project (2013-2018) has integrated most of forest resources data including the results of the NFIS 2011-2016 into the system developed by FORMIS I Project. The Government of Viet Nam has given priority to integrate forest-related data of the provinces in the Accounting Area into the FORMIS system to be used as the information system of the ER-P.

Systems and processes that support the Forest Monitoring System, including Standard Operating Procedures and QA/QC procedures

There are standard operating procedures for: (1) conducting plot measurement in the field, (2) inputting the field data into a database using a software developed based on FAO's Open Foris Collect, (3) Field data processing, calculation and reporting, (4) Forest cover mapping. These SOPs are available in Vietnamese as NFIMAP's technical guidelines.

A QA/QC protocol for field measurement data is also available. The QA/QC team controls the quality of measurements of the plots measured by other field teams. The purpose of the QA/QC is to ensure that the team has conducted measurements according to the instructions and in a correct way. Furthermore, results of control measurements can be used for training purposes, that is, to find out issues unclear to the teams after training.

The controlling measurements are conducted within 1–2 weeks after the measurements by the initial team. The QA/QC team is equipped with same equipment and devices as the field teams. Measurement data shall be recorded in hardcopy form and handed over to responsible persons. The results of the control measurements are reported by using a control measurement checklist. The QA/QC team hands over the checklists to the field work manager. Feedback is given both to the field team and field work manager who is in charge of field work. The QA/QC team shall detect and observe shortcomings and errors in measurements conducted by normal field teams in the feedback session. Differences in measurements between QA/QC team and field team are stated, and unclear issues are clarified. It must be taken into account that every field team is controlled. The reports can be used for evaluating reliability of the field data. Measurements that were found to be difficult shall be emphasized in future training.

Role of communities in the forest monitoring system

The role of local communities in the implementation of the proposed ER-P forest monitoring system is as follows:

- Identifying and monitoring the key drivers of forest cover change, forest degradation, and carbon stock enhancement across the landscape;
- Assisting in field data collection for estimating forest carbon densities and EFs;
- Assisting in accuracy assessments of (spatial and non-spatial) activity data generated for REDD+, for verifying or validating remote sensing products; and
- Accessing AD, EF and emission reduction information from the national REDD+ information system and conducting basic analysis to inform management interventions.

Participatory forest monitoring under the proposed ER-P has been integrated into a modified annual monitoring of forest and forestry land program to be implemented by the FPD, which has the mandate and human resource capacity (at all levels of administration from commune to national level), to engage with forest owners and local communities[3].

Use of and consistency with standard technical procedures in the country and the National Forest Monitoring System

Use of and Consistency with National Forest Monitoring System:

A measurement, monitoring and reporting (MMR) system for implementation of Vietnam's REDD+ has been developed based on the above programs/projects. The NFIMAP has been used to generate the AD and EFs while the NFIS in combination with the Program no. 32 (see section 2.1.2 above) have been used to verify and improve the AD generated by NFIMAP as well as providing safeguards information. This system allows sub-national forest monitoring at the provincial level. Provincial forest cover maps will be generated every 5 years, based on medium resolution satellite imagery with the previous map as a base for generating AD. Since the Accounting Area of the ER-P consists of six provinces, the AD of the ER-P are aggregated from all data generated by the sub-national forest monitoring operating in each of the six provinces so the AD are fully consistent with the national measurement, monitoring and reporting system for REDD+. The MMR relied on an approach which relies on the use of medium resolution satellite imagery and the base FCM year X-5 to generate the AD.

The plot measurement data of NFIMAP are used to generate EFs for the MMR of the ER-P. The NFIMAP will generate the EFs at the regional level every 5 years, and the latest EFs were generated in 2019 based on the NFIMAP period 2016-2020 (all the sample plots have been inventoried by the end of 2019). Since

[3] Consistent with the Criterion 16 of the FCPF Carbon Fund Methodological Framework.

the Accounting Area of the ER-P covers fully one region (the NCR) of Vietnam, the method for calculation of EFs in 2019 is consistent with methods used in calculation of EFs for 2005 and 2010.

Use of and consistency with standard technical procedures in the country:

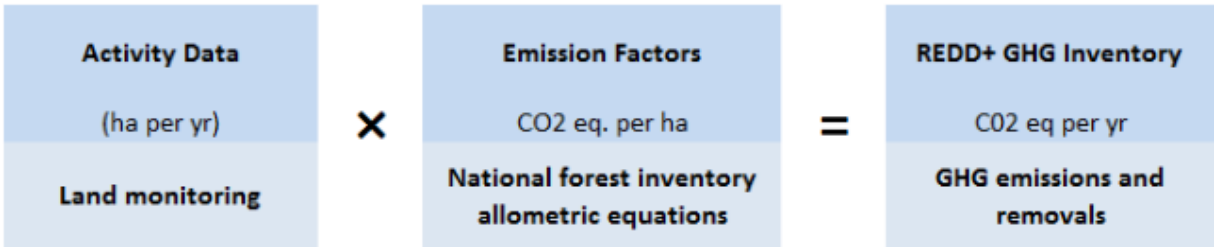
Since the NFIMAP is a national program, its technical procedures are all standard technical procedures for Vietnam. Therefore, the ER-P MMR, which is based on data generated by the NFIMAP, will also follows these standard technical procedures in Vietnam. Currently, the existing SOPs are being reviewed for improvement to be used in the next cycle of NFIMAP. There is a lack of SOP for uncertainty assessment and this SOP needs to be developed in the next cycle of NFIMAP.

2.2 Measurement, monitoring and reporting approach

2.2.1 Line Diagram

The approach for estimating emissions and removals follows the IPCC guidelines, multiplying the activity data (AD) with the emission factors (EF) (Figure A42)[4].

Figure 2: Approach for estimation of emissions and removals



2.2.2 Calculation

Step 1: Calculation of emission factors (EFs) during period 2015-2019

The mean carbon density (tC/ha) of forest type i, denoted as $\overline{CD}_i$, is calculated using the following formula:

$$\overline{CD}_i = \overline{AGBD}_i \times (1 + RS) \times CF$$

Where $\overline{AGBD}_i$ is the mean AGB density of forest type *i*; *RS* is the root-to-shoot ratio; *CF* is the carbon fraction coefficient. In this report, the IPCC default value for RS, which is 0.24 for evergreen broadleaf – rich forest and evergreen broadleaf – medium forest, and 0.20 for other forests and land use categories is used (IPCC, 2006).[5] Similarly, the IPCC default value for CF, which is 0.47 is also used (IPCC, 2006).

After calculation of the carbon densities for each forest type in the years 2015 and 2019, these values were used to calculate the EFs for each land use land cover conversion. To be consistent with FREL/FRL establishment, the carbon densities of "Non-forest land" is assumed to be zero (0). The formular for estimating EFs is:

$$EF_{ij}(\text{tCO2e/ha}) = AF_{ij} \times \left(\overline{CD}_i - \overline{CD}_j\right) \times 44/12$$

Where:

[4] The forest definitions, stratifications, REDD+ activities, carbon pools and gases to be monitored, change matrix are all standardized and follow those already described in Section 8 of ERPD.

[5] When the AGB density of one forest type changes from below 125 tdm/ha in one cycle to above 125 tdm/ha in another cycle or vise versa, there will be a suddent change of ~20% in the Root-to-Shoot ratio (RS) between cycles (from 0.20 to 0.24 or vise versa) and this will cause an artifical change in the BGB density between cycles. To avoid such artifical change in the BGB densities, the AGB densities of NFIMAP Cycle 3 were used to determine the RS for each forest type.

- EF_{ij} is the EF of the conversion *ij* (changed from land use/land cover *i* in 2015 to land use/land cover *j* in 2019);
- AF_{ij} are the correction coefficients for EF_{ij} and are set as follows.
    + For conversion types from a forest class to the same class, which may cause emissions or removals, *AF* = 100%.
    + For other conversion types that cause emissions, all of the emission amount is assumed to occur in the current period (i.e., *AF* = 100%).
    + For other conversion types that causes removals (e.g., conversion from EBF-Poor to EBF-Rich), an AF < 100% is applied to reduce the removal amount in the first period that the conversion occurs. This reflects the fact that the forest restoration process occurs slower over time than the change in forest carbon stock (IPCC, 2006). The correction factors for EFs are as follows: $AF = 10\% \times (t2 - t1)$ for conversion from non-forest land to plantation (i.e., 10 years are needed to fully accumulate the carbon stock of plantation); $AF = 5\% \times (t2 - t1)$ for all other conversion types which increases carbon stock (i.e., 20 years are needed to fully accumulate the carbon stock of the new forest type);
- $\overline{CD}_i$ and $\overline{CD}_j$ are, respectively, the carbon density (tC/ha) of land use/land cover i in 2015 and land use/land cover j in 2019. If $\overline{CD}_i > \overline{CD}_j$, this conversion will emit CO_2 to the atmosphere; Otherwise, this conversion will remove CO_2 from the atmosphere;
- 44/12 is the constant to convert from C to CO_2.

Step 2: Calculation of emissions and/or removals during period 2015-2019

The estimates of emissions and removals are methodologically consistent with methods used in constructing the reference level. Based on AD generation and estimation of EFs/RFs, the emissions and removals during 2015-2019 are estimated using the following formula:

$$E/R_{2015,2019} = \sum_{i=1}^{6}\sum_{j=1}^{6} AD_{ij} \times EF_{ij}$$

Where: AD_{ij} is the AD for land use change from class *i* in 2015 to class *j* in 2019; and EF_{ij} is the emission factor for land use change from class *i* in 2015 to class *j* in 2019.

Step 2: Calculation of annual emissions and removals during 2015-2019

The annual emissions and/or removals during 2015-2019 (4 years) is calculated using the following formula:

$$\overline{E/R} = \frac{E/R_{2015,2019}}{2019 - 2015} = \frac{E/R_{2015,2019}}{4}$$

Step 3: Calculation of annual emissions reduction and/or removals enhancement during 2015-2019

The annual emissions reductions and/or removal enhancements ($\overline{ER/RE}$) during 2015-2019 are calculated by subtracting the annual emissions and/or removals calculated above from the FREL/FRL.

$$\overline{ER/RE} = FREL/FRL - \overline{E/R}$$

Step 4: Calculation of emissions reduction and/or removals enhancement during 2018-2019

The emissions reduction and/or removals enhancement during 2018-2019 (2 years) are calculated using the following formula:

$$E/R_{2018,2019} = 2 \times \overline{ER/RE}$$

3 DATA AND PARAMETERS

3.1 Fixed Data and Parameters

Parameter:	$C_{t,6}$ (t = 2005, 2010, 2015 or 2019)
Description:	Carbon density of non-forested land includes agricultural crops (i.e. annual crops, perennial crops), water area and settlement for year t.
Data unit:	Tone of Carbon per hectare (tC/ha)
Source of data or description of the method for developing the data including the spatial level of the data (local, regional, national, international):	When developing FREL/FRL for the ERPD, the carbon density of non-forest land was assumed to be zero. To be consistent with methodology of FREL/FRL establishment, the carbon density of non-forest land is also assumed to be zero in the monitoring period.
Value applied:	*0 (zero)*
QA/QC procedures applied	*N/A*
Uncertainty associated with this parameter:	*N/A*
Any comment:	This assumption is consistent with its value used in construction of reference level for ERP. This could lead to higher emissions resulted from deforestation in both Reference Period and Crediting Period. Therefore, if the emission reduction from deforestation has the positive sign, it will be a conservative estimate.

Parameter:	$AGB_{t,i}$ (t = 2005, 2010; $1 \le i \le 5$)
Description:	Above-ground biomass densities of forest type i for year t (t = 2005 or 2010).
Data unit:	Tone of dry matter per hectare (tdm/ha)
Source of data or description of the method for developing the data including the spatial level of the data (local, regional, national, international):	Source of data: The AGB densities of forest types in the NCR for 2005 and 2010 were calculated using sample plot data inventoried in NFIMAP Cycle 3 (2001-2005) and Cycle 4 (2006-2010), respectively. The details of the AGB densities calculation are described in the "Report on calculation of above-ground biomass densities for forest types in the North Central Coast region".[6] Spatial level of the data: regional
Value applied:	

Forest types	2005 AGB density		2010 AGB density	
	Value (tdm/ha)	Uncertainty (%)	Value (tdm/ha)	Uncertainty (%)
1. EBF_R	293.85	12.85	254.87	8.57
2. EBF_M	127.59	1.62	124.08	2.25

[6] This report is available at: http://vnff.vn/erpa-program/data/emission-factors?hl=en

	3. EBF_P	55.98	3.88	51.62	5.15
	4. Other forests	23.34	8.81	26.38	14.83
	5. Plantations	37.14	29.75	41.70	21.01
QA/QC procedures applied	Yes				
Uncertainty associated with this parameter:	See the table in the "Value applied" field.				
Any comment:	The uncertainty here is the sampling error at 90% CI. The details of the uncertainty calculation are described in the "Report on calculation of above-ground biomass densities for forest types in the North Central Coast region".[7]				

Parameter:	$AD1_{ij}$ ($1 \le i \le 6$; $1 \le j \le 6$)
Description:	Area of land use and land cover conversion from type *i* in 2005 to type *j* in 2010. Types *i* and *j* run from 1 to 6 and mean as follows: 1. EBF_R; 2. EBF_M; 3. EBF_P; 4. Other forests; 5. Plantation; and 6. Non-forested land
Data unit:	Hectare (ha)
Source of data or description of the method for developing the data including the spatial level of the data (local, regional, national, international):	Source of data: AD Annex of Vietnam ERPD for the NCR Spatial level of the data: regional
Value applied:	

REDD+ activities	AD 2005-2010 (ha)
Enhancement	**263,549**
2. EBF_M to 1. EBF_R	18,424
3. EBF_P to 1. EBF_R	0
3. EBF_P to 2. EBF_M	41,799
4. Other forest to 1. EBF_R	0
4. Other forest to 2. EBF_M	0
4. Other forest to 3. EBF_P	21,737
4. Other forest to 5. Plantation	2,728
5. Plantation to 1. EBF_P	0
5. Plantation to 2. EBF_M	0
5. Plantation to 3. EBF_P	0
6. Non forest to 1. EBF_R	0
6. Non forest to 2. EBF_P	0
6. Non forest to 3. Other forest	159,815
6. Non forest to 4. Other forest	19,046
Stable forest	**2,179,707**
1. EBF_R to 1. EBF_R	199,241
2. EBF_M to 2. EBF_M	394,404
3. EBF_P to 3. EBF_P	1,045,638
4. Other Forest to 4. Other Forest	103,945
5. Plantation to 5. Plantation	436,479

[7] This report is available at: http://vnff.vn/erpa-program/data/emission-factors?hl=en

	Deforestation — **106,703** 1. EBF_R to 6. Non-Forest — 632 2. EBF_M to 6. Non-Forest — 5,708 3. EBF_P to 6. Non-Forest — 75,213 4. Other Forest to 6. Non-Forest — 25,150 **Degradation** — **185,299** 1. EBF_R to 2. EBF_M — 34,850 1. EBF_R to 3. EBF_P — 8,801 1. EBF_R to 4. Other Forest — 54 1. EBF_R to 5. Plantation — 424 2. EBF_M to 3. EBF_P — 84,110 2. EBF_M to 4. Other Forest — 892 2. EBF_M to 5. Plantation — 1,606 3. EBF_P to 4. Other Forest — 14,035 3. EBF_P to 5. Plantation — 8,290 5. Plantation to 4. Other forest — 8 5. Plantation to 6. Non forest — 32,227 **Reforestation** — **181,158** 6. Non-forest to 5. Plantation — 181,158 **Stable non forest** — **2,228,105** **Total** — **5,144,520** *Remarks: AD is adjusted based on SAE ratio at 90% CI.*
QA/QC procedures applied	Yes
Uncertainty associated with this parameter:	**Type of change** — **Uncertainty (90% CI)** Deforestation — 23.37% Forest degradation — 9.65% Reforestation — 8.14% Forest enhancement — 5.67% Stable forest — 3.38% Stable non-forest — 3.09%
Any comment:	The uncertainties associated with this parameter have been recalculated using the 90% CI instead of using 95% CI as in the Annex 4 of the ERPD. The forest cover maps in 2005, 2010, 2015 and 2019 were generated by object-based segmentation and classification. The total areas of these maps are 5,118,607 ha, 5,118,612 ha, 5,118,646 ha, and 5,118,646 ha, respectively. The total area of the forest cover change maps periods 2005-2010, 2010-2015 and 2015-2019 (generated by overlaying the corresponding forest cover maps) are 5,118,629 ha, 5,118,664 ha, and 5,120,954 ha, respectively. There are small disparities in the total areas among the forest cover maps and forest cover change maps. In addition, the Emission Reductions Program Document (ER-PD, Submission on January 5, 2018) states that the total area of the NCR is 5,144,520 ha. This area is approximately 25.000 ha larger than the total areas of the forest cover maps and forest cover change maps. For the total areas of each map to be consistent with each other and with the reported total area of the NCR, the area of 5,144,520 ha was used as the reference area to compute ratio for adjustment for each map using the following equation: Ratio = (Reference area) / (Total map area) All map-based area was then adjusted by using the following equation:

	Adjusted area = (Map-based area) * Ratio

Parameter:	$AD2_{ij}$ ($1 \le i \le 6$; $1 \le j \le 6$)
Description:	Area of land use and land cover conversion from type *i* in 2010 to type *j* in 2015. Types *i* and *j* run from 1 to 6 and mean as follows: 1. EBF-R; 2. EBF-M; 3. EBF-P; 4. Other forests; 5. Plantation; and 6. Non-forested land
Data unit:	Hectare (ha)
Source of data or description of the method for developing the data including the spatial level of the data (local, regional, national, international):	Source of data: AD Annex of Vietnam ERPD for the NCR Spatial level of the data: regional
Value applied:	

REDD+ activities	AD 2010-2015 (ha)
Enhancement	**298,515**
2. EBF_M to 1. EBF_R	8,614
3. EBF_P to 1. EBF_R	34
3. EBF_P to 2. EBF_M	62,365
4. Other forest to 1. EBF_R	0
4. Other forest to 2. EBF_M	6
4. Other forest to 3. EBF_P	5,895
4. Other forest to 5. Plantation	11,765
5. Plantation to 1. EBF_P	3
5. Plantation to 2. EBF_M	24
5. Plantation to 3. EBF_P	3,593
6. Non forest to 1. EBF_R	11
6. Non forest to 2. EBF_P	137
6. Non forest to 3. Other forest	168,407
6. Non forest to 4. Other forest	37,664
Stable forest	**2,302,631**
1. EBF_R to 1. EBF_R	157,004
2. EBF_M to 2. EBF_M	413,901
3. EBF_P to 3. EBF_P	1,094,370
4. Other Forest to 4. Other Forest	101,032
5. Plantation to 5. Plantation	536,324
Deforestation	**139,238**
1. EBF_R to 6. Non-Forest	801
2. EBF_M to 6. Non-Forest	3,336
3. EBF_P to 6. Non-Forest	112,974
4. Other Forest to 6. Non-Forest	22,127
Degradation	**255,874**
1. EBF_R to 2. EBF_M	65,079
1. EBF_R to 3. EBF_P	2,453
1. EBF_R to 4. Other Forest	9
1. EBF_R to 5. Plantation	2
2. EBF_M to 3. EBF_P	39,377
2. EBF_M to 4. Other Forest	126
2. EBF_M to 5. Plantation	80
3. EBF_P to 4. Other Forest	12,472
3. EBF_P to 5. Plantation	40,889
5. Plantation to 4. Other forest	117

	5. Plantation to 6. Non forest: 95,269 **Reforestation: 147,590** 6. Non-forest to 5. Plantation: 147,590 **Stable non forest: 2,000,671** **Total: 5,144,520** *Remarks: AD is adjusted based on SAE ratio at 90% CI.*
QA/QC procedures applied	Yes
Uncertainty associated with this parameter:	**Type of change** / **Uncertainty (90% CI)** Deforestation: 13.65% Forest degradation: 20.49% Reforestation: 7.13% Forest enhancement: 27.37% Stable forest: 3.51% Stable non-forest: 3.68%
Any comment:	The uncertainty associated with this parameter has been recalculated using the 90% CI instead of using 95% CI as in the Annex 4 of the ERPD. See comment on Parameter AD1ij above for a procedure to adjust map-based area so that the total area of each time period is consistent over time and with the reported total area of the NCR.

3.2 Monitored Data and Parameters

Parameter:	$AD3_{ij}$ ($1 \le i \le 6$; $1 \le j \le 6$)
Description:	Area of land use and land cover conversion from type *i* in 2015 to type *j* in 2019. Types *i* and *j* run from 1 to 6 and mean as follows: 1. EBF-R; 2. EBF-M; 3. EBF-P; 4. Other forests; 5. Plantation; and 6. Non-forested land
Data unit:	Hectare (ha).
Value monitored during this Monitoring / Reporting Period:	**REDD+ activities** / **AD 2015-2019 (ha)** **Enhancement: 101,535** 2. EBF_M to 1. EBF_R: 847 3. EBF_P to 1. EBF_R: 0 3. EBF_P to 2. EBF_M: 8,388 4. Other forest to 1. EBF_R: 0 4. Other forest to 2. EBF_M: 4 4. Other forest to 3. EBF_P: 284 4. Other forest to 5. Plantation: 4,504 5. Plantation to 1. EBF_P: 0 5. Plantation to 2. EBF_M: 29 5. Plantation to 3. EBF_P: 272 5. Plantatation to 4. Other forest: 10,447 6. Non forest to 1. EBF_R: 2 6. Non forest to 2. EBF_P: 38 6. Non forest to 3. Other forest: 53,104 6. Non forest to 4. Other forest: 23,615 **Stable forest: 2,720,770** 1. EBF_R to 1. EBF_R: 161,841

2. EBF_M to 2. EBF_M	517,721
3. EBF_P to 3. EBF_P	1,244,912
4. Other Forest to 4. Other Forest	143,472
5. Plantation to 5. Plantation	652,824
Deforestation	**27,809**
1. EBF_R to 6. Non-Forest	91
2. EBF_M to 6. Non-Forest	1,433
3. EBF_P to 6. Non-Forest	23,010
4. Other Forest to 6. Non-Forest	3,275
Degradation	**147,937**
1. EBF_R to 2. EBF_M	1,322
1. EBF_R to 3. EBF_P	2,473
1. EBF_R to 4. Other Forest	1,870
1. EBF_R to 5. Plantation	67
2. EBF_M to 3. EBF_P	874
2. EBF_M to 4. Other Forest	1,043
2. EBF_M to 5. Plantation	909
3. EBF_P to 4. Other Forest	25,973
3. EBF_P to 5. Plantation	35,516
5. Plantation to 6. Non forest	77,890
Reforestation	**212,765**
6. Non-forest to 5. Plantation	212,765
Stable non forest	**1,933,704**
Total	**5,144,520**

Remarks: AD is adjusted based on SAE ratio at 90% CI.

Source of data and description of measurement/calculation methods and procedures applied:

- Object-based classification of annual median Sentinel 2 composite image (Based on Google Earth Engine platform).
- Provincial forest and land cover map year 2019 for the six provinces in the NCR.
- Combine provincial forest and land use maps of six NCR provinces to generate the regional forest and land cover map for the NCR.
- Generate the matrix of area from the regional forest and land cover map.
- Illogical conversion in 2015-2019 check and update.
- Generate REDD+ activities map base-on combination with EF.

QA/QC procedures applied:

- Standard procedure for generating the forest cover map was applied QC/QC at some main step checking as: image data collection, Data pre-processing, Object-based classification, illogical conversion checking.
- SOP for Accuracy assessments of the forest cover maps year 2015 and year 2019 are based on interpretation of high-resolution satellite images (Planet) and Google Earth image Google earth engine time series. The 5% sample was used for crosscheck (re-interpretation of independent expert) at sample respond steep, using stratified sampling and applies the method described in Olofsson et al. (2014) to calculate the overall accuracies and area adjusted at CI 90%.

Uncertainty for this parameter:

Cover changes are grouped into REDD+ activities (deforestation, forest degradation, forest enhancement and reforestation) and allocated a degree of uncertainty, calculated by means of an assessment of accuracy based on SBE (Oloffson, 2014).

Margin of Error (MoE) of Deforestation (forest 2015 converted to non-forest land 2019) is 14.94% at CI of 90%. MoE of Forest degradation (high carbon density forest in 2015 converted to other low carbon density forest-land in 2019) is

	28.62% at CI of 90%. MoE of Reforestation (non-forest land in 2015 converted to forest land in 2019) is 13.45% at CI of 90%; and MoE of Forest enhancement (low carbon density forest in 2015 converted to other high carbon density forest-land in 2019) is 5.67% at CI of 90%. **Type of change** / **Uncertainty (90% CI)** Deforestation: 14.94% Forest degradation: 28.62% Reforestation: 13.45% Forest enhancement: 5.67% Stable forest: 2.42% Stable non-forest: 3.38%
Any comment:	• Following standard procedure for classification • Using high accuracy GPS or tablet • Conducting accuracy assessment. If the overall accuracy of forest cover map is below 70%, conduct additional field drawing to increase the accuracy of the maps. • See comment on Parameter AD1ij above for a procedure to adjust map-based area so that the total area of each time period is consistent over time and with the reported total area of the NCR.

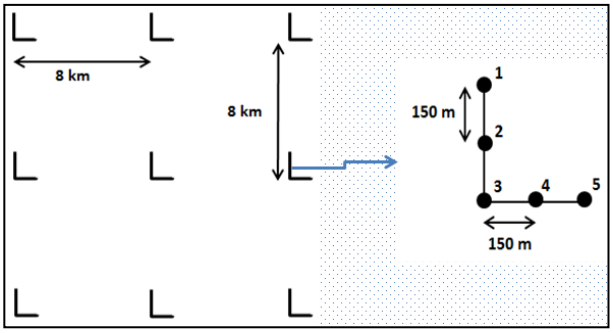
Monitoring emission factors:

Parameter:	AGB(t,i) (t = 2015 or 2019; 1 ≤ *i* ≤ 5)
Description:	Forest above-ground biomass densities of LULC type *i* in year *t*. The values of *i* mean: 1. EBF_R; 2. EBF_M; 3. EBF_P; 4. Other forests; and 5. Plantation.
Data unit:	Tone of dry matter per hectare (tdm/ha)
Value monitored during this Monitoring / Reporting Period:	**Forest types** / **2019 AGB density** (Value (tdm/ha); Uncertainty (%)) / **2015 AGB density** (Value (tdm/ha); Uncertainty[a] (%)) 1.EBF_R: 230.08; 3.84; 241.10; 4.57 2. EBF_M: 128.95; 2.44; 126.79; 1.70 3. EBF_P: 69.50; 5.48; 61.56; 3.95 4. Other forests: 45.47; 17.65; 36.98; 13.14 5. Plantations: 46.41; 9.20; 44.32; 10.49 [a] The uncertainties of 2015 AGB densities are calculated from those of 2010 and 2019 AGB densities using the Monte Carlo simulation method with 10.000 iterations.
Source of data and description of measurement/calculation methods and procedures applied:	Source of data: Datasets of NFIMAP cycle 4 (2006-2010) and cycle 5 (2016-2020) are used for the calculation of AGB densities in 2010 and 2019. The use of these datasets is consistent with the national reference level and the datasets include measurement

	data of secondary sample units (SSUs) in primary sample units (PSUs)[8]. The details of the AGB densities calculation are described in the "Report on calculation of above-ground biomass densities for forest types in the North Central Coast region". Spatial level of the data: regional **Sampling design:** After the completion of Cycle 4, of NFIMAP, Vietnam received support from FAO-Finland through the "Support to National Assessment and Long-term Monitoring of the Forest and Trees Resources in Vietnam (NFA)" Project to improve the sampling design of the NFIMAP to be implemented in the 2016-2020 and subsequent cycles. The NFA Project has successfully developed an improved sample plot system that maintains the consistency with the old sample system but is more efficient. This improved sampling design was reviewed by international experts from United States Forest Service and the World Bank and was highly regarded. This sampling design was chosen in the recently approved National Forest Inventory, Monitoring and Assessment Project Cycle 5 (i.e., period 2016-2020) under the National Target Programme for Sustainable Forest Development period 2016-2020. Since this is a systematic sample across the landscape, it will capture any changes in carbon removals occurring due to the ER program interventions and other forest management activities, in proportion to the area of the activities across the landscape. This improved sample plot system is also function as part of the national Measurement, Reporting and Verification (MRV) system for REDD+. Therefore, in order for the MMR system in the NCR be consistent with the emerging national MRV system, the improved sample plot system proposed by the NFA Project is selected for generating the EFs for the MMR system in the NCR. The centers of PSU and SSUs of cycles 3 and 4 are theoretically coincided because the plots were established using the same design coordinates. However, when conducting the NFI cycle 4, if the SSUs centers of cycle 3 were found (using center marks), the SSUs of cycle 4 were established on the same centers as cycle 3. In the case the SSUs centers of cycle 3 were not found (due to loss of center marks), the SSUs centers of cycle 4 were established based on the designed coordinates and the GPS. For these cases, due to the errors of GPSs as well as human errors, the SSUs centers of cycle 3 and cycle 4 are not coincided but quite close to each other. The SSUs centers of cycle 5 are totally different from those of cycle 3 and cycle 4 (although the grid size is the same (8 km)). The sample plots system is designed by the systematic method covering whole six provinces (Thanh Hoa, Nghe An, Ha Tinh, Quang Binh, Quang Tri and Thua Thien Hue). On each intersection (grid point) one primary sample unit (PSU) is established (seeFigure 3). Main parameters of the sampling design are: • The distance between the PSUs is 8km x 8km; • The PSU is in L shape; • The number of the secondary sample units (SSUs) in one PSU is five; and • The distance between the SSUs is 150m.

[8] The datasets together with the R code for processing them are available at: http://vnff.vn/erpa-program/data/emission-factors?hl=en

Figure 3: Shape and distance between PSUs



There are 453 PSUs with 2,265 SSUs in the NCR.[9] The numbers of PSUs and SSUs per provinces are provided in Table 4. The precise locations of the PSUs will be kept confidential, so as to avoid possible manipulation of the results over time.

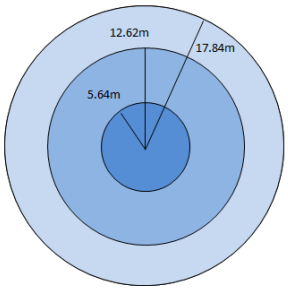
Table 4: The number of PSUs and SSUs by provinces in the NCR

No	Province	Number of clusters	Number of plots
1	Thanh Hoa	84	420
2	Nghe An	160	800
3	Ha Tinh	42	210
4	Quang Binh	75	375
5	Quang Tri	45	225
6	Thua Thien Hue	47	235
Total		**453**	**2,265**

Plot design:

During the implementation of NFIMAP cycle 5, the field inventory of the PSUs has been conducted in three years from 2017-2019. The plot design proposed by the NFA Project has been piloted in 2017. The details of this plot design are as follows: One SSU consists of three concentric circular sub-plots with radiuses of 5.63 m (SP1), 12.62 m (SP2) and 17.84 m (SP3), respectively (Figure 4). The distance mentioned here refers to horizontal distance.

Figure 4: Sample plot design for year 2017



- Sub-plot with the area of 100 m^2 and radius of 5.64m (SP3): Measuring trees with DBH ≥ 6 cm; measuring bamboos with DBH ≥ 2 cm
- Sub-plot with area of 500m^2 and radius of 12.62m (SP2) to measure): trees with DBH ≥ 15 cm
- Sub-plot with area of 1,000m^2 and radius of 17.84m (SP1) to measure): trees with the DBH > 25cm

However, after piloting the plot design described above, it is recognized that this plot design is quite complicated for implementation. Therefore, the plot design has been modified for field inventory in 2018 and 2019. The modifications are as follows: (1) the SSU area is 500 m^2 for plantation forest and 1000 m^2 for other LULC types; and (2) all trees with DBH ≥ 6 cm are measured in the SSU area (i.e., the three concentric

circular sub-plots are not utilized). The area for measuring bamboos remains the same as in 2017.

Although the inventory plot design in NFIMAP cycle 5 is changed compared with previous NFIMAP cycles 3 and 4, which have been used for establishing the FREL/FRL, the sampling method (i.e., systematic sampling with a grid size of 8 km) is maintained. The changes are mainly in the plot design ((i.e., number of SSUs in one PSU, the shape of the SSUs, the area of the SSUs, and the distance between SSUs in one PSU). From the equation to calculate the mean value of AGB densities for these plot designs, it can be seen that these changes will not affect the mean value of the AGB densities, but only affect the standard errors of the mean values. Consequently, these changes will not cause a bias (i.e., a systematic error) of the change between the means of AGB densities in a period, but only affect the uncertainty of the change. Therefore, it can be said that the Monitoring Period uses an equivalent method of field inventory design with that used to set the Reference Level.

Estimation of above-ground biomass densities for forest types in 2019:

The aboveground biomass (AGB) of individual trees in the SSUs are estimated using AEs developed by UN-REDD Vietnam for NCR (Gael Sola et al, 2014). Under the UN-REDD Vietnam, a number of AEs for tree level biomass estimation are developed for national and major eco-regions (northeast, NCR, central highland and southeast). A single equation is also developed for national scale application. The equations are prepared for evergreen broadleaf forests, deciduous forests and bamboo forests that cover most forest area in Vietnam, particularly evergreen broadleaf forests. There are several choices available for using the developed AEs depending on data availability measured such as DBH only; DBH and tree height; and DBH, tree height and wood density (WD). The AEs using different predictors have different accuracies. Of these three predictors, DBH can be measured quite accurately. The NFIMAP data can only estimate the tree heights and WD of woody trees indirectly via height curves and species identification, which can generate additional but often unknown uncertainty. Therefore, tree height and WD are not used as predictors for forest carbon density estimation in this work.

Calculation of aboveground biomass (AGB) for individual trees and bamboos:

1) AGB estimation of trees in evergreen broadleaf forests (including plantations): the following AE is used (Huy, 2014):

$$AGB = 0.121155 \times DBH^{2.415395}$$

(observation = 311; MAE% = 33.6%; adjusted R^2 = 0.854)

Where:

AGB is above ground biomass expressed in kg;
DBH is diameter at breast height expressed in cm;

2) Aboveground biomass estimations for bamboo forests, the equations used are based on bamboo species. The equations are as follows (Phuong *et al*, 2014).

- *Bambusa balcooa*:

$$AGB = 0.0612 \times DBH^{2.0848} \times H^{0.2778}$$

(observation = 120; MAE% = n.a; adjusted R^2 = 0.875)

- *Dendrocalamus membranaceus*:

[9] Of the 453 PSUs, 15 PSUs neither have tree data nor bamboo data and all plots in these PSUs are assigned non-forest land use type.

$$AGB = 0.1012 \times DBH^{1.9667} \times H^{0.2778}$$

(observation = 100; MAE% = 16%; adjusted R^2 = 0.875)

- *Bambusa chirostachyoides*:

$$AGB = 0.3558 \times DBH^{1.2154} \times H^{0.2778}$$

(observation = 120; MAE% = n.a; adjusted R^2 = 0.875)

- *Indosasa angustata*:

$$AGB = 0.2829 \times DBH^{1.4306} \times H^{0.2778}$$

(observation = 70; MAE% = n.a; adjusted R^2 = 0.875)

Where:

AGB is above ground biomass expressed in kg;

DBH is diameter at breast height expressed in cm;

H is the height expressed in m.

For other bamboo species, one of the above four equations, which species has the most similar characteristics with the species in question, are applied.

Calculation of AGB density for each SSU

SSUs of NFIMAP in cycles 3 and 4 have rectangular shape with the size of 25 m x 20 m (an area of 0.05 ha). All trees with DBH ≥ 6 cm are measured in this area. SSUs of NFIMAP in cycle 5 were measured in three years 2017, 2018 and 2019. The plot design of NFIMAP Cycle 5 has been changed after the pilot year 2017. For SSUs measured in 2017, each SSU includes three consensus circular sub-plots with the areas of 0.01 ha (to measure trees of DBH class 1: from 6 to < 15 cm), 0.05 ha (to measure trees of DBH class 2: from 15 to 25 cm) and 0.1 ha (to measure trees of DBH class 3: > 25 cm), respectively. For SSUs measured in 2018 and 2019, each SSU is a circular plot having an area of 0.05 ha for plantation forest or 0.1 ha for other land use and forest types.

The AGB density (tdm/ha) of trees in each SSU is calculated by the following formula:

$$AGBD\_T_i = \sum_{j=1}^{nt_i} \frac{AGB\_T_{ij}}{1000} \times \frac{1}{a_{ij}}$$

Where $AGBD\_T_i$ is the AGB density (tdm/ha) of all trees in SSU *i*; nt_i is the number of trees measured in SSU *i*; AGB_T_{ij} is the AGB (kg) of the *j*th tree in SSU *i*; and a_{ij} is the area (ha) of the sub-plot in which the *j*th tree in SSU *i* is measured. For SSUs measured in cycles 3 and 4, a_{ij} = 0.05 ha. For SSUs measured in 2017 of cycle 5, a_{ij} = 0.01 ha if the tree in question is of DBH class 1; a_{ij} = 0.05 ha if the tree is of DBH class 2; and a_{ij} = 0.1 ha if the tree is of DBH class 3. For SSUs measured in 2018 and 2019 of cycle 5, a_{ij} = 0.05 ha for all trees in SSUs of plantation forest and a_{ij} = 0.1 ha otherwise.

Since the area of bamboo measurement in each SSU of cycles 3, 4 and 5 is 0.01 ha, the AGB density (tdm/ha) of bamboos in each SSU is calculated by the following formula:

$$AGBD\_B_i = \sum_{j=1}^{nb_i} \frac{AGB\_B_{ij}}{1000} \times \frac{1}{0.01} = \sum_{j=1}^{nb_i} \frac{AGB\_B_{ij}}{10}$$

Where $AGBD\_B_i$ is the AGB density (tdm/ha) of all bamboos in SSU *i*, nb_i is the number of bamboos in SSU *i*, and AGB_B_{ij} is the AGB (kg) of the *j*th bamboo in SSU *i*.

	The AGB density (tdm/ha) of living biomass (here assumed to include only trees and bamboos) in SSU *i*, denoted as $AGBD_i$, is estimated using the following formula: $$AGBD_i = AGBD\_T_i + AGBD\_B_i$$ ***Calculation of mean AGB densities for forest types in 2005, 2010 and 2019*** The last field inventory years of NFIMAP cycles 3, 4, and 5 are, respectively, 2005, 2010 and 2019. Therefore, the AGB densities calculated from data of NFIMAP cycles 3, 4 and 5 can be considered as the AGB densities for the years 2005, 2010 and 2019, respectively. The mean AGB density (tdm/ha) of forest type *i*, denoted as $\overline{AGBD}_i$, is the weighted mean of the AGB density over all SSUs in this forest type with the area of each SSU as the weights. $$\overline{AGBD}_i = \frac{\sum_{j=1}^{np_i}\sum_{k=1}^{ns_{ij}} AGBD_{ijk} \times a_{ijk}}{\sum_{j=1}^{np_i}\sum_{k=1}^{ns_{ij}} a_{ijk}}$$ Where np_i is the number of PSUs in forest type *i*; ns_{ij} is the number of SSUs in PSU *j* in forest type *i*; $AGBD_{ijk}$ is the AGB density (tdm/ha) of living biomass of SSU *k* in PSU *j* in forest type *i*; and a_{ijk} is the area (ha) of SSU *k* in PSU *j* in forest type *i*. Regarding the "Other forests" category (i.e.., a combination of bamboo and mangrove forests), its mean AGB density, denoted as $\overline{AGBD}_o$, is calculated using weighted mean as follows: $$\overline{AGBD}_o = \frac{\overline{AGBD}_b \times A_b + \overline{AGBD}_m \times A_m}{A_b + A_m}$$ Where: $\overline{AGBD}_b$ is the mean AGB density (tdm/ha) of bamboo forest calculated from its biomass using equations and plot data; *Ab* is the area (ha) of bamboo forest derived from a forest cover map; $\overline{AGBD}_m$ is the mean AGB density (tdm/ha) of mangrove forest; *Am* is the area (ha) of mangrove forest derived from a forest cover map. Regarding the mangrove forests, there are no measurement plots in PSU in mangrove forests, however there are a number of studies on biomass of mangroves. A review report on biomass and carbon density suggests that the average weighted carbon density for mangrove forest in the North (Northeast, NCR and South Central Coast) is 35.2 tC/ha (Phuong *et al*, 2015). Using the default root-to-shoot ratio of 0.2 and the default carbon fraction of 0.47 in the 2006 IPCC guidelines (IPCC 2006), the mean AGB density for mangrove forest can be calculated to be 62.4 tdm/ha. ***Interpolation of mean AGB densities for forest types in 2015*** With the assumption that AGB densities change uniformly over the period 2010-2019, the AGB density for one forest type in 2015 is interpolated from AGB densities for that forest type in 2010 and 2019 using the following formula. $$\overline{AGBD}_{2015} = \overline{AGBD}_{2010} + 5 \times \frac{\overline{AGBD}_{2019} - \overline{AGBD}_{2010}}{9}$$ Where: $\overline{AGBD}_{2010}$, $\overline{AGBD}_{2015}$, and $\overline{AGBD}_{2019}$ are the mean AGB densities in the years 2010, 2015, and 2019, respectively.
QA/QC procedures applied:	The QA/QC protocol for field inventory developed for the NFIMAP period 2016-2020 were applied.[10]

[10] The QA/QC data and QA/QC reports are available at http://vnff.vn/erpa-program/data/emission-factors?hl=en.

Uncertainty for this parameter:	• The uncertainties for this parameter are provided in the table in the "Value monitored during this Monitoring / Reporting Period" field. • The potential sources of uncertainty considered include: (1) error from sampling and field data measurement; (2) error from estimating AGB using allometric equations. Uncertainty assessment is in section 1.6.3. • Sources of uncertainties: Measurement errors, sampling errors, allometric equation error. • Reducing uncertainty plan: Following QA/QC protocol for field inventory; Using equipment with high accuracy • The details of the uncertainty calculation are described in the "Report on calculation of above-ground biomass densities for forest types in the North Central Coast region".[11]
Any comment:	Equipment used for measurement are GPS, tree diameter measurement tape, tree height measurement equipment, distance measurement equipment. The uncertainty for this parameter is the uncertainty from sampling error; it does not include the uncertainty from measurement error and allometric equation.

4 QUANTIFICATION OF EMISSION REDUCTIONS

4.1 ER Program Reference level for the Monitoring / Reporting Period covered in this report

The reference level is separated for emissions and removals and is updated with newly calculated forest carbon for 2015 and the activity data are updated using the adjusted activity data based on SAE ratio at 90% CI[12]. As the results, the averaged annual reference emission for 2016-2019 is 12.91 million tons of CO_2-e and the averaged annual reference removal is -6.65 million tons of CO_2-e. **That means the total reference emission and removal level for first reporting period (2018-2019) are 25.82 and -13.30 million tons of CO_2e respectively. The net emission reference level for 2018-2019 is 12.52 million tons of CO_2e**.

Table 5. Updated reference level for monitoring period

Year of Monitoring period *t*	Average annual historical emissions from deforestation over the Reference Period (tCO_{2-e}/yr)	If applicable, average annual historical emissions from forest degradation over the Reference Period (tCO_{2-e}/yr)	If applicable, average annual historical removals by sinks over the Reference Period (tCO_{2-e}/yr)	Adjustment, if applicable (tCO_{2-e}/yr)	Reference level (tCO_2-e)
2016	2,646,198	10,263,974	-6,648,726	NA	6,261,446
2017	2,646,198	10,263,974	-6,648,726	NA	6,261,446
2018	2,646,198	10,263,974	-6,648,726	NA	6,261,446
2019	2,646,198	10,263,974	-6,648,726	NA	6,261,446
Total	**10,584,792**	**41,055,896**	**-26,594,904**	**NA**	**25,045,784**

4.2 Estimation of emissions by sources and removals by sinks included in the ER Program's scope

[11] This report is available at http://vnff.vn/erpa-program/data/emission-factors?hl=en

[12] The spreadsheet of reference level calculation is available at http://vnff.vn/erpa-program/mmrs/mc-analysis?hl=en

The estimates of emission and removals enhancement are calculated for the monitoring period of January 2016-December 2019. The annual averaged emissions and removals is used to count emissions and removals for the reporting period (years 2018 and 2019). **The total emission and removal for 2018-2019 are 9.5 and -19.3 million tons of CO_2e respectively. The net emission for this period is -9.8 million tons of CO_2e**.

Table 6. Estimates of emissions and removals in Monitoring Period (2016 -2019**)**

Year of Monitoring Period	Emissions from deforestation (tCO_{2-e}/yr)	If applicable, emissions from forest degradation (tCO_{2-e}/yr)*	If applicable, removals by sinks (tCO_{2-e}/yr)	Net emissions and removals (tCO_{2-e}/yr)
2016	903,744	3,858,198	-9,657,293	-4,895,351
2017	903,744	3,858,198	-9,657,293	-4,895,351
2018	903,744	3,858,198	-9,657,293	-4,895,351
2019	903,744	3,858,198	-9,657,293	-4,895,351
Total	**3,614,976**	**15,432,792**	**-38,629,172**	**-19,581,404**

4.3 Calculation of emission reductions

The monitoring period based on national forest inventory data which is implemented in a 5-year cycle. In this report, the monitoring period is from 1 January 2016- 31 December 2019 and this data was used with updates to calculate the emissions and removals for this period.

The Crediting Period is defined as 1 January 2018-31 December 2025 as mentioned in the FMT Note 2020-3" dated November 4, 2020. This provides guidance on "Crediting Period start Date under FCPF Program". This meets the definition of the Start Date of the Crediting Period provided in the FCPF Glossary of Terms as:

- The start date is the same (not earlier) as the start date for generating ERs;
- The start date is justified by Government of Vietnam policy and practice in terms of forest inventory implementation.
- The start date is not earlier than 1 January 2016
- The start date does not fall within the Reference Period of 2005-2015
- The ER program is in compliance with all requirements since the start date including Safeguards (see Annex I of this report), carbon accounting practices (section 4 of this report), and double counting (section 6 of this report).

As for reporting period for ERP (1 January 2018- 31 December 2019), the emission and removals are calculated using the averaged emissions and removals generated from monitoring period. Details see Table 6 below.

The AGB densities for 2015 were interpolated from AGB densities of 2010 and 2019 using the assumption of linear changes, which may lead to an increase in the uncertainty of emission factors. Therefore, the following secondary data period 2010-2019 have been collected and provided to justify that the interpolation period does not include any unusual and significant forest loss in terms of forest area or forest carbon emissions and therefore that such interpolation does not lead to an increase in the uncertainty of emission factors: (1) annual forest area published by MARD; (2) the annual area of reforestation/afforestation; (3) the annual area of forest fires; and (4) the annual harvest timber volume. These data are provided in tables and charts[13]. It can be observed that: (1) there is no unusual change in the dynamics of forest area of the NCR in the period 2010-2019; (2) there is no unusual change in the annual area of reforestation/afforestation; (3) the area of forest fires is very small compared to the total area of forest in the NCR; and (4) the harvested timber volume grows almost linearly during the period 2010-2019.

[13] The additional data are provided Annexes

Therefore, these data imply that such interpolation does not lead to an increase in the uncertainty of emission factors.

Emissions and removals are estimated separately in the monitoring period. The annual averaged emissions and removals are then calculated and are used to estimate emission reduction and removal enhancement comparing to annual reference emissions/removal level for the reporting period. As the results, total emission reduction and removal enhancement in reporting period (2 years, 2018-2019) are 16,296,460 and -6,017,135 tCO_2-e respectively. Total ERs including ERs and removal enhancement are **22,313,594 tCO2-e.**

Total Reference Level emissions during the Monitoring Period (tCO_2-e)	25,045,786
Net emissions and removals under the ER Program during the Monitoring Period (tCO_2-e)	**-19,581,403**
Emission Reductions during the Monitoring Period (tCO_2-e)	44,627,189
Length of the Reporting period / Length of the Monitoring Period (# days/# days)	730 days/1,461 days
Emission Reductions during the Reporting Period (tCO_2-e)	22,313,594

5 UNCERTAINTY OF THE ESTIMATE OF EMISSION REDUCTIONS

5.1 Identification, assessment and addressing sources of uncertainty

Identification and assessment of sources of uncertainties possibly incurred during the development of activity data and emission factors are described as follows:

Table 7. Uncertainties sources and assessment

Sources of uncertainty[14]	Systematic	Random	Analysis of contribution to overall uncertainty	Contribution to overall uncertainty (High / Low)	Addressed through QA/QC?	Residual uncertainty estimated?
Activity Data						
Measurement	☒	☒	This source of uncertainty is applicable to cases where activity data is based on sampling. This is linked to the visual interpretation of operators and/or field positioning and it may be the origin of both systematic and random errors. Usually, this source of error is high as evidenced by recent studies. Quantification methods for this source of error are in a research phase and have not been applied in operational contexts. Therefore, countries shall address this through robust QA/QC procedures that address both systematic and random error. Robust QA/QC procedures include: • Written Standard Operating Procedures including detailed labelling protocols; • Use of adequate sources of imagery and multiple imagery sources for labelling; • Training procedures for interpreters, to ensure the correct implementation of SOPs; • Re-interpretation of a number of sample units to ensure that SOPs are implemented correctly and identify areas for improvement.	H (bias/ random)	YES	NO
Representativeness	☒	☐	This source of uncertainty is related to the representativeness of the estimate which is related to the sampling design. If the sample is not representative for the area of interest or the time of interest (e.g. not all elements of the population or region of interest are included in the sampling frame; deforestation is not measured for the period of interest), the estimate given by the sample will not be representative and this can be a cause of bias. Biases must be avoided as far as practical, and this can be avoided through a correct sample design which can be ensured through adequate QA/QC processes.	L (bias)	YES	NO
Sampling	☐	☒	Sampling uncertainty is the statistical variance of the estimate of area for the applicable forest transitions that are reported by the ER Program. This source of	H (random)	YES	YES

[14] At minimum, the sources listed in the table should be analyzed, others can be added as identified by the ER Program

			error is random, but the selection of the estimator might be a source of error. ER Programs shall use reference data and unbiased estimators for estimating activity data and its uncertainty, as recommended by the GFOI MGD. See FAQ on area estimation and section 5.1.5 of the MGD (GFOI 2016), *Good practices for estimating area and assessing accuracy of land change* by Olofsson et al. (2014), for more information on how estimates can be produced using unbiased estimators of activity data. Selection of a proper estimator would also be a source of uncertainty which would be addressed via QA/QC procedures.			
Extrapolation	☒	☐	This source of uncertainty is relevant when a stratified estimation (i.e., forest cover change map as stratification and sample) is applied. This source of uncertainty is related to the extrapolation of an estimate of the population to subpopulations which may lead to bias. In some cases, ER Programs have estimated a variable of interest at the level of the Accounting Area, such as deforestation in hectares, and then they have inferred the variable of interest per forest type using a map, e.g. deforestation is 1000 ha according to the sample, the maps indicates that 30% of deforestation is in forest type A and 70% in forest type B, so it is inferred that 300 ha of deforestation in forest type A and 700 ha in forest type B based on the map areas. This source of error may be a source of bias which is difficult to quantify. 2006 IPCC guidelines, state that "...where biases cannot be prevented, it is good practice to identify and correct them when developing a mean estimate...". ER Programs should avoid using these methods and if they are not able to avoid them, they should justify if this will lead to an overestimation of Emission Reductions and apply any corrective measures. These errors may be avoided with QA/QC procedures.	L (bias)	YES	NO
Approach 3	☒	☐	This source of uncertainty exists when there is no tracking of lands or IPCC Approach 3. This occurs in cases when, for instance, an ER Program conducts two independent surveys to estimate activity data in period 1 and period 2 (e.g., dividing the reference	L (bias)	YES	NO

			period in two sub-periods) without conducting tracking of lands. In this example, there is a risk that transitions are counted twice. For instance, if a unit of land transits from forest to non-forest, and then back to forest and then non-forest, there is a risk that deforestation is "double counted" if there is not a system to ensure tracking of lands. Solutions in this case are to avoid independent surveys (through permanent sample units) or to define transition rules and ensure that interpreters look at the past history of the sample unit to ensure that the transitions rules are respected. This is mitigated through the introduction of strong QA/QC measures.			
Emission factor						
DBH measurement	☒	☒	Measurement of DBH and plot delineation are subject to errors. Errors may be caused by multiple factors such as poor training, poor measurement protocols, etc. While measurement errors are significant at the tree level, they usually average out at plot level and inventory level (Chave et al. 2004). Picard et al. (2015) also found the measurement error to be small when compared to the other errors. The FMT conducted an assessment of the contribution of this source of error (c.f. Annex) and found that this source of error should be negligible for Emission Reduction estimation, provided minimal QA/QC procedures are in place. The contribution of this source of error to random error is low, yet QA/QC procedures should be in place to avoid systematic errors.	H (bias) & L (random)	YES	NO
H measurement error	☒	☒	H parameter is not used in the estimation of EF	NA	NA	NA
Plot delineation	☒	☒	See analysis in column "DBH measurement" above.	H (bias) & L (random)	YES	NO
Wood density estimation	☒	☒	Wood density is not used in the estimation of EF	NA	NA	NA
Biomass allometric model	☐	☒	Allometric models/equations include several sources of uncertainty: • Choice of the allometric equation • Uncertainty attached to estimated model coefficients and the residuals of the model According to Picard et al. (2015) and Chave et al. (2014) the main source of uncertainty is the selection of the	H (bias) & L (random)	YES	NO

			allometric equation. The lack of validation of the allometric equation should be considered as a source of bias, discussed, and addressed as far as practical by the REDD Country. QA/QC procedures shall be in place to ensure that the best allometric model is used and that any identified bias have been addressed. If bias is identified and this could lead to an overestimation of Emission Reductions, this could be addressed by making the allometric model more conservative through the application of correction factors.			
Sampling	☐	☒	This is applicable for cases when the carbon densities of forest used to derive emission factors are based on a terrestrial inventory based on a probabilistic design. Sampling uncertainty is the statistical variance of the estimate of aboveground biomass, dead wood or litter. This source of uncertainty is random. Selection of a proper would also be a source of uncertainty which is systematic and would be addressed via QA/QC procedures.	H (random)	YES	YES
Other parameters (e.g. Carbon fraction, Root-to-shoot ratios)	☒	☒	Some other parameters are used to estimate emission factors, such as emission factors, aboveground biomass in non-forest land and root-to-shoot ratios. These are usually not measured but sourced from scientific publications, databases or the 2006 IPCC Guidelines. This can lead to both random and systematic errors. The random error of each individual parameter might be low but the aggregated effect might be high. Moreover, the lack of QA/QC procedures for the selection of the values may lead to high systematic errors.	H (bias/ random)	YES	YES
Representativeness	☒	☐	This source of uncertainty is related to the representativeness of the estimate which is related to the sampling design. If the sample is not representative for the area of interest (i.e. each element in area of interest has a known inclusion probability >0 and some random process is used to select elements), the estimate given by the sample will not be representative and can cause bias. Biases must be avoided as far as practical and this can be avoided through a correct sample design which can be ensured through adequate QA/QC processes.	L (bias)	YES	NO
Integration						

Model	☒	☐	The combination of AD & EF does not necessarily need to result in additional uncertainty. Usually, sources of both random and systematic error are the calculations themselves (e.g. mistakes made in spreadsheets) and the process of data preparation (e.g. pre-processing, data cleansing, data transfer, etc.). All models are simplification of reality, and this simplification could be a source of bias to emission reductions. All these sources are addressed with adequate QA/QC processes.	L (bias)	YES	NO
Integration	☒	☐	This source of uncertainty is related to the lack of comparability between the transition classes of the Activity Data and those of the Emission Factors. Activity Data is usually estimated through remote-sensing observations, whereas Emission Factors for a specific forest type could be based on ground-based observations of the forest type. These may not be comparable, and it may represent a source of bias.	L (bias)	YES	NO

5.2 Uncertainty of the estimate of Emission Reductions

Parameters and assumptions used in the Monte Carlo method

The Monte Carlo Method was applied to assess uncertainties of emissions and removals estimates in reference level and the reporting period. In this analysis, all parameters associated with emissions and removals estimates are simulated with assumption of normal probability distribution. The parameters analyzed are as follows:

Table 8. Parameters and assumption used un the Monte Carlo methods

Parameter included in the model	Parameter values	Error sources quantified in the model (e.g. measurement error, model error, etc.)	Probability distribution function	Assumptions
Above Ground Biomass	AGB densities of 5 forest types for 2005, 2010 and 2019: the uncertainties of AGB densities are estimated as the sampling error at 90% CI	Sampling error	Normal	
Activity Data (number of ha of change in forest type)	AD of three periods 2005-2010, 2010-2015 and 2015-2019: the uncertainties for AD are estimated based on sample-based accuracy assessment of the LULC change maps.	Sampling error	Normal	
Root:Shoot Ratio	the value applied is 0.20 for AGB < 125 t.d.m/ha (i.e., ABF_P, other forest and plantations) or 0.24 otherwise (i.e., EBF_R and EBF_M) and the error at 95% CI is 20% *(*GOFC-GOLD sourcebook 2015, Table 2.3.3, page 72*).*	Estimation error	Normal	
Carbon Fraction	The value applied is 0.47 and the default error at 95% CI is 2.7% *(*IPCC 2006, Volume 4)	Estimation error	Normal	

The ratio of CO_2 molecular weights is used in the simulation for conversion of C to CO_2. However, it is a fixed parameter. The details of description on parameters, parameters values, standard errors and probability distribution function are provided in separate spreadsheet[15].

Quantification of the uncertainty of the estimate of Emission Reductions

The uncertainty analysis of the defined parameters for 10,000 runs in excel spreadsheet for emissions and removals estimates as well as annual emission reduction and removal enhancement. The uncertainty for total emission reduction is 31% and 77% for total removal enhancement (see Table 10). The uncertainty of total emissions and removals estimates for reference level are 17% and 20% respectively. These figures for results period are 23% and 23%. Details of MC analysis is provided in the spreadsheet.

[15] The spreadsheet for MC analysis is available at: http://vnff.vn/erpa-program/mmrs/mc-analysis?hl=en

Table 9. Results of uncertainty analysis of emission reduction and removal enhancement in tCO_2-e for reporting period

		Reporting Period	Crediting Period
		Total Emission Reductions*	Total Emission Reductions*
A	**Median**	22,235,812	22,235,812
B	**Upper bound 90% CI** (Percentile 0.95)	29,465,599	29,465,599
C	**Lower bound 90% CI** (Percentile 0.05)	15,283,807	15,283,807
D	**Half Width Confidence Interval at 90% (B – C / 2)**	7,090,896	7,090,896
E	**Relative margin (D / A)**	32%	32%
F	**Uncertainty discount**	8%	8%

5.3 Sensitivity analysis and identification of areas of improvement of MRV system

Sensitivity analysis is conducted manually to understand the impacts of input parameters (such as AGB, AD, RS and CF) on the overall uncertainty of emissions and removals estimates. The sensitivity analysis is conducted for the following scenarios (see Table 10):

- Includes input parameters (AGB, AD, RS, CF) with its estimated standard error.
- Include single parameters by setting its standard error value to a very small vale (0.00001). This is conducted for every parameter.

Table 10. Sensitivity results summary - Emission Reduction and Removal enhancement (2 years)

Sensitivity analysis types	Total Emission Reductions*	ERs – Deforestation	ERs – Degradation	Total removal enhancement	REs - Restoration	REs - Reforestation	Total emission reduction and removal enhancement
With All Uncertainty Terms	31%	16%	40%	77%	86%	67%	32%
Dropping AGB Uncertainty	10%	16%	12%	13%	10%	50%	8%
Dropping AD Uncertainty	30%	5%	38%	76%	86%	46%	31%
Dropping RS Uncertainty	31%	16%	39%	77%	86%	67%	32%
Dropping CF Uncertainty	31%	17%	40%	77%	86%	67%	32%

The impact of overall uncertainty for estimates of emissions and removals from the input parameters is shown in Table 11. The results indicated that the impacts of AGB on overall uncertainty of total emission reduction, particularly uncertainties for emissions from forest degradation and removal enhancement. The impacts of AD is more on AD for deforestation and reforestation. This suggest that the MRV should focus on improving AGB estimates and AD for deforestation and reforestation.

Table 11. Impacts of input parameters on overall uncertainty of emissions and removals estimates

Impacts	Total Emission Reductions*	Emissions - Deforestation	Emissions - Degradation	Total removal	Removal - Enhancement	Removal - Reforestation	Total emission reduction and removal enhancement
Impacts of AGB to overall uncertainty	21%	0%	28%	64%	76%	17%	24%
Impacts of AD to overall uncertainty	2%	11%	2%	1%	0%	21%	1%
Impacts of RS to overall uncertainty	0%	0%	0%	0%	0%	0%	0%
Impacts of CF to overall uncertainty	0%	0%	0%	0%	0%	0%	0%

6 TRANSFER OF TITLE TO ERs

6.1 Ability to transfer title

The ability of the Program Entity to transfer the titles to ERs under the ERPA shall not be affected by any considerable legal and trade challenges in the context of the current situation of forest and environmental protection I Vietnam. Physically, the Program Entity is in full control of ER activities due to the following factors: (1) The major part of forests, especially natural forests belong to the State-owned enterprises and forest management boards that are under management of the MARD which shall be acting as the Program Entity; (2) all other forest owners in the ER Program Area are committed to participate in the ER Program and subject to its activities and the ERPA[16]; (3) currently in the ER Program Area, there is no and will not be in the near future significant ER market that challenges the volume of ERs committed by the Entity under the ERPA; (4) the non-state forest owners in the ER Program Area are unable to measure and register their ERs for any transactions outside ER Program; (5) MARD and provincial governments in Vietnam are carrying out different activities provided in the National Program for Sustainable Forestry Development. This means that ER Program and ERPA are not available, forest owners will reduce ERs. Otherwise speaking, the ERPA only strengthens the Program Entity's ability to transfer ER titles.

The Program Entity's ability for transfer ER titles shall not challenge the land and resource tenure rights of the potential rights-holders, including Indigenous Peoples since ER Program implementation does not lead to any confiscation, withdrawal or restriction of such rights of such holders. In issuing regulations on ER right transfer, the Program Entity shall ensure implementation of the provisions of the 2017 Law on Forestry on forests of communities, including indigenous ones. Besides, implementation of ER Program shall bring benefits to indigenous peoples. The regulations of ER registration and transfer will be approved by the Government that ensure ER titles free of contest.

[16] The commitment of forest owners and local communities and households is demonstrated through a number existing procedures and actions and also through procedures introduced through the ERPA Decree no.107//2022/ND-CP dated 28 December 2022. Existing articles in the Law on Forestry 2017 assign responsibilities and require commitments to forest protection, for example, through household based forest protection contracts etc. Roles and responsibilities of the forest owners are also set out. Local communities are also able to participate in of the monitoring of the local forest area. Annual work plans are required as per Article 9 in the Decree no 107 "d) CPC and other organizations assigned by the State to manage forests. Based on the notice of payment amount from the provincial Fund, the CPC and other organizations assigned by the State for forest management shall prepare the annual financial plans'. Commitment is also demonstrated in the Decree 107 through contracts for forest protection; forest management agreement/ contract, Article 8 b).

The details of legal regulation on transferring title to ERs is provided for in Decree no. 107/2022/ND-CP. Over the period 2018-2019, Vietnam has developed a specific legal document on carbon title for the ERP and it is now approved as Decree no. 107. The main contents of this legal arrangement include:

- Application and scope of transfer title to ERs;
- Confirmation and registration of transfer title to ERs
- Transfer title to ERs within ERPA and outside ERPA;
- Benefit sharing among the beneficiaries in the ERP area; and
- Monitoring and management of transfer title to ERs.

The Ministry of Agriculture and Rural Development (MARD) is the responsible agency to transfer title of ERs (Article 4 of Decree no. 107) to the carbon fund under the agreement between MARD and the World Bank (ERPA). MARD will secure the agreed transferable amount of ERs set in the ERPA.

To date the ability of the Government of Vietnam to transfer an ER title/ ER Result has not been challenged or contested. There is no other legislation that recognizes an ER title or ER result or allows for the transfer of an ER title or an ER result as per Article 4 of the Decree no. 107.

The payment for ERs generated by the ERP will be made to Vietnam Forest Protection Fund (VNFF). VNFF will then share payment to the forest owners in ERP area through its branches at provincial level that complies with the benefit sharing plan.

Vietnam Administration of Forestry (VNFOREST) takes overall responsibility for monitoring and managing the transfer of ER title. This includes: (1) monitoring the emissions and removals; (2) data management and registration of carbon title linking to existing platform, for example, land registration system, Forestry management Information System (FORMIS) or REDD+ registration; and (3) monitoring of benefit sharing and implementing safeguard measures.

Vietnam is now preparing a policy to promote domestic carbon market which is expected to promote the carbon trading in different sectors, including private sector. The operation of transferring title to ERs in ERPA will provide significant lessons for future operation of domestic carbon market in Vietnam. This also allows the monitor of emission reduction resulted from the forestry development program as contribution to the nationally determined contribution (NDC) of the country.

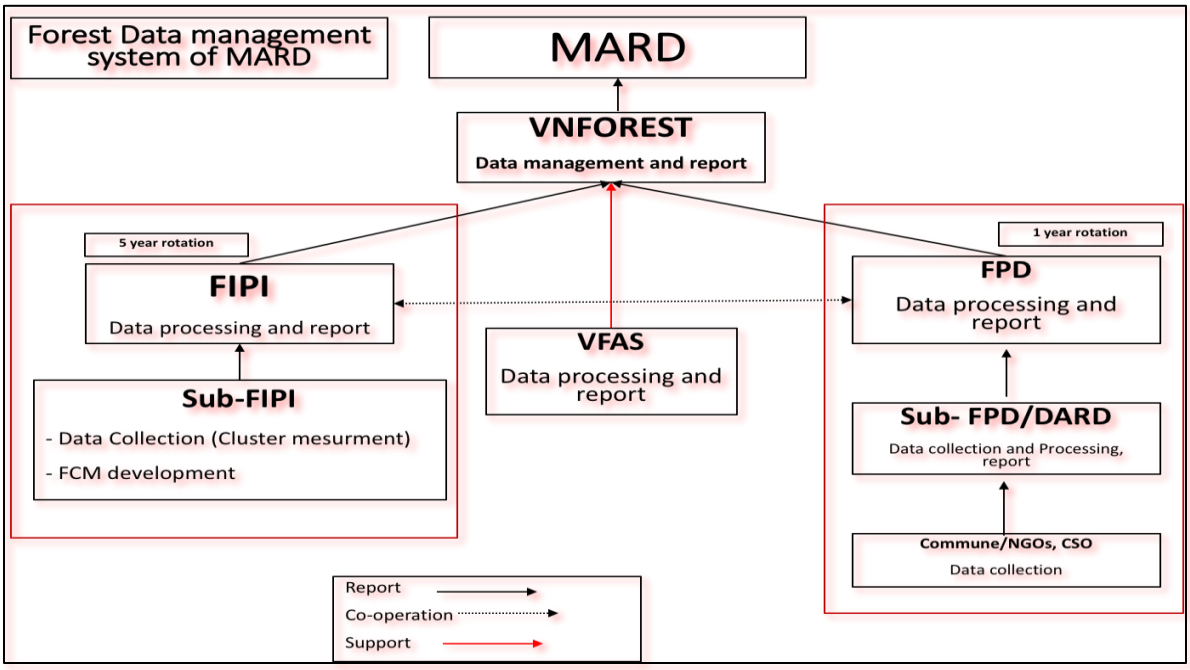
6.2 Implementation and operation of Program and Projects Data Management System

Basically, the organizational structure of the database management system has not changed in comparision to the proposal of the Program approved by the FCPF Council, some work has been done for the preparation work. These include tasks allocation to steering committee and provincial levels, legal framework development, guidelines for program operation and financial management etc.

The Ministry of Agriculture and Rural Development assigned the management of this database system to the Vietnam Administration on Forestry (VNFOREST)/the Administration Office of VNFOREST and Forest Protection Department (FPD). Overall arrangement for operation of ERP and data management is shown in Figure 5.

As far, there is no other emission reduction programs and forest-based carbon projects approved in Vietnam. The Government is developing legal framework for emission reduction trading and tracking, including the data management and sectoral GHG inventory. Such framework will include future initiatives if they were to occur in Vietnam. Therefore, the current Data Management System only includes the FCPF Program.

Figure 5. Overall arrangement for ERP operation and database management



In addition to implementation of ERP, the preparation, collection and management of forest related data is coordinated and implemented. This database supports the monitoring of implementation of ERP and other related outputs.

- From 2015, after the forest inventory and statistic data are published and VNFOREST assigned Formis project and FPD to store this data they have responsibility to manage this system and when the FORMIS project ended, the database system was be transferred to the VNFOREST by the IT team of the Administration Office. The database includes data on forest area for each Province, including the North Central Coast region with 6 provinces from Thua Thien Hue, Quang Tri, Quang Binh, Ha Tinh, Nghe An and Thanh Hoa.

- Updating forest information is carried out from the localities every year. Information on forest area is updated by the FPDs from commune to district level and to province level. Provincial FPD reports FPD/VNFOREST on-line data and maps (if it is not possible to transfer files online, so they can transfer direct the file to the Forest Protection Department/VNFOREST to ensure regular updates from local level. In recent years, with the support of the FCPF2 and UNREDD + phase II projects, together with the EU-supported domestic NGOs projects, each province has organized 10-15 training courses on using GPS and tablet for monitoring of forest changing in communal level with support of CFMS software to updat forest changes from local to districts and provinces.

- The VNFOREST/FPD coordinates with consulting agencies such as the Forest Inventory and Planning Institute, the Vietnam Academy of Forest Science (VAFS), and the Vietnam Forestry University (VFU) to advise the Ministry of Agriculture and Rural Development (MARD) to publish data on forest area in nationwide and for the region yearly in April. Information on forest areas, by forest types, forest managers, forest user etc. are publiced and are available on the General Department Webs website and through press conferences. Numbers of illegal cases, areas of forest lost, area of converting forest to other land use form, and more detailed information on forest are reported in the VNFOREST summary, if required, will also be provided. To support Provincial Forest Protection Department (Sub-

FPD), FIPI has developed a local information-updating tool for collection of forest changing data by using GPS and tablet, guidance on the investigation of sample plots. Vietnam Academy of Forest Science (VAFS) to develops a guidance on calculation of forest carbon stocks and for reports.

- In parallel with VNFOREST data system, based on the updated local map, the Forest Inventory and Planning Institute uses satellite images of Sentinel provided free of charge to update and supplement the area, coordinate with the inventory system (sample cluster plots system) in the North Central region to determine the average volume of forest types, thereby determining the forest volume of the whole region and coordinate with the results of the study of conversion coefficients from tree volume to biomass and carbon volume of the VAFS and VFU for calculating of the RELs for the period 2015 and updated it for 2019. (Institute used the survey plots from 565 cluster of plots in the North Central region with 2290 plots with an area of 1 ha. On this basis of those data, the RELs have been calculated and adjusted and completed the monitoring system for localities).

VNFOREST takes a leading role in coordinating operation and implementation of ERP, in collaboration with line ministries and departments across levels, with the support of National Steering Board for Sustainable Forestry Development and REDD+. The key forestry development programs are coordinated to achieve the objectives of ERP includes:

- Sustainable forestry development program (also called Program 886): Currently the program has ended, the Vietnam Administration of Forestry has been developing a new program on forest protection and development to replace Program 886, the Financial Planning Department of the VNFOREST is the governing body they manage information on afforestation and reforestation. Every year, the provinces make statistics on the implementation of the Program to report to the VNFOREST.

- National policy on payment for forest environmental services (regulated by the Decree 156/2018/ND-CP. This policy provides significant financial investment for forest protection (about 7 million USD per year).

- National target program on sustainable poverty reduction 2016 - 2020 proposed with a total budget of more than USD 2 billion, and of this a significant share is allocated to the ER-P accounting area (Decision no. 1722/QD-TTg of PM dated September 2, 2016). By the end of 2020, the Government commits to continue this program, the Ministry of Labor, Invalids and Social Affairs and the Ministry of Planning and Investment are currently drafting a proposal for the Program.

- Project for protection and development of coastal forests: The project supports the implementation of the plan for coastal forest protection and development to cope with climate change (Decision on 120/QD-TTG dated 22 January 2015). Currently, the project provinces are preparing to summarize the project and the next MARD has proposed FMCR projects for 8 provinces including 6 provinces in the North Central region;

- The Project of Forestry Sector Modernization and Coastal Resilience Strengthening (FMCR) includes the North Central provinces of Thua Thien Hue, Quang Tri, Quang Binh, Ha Tinh, Nghe An, and Thanh Hoa.

In addition to the ongoing program, there are numbers of planned investment programs that support the ERP implementation using state and local budget. These planned programs to be funded and implemented in the ERP area are:

- The project Investment of High-tech in forest management and monitoring of biodiversity and forest changes by using of remote sensing images at the nearest time, establishing a center data management at the VNFOREST for the period 2021-2025, including 6 provinces in the North Central region.

- Prepare to deploy forest inventory and statistic data collection every 10 years using satellite images for forest inventory (area and volume of wood, forest biomass ... biodiversity) nationwide.

- Develop guidelines for MRV implementation for large timber reforestation and REDD+ implementation in forestry sector.

- Assessment of effective management and protection of existing forests to reduce deforestation and forest degradation (Assess forest status, develop plans to implement Directive 13-CT/TU)
- The Forest and Delta Project in Thanh Hoa, Quang Binh and Quang Tri Thua Thien Hue provinces (VFD 2)

- Project of Sustainable Forest Management, Restoration and Promotion of Forest Certification in Vietnam including Quang Binh, Quang Tri, and Thua Thien Hue provinces. (KFW 12)

- Project on Sustainable Management and Forest Certification Granted by GIZ for Quang Binh, Quang Tri, and Thua Thien Hue provinces.

6.3 Implementation and operation of ER transaction registry

In the ERP, the plan for the development of a REDD+ registry system will be linked to available land registration platform. Technically, it is possible but it will be very costly to monitor and certify emissions reduction and removal enhancement for every forest owner in the accounting area. The current monitoring system for emissions and removals cover provincial level. Therefore, the REDD+ registry system should be simple and cost-effective.

In order to avoid double counting, as per Criterion 38, the Program Entity has decided to use the FCPF ER Transaction Registry. Consequently, the responsibilities of the Registry Administration as well as the buffer management will fall on the Trustee of the Carbon Fund.

As for the ERP, MARD is the responsible agency to transfer title of ERs to the carbon fund under the agreement between MARD and the World Bank (ERPA and Decree no. 107). MARD will secure the agreed transferable amount of ERs set in the ERPA.

VNFOREST takes overall responsibility for monitoring and managing the transfer of ER title. This includes: (1) monitoring the emissions and removals; (2) data management and registration of carbon title for provinces in the accounting area; and (3) monitoring of benefit sharing and implementing safeguard measures.

The measurement, registration of ER shall be made in compliance the ER Program's mechanisms and regulation adopted by the MARD under authorization of the Premier right after the ERPA is signed. The Registry shall have responsibility to ensure, by using ER registration data, that no any amount of the ERs transferred to the Carbon Fund, set aside to meet Reversal Management requirements under other GHG accounting schemes be sold, transferred or accounted for whatever transactions. The Program entity is

responsible to ensure all ER transactions under ERPA and transactions possibly made by the forest owners in the ER Program Area not affect performance of the ERPA.

All information on counting and transferring emissions reduction rights will be posted on the following portal of Vietnam Forest Protection and Development Fund[17] (**http://vnff.vn/?hl=en)**:

This information will be used for monitoring, reporting and especially avoiding adouble accounting and transaction of REDD+ credits. This far, there is only one emission reduction program in Vietnam, therefore, double counting and/or transaction of REDD+ credits is very low risk. Under the new Environment Protection Law 2020 and Decree No. 06 on emission reduction, A focal point of climate change under ministry of Natural Resource and Environment will develop a platform and database for monitoring and tracking emission reduction generated by sectors and activities to provide transparent information for supporting carbon trading in international and domestic carbon markets.

6.4 ERs transferred to other entities or other schemes

As calculated, the total carbon credit (emission reduction and removal enhancement) regenerated in the reporting period (2018 and 2019) by the programme is about **22.3 million tons of CO_2-e** (emission reduction amount is 16.3 million tons of CO_2-e and removal enhancement is -6.0 million tons of CO_2-e). This far, the only agreement between Vietnam (MARD) and the carbon fund (WB) is made to sell the emission reduction credits through the ERPA. The transfer of ERs of the ER programme will follow the agreement and conditions set in the ERPA and Decree no.107/2022/ND-CP dated 28 December 2022 confirms this.

7 REVERSALS

7.1 Occurrence of major events or changes in ER Program circumstances that might have led to the Reversals during the Reporting Period compared to the previous Reporting Period(s)

Not applicable to MMR1. The reason that Reversals is not applicable is because this is the first Reporting Period, so there were no previously claimed Emission Reductions that can have been reversed.

However, the key actions taken to minimize reversal potential are: (1) strengthen law enforcement on forest protection to control deforestation and forest degradation; (2) Forest monitoring, including participatory monitoring; (3) Coordinate and integrate the forestry investment programs in NCR to according to the plan of forest protection and reforestation as well as agriculture production improvement for improved livelihood of local communities, especially forest dependent commnities.

7.2 Quantification of Reversals during the Reporting Period

Not applicable to MMR1. The reason that Reversals is not applicable is because this is the first Reporting Period, so there were no previously claimed Emission Reductions that can have been reversed.

[17] A new window will be set up to provide all information on ERP implementation and emission reduction transfer

7.3 Reversal risk assessment

Following the monitoring forests and land uses changes in the reporting period, the reversal risks assessment in the furture is summarized as follows and the total default value for reversal to be set aside is 21%:

Risk Factor	Risk indicators	Default Reversal Risk Set-Aside Percentage	Discount	Resulting reversal risk set-aside percentage
Default risk	*N/A*	**10%**	*N/A*	*10%*
Lack of broad and sustained stakeholder support	*The ERP is fully aligned with strategies and policies on sustainable forest management and poverty reduction (i.e. national program on sustainable forest management, sustainable poverty reduction, technical support by agriculture extension center etc.). The ERP is effectively supported by numbers of forest development programs, including livelihood development, focusing on forest dependent communities. In addition, the government supports The settlement of land disputes and complaints as regulated by the provisions of the Land Law and other relevant legal provisions.*	**10%**	*10%*	*0%*
Lack of institutional capacities and/or ineffective vertical/cross sectorial coordination	*The ERP engages multi stakeholders and sectors in implementation across levels under the close coordination of State Steering Committee and Ministry of Agriculture and Rural Development. Integration of REDD+ issues and climate change mitigation and adaptation is being promoted. In addition, there is a strong vertical integration, with the Central State having a strong influence on provincial, district and commune matters. With current administration system, the institutional framework for forest governance is extended from national to sub-national level. However, the collaboration and integration of investment programs in forestry sector are not well coordinated as the different management regulations. The planning law 2017 requires cross-sector engagement in planning processes that promote cross-sectors coordination.*	**10%**	*5%*	*5%*
Lack of long term effectiveness in addressing underlying drivers	*The Government has invested numbers of investment programs on forest development and management and implemented law enforcement to control forest conversion (hydro-power plant development etc.). Protection of existing forest area and strict control of forest conversion are the policy priority (i.e. Forestry Law 2017 and Forestry Development strategy 2021-2030 and vision to 2030). Comparing to reference period and the results presented in Section 1 , the law enforcement is strengthened with positive*	**5%**	*2%*	*3%*

	achievement in addressing the underlying drivers for deforestation and forest degradation.			
Exposure and vulnerability to natural disturbances	*Climate change impacts are considerable challenges for Vietnam and its forestry sector. The risks include forest fires, impacts of typhoons (landslide, flash flood). As the records (table 1, section 1) on forests damaged by natural disasters (typhoons, fires) it seems those damages are increasing. Therefore, the natural risks to the forests remain unpredictable. There is no major events incurred in the reporting period.*	**5%**	*2%*	*3%*
Total reversal risk set-aside percentage				**21%**

Total reversal risk set-aside percentage from ER-PD or previous monitoring report (whichever is more recent)	**21%**

8 EMISSION REDUCTIONS AVAILABLE FOR TRANSFER TO THE CARBON FUND

A.	**Emission Reductions during the Reporting period (tCO_2-e)**	*from section 0*	**22,313,594**	
B.	**If applicable, number of Emission Reductions from reducing forest degradation that have been estimated using proxy-based estimation approaches (use zero if not applicable)**		**0**	
C.	**Number of Emission Reductions estimated using measurement approaches (A-B)**		**22,313,594**	
D	**Percentage of ERs (A) for which the ability to transfer Title to ERs is clear or uncontested**	*from section 6.1*	100%	
E	**ERs sold, assigned or otherwise used by any other entity for sale, public relations, compliance or any other purpose including ERs accounted separately under other GHG accounting schemes or ERs that have been set-aside to meet Reversal management requirements under other GHG accounting schemes .**	*From section 6.4*	0	
F	**Total ERs (B+C)*D-E (tCO_2-e)**		**22,313,594**	
G	**Conservativeness Factor to reflect the level of uncertainty from non-proxy based approaches associated with the estimation of ERs during the Crediting Period**	*from section 5.2*	8%	
H	**Quantity of ERs to allocated to the uncertainty reversal buffer (0.08*B/A*F) + (G*C/A* F), (tCO_2-e)**		**1,785,088**	–
I	**Total reversal risk set a side percentage applied to the ER program**	From section 7.3	21%	
J	**Quantity of ERs to allocated to the reversal buffer (F-H)*(I-5%)**		**3,284,561**	
K	**Quantity of ERs to allocated to the reversal buffer (F-H*5%)**		**1,026,425**	
L.	**Number of FCPF ERs (F-H-J-K), (tCO_2-e)**		**16,217,520**	

It is noted that the emission reduction is mainly generated from the protection of natural forests for reduction of forest conversion, deforestation and forest degradation. Of the 16 $MtCO_2e$ emission reduction, amount of emission reduction from natural forests protection is about 18 Mt CO_2e while emissions from plantation increased by about 2 Mt CO_2e. Similarly, removals enhancement generated by plantations accounts for about 18% of total removals increment (6 Mt CO2e) and the remaining amount is from natural forests[18].

[18] Details of estimates emissions associated with natural and planted forests in NCR is available here: http://vnff.vn/erpa-program/mmrs/mmr1?hl=en

ANNEX 1: INFORMATION ON THE IMPLEMENTATION OF THE SAFEGUARDS PLANS

I. Requirements of FCPF on Managing the Environmental and Social Aspects of ER Programs

- The General Conditions Applicable to Emission Reductions Payment Agreements (EPRAs), Section 5.01(b)(i), requires the Program Entity to "*provide evidence satisfactory to the Trustee that the ER Program Measure(s) are being implemented in accordance with the Safeguards Plans*" as an annex to the ER Monitoring Report.

- The General Conditions Applicable to ERPAs, Section 16.01(vii), also provides that "*failure to observe, implement and meet all requirements contained in . . . a Safeguards Plan provided for under the ERPA (including any feedback and grievance redress mechanism provided for under the ER program, the Benefit Sharing Plan and/or a Safeguards Plan)*" is considered an Event of Default on the part of the Program Entity.

- The ERPAs include an additional covenant requiring the Program Entity to "monitor and report to the Trustee on the implementation of the Safeguards Plans (…) during Reporting Periods. The Program Entity shall monitor and report to the Trustee on the implementation of the Safeguards Plans annually after the date of this [ERPA]. (…) The Trustee reserves the right to initiate a separate monitoring of the implementation of the Safeguards Plans (…) annually after the date of this [ERPA] by an independent Third Party monitor."

- Annex 1 is the primary tool for the Program Entity to provide evidence on whether the ER Program has been implemented in accordance with the Safeguards Plans. The World Bank, in its capacity as Trustee of FCPF, will review information provided in this Annex to confirm whether the Safeguards Plans have been complied with and whether the management of the environmental and social aspects of the ER Program warrants any corrective actions.

- The specific content of Annex 1 should be based on the specific requirements in the Safeguards Plans of the ER Program. In general, information for Annex 1 should be collected from desk review of relevant documentation,[19] interviews with staff and program stakeholders, and field visits.

- The status of the implementation of the Safeguards Plans often cannot be measured by quantitative indicators. Therefore, the content in Annex 1 should be mostly presented in a narrative form and, where relevant and illustrative, supporting quantitative information could be included

- Reporting should focus on the overall performance of the management measures to implement the Safeguards Plans, supplemented by examples of good practice or non-compliance with the Safeguards Plans.

[19] Documentation that the Program Entity should review include operational monitoring reports prepared by the Program Entity, environmental and social plans prepared during Program implementation (e.g., Environmental and Social Management Plans (ESMPs), Resettlement Action Plans (RAPs), Indigenous Peoples Plans (IPPs)), and other relevant records (e.g., records produced under the Feedback and Grievance Redress Mechanism, as available).

II. Monitoring and Reporting Requirements

1. Entities that are responsible for implementing the Safeguards Plans are adequately resourced to carry out their assigned duties and responsibilities as defined in the Safeguards Plans.

Summarize the key institutional arrangements, such as decision procedures, institutional responsibilities, budgets, and monitoring arrangements that are required under the Safeguards Plans.

Confirm whether the institutional arrangements summarized above have been put in place.

Confirm that the implementing entities and stakeholders understand their respective roles; have the technical capacity to execute their responsibilities; and have adequate human and financial resources.

Where specific capacity building measures (e.g., training and professional development) have been required by the ER Program or Safeguards Plans, describe the extent to which these measures have been carried out.

1.1.1. Institutional responsibilities

At present, **Vietnam Administration of Forestry (VNFOREST)** has assigned the main overall direct responsibility for implementation of the ER Program (ER-P) in Vietnam to the Forest Protection and Development Fund (VNFF) with support from Provincial Forest Protection and Development Funds (PFPDF), Forest Management Boards including Special Use Forest Management Boards (SUFMBs) Protection Forest Management Boards (PFMBs), and the State Forest Companies (SFCs). The VNFF has implemented the Payment For Forest Environmental Services (PFES) programe for the last ten years, and PFES is broadly recognized as one of the ten outstanding successes of the Vietnam forestry sector. The VNFF has been in place since 2010 and has adequate human resources capacity and implementation experience. At the program level, VNFF has already assigned dedicated staff responsible for reviewing the Environmental and Social Management Framework (ESMF[20]) and associated safeguards plans implementation progress, taking actions as necessary, and reporting the results as part of the ER-P safeguards monitoring report.

The ER-P is implemented in 06 Northern Central Region (NCR) provinces by the Ministry of Agriculture and Rural Development (MARD) as the implementing agency in collaboration with Provincial People's Committees (PPCs) working through Department of Agriculture and Rural Development (DARD), PFPDF, Forest Protection Department (FPD) and the district administration. The reporting period for this Annex 1 is from 1st February 2018 to 31st December 2019, with some important updates to March 2023.

During 2018-2020, the project "Support for REDD+ Readiness Preparation in Vietnam - Phase 2" (FCPF-2) took the key responsibilities for preparation to implement and then report on safeguards of the various programs embedded in the ER-P in Vietnam. This project supported Vietnam's preparation activities for future REDD+ implementation by supporting the preparation of important elements, systems, and policies needed to support the implementation of REDD+ in a socially and environmentally sound manner. Regarding the management structure of this project, there were Program Steering Committees and Program Management Units at central (CPMU) and Provincial Project Management Units (PPMUs) at the

[20] An Addendum is proposed for the ESMF based on the final BSP and will be submitted to the Bank for review March 31st 2023. The Addendum explain the revised approach and provide operational guidance to implement the safeguard requirements.

provincial levels. The Vice Minister of MARD was the Chairman of the Steering Committee for the project, and members of the Project Steering Committee included representatives from VNFOREST, the Management Board for Forestry Projects (MBFP), Departments of International Cooperation, Finance and Planning, the PPC's Chairs, directors of the Provincial Departments of Agriculture and Rural Development and representatives from PPMU. Meanwhile, REDD+ technical steering committees in the NCR provinces were established and supported and were integrated into the provincial steering committees of the National Target Program on Sustainable Forest Development. Notably, safeguards consultant positions in the FCPF-2 CPMU were filled and supported the finalization of the safeguards instruments of the ER-P. At the subproject/activity level, staff from the PPMU were responsible for monitoring and reporting on compliance with safeguards.

In this context, the **REDD+ focal point in Vietnam, the State Steering Committee Office (SSCO) on National Target Program on Sustainable Forest Development and REDD+ Implementation for the period 2016-2020,** with support from international projects and programs such as Netherland Development Organization (SNV), UN-REDD Programme Phase 2, and FCPF-2 took the key role in conducting various assessments and legal analyses of safeguards. The SSCO also supported an extensive and iterative consultation processes as REDD+ evolved in Vietnam, in particular through the Sub-Technical Working Group on REDD+ Safeguards (STWG-SG). The STWG-SG was chaired by leaders of Department of Science, Technology and International Cooperation from VNFOREST and SNV which coordinated technical assistance to the Government of Vietnam, and other relevant stakeholders in the operationalization of safeguards to promote social and environmental co-benefits from REDD+ at national, sub-national and local levels. The following Table A1.1 below clearly defines the institutional responsibilities for implementing the Safeguards Plans.

Table A1.1. Institutional Responsibilities for the Program and Subproject Safeguards Implementation

Community/ Agencies	Responsibilities
Program Implementing Entity (PE) and CPMU	- MARD, as the PE, is responsible for overseeing the ER-P implementation including implementation of the ESMF [21] and social and environmental performance of the program. - The VNFF, as the representative of the PE, is responsible for monitoring the overall ER-P implementation, including environmental and safeguard compliance. The VNFF has the final responsibility for implementation of the ESMF and environmental and social safeguard performance of the Program during the operational phases including any small scale construction. - The VNFF (i) closely coordinates with local authorities in the participation of the community during program preparation and implementation; (ii) monitor and supervise any Environmental and Social Management Plan (ESMP) implementation including incorporation of ESMP into the detailed technical designs and bidding and contractual documents; (iii) ensure that an environmental management system is set up and functions properly; and (iv) be in charge of reporting on ESMP implementation to the PE and the World Bank. - To be effective in the implementation process, the VNFF has assigned staff to act as focal points for safeguards, environmental aspects and M&E. The Environmental and Social Unit (ESU) will formally be in place when funds come through from the ERPA and will operate with at least two safeguards staff to help with the safeguards aspects of the ER-P in consultation with MARD as the PE. The ESU is also able to hire independent safeguards technical assistance and benefits sharing technical assistance, where necessary.

[21] An Addendum is planned for the ESMF based on the final BSP and will be reviewed by the Bank 31st March 2023.

Community/ Agencies	Responsibilities
Environmental and Social Unit (ESU) under VNFF	- The ESU is responsible for monitoring the implementation of the World Bank's environmental safeguards policies in all stages and processes of the ER-P. Specifically, this unit will be responsible for: (i) screening subprojects against eligibility criteria, for environment and social impacts, policies triggered and instrument(s) to be prepared; (ii) reviewing the subproject EIAs/ESMPs prepared by consultants to ensure quality of the documents; (iii) helping CPMU/PPMU of VNFOREST incorporate ESMPs into the detailed technical designs and civil works bidding and contractual documents; (iv) helping CPMU incorporate responsibilities for ESMP monitoring and supervision into the TORs, bidding and contractual documents for the Construction Supervision Consultant (CSC) and other safeguards consultants as needed; (v) providing relevant inputs to the consultant selection process; (vi) reviewing reports submitted by the CSC and safeguards consultants; (vii) conducting periodic site checks; (viii) advising the CPMU on solutions to environmental issues of the subproject; and ix) preparing environmental performance section on the progress and review reports to be submitted to the VNFF, VNFOREST, MARD and the World Bank.
SUFMBs, PFMBs. and SFCs	- At the subproject/activity level, SUFMBs, PFMBs, and SFCs coordinate with the PFPDF to manage and implement program activities, including safeguards implementation, on the forestland area managed by the SUFMBs, PFMBs, and SFCs.
Construction Supervision Consultant (CSC) and/or Field Engineer	- PFPDF to do all the checking and reporting and will liaise closely with the FMB and community. - The CSC will be responsible for routine supervising and monitoring of all construction activities and for ensuring that Contractors comply with the requirements of the contracts and the Environmental Codes of Practice (ECOP). The CSC will engage sufficient number of qualified staff (e.g., Environmental Engineers) with adequate knowledge on environmental protection and construction subproject management to perform the required duties and to supervise the Contractor's performance.
Contractor (reporting checked by PFPDF for following of Vietnam regulations and reporting.)	- Based on the approved ECOP in the bidding and contractual documents, the Contractor is responsible for establishing a Contractor ESMP (CESMP) for each construction site area, submit the plan to the PFPDF, VNFF and CSC for review and approval before commencement of construction. In addition, it is required that the Contractor get all permissions for construction (traffic control and diversion, excavation, labor safety, etc. before civil works) following current regulations. - The Contractor is required to appoint a competent individual as the contractor's on-site Safety and Environment Officer (SEO) who will be responsible for monitoring the contractor's compliance with health and safety requirements, the CESMP requirements, and the environmental specifications (ECOP). - Take actions to mitigate all potential negative impacts in line with the objective described in the CESMP. - Actively communicate with local residents and take actions to prevent disturbance during construction. - Ensure that all staff and workers understand the procedure and their tasks in the environmental management program. - Report to the-PFPDF and VNFF on any difficulties and their solutions. - Report to local authority, PFPDF and VNFF if environmental accidents occur and coordinate with agencies and keys stakeholders to resolve these issues.
Independent Third-Party Monitoring Consultant (TPMC) - if needed (Provided for in the Decree No. 107 and can use CSO etc. for this.)	- The TPMC will perform independent verification of self-reporting data provided by the PE and annual audits of a sample of ER–P activities including safeguards documentation, consultation processes, effectiveness of management measures specified in the Safeguards Plans, and disclosure of information, among other important aspects. - The TPMC will provide timely information to the PE on specific issues of non-compliance or significant implementation problems so that the PE can take corrective actions, if needed.

Community/ Agencies	Responsibilities
	- The TPMC will provide information to the VNFF and the World Bank on systemic safeguards performance issues which may require changes in management approach and/or additional financial or human resources. - The TPMC will disclose the results of monitoring to inform concerned stakeholders about implementation experience under the ERPA Operation. - The TPMC will have extensive knowledge and experience in environmental monitoring and auditing to provide independent, objective, and professional advice on the environmental performance of the Program.
Local community	- Community: according to Vietnamese laws and practice, the community has the right and responsibility to routinely monitor environmental and social performance during construction to ensure that their rights and safety are adequately protected and that the mitigation measures are effectively implemented by contractors If unexpected problems occur, they will report to the CSC /CSO to the PFPDF and VNFF.
NGOs and civil society groups	- These organizations could be a bridge between the PPC/DPC, communities, Contractors, and the VNFF by assisting in community monitoring. (Accessibility see the Decree). - Mobilizing communities' participation in the subproject, providing training to communities, and participating in solving environmental problems, if any.
Province and District People's Committees (PPCs/DPCs), Provincial Department of Natural Resources and Environment (DONRE)	- Oversee implementation of subprojects under recommendations of DONRE and partner at the provincial level with DARD and VNFF PFPDF to ensure compliance of Government policy and regulations. DONRE is responsible for monitoring the compliance with the Government environmental requirements.

- **Summary of the safeguards responsibility of the respective donors**

Responsibility for ESMF implementation by other projects

The Due Diligence Report (DDR) on Safeguards of Four Bilateral Donor projects participating in the ER-P in the NCR of Vietnam was conducted in October 2019: 1) to review the donor safeguards approach and policies applied to the donor project against the relevant Bank policies applied to the ER-P; 2) to assess preparation and implementation of donor environmental and social safeguards requirements; and 3) to identify any gaps in donor project safeguards during preparation and implementation and propose measures to close these gaps.

The due diligence review focused on the activities implemented from 2018 and 2019 this is related to the approval date of the ER-PD by the Carbon Fund (February 1, 2018). The DDR was developed by an international and national safeguards team and also guided and supported by the World Bank's safeguards specialists. The report covers activities of four projects in all six participating provinces and the essential conclusions were:

- In practical terms, international projects in Vietnam must, and do include, consultations, consent and targeting of the intended beneficiaries and there is generally due regard for the environment, socio-economics of communities, ethnic minorities and vulnerable peoples. In all four projects in the NCR poor ethnic minorities communities were important targeted project beneficiaries. A pro-poor pragmatic approach aimed at targeting and involving ethnic minority beneficiaries was followed in all cases.

- The DDR concluded that the bilateral donors' safeguards are consistent with the WB's safeguards policies and that they have applied their safeguards policies properly, ER benefits from these interventions can be included in the BSP.

- The gaps identified in the approach, implementation, and documentation of the safeguards requirements of the four projects are all reported to be relatively minor; and there is no evidence to date that those gaps would have a significant bearing on, or impact the implementation of the ER-P or the assessment and the calculations of the emission reductions.

A summary of the four projects located in the ER-P is given in the Table A1.2 below.

Table A1.2: Four Donor's Projects safeguards requirements and their status in the ER-P area

Project/ program	**ER-P Province**	**Safeguards requirements and periodical reports**	**Status**
Biodiversity Corridors Conservation Project (BCC)	Quang Tri and Thua Thien Hue (and Quang Nam)	ADB Safeguards Policy Statement (SPS 2009) Gender Action Plan; Social monitoring report available for Quang Tri (Jul 2018-Dec 2018) part of the Semi Annul report (January 2019); Resettlement Due Diligence report May 2018 (Thua Thien Hue province); Ethnic Minority Development Plan May 2018 (Thua Thien Hue Province); Environmental Monitoring report February 2019; and Grievance redress process for the project.	Implementation to September 30th 2019, through MONRE. The BCC project provides transparent documentation of the implementation of ADB's rigorous safeguards
Protection Forests Restoration and Sustainable Management Project (JICA 2)	All ER-P provinces	JICA/ JBIC safeguards applied The Project did include a mid-term evaluation review of the implementation from 2012 to 2017 which reviewed the forest land use planning, the protection of protection forests [and also biodiversity] and management of forest. No safeguards related issues were noted.	Implementation to June 2020, through MARD. The project followed the required checklist and guidelines against Vietnam regulations. The field visits conducted by the Due Diligence team reported that the beneficiary communities had been consulted and that project implementation had adequately taken into consideration social and environmental safeguards adequately.

Project/ program	ER-P Province	Safeguards requirements and periodical reports	Status
Vietnam Forest Delta Program (VFD)	Thanh Hoa and Nghe An (only Thanh Hoa left in phase 2 from 4/2018-12/2020)	USAID Environmental Regulations, Policies and Procedures (22 CFR 216) Initial Environmental Examination (IEE) and, annual Environmental Mitigation and Monitoring Plan (EMMP) A Mid-Term Evaluation took place in January 2016[22] Evaluation of Vietnam Forests and Deltas Program January 2016.	Implementation 2012 to 2020, through MARD. USAID requirements focused more heavily on environmental issues, but by necessity this also included social mitigation measures. namely Gender Equity and Social Inclusion.
Green Annamites Project	Thua Thien Hue and Quang Nam	USAID Environmental Regulations, Policies and Procedures (22 CFR 216) Initial Environmental Examination (IEE) and, annual Environmental Mitigation and Monitoring Plan (EMMP) were prepared by July 2018. Gender Equity and Social Inclusion Action Plan (GESI) for the project has also been prepared by July 2018. The Project will integrate the EMMP and GESI into their project work plan and budgets, implement the EMMP, GESI and report on its implementation as an element of regular project performance reporting.	Implementation 2016-2020 Implemented through the Provinces. The project followed rigorous safeguards requirements of USAID. Gender Equity and Social Inclusion Action Plan (GESI) and EMMP were prepared. In addition, period checking and updating on the information on the approaches had been required as a gap filling measure this could take place on a semi-annual basis until they are fully established. Safeguards are highly relevant and while some processes are still under development, the on-going processes, reports and requirements are equal to, if not more comprehensive, than the WB's ESMF equivalent.

**Source: adapted from DDR 2019*

During the field visit that the consultant team carried out in early August 2022 in Nghe An and Thua Thien Hue provinces, there is another projects funded by the WB which may contribute to emissions reductions and is part of ER-P. This is the ongoing Forest Sector Modernization and Coastal Resilience Enhancement Project (FMCR), starting 2018/19) that is under ER-P. Additionally, a number of small grants from GEF among others, also contribute to the improvement of forest protection and development, local people livelihoods and emissions reduction results.

[22] Mid-term Evaluation of Vietnam Forests and Deltas Program January 2016

1.1.2. Monitoring and reporting arrangements

During the period 2018-2020, with the support from the FCPF2 project, the ESMF was prepared. Within the ESMF, a robust monitoring and reporting arrangement for the ESMF has been developed (See Table A1.3 below). In this regard, the safeguards staff that were provided training at provincial level have been assigned to monitor and report periodically the safeguard compliance during the implementation of ER-P. An Addendum to the ESMF and related frameworks will be prepared in line with the final BSP, to explain the revised approach and provide operational guidance to implement the safeguard requirements. VNFF will submit a draft for Bank review by March 31, 2023.

Progress towards achievement of the program development objectives including safeguards will be developed in the M&E system in the VNFF based on the M&E system developed for PFES incorporating safeguards related indicators and reporting on the ESMF. It is expected that as soon as the ERPA sale, transfer and payment provisions come into effect and the first ERPA payment is received, the proceeds will be used to further strengthen the safeguard monitoring and reporting.

Table A1.3: Summary of main monitoring and reporting arrangements for safeguards and non-carbon benefits

Monitoring safeguards and non-carbon benefits of the ER-Program	Responsibility
Overall compliance with safeguards, M&E of safeguards developing in the VNFF scaling up of the implementation of the ESMF, RPF, PF, and EMPF aspects. FGRM operational	VNFF, PFPDF, FMBs, SFC, VNFOREST, MARD, independent monitoring
Completion of information monitoring for the Safeguard Information System (SIS)[23] for UNFCCC reporting and provide information for the Summary of Information (SOI) reports.	VNFF will report to VNFOREST, MARD, MONRE
Community based systems for monitoring	VNFF , PFPDF, FPDs
Independent monitoring of the implementation of Process Framework by visiting a representative sample of communities that are experiencing restrictions of access to natural resource use at the end of each year from the second year of project implementation	VNFF PFPDF, independent monitoring
Pilot PFMS in selected Districts and communes and forest owner groups/ MBs/ FME /cooperatives/ and stakeholders as necessary	VNFF, PFPDF, DARDs/ FPDs/ Communes/ MBs other entities as the PFMS develops
Biodiversity maintained	VNFF, FPDs, MBs
Use of improvement in management effectiveness as measured by the Management Effectiveness Tracking Tool (METT) in SUFs and PFMBs[24]	VNFF, FPDs, MBs
Monitoring of safeguards and proposed investments in benefits by PPMU and MBs to help ensure that ERs generated by projects/programs comply with safeguards (Emissions Reduction Monitoring Report)	CPMU, PPMUs, independent monitoring

The benefit-sharing plan is based on the proceeds received from the ERPA and following the PFES approach, in which the activities paid for including (i) support for activities that strengthen the enabling

[23] One of the key requirements for REDD+ countries to be eligible to receive results-based payments is having a functional REDD+ Safeguards Information System (SIS) in place. All information on safeguard is available here: http://vnff.vn/erpa-program/safeguard?hl=en.

[24] For the implementation of the METT the FMBs are expected to receive some technical support from the Sustainable Biodiversity Project

conditions for ER at the central and local levels, (ii) activities that directly contribute to ER such as protection of natural forests, silvicultural measures, (iii) activities to support livelihood development for the community; and (iv) management activities. All these activities will be implemented in accordance with WB's safeguards policies and as a consequence, they will be reported on in the safeguards report. It is also important to note that the PFES M&E plays an important role to ensure efficient, secure, and transparent electronic payment mechanisms that reduce transaction costs and streamline payment processes[25] and this will provide inputs for safeguards monitoring in terms of forest governance and management (Priority Non-carbon benefit).

Participatory M&E tools were used when compiling this report and will also be used at the village level. Community forest monitoring is expected to be undertaken through the commune-based forest monitoring system which is being introduced as a pilot in all provinces (with funding from JICA, FCPF 2 and VFD) and have experience of using a tablet-based approach which allowed information to be sent to Forest Management Information System - FORMIS and the SIS e.g. in Tam Dinh, Thuong Lo commune, Tương Dương district, Nghe An province[26].

The environmental and social safeguards monitoring reports have been submitted to donors periodically (DDR, 2019) as shown in Table A1.2. For example, the BCC project has completed a number of Semi-Annual reports, Safeguards and Due Diligence reports[27] for the ADB and Government of Vietnam and the ADB has conducted supervision missions generally on annual or semi-annual basis. The Green Annamites project reported on the progress through its Annual Program Statement including reporting on EMMP implementation. Recently, FCMR as part of ERP, has developed independent environmental and social monitoring reports on a semi-annual basis which describe program progress and compliance with the ESMF.

Currently, the VNFF M&E system reports on: (i) PFES revenue, (ii) payment made to forest owners and (iii) the area of forests providing forest environmental service according to Circular 12/2019/TT-BNNPTNT of MARD on forestry sector statistics.

- At the PFES level the M&E periodic reports at the provincial levels are mostly made in writing (monthly, quarterly, bi-annually and annually) and on an ad hoc basis;
- Updates can also be made using an online database; the VNFF and PFPDF also organize inspection and supervision teams; and
- In addition, the VNFF conducts annual independent audits and evaluation on the implementation of PFES and the payments through electronic transactions.

In 2020, the VFD program provided technical support to the VNFF to develop and introduce national PFES M&E guidelines, which includes 28 indicators divided into four groups (reporting PFES data base – weekly from province and report to VNFOREST weekly, monthly quarterly and semiannual and annually) as follows:

1. Indicators on economy (06);
2. Indicators on institutions, policies and direction practices (08);
3. Indicators on socio-economic aspects (11): stakeholder participation, livelihood improvement, capacity building; and

[25] https://www.usaid.gov/vietnam/documents/vietnam-forests-and-deltas-program

[26] Further investment in new tablets required.

[27] Including Involuntary Resettlement Due Diligence Report, Thua Thien Hue Province, April 2018; Social Monitoring Report, Quang Tri Province Subprojects, January 2019.

4. Indicators on environmental aspects: forest status (03).

With these 28 indicators, some indicators, particularly the socio-economic indicators are relevant for use as indicators for environmental and social safeguards.

During the consultation with VNFF in August 2022, with the ongoing experience on the PFES M&E system during the previous years, it was found that the VNFF is able and ready to integrate the safeguard compliance monitoring into its existing M&E system more or less immediately after the receiving the first payment under ERPA. They also agreed that they would recruit more staff to work on safeguards and safeguards monitoring.

1.1.3. Budget

Budget allocated for important safeguards activities during the period 2018-2019

Box 1: Safeguard key activities at national level funded by international projects/programs for the period 2018-2019.

1 - FCPF-2: Support for the REDD+ readiness preparation in Vietnam Phase 2 funded by World Bank (FCPF - Forest Carbon Partnership Facility) (Component 3 US$ 1.37mil. end of 2019)

- Development and updating of safeguards documents including the SESA, ESMF and related documents on social safeguards, ethnic minorities, participation of women as inputs to ER-P in NCR at the central and provincial level;
- Conducting various consultation sessions at national and local levels as inputs to updating safeguards documents;
- Developing Safeguard Operation Manual (SOM) for the program, including training and consultation sessions at local levels for the SOM (this will need to be updated for the VNFF and PFPDFs);
- Conducting a Due Diligence report in the NCR; and
- All activities are facilitated with support from international and national safeguards experts

2 – UN-REDD Programme Phase 2: Operationalizing REDD+ in Viet Nam funded by Norway passed through FAO, UNDP and UNEP 151,940 $US (2018 to 2019).

Mechanisms to address the social and environmental safeguards under the Cancun Agreement established, including:

- Transparent and effective national forest governance structures established;
- Measures to ensure respect for traditional knowledge and rights related to forest management designed and adopted;
- Full and effective stakeholder participation mechanisms, especially for women, local communities and indigenous people, established and adopted; and
- Environmental safeguards related to avoidance of conversion of natural forests, risk of reversals, and displacement.

3 - The Operationalizing National Safeguards for Results-based Payments from REDD+ Project was funded by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety's International Climate Initiative (IKI) and implemented by SNV Netherlands **600,00 EUR (2018 to 2019).**

- Country Approaches to REDD+ Safeguard: Developing CAS in relation to National REDD+ Strategy, Detailed guidance for sub-national operationalization of safeguards;
- Sub-national Low Emission Development/REDD+ Planning; and
- Knowledge Sharing: Developing best-practice guidance and sharing experiences/lessons through South-South knowledge exchange on country approaches to REDD+ safeguards.

4 – Payment for Forest Environmental Services (PFES) funding for the ER-P region, includes support for forest protection, livelihoods awareness raising, capacity building and M&E activities.

During the period 2018-2019, the budget for safeguards and closely related activities have been financed under several projects as detailed in Box 1 above.

- **Is there any up-coming plan especially access to preferential credit, especially for women and vulnerable groups?**

Access to credit from the Vietnam Bank for Social Policies (VBSP) and Agribank is eligible for women, vulnerable groups such as poor households, female-headed households, ethnic minority and people living in mountainous areas within the framework of Government's social policy credit programs.

A new national programme according to the Prime Minister's Decision No. 1719/QD-TTg dated October 14, 2021 aims to improve the lives and livelihoods of ethnic minority groups in Vietnam, specifically the project No 3 – Develop sustainable agricultural and forestry production, promote the potentials and strengths of localities including 3 sub-projects focusing on agro-forestry economy, value chain production, medical herbs plantation, promoting start-ups and attracting investment in ethnic minority and mountainous areas. This Programme has mobilized vast resources from the state budget, organizations, corporations and people to achieve poverty reduction and new rural development targets.

Upcoming ERPA proceedings will be an additional source to reward and compensate communities and governments for protecting forests and reducing emissions from deforestation and forest degradation.

1.2 Confirm whether the institutional arrangements summarized above have been put in place and functioning?

Confirmed. The institutional arrangements summarized above have been put in place and are functioning. All key ministries and management entities in charge of implementation of the ER Program as well as Safeguards Plans are government offices at national, provincial, district and commune levels, providing oversight and facilitation of activities.

The Deputy Prime Minister signed the Decision No. 809/QD-TTg, dated July 12, 2022 to approve the program on sustainable forestry development in 2021-2025. The program focusses on the development of the forestry sector in a modern, effective, and highly competitive manner, and boost linkages from forest development, protection, forestry processing, and trade. The program also aims to optimize forestry areas and land for forestry development, thus making contributions to socio-economic development, job generation, and protection of the environment and conservation of biodiversity of forest ecosystems. In this context, it is required in this Decision to reinforce the existing State Steering Committee for the Target Program on Sustainable Forest Development for 2016-2020 at national and provincial level, as well as strengthening the Office of State Steering Committee for the National Target Program on Sustainable Forest Development for 2016-2020 and REDD+ implementation (the REDD+ focal point office) to assist the State Steering Committee, and at the same time support the Minister of MARD in managing and organizing the implementation of the Program in the connection with other projects and programs.

Given this newly issued Decision No. 1061/QD-TTg, dated September 9, 2022 of the Prime Minister on consolidating the State Steering Committee for the implementation of the Sustainable Forestry Development Program for the 2021-2025 period, the REDD+ Focal Point Office and REDD+ Working Group has moved to Department of Science and technology (DOSTIC) in VNFOREST and will receive more support from the ER-P implementation.

In early 2019, Vietnam became the first country in the Asia-Pacific region to meet the safeguards requirements (SIS) of the Warsaw Framework and hence became eligible for REDD+ results-based payments.

VNFF will be the entity to receive the total proceeds from ERPA prior to distribution to the PFPDFs in the 06 NCR provinces. The proceeds from ERPA from natural forest environmental services applicable for the forest carbon storage and sequestration, GHG emission reduction from deforestation and forest degradation, sustainable forest management, green growth as prescribed by the Law on Forestry (2017), therefore the benefit sharing plan has been designed in compliance with the PFES mechanism which the VNFF has over 10 years of experiences with the existing organization structure in place from the national level to 49 PFPDFs.

On December 28, 2022 Decree no. 107/2022/ND-CP Pilot GHG ER result transfer and financial management of ERPA was issued. With the Decree's issuance, the VNFF will play the leading role in the distribution of benefit sharing payments during implementation of the ER-P through to December 2025.

Staffing: VNFF human resources need to be supplemented with dedicated safeguards specializing staff at both national and sub-national levels to adequately address specific social and environment issues and scope of the safeguards documents, otherwise he/she will take key responsibilities to implement, monitor and report on safeguards related activities.
Considering its national and central authority in supporting this cross-sector endeavor, the State Steering Committee Office (SSCO) for the Target Program on Sustainable Forest Development for 2016-2020 (still operating) and REDD+ implementation will be strengthened to provide pro-active support to the various institutions and sectors. It implies coordinating activities and facilitating the implementation of safeguards and the M&E framework. It also requests to provide technical backstopping on key challenges and constraints faced by the various institutions and stakeholders. Since there is no information about how the SSCO setting will look like, it is proposed that safeguards staff should be recruited for the State Steering Committee Office for the National Target Programme on Sustainable Forest Management and REDD+ (still operating funded by state). Furthermore, dedicated Provincial Safeguards Officers are identified to take on the roles of ensuring that relevant safeguards are implemented, and data collected accordingly.

Capacity building: building on all efforts invested in the past, notably as part of the national REDD+ readiness process and the ER-P formulation, an active sensitization campaign will be organized at all levels and for all relevant sectors. The entities directly responsible for the implementation of REDD+ activities on the ground (e.g., forest management boards, forest companies, commune/district/provincial forest protection departments) will require some new skills, capacity-building and training but the types of skills are consistent with the type of role such actors are expected to play according to the law. A draft roadmap for institutional readiness, including a capacity building workplan and budget through to December 2023, will be prepared by March 31, 2023.

A safeguards training plan was developed during the preparation of the ESMF and was provided to the PPMUs, CPMU, PFMBs, SUFMBs, SFC levels and involved provincial government officials (including DARD, FPD, and district and commune officials). An intensive environment and social training program focusing on the information on the ESMF and requirements for preparing ESMP, RAP, EMDP, etc., was delivered during the first two years of FCPF program implementation. These trainings have provided adequate knowledge of government's regulation and WB's safeguards requirement in order to make sure

safeguards are duly implemented in compliance with the requirements[28]. However, this capacity building plan will need to be updated in compliance with the new arrangements introduced through the Decree no 107 and the BSP given the fact that VNFF has not been significantly involved in the readiness phase of the FCPF project, and the VNFF staff may not be familiar with the WB's safeguard requirements. A workplan and budget, including capacity building plan for safeguards, will be prepared by March 31, 2023.

At the provincial level, an officer from the PFPDF is in charge of the M&E and is also responsible for reporting on safeguards. At the time of this report (field work was conducted in August 2022) in Nghe An and Thua Thien Hue Provinces with assistance from the PFPDFs there were no full time specialized safeguards staff available within the PFPDFs; however, it was confirmed that he/she will be mobilized/recruited in both central and local levels when the ERPA is effective. These safeguards staff will then be trained by qualified safeguards specialists to comply with the safeguards requirement as specified in the ESMF and the safeguards approach (for example, following the SOM (to be updated) from the FCPF-2) conducted under FCPF-2 project and safeguard framework Addendum (to the ESMF). It was reported by the VNFF/PFPDFs that safeguard training will be needed as the ERPA becomes effective (see Section 5 below on corrective actions and improvements).

1.3 Confirm that the implementing entities and stakeholders understand their respective roles; have the technical capacity to execute their responsibilities; and have adequate human and financial resources.

Partially confirmed. All institutional responsibilities for the ER Program and subprojects' safeguards implementation have been specified in the ESMF[29], including responsibilities by other projects. It is not necessary to create new agencies/entities directly responsible for the implementation of REDD+ activities at national level and on the ground to carry out specific procedures and tasks with radically new roles and responsibilities, hence reducing costs and making it generally financially viable (with limited additional public investment). The implementing entities and stakeholders have been strengthened and trained to understand their respective roles within the FCFP-2 project framework. Training took place at the central and provincial levels and focused on two main topics: 1) training on safeguards - eight consultation, guidance and training workshops were held on introduction to the Safeguards Operation Manual (SOM) in June 2020 and took place at the central level and also in each of the six provinces and trained a total of 738 people, this included 272 women, 466 men and 164 ethnic minorities; and 2) More general training on REDD+ activities and policy for provinces, state forest companies and forest management boards, this was provided in 2019 and took place at the central level and in all six provinces. A total of 38 training course were run and total of 10,921 people attended, of which 8,858 were men, 2,044 were women and 1,870 were ethnic minorities.

The State Steering Committee for the Target Program on Sustainable Forest Development for 2016-2020 facilitates cross-sectoral coordination among the ministries, agencies and localities in implementing effectively the sustainable forestry development program (Decision 886) and the NRAP. The committee's members include representatives from eleven relevant ministries and agencies (MARD, MONRE, MPI, Ministry of Education, Ministry of Transport, MOLISA, Ministry of Public Security, Committee of Ethnic Minority Affairs, State Bank of Vietnam and VNFOREST). Each Ministry is responsible for development and management of relevant networks under the government administrative areas of that ministry. Participating ministries and agencies are embedded in the formal decision-making processes for forest protection and development and REDD+, which stimulates inter-ministerial communication and allows

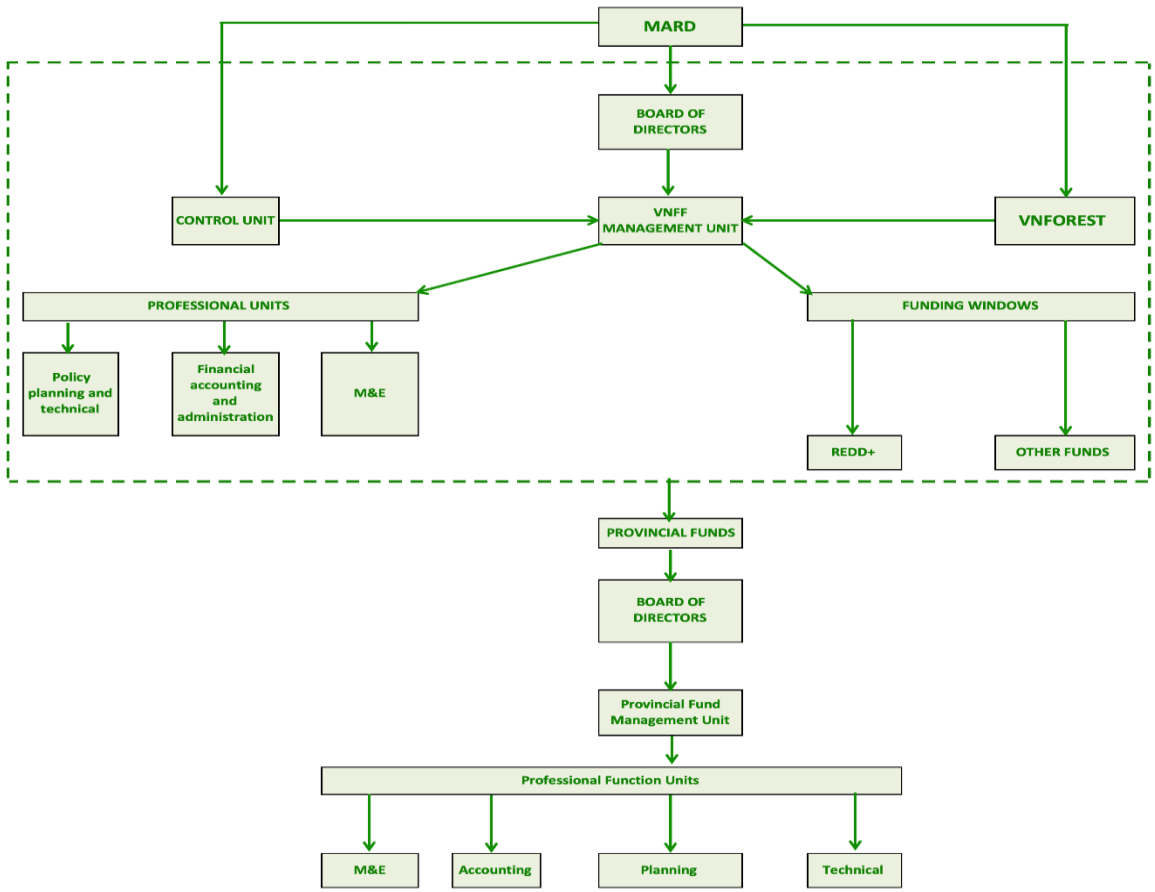
[28] ESMF 2019. An Addendum to the ESMF is planned and will take into account the final BSP and will be submitted to the Bank for review March 31st 2023.

[29] An Addendum to the ESMF will be prepared based on the final BSP and this will be reviewed by the Bank 31st March 2023.

sectoral perspectives and interests to be integrated into the right direction. This Committee plays an important role in highlighting the role of drivers of deforestation, for example infrastructure and/or agriculture on forest targets and the need to introduce new national policies (for example to halt infrastructure development).

The VNFF with the role of managing the PFES central fund is in charge of collecting, coordinating and monitoring the benefit distribution and supports the operations of the provincial PFPDF. According to the Decree 156 (previously Decree 99), the PFPDF is the focal agency to collect PFES money from PFES users through PFES contracts and pay for the forest owners according to their forest area providing these services. The organization structure of VNFF (See Figure A1-1 below) also provides for potential additional funding windows for REDD+, they understand their respective roles in the ER-P of how to receive, manage and allocate funds for the Provincial Funds and this also includes the expanding the monitoring of activities including safeguards and the collection of socio-economic data. The PFPDF has appointed a focal point for M&E and will also appoint a focal point on safeguards and the environment to support the ESU. These will be appointed at the national consultation workshop on the BSP to be held in March (this workshop formally introduces the BSP to all provincial fund staff and other relevant provincial departments). Based on the amount received from ERPA, the VNFF will prepare a master financial plan in accordance with the Decree No. 107, for reporting to the Board of Directors for endorsement and then this is submitted to MARD for approval.

Figure A1-1 Organizational chart of the VNFF



Following the issuance the Decree no. 107 [30], the VNFF will coordinate with the relevant agencies to develop a program operational manual (POM) to submit to MARD for approval. The POM shall include detailed guidelines to ensure effective implementation of the ERPA including finance, payment, payment finalization, monitoring and evaluation of the performance; strictly following the safeguards requirements; grievance system, etc. The draft POM will be available March 15, 2023 with the final POM available two weeks after the final audit report.

During 2018-2020: Capacities were in place at the central project management unit (CPMU) and PPMUs to implement the project (FCPF-2 project). Workshops and training courses were conducted for Government agencies, the CPMU and the six PPMUs on project management, finance, monitoring. Various training sessions on monitoring and reporting requirements, including for safeguards, had been given to relevant staff at program level and provincial/local levels by the M&E specialist.

From 2020 until now, as the key projects funding safeguards activities have closed, there is a lack of technical capacity, continuity and financial resources especially for monitoring and reporting on safeguards related activities implementation, particular for staff from VNFF who were not involved in the previous period (2018-2020), but this will play the key role in the future for the effectiveness of the ERPA. The Vietnam Forest Protection and Development Fund (VNFF) currently includes:

1) Board of Directors (BoD): 09 members. This is the highest unit managing and monitoring the activities of Management Unit (MU);

2) Control Unit: 02 members, the agency assisting of Board of Directors, control the operations of Management Unit;

3) Management Unit: Director, Deputy Director, Chief Accountant and Professional sections to operate the regular activities.

At present, members of the BoD, control unit and Director of VNFF MU are government officers and do part-time work for the VNFF. Deputy Director, Chief accountant and some key staff of VNFF MU are seconded from government and do full time work. The remaining officers are not government officers and work full time as signed contracts. Therefore, the VNFF also lacks human resources for safeguards, benefits distribution and M&E, especially when the ERPA proceedings are completed and transfers are made.

At the provincial level, while the DARD and forest management staff in all six provincial authorities received training on safeguards and environmental issues under FCPF-2 and there is a safeguards operational manual (SOM dated December 2019) and, for example, the SOM needs to be updated and the staff will require re-fresher training; therefore, safeguards staff will be hired, and a safeguards refresher training program and updating of the SOM (as part of the POM) will be necessary during early stage of the implementation of the ERPA ER-P. Local qualified specialists will be necessary to enhance their capacity to adequately address specific social and environment issues and scope of the safeguards documents.

At the site level, it is expected that each FMB/SFC would assign technical staff that has in-depth experience on forestry/social forestry and will then be trained by safeguards specialists and have access to the POM and SOM and these are due by the end of March 2023.

[30] Decree 107/2022/ND-CPND-CP was passed on 28th December 2022.

The financial resources to execute their responsibilities are currently still constrained, there is no state budget allocated solely for REDD+ apart from international funding. For the VNFF, it is crucial to mobilize additional financial resources for operational costs and also other activities i.e., M&E activities, ER measurement, verification, communication and awareness raising, inquiries, complaints and feedback activities. Therefore, the VNFF will set aside the specific budget for safeguards works including staff mobilization, training as well as safeguards compliance monitoring and reporting. Requirements for a detailed workplan and budgets to support the implementation of the ERP are included in Decree no. 107. A workplan and budget, including capacity building plan for safeguards, will be prepared by March 31, 2023.

1.4 Where specific capacity building measures (e.g., training and professional development) have been required by the ER Program or Safeguards Plans, describe the extent to which these measures have been carried out?

As per guidance on capacity building in the ESMF, the following measures have been performed so far until December 2019[31]. The M&E system has also monitored the gender and ethnicity disaggregated of these capacity building activities:

- Given the support from FCPF-2 project, various training sessions at national and provincial levels on raising awareness on REDD+, safeguards requirements within ER-P were conducted. Safeguards specialists have facilitated training workshops, and these were attended by personnel from the implementing entities and local communities. In total, 61 consultation workshops and trainings were held with 3,045 participants including local communities (798 women and 1,314 ethnic minorities 26% and 43% respectively).

- During the preparation of the ESMF, safeguards specialist facilitated consultation workshops and various stakeholders at the local level made inputs on important social and environmental impacts and possible mitigation measures. Such inputs were correlated and used to update the ESMF and other documents.

- Training programs on ESMF/safeguards requirement included introduction to the ESMF, RPF and EMPF at the national level as well as at local level, including the requirements on preparing ESMP, RAP and EMDP. After the training, participants were well aware of their responsibilities toward implementing the ESMF and related processes and documents.

- All such training workshops were attended by key staff from provincial program management unit, central PMU, Protection Forest management boards, special used forest management boards, forest companies in all six provinces, as well as many other relevant stakeholders. The training provided information and knowledge to participants on government and World Bank safeguards requirements to make sure that stakeholders at the provincial level are confident in applying such requirements in their duties.

- A safeguards operational manual (SOM) was developed and has been widely consulted in all six provinces using participatory methods. The safeguards manual provides brief and comprehensive

[31] The ESMF will now include an Addendum based on the final BSP and the Addendum will be reviewed by the Bank 31st March 2023.

guidance to provincial stakeholders on how to implement safeguards in accordance with the government and World Bank safeguards requirements[32].

- Social and environmental safeguards specialists were recruited under the FCPF-2 project, and were in charge of facilitating training sessions, consultation process, and the development of the SOM.

Up to 2020, the Operationalizing National Safeguards for Results-based Payments from REDD+ Project – SNV conducted training to sub-national entities for safeguards operationalization, monitoring and reporting, these were:

- Providing training to sub-national entities for safeguards operationalization, monitoring and reporting: training conducted in Oct 2020 (42 participants) from provincial agencies/sites including Nghe An and Thanh Hoa. ToT training for potential national trainers (19 participants) was also conducted in Dec 2020;

- Training on the Country Approach on Safeguards and SIS this was provided to STWG-SG members; and

- Field testing of safeguards at two sites in Nghe An (Con Cuong Forest company, and Con Cuong District FPD).

To date, the capacity building measures which have been conducted by Government agencies from central to local level such as the VNFF and FPDF are awareness raising, dissemination and capacity building on PFES policy. Reported by VNFF, in 2019 and 2020, the number of training courses was 358 and 97, the number of participants was 13,028 and 7,416 respectively[33]. Such training courses are certainly effective to help raise awareness among stakeholders in implementation of PFES policy.

Going forward, when the ERPA is effective, all management plans including capacity building would be reviewed and endorsed by the VNFF including: capacity building and training on work with communities; training on collaborative management; the benefit sharing plan; full implementation of the FGRM; forest law enforcement; small scale infrastructure/ activity sub projects; human resources; equipment, training and awareness raising, spatial planning, generation of sustainable forest and NTFP management to improve revenues, and coordinating of the forest planning (with Provincial Planning Boards, Forestry, Tourism, NGOs, community based forest protection, etc.).

Safeguards training will be provided to the staff of VNFF, PFPDF, PFMB, SUFMB and SFC levels focusing on the information, and requirements of the ESMF and Addendum; this will be delivered during the first two years of program implementation as a prioritized activity. These trainings will ensure adequate knowledge of government's regulations and the WB's safeguards requirements to ensure safeguards are duly addressed and implemented.

At the provincial level, local authorities do not have adequate knowledge of the WB's safeguards requirements; therefore, a safeguards consultant will be hired, and safeguards awareness raising and training program will be necessary during the implementation of the ER-P (see Section 5). The national

[32] This will be updated taking into account the Addendum to the ESMF which will take account of the final BSP and Addendum will be reviewed by the Bank 31st March 2023.
[33] VNFF's annual report in 2019, 2020

qualified specialists will be necessary to enhance their capacity to adequately address specific social and environment issues and scope of the safeguards documents.

At the site level, it is expected that FMBs and SFCs would assign technical staff who have in-depth experience on forestry/social forestry who will then be trained by the VNFF and PFPDF with support by safeguards specialists.

Community: the local people generally understand, and are aware of the important role of protection forests particularly for reducing natural disasters such as landslides etc. and the possibility for them to increase income from results based payments (RBPs). However, there are many existing constraints for local communities hindering them from playing an active role in forest management given their limited knowledge, poor living conditions, and lack of financial resources. These constraints were apparent during the field trip to four mountainous communes in Nghe An and Thua Thien Hue provinces where poor households predominate, and, for example, there is ongoing demand of wood for building houses and production land, etc. Nonetheless, as the program aims to promote the application of collaborative management and community forest management (CFM) for ensuring sustainable management of forest, it is necessary to provide guidance on safeguards actions to ensure that adequate training (technical and management) on forests will be provided during the implementation to avoid adverse impacts on people and the environment. In addition, training on issues related to safeguards such as safe use, storage, and disposal of pesticides and on other specific activities necessary for prevention and management of forest fire, possible impacts of invasive species, related GOV regulations and obligations to international conventions, and other safety issues will be necessary. (See Section 5 below).

2. ER Program activities are implemented in accordance with management and mitigation measures specified in the Safeguards Plans.

2.1. Confirm that environmental and social documents prepared during Program implementation are based on the Safeguards Plans. Provide information on their scope, main mitigation measures specified in the plans, whether the plans are prepared in a timely manner, and whether disclosure and consultation on the plans are carried out in accordance with agreed measures.

During the implementation of the ER Program design and preparation activities, all safeguards' documents have been prepared based on the ESMF, including EMPF, RPF, PF and a GAP. The preparation of safeguard documents at the provincial level, as guided in the SOM prepared by the FCPF-2 project, followed the ESMF. In addition, as mentioned in Table A1.4 below, safeguards documents have been prepared by the four donor relevant projects [then] active in the ER-P. These safeguard documents were found to be consistent with WB safeguard requirement and that was confirmed in the DDR, 2019.

According to Article 91 of the Government's Decree No. 156/ND-CP dated November 16, 2018, detailing the implementation of a number of articles of the Law on Forestry (2017), protection programs, projects and activities, and forest development, processing and trade of forest products invested by the State, investment support and investment incentives under current policies will continue to be implemented until the Government and the Prime Minister issue the new Decree Decree no.107/2022/ND-CP dated 28 December 2022 'Pilot GHG ER result transfer and financial management of ERPA' (for the implementation of the ERPA). All the investment projects/activities should respect the environmental safeguards as regulated under the Law.

Investment support policies have contributed to promoting socialization, attracting economic sectors, social organizations and people to participate in forest protection and development, creating jobs, increasing incomes, and eradicating poverty, raising living standards for people and contribute to

maintaining security and national defense; thereby reducing pressure on natural forests, creating motivation for investment and development of planted forests to replace timber from natural forests.

The application of safeguards instruments of the various projects mitigates the social and environmental risks from the ER-P activities, detailed in the Table A1.4 below:

Table A1.4 - Application of safeguards instruments of the various projects in NCR

Project	Applicable Safeguards instruments
Biodiversity Corridors Conservation Project, implemented from 2012 – 2019	• Gender Action Plan; • Social monitoring report available for Quang Tri (Jul 2018-Dec 2018) part of the Semi Annul report (January 2019); • Resettlement Due Diligence report May 2018 (Thua Thien Hue province); • Ethnic Minority Development Plan May 2018 (Thua Thien Hue Province); • Environmental Monitoring report February 2019 the report evaluates the compliance with the environmental safeguards regulations of Greater Mekong Sub-Region Biodiversity Conservation Corridors Project. Environmental Monitoring Report for the second half of 2018 aims at evaluating the compliance of the Project activities with the Project's Environmental Assessment and Review Framework (EARF) over the period July to December 2018; and • Grievance redress process for the project is in place and reported in the Environmental Monitoring report February 2019.
Protection Forest Restoration and Sustainable Management Project (JICA 2),	• JICA's Guideline on social and environmental consideration. The project developed environmental and social safeguards checklist based on the guidelines. It is noted that the checklist mainly used Government of Vietnam regulations (Circulars) for the environmental and social safeguards, consultations and monitoring. However, "In cases where local environmental regulations are yet to be established in some areas, considerations should be made based on comparisons with appropriate standards of other countries (including Japan' experience)"
Vietnam Forest Delta Program (VFD) (USAID)	• Initial Environmental Examination (IEE) and, annual Environmental Mitigation and Monitoring Plan (EMMP) 2018, 2019 • Gender Action Plan
Green Annamites Project (USAID)	• Initial Environmental Examination (IEE) and, annual Environmental Mitigation and Monitoring Plan (EMMP) • Gender Action Plan (July 2018)
Forest Sector Modernization and Coastal Resilience Enhancement Project (WB5)	• ESMF Jan 2017 • PF March 2017 • RPF March 2017 • EMPF July 2017 • Social Assessment (SA) March 2017

2.1.1. Consultation

The stakeholder consultations were conducted in a timely and agreed manner[34].

[34] Link to the ESMF (2019) is through http://vnff.vn/xdnld.axd?f=oPOEElzAnYUpQbvvLiIOT%2fusVTSQvhRipKMSoJoHLc42h0vjJXtlIasB09kDiZF3bFfL9LcoKwEyFmUkgPJsWhcYRwyMWNLYcycxUC%2fYfNg%3d

Consultation was important for the development of the ESMF and as also an important part of the SESA, the PRAPs and the development of the BSM as the foundation to the BSP: stakeholders from the household level to the national and international level have been consulted, and include forest-dependent households and communities, with the emphasis being on involving ethnic minority households, but not to the exclusion of non-ethnic minority households and ensuring that women, younger people, the aged and vulnerable households (especially the poor and physically handicapped) have been included in these consultations. At the commune level, the CPC have been consulted together with mass organizations including the Vietnam Women's Union, Farmers Association, Fatherland Front, and the Youth Organization and where appropriate, the Ethnic Affairs Officer. At the district level the District People's Committee has been consulted including the DARD, DONRE and Environment and other relevant departments and other organizations. At the Provincial Level the same provincial departments have been consulted as have FMBs, SFC and representatives of the Provincial People's Committee. At the national level MARD has consulted with a range of relevant government ministries including MONRE, MPI, MOLISA, MOF, and the Committee for Ethnic Minority Affairs (CEMA).

The consultations commenced in October 2015 and were a central part of the FCPF project activities through to 2018. There have also been consultations of an iterative nature. It is estimated that consultations have involved over 24 rural communities with some 500+ individual householders of whom 295 have been women (95% from 12 different ethnic minority groups with poverty rates in excess of 70%), 12 CPCs (75 members including 22 women) and DPCs (120 members including 20 women), 6 PPCs (25 members including 6 women) at the sub-national level. At the national level, including international participants based on consultation and participation records in excess of 100 people (including 25 women). For CSOs and NGOs some 35 people, including 20 women, of which 11 NGOs have been consulted in detail on REDD+ by the program and have participated in all or some of the REDD+ workshop activities. There have been in excess of 30 program related workshops at the national and sub-national level. For field-based studies the emphasis has been on quality rather than quantity to date with the exception of the SESA, which involved both a qualitative and a quantitative survey of forest-dependent households chosen at random based on a robust probability proportional to size (PPS) sampling strategy. In addition, there have been separate sets of consultation in all provinces on the preparation of the six Provincial REDD+ Action Plans (PRAPs), which involved consultations at different levels and specifically targeted communes and, with the different types of stakeholder interest:

- 46 technical meetings, consultation workshops on SESA, ESMF, FGRM, Resettlement Policy Framework (RPF), Gender Action Plan (GAP), Ethnic Minority Planning Framework (EMPF) were organized with the participation of 2,190 people, in which: 600 women and 1,261 ethnic minority people.

- Two consultation workshops on social and environmental safeguards and two consultation workshops on the ESMF in the NCR were organized. In addition, 25 consultation meetings at district and commune levels with main participation of women and ethnic minorities people were organized in the NCR provinces.

- Two consultation workshops on FGRM were held with participation of 133 members, in which: 25 women and 15 ethnic minority people.

- BSM/BSP two specific consultation filed trips took place in November 2015, TT Hue, and Quang Binh included a number of different ethnic minority groups including Co Tu, Pa Co, Van Kieu.

- December 2015 in Nghe An Dan Lai, Thai and May 2016 TT Hue, Quang Tri and Ha Tinh, and included a number of different ethnic minority groups including: Dan Lai, Thai Co Tu, Van Kieu, and Khinh.

- May 2016 Quang Tri - different ethnic minority groups including: Tri Van and Kieu.

- A number of communication, consultations and feedback events were conducted in six provinces and included presentations and discussions on the proposed updates to the old Forestry Law (2014)[35], the various options under consideration for the ERPD in the NCR and included introductions to the PRAPs and BSM etc., with participation of 5,397 people, in which 2,519 women and 2,315 ethnic minority people.

- Consultation for the Due Diligence report: Consultations were undertaken at the central project management (C/PMU) unit level and also at the provincial project management units (PPMU). A series of questions were prepared for the interviews and where possible interviews were undertaken with senior project management and also important relevant experts (such as gender specialists, environmental or social safeguards specialists etc.). Key issues for discussion included: 1) donor requirements related to safeguards and how these were applied, how was compliance monitored in the project and what reports are available related to implementation and compliance of the safeguards in the project; 2) summary of the expected project positive and negative environmental and social impacts; 3) discussion on the M&E system, and any reports that come from the M&E process in the project; 4) how gender is handled under the project; 5) were any special approaches/ activities/ processes used by the project to consult with and include ethnic minorities; and 6) what kind of feedback and grievance mechanism, if any, was developed under the project and was this used.

- Outside of local communities and governmental entities at the four levels of government in Vietnam, SFC, international organizations with a stake in REDD+ such as UNREDD-II and FAO, the EU, multilateral providers of ODA for some aspects of REDD+ including ADB and KfW, bilateral providers, notably JICA and USAID, and international NGOs, notably SNV, FFI, WWF, and a variety of local CSOs and NGOs have also been consulted and will continue to be consulted.

- In the process of developing the Decree no.107/2022/ND-CP dated 28 December 2022 to Pilot GHG ER result transfer and financial management of ERPA (which includes the Benefit Sharing Plan), MARD has consulted with four ministries and six provinces in the NCR. The provinces have also basically consulted the relevant agencies and units in the province before sending their comments to the MARD, specifically: MARD has consulted localities[36] through Document No. 2757/BNN- TCLN dated May 13, 2021, Document 4239/BNN-TCLN dated July 7, 2021; Document 1281/BNN-TCLN dated March 8, 2022.

- During the development of community forest management and sustainable forest management planning, the forest owners work with the local communities through focus group discussions held in informal settings such as someone's house, and with everyone sitting together as equals. The main point of consultations at this stage was to gain greater understanding from the local people as to how they see their opportunities and constraints arising from forest and land

[35] Replaced by the Forest Law (2017).

[36] This is the 3rd time MARD consulted and collected written feedback from stakeholders on the draft PM Decree Pilot GHG ER result transfer and financial management of ERPA.

resource access and use, including possible land use conflicts, and the security of their livelihoods at present, their responsibilities, and rights.

Box 2: Consultations for the four donor projects included in ER-P

In practical terms international projects in Vietnam by necessity must, and do include, consultations, consent and targeting of the beneficiaries. In all four projects, poor ethnic minorities communities are important targeted project beneficiaries

Biodiversity Conservation Corridors Project

Before construction of the works, consultations were conducted with local authorities and communities (ethnic minorities) for their consents to ensure the compliance with planning; Priority was given to poor households and ethnic minority households to participate in the trainings and project activities.

Protection Forests Restoration and Sustainable Management Project (JICA2)

The project followed Government of Vietnam regulations relating to the EIAs/IEEs, environmental, social consultation and working with ethnic minorities, which has included many public consultations on its entire range of project investment activities these have included field visit, workshops, cross-visits etc.

Vietnam Forest and Delta Program

The project has included many public consultations on all of its project investment activities, and this has included intensive and extensive field visits, workshops and all levels, cross-visits etc.

Green Annamites Project

Consultations with target beneficiaries - poor ethnic minorities communities and households

Source: Due Diligence Report – FCPF Project 2019

Details of consultation process and results (consultation minutes) relating to ESMF, EMPF, RPF can be found in ESMF section 10.1 and 10.2 and stored in Safeguards Information System at the central level. Meeting minutes and lists of participants are publicized, and participants identified by role (for example, representatives of CPC, FMBs, on-site forest rangers, and communities). These reflect the actual events that took place and stored by the agencies/units who organize the consultations. For example, village meeting minutes are managed/stored by the Community Forest Management Board (CFMB), most of the time the data is recorded in notebooks instead of digitalizing it using laptops because CFMB members have modest computer skills or not equipped with computer (for example, the case in Tam Dinh commune, Tuong Duong district, Nghe An province).

2.1.2 Disclosure

The ESMF, RPF, PF and EMPF, in both English and Vietnamese, were disclosed on the MBFP website before approval. The Vietnamese versions have also been disclosed at the project provincial, district, and commune level. The safeguards documents have also been disclosed at the WB's external website for public disclosure. During Project implementation, all the ESMPs, RAPs, and EMDPs including safeguards monitoring reports will be disclosed on the REDD+ website, SIS and related provincial websites such as of DARD, PFPDF among others.

Box 3: Disclosure in the four donor projects included in ER-P

Biodiversity Conservation Corridors Project
A public consultation meeting was reported to have been held in the preparation phase of each subproject. The information disseminated during public consultation included: 1) background of BCC Project and the subproject; 2) basic information related to ADB and the Government requirement for environmental protection and management; 3) potential impacts during subproject implementation and mitigation measures; and 4) an explanation of the grievance redress mechanism. No complaints or submissions to the project are reported to have been made.
Protection Forests Restoration and Sustainable Management Project (JICA2)
A pragmatic approach was clearly adopted by the Project i.e. villagers knew of, and were involved in the investment sub-projects particularly if these included improvements to livelihoods.
Vietnam Forest and Delta Program
The VFD project has provided, much effort to engage with and encourage public consultation by holding workshops, disseminating technical guidelines, leaflets, etc. and most ore in English and Vietnamese and also in ethnic minority languages. Most reports are disclosed on the project's website and distributed to the provinces and where appropriate have been translated into local languages.
Green Annamites Project

The implementation consultant (ECODIT LLC) is responsible for following USAID regulations and the GoV project owner.

Source: Due Diligence Report – FCPF Project 2019

VNFF's website has a separate tab for the ERPA Program (**http://vnff.vn/?hl=en**) including ERPD and safeguards' related documents (the ESMF). The VNFF, PFPDF, the forest owners as an organization, the CPC, and other organizations assigned by the State to be responsible for forest management shall disclose financial reports to the public according to the provisions of financial law; disclose the list of payees, the amount to be paid, the quarterly and annual payment plan according to the regulation on democracy at grassroots in the following forms: publicly posting at the headquarters of the CPCs and at the most convenient place for community members, village or public place for people to follow; disseminate information through the radio system of the commune, village or hamlet or announce it in the people's conference of the commune or hamlet.

Regarding four donor projects, the safeguards documents have been also disclosed widely through donors or MARD/DARDs' websites. In addition, project information has been also disclosed via communication and dissemination media channel namely television, newspaper, radio, leaflets, or local loudspeakers at village level. Among others, village meetings/consultation have been employed during the implementation of the ER-P and regarded as the most effective disclosure tool.

2.1.3 Potential environmental and social impacts and mitigation measures

Potential risks, impacts and mitigation measures[37] are described below in Table A1.5 and A1.6.

[37] From the Environmental and Social Management Framework (ESMF) 2019. An Addendum is proposed for the ESMF based on the final BSP and this will be submitted to the Bank for review 31st March 2023.

Table A1.5. Mitigation of environmental risks

Component/ Subcomponent/ Activities	Potential impacts on environment	Proposed mitigation measures
Component 1 Strengthening enabling conditions for emission reductions		
1.1 Strengthening and implementing policies controlling conversion of natural forests	Improved landscape management: possible loss of remnant natural forests but dependent on location in the watershed, i.e., most ridge crests remain forest covered; isolated non-ridge forest remnants most at risk.	− Strengthen forest governance (law enforcement for forest protection and management (propaganda, patrol, control) − Improve dissemination of forest conversion policy and improvements to land use planning, and policies related to the community as the regulation was developed. − Improve forest monitoring providing feedback into planning and management process and discussion with local communities to improve forest protection and management and agree to designate areas for livelihood related activities including NTFP collection. This also has the aim to improve local "ownership", to reduce pressure on NTFPs collection and especially from "outsiders" and introduce more sustainable management approaches to NTFP collection)
1.2 Strengthening Forest governance and law enforcement	Improved forest governance should eventually be generally positive and contribute to protection and maintenance of biodiversity. Development/revision of forest policy and regulation might result in negative outcomes during implementation.	− Thorough review of the TORs and outputs of these policy and regulation activities to ensure that potential impacts and mitigation measures are addressed. − Improve transparency, encourage the participation of community in discussing and improving forest management. − Improve forest monitoring providing feedback into planning and management process and discussion and local communities to improve forest protection and management and agree and designate areas for livelihood related activities. − Similar to above on the use and sustainable management of NTFPs.
Component 2: Promoting sustainable management of forests and carbon stock enhancement		
2.1 Conservation of natural forests	− Generally positive, some clarifications of forest natural forest boundaries, some possible impacts on livelihoods, i.e. improved conservation of natural forest may not include unfettered or continued access to all forest areas. − NTFP over collection should decrease and lead to improved management and should see an increase in the volume and availability.	− Implement collaborative management of natural forests between FMBs, SFCs and communities to improve forest protection and management and agree to designate areas for livelihood related activities to reduce pressure on critical forest areas. − Promote implementation of community-based forest management.

Component/ Subcomponent/ Activities	Potential impacts on environment	Proposed mitigation measures
2.2. Enhancement of carbon stock in plantations (Through the implementation of various forest economic models aimed at improving the natural regeneration, and transformation of acacia to long term plantations).	– Generally positive, few impacts expected as the activity mainly focuses on existing plantations (i.e. no new plantations, enrichment planting with native spp. included) and extending and improving management. – Impacts would location dependent, possible minor habitat damage or in exceptional circumstances minor loss of poor quality remnant natural forest. (See detailed reviews of the different proposed models below).	– Implement collaborative management approaches for natural forests and plantation areas between FMBs, SFCs and communities. – Apply codes of practice, and follow forest management advice conforming with OP 4.36 (Forests) and OP 4.04 (natural habitats) from DARD and FPD, and improved monitoring.
Forest and plantation models proposed under 2.2		
Forest protection of existing natural forest through contracts; around SUFs, PFMBs, and SFC (economic model 1).	- Generally positive, possible overexploitation of NTFPs.	– Implement collaborative management conforming to OP 4.36 and OP 4.04 of natural forests and plantation areas between FMBs, SFCs and communities.
Natural assisted regeneration of medium quality forest / avoiding degradation (no planting); located mainly in SUFs (model 2).	- General longer-term benefits due to habitat improvements leading to improved biodiversity.	– Same as above.
Natural regeneration and enrichment planting of poor natural forest. Located mainly in SUFs, i.e. normally uninhabited (model 3)	- Possible initial minor habitat damage where enrichment planting occurs.	– Same as above.
Transformation of Acacia plantation (models 6 and 7) target area is SFC PFMBs and some smallholders	- None expected as areas expected to be already planted to Acacia;	– Follow plantation management recommendations conforming to OP 4.36.
Afforestation Reforestation with pure Acacia and mixed species and offsetting of infrastructure and development (models 4,5,8)	Possible loss of remnant natural forest due to plantation development leading to the clearing of natural forests; Risk is believed to be moderate and will be limited to a small area	– Follow planting recommendations, and policy guidelines for conversion of forest.
Coastal forest and mangrove protection, enrichment planting of degraded forest and mangroves, afforestation/ reforestation coastal and mangrove forest (Models 9, 10, 11)	None expected; An environmental concern risk of plantation development leading to the clearing of natural forests; Risk is believed to be moderate and will be limited to a small area;	– Follow planting recommendations, and policy guidelines for conversion of forest.

Component/ Subcomponent/ Activities	Potential impacts on environment	Proposed mitigation measures
2.3 Enhancement and restoration of natural forests (Through assisted natural forest regeneration, enrichment planting and potential restoration of sand break forest and mangroves. These activities are the subject of a dedicated ESMF which covers eight provinces overlapping the six in the ERPD for that project some extracts are provided).	Generally positive, longer-term benefits due to habitat improvements leading to improved biodiversity, possibility of very limited impacts on livelihoods, i.e. potential reduced or planting time access to forest areas under regeneration. Possible increased and or overuse of pesticides/ herbicides for seedling and unintended introduction of invasive species.	- Implement collaborative management approaches of natural forests between FMBs, SFCs and communities to reduce effects of the reduced access to certain part of forest i.e. identify alternative areas and or reduced access agreements for a period of time this would also allow for the recovery of NTFPs and lead to more sustainable management of NTFPs. - Collaborative management will also lead to more "ownership" of forest and NTFPs and reduce pressure from "outsiders". - Identification of conservation orientated livelihood and sustainable forest use models designed not to impact on natural forest in SUFs, PFMBs and SFCs - Provide training and advice on the use of pesticides and herbicides.
	In some locations possible use of exotic species which potentially may reduce biodiversity, however, possible use of exotic spp. (*Casuarina* and *Acacia*) likely only in the 'sand break forest' which are already areas of low biodiversity (i.e. often areas of bare sand or some 'sand break' areas may already be sparsely populated by exotics from previous attempts to introduce afforestation but these often suffered very poor survival rates); therefore the impact is not expected to be significant in the 'sand break' forest areas. Potential impacts of plantation and/or protection of coastal forest and mangrove during pre- planting and planting phase is considered moderate and could be mitigated. It may involve conflict regarding land ownerships since most of the coastal forests are classified primarily as protection forests and they are under the direct management of the government (CPCs, PFMBs, SUFMBs, or private entities) as well as increasing use of pesticides and/or toxic agrochemical during seeding development process and caring of young plants.	- Careful planning of afforestation, the Coastal Resilience Enhancement Project has been designed to promote participation of local communities, they will need to enable active participation of all stakeholders, so that any issues could be adequately identified and mitigated. The specific sites for planting and protection of coastal forests in each province were selected based on the following criteria: Specified for coastal forests in the sectoral master plan and provincial land use plan provided by DARD, and the forest inventory; land ownership/use and vulnerability to weather; adjacency of coastal forests. In the proposed project design, the investments will be spread across 168 communes. The implementation of this will give priority to protecting existing stands of coastal forests followed by carrying out enrichment planting. These priority activities will be implemented while conducting site assessments for the new plantation areas. The implementation of new plantation and enrichment planting activities will also be done based on a prioritization of the areas. The latter is determined using information on three factors: Vertical and horizontal distance from the coast; Level of difficulty for planting (this refers to the site conditions); Availability of seedlings and suitable land (the latter applies for mangrove plantation). Planting activities will occur land areas where there is evidence that coastal forests (i.e., mangroves and sandy soil forests) existed before.
Component 3. Promotion of climate smart agriculture and sustainable livelihoods for forest dependent people		
3.1 Improve climate smart agriculture (Through Identification of conservation orientated livelihood models designed not to impact on	Limited possibility of negative environmental impacts, for example, not all activities chosen by communities and forest management entities may not be rigorously forest or biodiversity conservation supportive;	- Identification of livelihood and sustainable forest use models designed not to impact on natural forest in SUFs, PFMBs and SFCs. Example of livelihood activities will be developed and provided in the PIM.

Component/ Subcomponent/ Activities	Potential impacts on environment	Proposed mitigation measures
natural forest in SUFs, PFMBs and SFCs).	identification of conservation orientated livelihood models designed not to impact on natural forest in SUFs, PFMBs and SFCs.	
3.2. Diversifying and sustaining livelihoods for forest dependent people (Through promotion of sustainable use and development of NTFPs in the forest areas and or climate smart sustainable agriculture).	− Generally positive, some possible impact on the forest. − Possible pollution to the environment and human health due to waste generation and pesticide use in climate-smart agriculture activities and agriculture value chains.	− Improved forest planning and management processes and discussion and local communities to improve forest protection and management and designate agree areas for livelihood related activities. − Promotion of sustainable use and development of NTFPs in the forest areas. − Mitigation measures to be developed and included in the ESMP for implementation. − Provide training on use of herbicides and pesticides.

Table A1.6. Mitigation of social risks

ER-P Activities	Potential socio-economic risks	Proposed mitigation measures
Component 1: Enabling conditions for emission reductions		
1.1 Strengthening and implementing policies controlling conversion of natural forests	Potential for reduced access to forest and NTFP resources for forest dependent communities through improvements to forest governance Possible short-term reduction in volume of NTFPs may result in food or less income for NTFPs that are sold	Improved forest monitoring providing feedback into planning and management process and discussion with local communities to improve forest protection and management and agree to designate areas for livelihood related activities including NTFP collection. OP 4.12 and OP 4.10 will apply. Aim for forest management plans to improve local "ownership", to reduce pressure on NTFPs collection and especially from "outsiders" and introduce more sustainable management approaches to NTFP collection.
1.2 Strengthening Forest governance and law enforcement	Similar to above but some possible impacts on livelihoods Improved governance may not include unfettered or continued access to all forest areas.	Improve transparency, encourage the participation of community in discussing and improving forest management. Ensure that ethnic minority people who agree to participate in the FMC are in broad agreement with the FMEs as to whether it is necessary to restrict access to the forests and if necessary, no household should be worse off as a result. In such instances OP 4.12 (Involuntary Resettlement) and OP 4.10 (Indigenous Peoples) will apply. A similar provision must apply to those ethnic minority households who do not agree to participate in the FMC.
		Identification of conservation orientated livelihood and sustainable forest use models designed not to impact on natural forest in SUFs, PFMBs and SFCs. However, where households that are negatively impacted are able to secure livelihoods by being offered alternative livelihoods within the provisions of OP 4.12 and OP 4.10.
Component 2: Promoting sustainable management of forests and carbon stock enhancement		
2.1 Conservation of natural forests	Generally positive, some clarifications of forest natural forest boundaries, some possible impacts on livelihoods, i.e., improved conservation of natural	Implement collaborative management of natural forests between FMBs, SFCs and communities to improve forest protection and management and agree to designate areas for livelihood related activities to reduce pressure on critical forest areas. OP 4.10 will be triggered to ensure all ethnic

ER-P Activities	Potential socio-economic risks	Proposed mitigation measures
	forest may not include unfettered or continued access to all forest areas.	minority groups who agree to participate in the FMC will benefit but if not OP 4.12 will apply to ensure that involuntary resettlement impacts – such as when boundaries between core and buffer zones are resolved by the FMC – will be mitigated.
2.2 Enhancement of carbon stock in plantations	Generally minor socio-economic impacts expected see review of various models below.	Implement collaborative management of natural forests and plantation areas between FMBs, SFCs and communities. OP4.10 will apply where there is more than one ethnic minority group or where there is at least one ethnic minority group and the Kinh ethnic majority group (are not so many instances) but this is specific to ethnic minority groups who either have legal or legalizable access to plantation forest land or are employed to maintain the plantation land.
Forest and plantation models proposed under 2.2		
Forest protection of existing natural forest through contracts; around SUFs, PFMBs, and SFC (economic model 1).	Possible gender and exclusion, issues; Possible social impacts if land was previously used for agriculture or restrictions placed on accessing forest for NTFP collection.	To ensure ethnic minority women or other poor and vulnerable groups are not excluded the provisions of OP 4.10 apply and the GAP highlights how it is necessary to ensure full gender exclusion. However, where restrictions are to be imposed restricting access to forests to collect NTFPs and this negatively impacts on women and their households then the provisions of OP4.12 will apply because the impact results in loss of livelihoods.
Natural assisted regeneration of medium quality forest / avoiding degradation (no planting); located mainly in SUFs (model 2).	Possible gender and poverty issues related to access to forest; Possible change or impact on livelihoods if restrictions placed on accessing forest for NTFP collection.	Same as above.
Natural regeneration and enrichment planting of poor natural forest. Located mainly in SUFs, i.e. normally uninhabited (model 3).	Possible gender and poverty issues related to access to forest; Livelihood issues.	As above.
Transformation of Acacia plantation (models 6 and 7) target area is SFC PFMBs and some smallholders.	Possible boundary demarcation issues; Limited impact as expected that the area is already planted to different *Acacia spp. and similar.* Possible health and safety issues related to plantation harvesting.	If and where there are boundary demarcation issues and the livelihoods of ethnic minority groups either living in existing FMEs (not too many according to the SESA) or in contested buffer zones (likely to be more instances) then OP4.12 and OP 4.10 will apply because affected persons may lose all or a portion of their livelihoods, especially if production forestry is one of the main sources of livelihood. Provide training on health and safety related to timber harvesting[38]
Afforestation Reforestation with pure Acacia spp and mixed species and offsetting of infrastructure and development (models 4,5,8).	1) None expected in areas already having plantations; 2) Offsetting of infrastructure possibility of some land acquisition; Most offsetting to occur in a SUFs or PFMBs. Possible health and safety issues related to plantation harvesting.	If land is to be acquired by the FMC to ensure that it can meet targets agreed upon for the reduction of carbon emissions, then OP4.12 and OP 4.10 will apply. However, as per the ER-P design and articulated in the ER-PD it is preferred that land is not acquired. If there is "voluntary gifting" by individuals or groups or whole villages this made be explicitly stated as per the principle of Broad Community Support but where one or

[38] Joint Circular issued by MOLISA and MARD: No. 08/TTTL-BYT-BLDTBXH: 20/04/2017 on the Use of Forest Extraction, Sawmilling and Timber Dressing Equipment, Chemical Substances, and Wearing of Protective Clothing in forests owned by State Forest Companies; Law on Protection of People's Health in all Occupational Groups: No 21-LCT/HDNN8: 23/06/14 also covers all paid workers in the forestry sector whether waged, salaried or contracted.

ER-P Activities	Potential socio-economic risks	Proposed mitigation measures
		more households do not agree with this principle, then OP4.10 and OP4.12 applies to such households. Provide training on health and safety related to timber harvesting.
Coastal forest and mangrove protection, enrichment planting of degraded forest and mangroves, afforestation/ reforestation coastal and mangrove forest (Models 9, 10, 11).	Possible boundary and resource access and use issues; Possible social impacts if land previously used as agriculture; Or restrictions placed on NTFP collection. Possible health and safety issues related to plantation harvesting.	Where there are restrictions on access to the use of land whether to harvest NTFPs in the forests or on land that has been converted, whether legally or not, from forest land to agricultural land, then the provisions of OP.4.10 and OP4.12 apply if affected households are impacted negatively. Provide training on health and safety related to timber harvesting.
2.3 Enhancement and restoration of natural forests	Possibility of very limited impacts on livelihoods, i.e. potential reduced or planting time access to forest areas under regeneration.	Implement collaborative management of natural forests between FMBs, SFCs and communities to reduce effects of the reduced access to certain part of forest i.e. identify alternative areas and or reduced access could include rotation of area or use of areas at particular time (depending on NTFP) agreements for a period of time. Where this occurs the provisions of OP 4.12 will apply but also the provisions of OP 4.10 will apply if one or more ethnic minority group are likely to be marginalized during the processes.
Component 3: Promotion of climate smart agriculture and sustainable livelihoods for forest dependent people		
3.1 Improve climate smart agriculture	Possible gender and poverty issues; Possible access to forest issues; Possible changes in land use.	Selection of the livelihood support should be targeted to contribute to reduce forest dependency; design best approach that fits with local forest dependency and use and climate smart agriculture that best suits the local area and market conditions. OP 4.12 and OP 4.10 will apply if there are any restrictions to be imposed that lead to households not been able to reduce their dependency on the forests and unable to increase their dependency on climate smart agriculture. Training on improved crop production and crop diversification.
3.2. Diversifying and sustaining livelihoods for forest dependent people	Possible gender and poverty issues; Possible access to forest issues; Possible changes in land use.	Selection of the livelihood support should be targeted to contribute to reduce forest dependency; design specific approaches that reflect local forest dependency and use and climate smart agriculture that best suits the local area and market conditions. The provisions of OP 4.10 and OP 4.12 will apply where necessary. Training on improved crop production and crop diversification.

2.2 Confirm if entities responsible for implementing the Safeguards Plans maintain consistent and comprehensive records of ER Program activities such as records of administrative approvals, licenses, permits, documentation of public consultation, documentation of agreements reached with communities, records of screening process, due diligence assessments, and records of handling complaints and feedbacks under the Feedback and Grievance Redress Mechanism (FGRM).

During the implementation the program, the VNFF and PFPDF are responsible for implementing the Safeguards Plan are in charge of coordinating support to perform ER Program in NCR. Meeting minutes, consultation reports, due diligence assessments carried out during the assessed period are recorded within the Project and publicized on the website as mentioned above.

The MARD is assigned the management of the database system to the VNFOREST/the Administration Office of VNFOREST and Forest Protection Department (FPD). The national SIS is partly operationalized to report on safeguards information for the ER-P, for which the FCPF Carbon Fund is to provide results payments. The SIS database has been developed and housed within the Forest Management Information System (FORMIS) platform. Online access to REDD+ information, including safeguards, will be through two web portals associated with REDD+ in Viet Nam: 1) the REDD+ Viet Nam website; 2) VNFF Portal, existing information systems and sources have been identified and an assessment of the extent to which they can provide the necessary information to respond to the SIS information needs.

In the meantime, all documentations and records of ER-P activities including information on safeguards are filed as per requirements under the ERPA tab of the VNFF website. They will be recorded and stored by existing entities who are responsible for safeguards implementation from sub-national up to national level utilizing the above-mentioned mechanisms and systems.

2.3 Summarize the extent to which environmental and social management measures set out in the Safeguards Plans and any subsequent plans prepared during Program implementation are implemented in practice, the quality of stakeholder engagement, as well as whether field monitoring and supervision arrangements are in place.

Environmental management measures

- Conservation of natural forest: By 2022, the PFES payment has contributed to protecting biodiversity, water sources and ecosystems, helping to improve the efficiency of the forest management and protection of nearly 1.1 million hectares of forests. It has provided forest environmental services in six provinces, accounting for about 17% of the country's total forest areas that are entitled to forest environmental services. In addition, to control the natural forest loss, the Directive 13 of the Central Party and Government Resolution 71 provides the legislative basis for provinces ''to review, evaluate and strictly control socio-economic development projects and planning which affect forest area and quality''. The provinces of the NCR are therefore required to review their rubber expansion targets and to ensure compliance with Directive 13. Furthermore, specific measures to ensure non-conversion of natural forests include support for mapping of remaining forest areas, awareness and capacity building, linking plantation development to FSC certification, and tying benefit sharing to the protection of natural forests.

- Other environmental related problems namely soil erosion, pesticide use resulting from plantations has been controlled and managed by sustainable forest management. Under the

ESMF, a simple environmental code of-practice[39] was prepared and implemented under the WB funded Forest Sector Modernization and Coastal Resilience Enhancement Project (under the ERPD) that has contributed towards ensuring viable, sustainable, and environmentally compatible plantation management among plantation owners in NCR. It was also found during the field work in DDR that, JICA2, another project under the ER-P has not only helped to improve the forest management and protection that contributed to increase forest cover and maintain ecological services, but also integrate and apply the environmental protection requirement in the construction contract for the upgrading forest road in Tan Ky PFMB, Nghe An province. According to the project management board of JICA 2 in Nghe An province, the management board has asked the PFMBs to develop sustainable forest management plans for plantation forest that employed the ECOP introduced under the ESMF. Under the support of the FCPF-2 project, the forests owners from the SUFMB, PFMBs, and SFCs have been trained and provided with the technical guidelines to prepare the sustainable forest management plan to implement silviculture good practices to protect environment and maintain ecological services. This included the soil erosion control, pesticide management, biodiversity and ecosystem conservation. An improved provincial forest monitoring system (PFMS) which uses mobile electronic devices to monitor and update forest area changes has been applied to identify conversion from natural forest to plantation on a periodic basis. This activity has been supported by FCPF2 and JICA 2 project.

Social management measures

- The main social concerns relate to security of land tenure for agricultural and forest land, access to forest resources, improvement to livelihoods, and gender issues. Toward managing the social risk of possible short-term reduction in volume of NTFPs may result in less food or less income from NTFPs that are sold: forest owners have developed their forest management plans to improve local "ownership", whereas agreement with local people is reached on how they collect NTFPs sustainably, while awareness raising sessions are conducted to introduce more sustainable practices by local people. The Forestry Law (2017) supports the involvement of forest dependent communities in sustainable forest management and requires the state forest managers to engage with the villages and communes. The FMBs are required to follow the Forest Law (2017) and are required to work with and develop operational management plans, forest management/ conservation plan/ forest protection plans. The plans must be discussed with and needs the agreement and support of the communes. The plans must be shared with District and Provincial authorities. Various international development projects and NGOs have supported these activities (including projects funded by JICA, ADB, two USAID projects (all reported on in the DDR), WB (previous projects), KfW, and WWF etc.) and this continues today through two new USAID funded projects which are implemented in the ERP area.

- Access to the natural resource: as per the Prime Minister's Decision on natural forest "logging ban", no exploitation is allowed in natural forest areas. No resettlement impacts are recorded in the region as location of natural forest are farther away compared to production forest, and local communities, including ethnic minorities, have more access to production forest for their livelihoods, so there is less livelihoods pressure on natural forest. Where there is the need for natural forest access, usually local are arrangements are made in accordance with NTFP seasons

[39] A generic Environmental Code of Practice (ECOP) has been prepared for the Forest Sector Modernization and Coastal Resilience Enhancement Project

(for example, local people can rotate their access to collect bamboo shoots only within the season).

- Measures to reduce forest dependency via livelihood activities have been developed in the program. Due attention is being paid to livelihoods development that helps reduce forest dependency: and includes various models of herbal medicine plantation, fishery raising, ecotourism, establishment of high-tech seedling nursery etc. In 2021, the National target programme on socio-economic development in ethnic minority areas approved by Deputy PM, aims to improve the lives and livelihoods of ethnic minority groups in Vietnam. As part of this, by 2025, ethnic minorities' income will be double that of 2020. The first stage will be rolled out in the 2021-25 period. The Committee for Ethnic Minority Affairs has just issued Circular 02/2022/TT-UBDT guiding the implementation of a number of projects under this national target program in phase one from 2021 - 2025. Accordingly, the projects include poor households of ethnic minorities living in ethnic minority areas or mountainous areas. In addition, the circular also stipulates support for production land and job change for these groups of people. Specifically, if households living on agriculture and forestry do not have production land and need support of production land, they will be considered by local authorities for direct support with production land. They will be considered and supported for job change if the locality cannot allocate enough land. Given the fact that the NCR is home to 13 ethnic minority groups[40] which make up some 11.5% of the total population, the ethnic minority people in the ER- P areas will be direct beneficiaries from this new policy. On top of that, with the Benefit Sharing Plan now formalized through ERPA Decree no.107 [41], transparency and equity will be strengthened since all forest owners' categories including communities, households, individuals will receive the payments rather than merely forest owners as organizations. At the provincial level, livelihood related activities are designed and integrated into forest protection and development plan in the areas where the consultant team has done the survey, to reduce the pressure on forest land and NTFPs collection. For example, In Thuong Lo commune, Nam Dong district, Thua Thien Hue province: promote the One Commune One Product (OCOP) with bamboo and rattan products, also Kotu's sticky rice wine. The Nam Dong DPC on the other hand plans to develop community and ecology tourism, traditional handicraft gift for the tourists/travelers. The Nam Dong DPC has already allocated total budget of 55-60 billion VND to build up a traditional village of Kotu ethnic minorities people. Meanwhile in Phong My commune, Phong Dien district, Thua Thien Hue province: Green Annamite Project supported the community there with planting medicinal plants under the forest canopy, as well as hybrid acacia forest. Planting medical plants is also considered as an alternative livelihood for the local people in Yen Hoa commune, Tuong Duong district, Nghe An province.

- PFES and state-funded programmes are currently at a standstill in their attempts to encourage local people to transition to sustainable livelihoods (for example, castle/buffalo raising) or alternative livelihoods (for example, medicinal plants). Local communities need to be persuaded that these alternatives, based on biodiversity and sustainability imperatives, and as identified in the master plan of district socioeconomic development, can potentially bring higher income, even though the communities are landless. The key issue here is that PFES and state-funded forest protection programmes make payments that are nominally tied to forest protection, but come with no performance or results monitoring. The funds are not channeled into any formal training

[40] In the course of its investigations the SESA team found several groups not listed in the Census: Dan Lai, Pa Co and Pa Hy.
[41] Decree no.107/2022/ND-CP dated 28 December 2022

of village development fund. Meanwhile, the ER-P and other REDD+ projects do regard livelihood development as a mandatory activity in line with Safeguards requirements. Therefore, multiple facilitation activities have been conducted, including participatory land-use planning, annual village development planning, oversight of loans (from Village Saving Fund or banks) and capacity building. Under the pilot REDD+ project, livelihood development is monitored based on two criteria: changes in the percentage of households that have changed livelihood and the scale (number or area) of sustainable livelihoods or alternative livelihoods.

- Strengthened coordination among provincial, district and commune level authorities, forestry offices, as well as mass organisations including women, youth unions. Factual information collected during the field trip document the effectiveness of the coordination mechanism for better forest protection and development, especially addressing forest crimes, deforestation and forest land encroachment. Particularly, during 2019 - 2021, the Nam Dong PFMB in Thua Thien Hue province has implemented well the Regulation on coordination with the district Forest Protection Department, local authorities and related agencies. In Tuong Duong PFMB in Nghe An province, based on the cooperation regulation signed with Pu Mat National Park, Pu Hoat Nature Reserve, joint forest patrolling has been carried out regularly in the bordering forest areas. Additionally, the coordination mechanism has also been made between Tuong Duong PFMB and Commune People's Committees, local rangers, and border guard stations located in the area to coordinate forces in patrolling, detecting, preventing and handling illegal activities and violation cases. At the same time, share information and timely reports on incidents occurring in the area regarding forest development and forest fire prevention and fighting. At the commune level: a steering committee on forest protection and development plan is established at commune level such as in Tam Dinh, Yen Hoa communes – Tuong Duong district - Nghe An province and annual plan for forest protection, development, management and forest fire prevention and fighting is developed. The CPC also makes coordination mechanism amongst CPC, Fatherland Front, and other mass organizations at commune level regarding forestry tasks. The CPC collaborates with other forest protection agencies such as Tuong Duong forestry limited company, Tuong Duong forest protection unit in forest patrolling, forest crimes handling i.e. illegal logging, illegal harvesting and transportation of forest products. Regarding Community Forest Management (CFM): in all four communes visited in Nghe An and Thua Thien Hue provinces, each village in the communes has established a community forest management regulation/convention comprised articles about the location and purpose of community-based forest management, the rights and obligations of village people. Copies of forest management conventions are also stored at the CPC and with the village head. The village community forest management unit normally led by village head, will be responsible for direct management and protection of the village's entire forest area, establish community patrolling teams and develop forest patrolling plans for all team members. The village CFM unit also has an accountant and treasurer to handle the PFES payments, and also the up-coming ERPA processes. In Doi, Mu Nam, Cha Mang villages, Thuong Lo commune, Nam Dong district, Thua Thien Hue province: each village has its own sustainable forest management plan for the period 2020-2024 verified by the CPC. Moreover, community forest structure has a management board and a supervisory board. FMBs had collaboration mechanism of FMB's specialized forest protection task with the District Forest Protection Department and other neighboring FMBs and/or nature reserves. For example, there is a joint agreement for collaboration amongst Nam Dong PFMB, Sao La nature reserve, the police, and Nam Dong district FPD for forest management and protection, forest fire fighting and prevention, biodiversity conservation which clearly regulate the responsibilities of each party.

- **Stakeholder engagement and participation:** Local communities are engaged in the collaborative management mechanism as mentioned above to improve forest protection and management and they are also consulted to agree with livelihood related activities in their localities; and implement collaborative management of natural forests between FMBs, SFCs and communities in Tuong Duong PFMB and Phong Dien nature reserve. Local people also form the forest patrolling groups.

- **Gender equity and social inclusion:** Gender issues were integrated into the design and implementation of activities of the ER-P. Alternative livelihoods have been designed to take advantages of the women's role and to improve their incomes, such as stall feeding of cows, herbal medicine plantation and sticky rice wine distillation. The role and participation of local women are enhanced in forest management and use through the inclusion of the Commune Women's Unions in propaganda, reporting and planning activities. In fact, gender equity is not considered as an issue in the surveyed areas, where men and women both have equal rights and opportunities to participate in forest protection and development activities, local meetings as well as capacity building trainings and workshops. However, male-dominated professions remain where gender mainstreaming has yet to take place and, for example, in some of the FMBs (Phong Dien PFMB) and FPDF (Hue and Nghe An), only women working there are the accountants. Cadastral officers are, more often than not, male as observations during the field trip in all four communes: Yen Hoa, Tam Dinh (Nghe An), Thuong Lo and Phong My (Hue). In the areas visited there are few such steady sources of income available, as cropping is generally done on a once yearly basis, and most small livestock such as poultry are not raised for income generation purposes. In Yen Hoa commune and Thuong Lo commune, women are eligible for approaching alternative livelihoods models such as feeding stall cows and cooking sticky rice wine given the support from Commune Women Association up to 4 million VND per household. If REDD+ payments are excessively delayed (performance-based), then there is almost no way for women-headed households, or poor households in general, to participate equally with households that can afford to wait for delayed payments for labour outlays;

- FGRM is in place to address the conflict/dispute. Commune conflict management groups as well as technical groups received training on forestry related topics;

- Capacity building activities to relevant stakeholders participating in forest protection and management require certain percentage participation by women, department of labour, invalids and social affairs, disadvantaged and forest dependent households; and

- Communication activities focus on various topics and relevant to diversified target groups, so different methods are applied.

Table A1.7: Safeguards implementation of four donor projects

Issue	Findings	Potential gaps in safeguards	Recommendations on gap filing measures
Green Annamites Project - USAID			
Donor review and follow up of safeguards.	Similar to the USAID VFD project, but as new project it has a comprehensive approach to design of environmental and social safeguards. This is also	None	Since the project will join the ERP, coordinated monitoring is required. This requirement will be included in the project

Issue	Findings	Potential gaps in safeguards	Recommendations on gap filing measures
	reflected in the much narrower scope of the Project compared to the VFD Program. The Project prepares annual EMMPs which are reviewed and approved by the donor and include environmental and social mitigations etc.		EMMPs for implementation, including joint monitoring and evaluation.
Compliance and consistency with donor safeguards.	In compliance to date, some aspects still under development.	None at present.	None at present, recommend periodic monitoring (as below) on M&E in the project and the GESI.
Documentation of implementation of safeguards and relevance.	Documentation is generally available. The project is relatively new so documentation on some of the processes are still under development i.e. comprehensive M&E system and the GESI.	Some documentation and approaches, for example the GESI is still under development.	Periodic checks to update on progress to monitor and ensure M&E and GESI are implemented. The checks and updates could be at sis monthly intervals until M&E and the GESI are in place.
Implementation of environmental and social safeguards	Similar comments as above the GESI is under development.	GESI is under development.	As above. Period checks to monitor and ensure M&E and GESI are implemented.
Consultations	Consultations with target beneficiaries - poor ethnic minorities communities and households is underway.	None	None
Grievance redress	Handled on a case-by-case basis.	None	None
Vietnam Forest and Delta Program			
Donor review and follow up of safeguards	Donor reviewed safeguards the EMMP are submitted annually for clearance of the workplans and reviewed and approval is from the USAID which may set conditions (i.e. “negative determination with conditions”). Compliance has been periodically monitored through visits and independent reviews (mid term evaluation report) and specific reports and reporting on the EMMPs to the USAID.	Some gaps on some specific issue on social safeguards documentation compared to WB ESMF approach. However, USAID approach is comprehensive. The main emphasis from the donor is on environmental safeguards, but these also include activities that would be considered as “social	None

Issue	Findings	Potential gaps in safeguards	Recommendations on gap filing measures
		safeguards" and include scope for social mitigations.	
Compliance and consistency with donor safeguards.	Documentation shows implementation of safeguards. The main emphasis from the donor on the safeguards for the project was/is on environmental safeguards. While the project has complied with the environmental safeguards of the donor to implement these also include social "safeguards" mitigation approaches including consultations, special arrangements for ethnic minorities, inclusion of gender, grievances, transparent monitoring etc.	Some gaps in the documented approach to social safeguards when compared to WB ESMF. However, the EMMPs do include very relevant social "safeguards" related activities including extensive consultations, consent, and transparent monitoring i.e. including the local community in the monitoring process.	None. While there are gaps in the documentation on specific social safeguards aspects it is not feasible (cost effective or physically easy due wide scope and long running nature of the project and now change in scope) to go back and visit all activities to document the review compliance with social safeguards particularly as the documentation has complied with the USAID safeguards requirements.
Documentation of implementation of safeguards and relevance.	Follows USAID formats. As above gaps if compared to WB.	As above some gaps in specific social safeguards documentation, however the project complied with USAID requirements and followed USAID format.	None
Implementation of environmental and social safeguards.	Environmental safeguards clearly followed.	As above	None
Consultations	Extensive consultations generally took place but not always documented and /or access to documentation difficult due to long running nature of the project and now the change of scope.	As above	None
Grievance redress	Handled on a case by case approach. No significant issues have been reported.	None	None
JICA 2 Project			
Donor review and follow up of safeguards.	A project environmental and social checklist was drawn up which sets out criteria to be followed. Little evidence of	The donor expects to undertake a post implementation review of compliance with JICA	Review documentation when becomes available.

Issue	Findings	Potential gaps in safeguards	Recommendations on gap filing measures
	donor review of implementation of safeguards.	guidelines on safeguards.	
Compliance and consistency with donor safeguards.	Guidelines provided by donor and project follows a detailed environmental and social checklist that is based on Government of Vietnam Circulars on environment and social impacts consultations etc. The project lacks formal documentation showing how the project implemented the guidelines and checklist.	Project appears to have adopted a pragmatic approach of following JICA guidelines and used this as a basis to draw up the detailed environmental and social checklist that is based on Government of Vietnam Circulars.	None. To clarify, while there are some recognizable gaps it is not feasible - not cost effective or physically easy due to the multiple provinces, districts and small nature of the subproject investments involved, long running nature of the project - to visit all activities to review compliance with JICA social and environmental guidelines.
Documentation of implementation of safeguards and relevance.	Little formally documented or at least made available to the review to show that the safeguards have been followed other than the environmental and social checklist and MTE. Sample field checks, however, established that no gaps or significant safeguards issues were reported.	Formal documentation is lacking, therefore its is difficult to assess if there any potential safeguards gaps. Therefore sample field was essential and no gaps were reported.	None
Implementation of environmental and social safeguards.	Discussion with PPMUs and sample villages/ communities show that safeguards (the environmental and social checklist) were followed.	As noted the project design expects most investment on forest management board land which would generally avoid social issues and simplify how the project safeguards guidelines are followed. The field work reported little to no problems in the samples visited.	None
Consultations	Discussions with the sample villages/ communities show that they were consulted	Sample based approach show no gaps	None
Grievance redress	No evidence of a GRM in the environmental and social checklist, but also no evidence reported from field work that any grievances were encountered.	Difficult to assess what impact a GRM would make for this project particularly was most investments were made on Forest Management Board land.	None

Issue	Findings	Potential gaps in safeguards	Recommendations on gap filing measures
BCC Project: ADB Safeguards applicable			
Donor review and follow up of safeguards.	ADB donor reviewed safeguards compliance periodically through monitoring visits and specific status and due diligence reports.	None identified	None
Compliance and consistency with donor safeguards.	Project documentation and donor review is transparent and shows that the project is compliant with donor safeguards.	None identified	None
Documentation of implementation of safeguards and relevance.	Comprehensive documentation on implementation of safeguards.	None identified	None
Implementation of environmental and social safeguards.	Documentation shows the implementation of the safeguards.	None identified	None
Consultations	Consultations were conducted with local authorities and communities (ethnic minorities). for their consent.	None identified	None
Grievance redress	Project based GRM no documented problems.	None identified	None

Source: Adapted from Due Diligence Report – FCPF Project 2019

2.3.2. Stakeholder Participation:

At the national level: Democracy at grassroots level 2007 has regulated the participation of relevant stakeholders in all related activities. Policies which will help cross-sectoral development, and which will be introduced in the provinces during the lifetime of the ER-Program include: guidelines on sustainable forest management planning under Circular No. 28/2019/TT-BNN. This is aimed at improving participation in community forest planning and introduces requirements for innovative cross sector planning for sustainable forest management including, plantations, NTFPs, agroforestry, afforestation, high conservation value forest, etc. The Circular also supports linking planning to DONRE land use plans and infrastructure planning. Participatory approaches have been used throughout the preparation and implementation of the ER-P. Particularly, the intervention packages in relation to the national level such as policies, or regulation or other technical related topics of MRV, the Reversal Management Mechanism, Transfer Title to ER, ER registry that have been widely and effectively participated by relevant stakeholders. As a result, a number of regulations have been approved by the Government with the support from the ER-P, FCPF-2 project[42]

[42] Namely Decree No. 156/2018/ND-CP dated November 16, 2018 detailing the implementation of a number of articles of the Law on Forestry (2017); Decree No. 01/2019/ND-CP dated January 1, 2019 on Forest Protection and Specialized Forces for

At the provincial level: Participation from all levels and agencies from provincial to commune level is required during forest land allocation process. Local communities and households played key roles in livelihoods development models, with technical support from relevant authorities, organizations and agencies. It is reported that, the PFES has provided important income for the local communities, especially the local ethnic minorities living in the mountainous area. Improved collaboration among the FMEs and local communities have been conducted with the support from the ER via the PFES, Program 886…. Specifically, the Decision 24/2012/QD-TTg dated June 1, 2012, on the Policy for Development Investment for SUFs has created a benefit sharing mechanism for all village communities involved in the protection and development of SUFs; with a state budget VND 40 million per annum to villages in the buffer zones of SUFs. During the site visit conducted in Phong Dien Nature Reserve in August 2022, the consulted communities informed the team that this funding is important to the villagers of the SUFs which has been allowing the local villagers to invest in improving production development capacity (agricultural extension, forestry extension, plant varieties, breeds, equipment for processing small-scale agro-forestry products); support construction materials for villages (for community public works such as clean water, electricity, lighting, communication, village roads, cultural houses). In Nghe An province, the consultant team worked with the Center for Forestry Development Consulting under Nghe An forest science technology association which has been consulted and participated in the ER-P and is currently implementing a number of projects funded by EU, USAID, and GEF focusing on the following areas: (1) capacity building for local NGOs and community to implement and monitor REDD+, (2) support forest patrolling, report writing, (3) communication, (4) extensive dialogue and discussion with authorities at all levels, forest owners, and (5) technology application i.e. Terra-I. However, additional resources are required to improve the roles of CSOs, NGOs and communities in monitoring REDD+ implementation. The consultation in the decision-making process is in compliance with Democracy at grassroots level 2007 as well as. To encourage broad-based participation and to particularly target the poor and vulnerable, participation will be monitored and disaggregated in terms of gender, ethnicity, and household socio-economic status.

2.3.3 Field monitoring and supervision arrangements

As local people and communities play the key roles in livelihoods development activities, they participate from the very beginning. Monitoring and supervision tasks have been well coordinated and supported from the planning stage. Training on monitoring and supervision has been provided for provincial staff in charge. The following guidelines will be considered when developing the full M&E system and for identifying potential indicators:

- Disaggregate information by gender, ethnic group, and household socio-economic status;
- Involve villagers in designing the monitoring program, collecting data, and drawing conclusions from the data, based on the SSR;
- Continue feedback meetings after fieldwork and incorporate recommendations into systems development;

Forest Protection; Decree 35/2019/ND-CP dated 25 April 2019 on penalties for administrative violations against regulations on forestry; Circular No. 29/2018/TT-BNNPTNT dated November 16, 2018 on Regulation on silvicultural measures; Circular No. 27/2018/TT-BNNPTNT dated November 16, 2018 on prescribing the management and traceability of forest products; Circular No. 30/2018/TT-BNNPTNT dated 16 November 2018 regulating the list of main forest plant species; seed recognition and breed source; and material management for major forestry trees.

- Biodiversity monitoring include using the Management Effectiveness Management Tool (METT); METT has been applying in SUF particularly some of National Parks, Nature Reserves in Vietnam and the NCR with initial technical support from international partners[43];

- Keep disaggregated records of involvement and participation in different activities at village level and also in the databases;
- Note successful and unsuccessful strategies for future reference in curriculum development, field implementation, and other project areas; and
- Identify indicators and tools to measure the project's impacts on women, ethnic groups, and the poor.

In line with the ESMF, it was found during the field visit that the field monitoring and supervision have been conducted in the ER-P. In regard, the Forest Management Entities have been assigned staff responsibly for forest patrolling with the participation of the local communities, particular those who contracted with the FMEs under the PFES or Program 886 mechanism of the ER-P during the reporting period. Local communities have also actively participated in the forestland area where they have been allocated under the community forest management in Thuong Nhat commune and Phong My commune in Thua Thien Hue province; and Tam Dinh and Yen Hoa commune in Nghe An province during the field visit.

- **What are responsibilities of different stakeholders and type of reports needed?**

Monthly, quarterly, bi-annual and annual reports as regulated in Decree 156. Table A1.3 above defines the responsibilities of different stakeholders.

Various monitoring and supervision activities have been undertaken within FCPF-2 project until 2020:

- Monitoring trips had been conducted by safeguards specialists together with local officers;
- M&E system was established and operational and supported timely activities and financial reporting;
- The regular evaluation reports were completed and sent to the MARD and the World Bank on time;
- Annual audits and performance evaluations were implemented as planned;
- Overall workplan, annual workplans and procurement plans were developed; and
- PRAP M&E indicators and REDD+ implementation M&E indicators were collected in the six provinces of the NCR.

It is reported that, the VNFF has been undertaken periodic monitoring trips to the six PFPDFs. In turn, the PFPDFs have developed annual monitoring plan and conducted the respective monitoring trips to forest

[43] These monitoring activities including the METT are most likely to go ahead where technical support is provided through the USAID funded Biodiversity Conservation Project implemented by WWF which is set to support activities in nine SUFs in the ERP.

owner including the community forest management groups to monitor how the payment has been paid with right target group in the timely manner.

2.4 Confirm that the FGRM is functional, supported with evidence that the FGRM tracks and documents grievances, is responsive to concerns, feedback or grievances.

Partly confirmed. The FGRM is available, and functioning and making progress – the FGRM is based on the existing system already in place and according to existing laws and regulations and PFES requirements – and will be further improved to meet ESMF and Addendum requirements during ERPA implementation. At present, with no sale, transfer and payment to date, there are no questions, feedback and complaints about emission reduction or benefit distribution. The FGRM will be reviewed in line with the arrangements detailed in the final BSP and operationalized (channels, recording and reporting) by March 31, 2023. The FGRM will be further described in the POM.

At the VNFF and PFPDF, the department for M&E and grievance redress is already in place in the existing organizational structure to handle complaints and feedbacks. A totally new FGRM was not established solely for the ER-P during the site visit to Nghe An and Thua Thien Hue province existence of the FGRM was confirmed. The existing FGRM is relevant to REDD+ implementation in Viet Nam and is identified as being based on the Land Law (2013), Forestry Law (2017), and Law on Environmental Protection (2020), the Law on Grassroots Mediation (2013), the Law on Commercial Arbitration (2010), the Law on Complaints (2011), the Civil Code (2015), and the Law on Legal Aid (2017).

Currently, the local authorities practice the Law on Grassroots Mediation using the system which is already in place. In relation to disputes and grievances, there are established mechanisms that commence at the rural village whereby all grievances wherever humanely possible be resolved at this level on an informal basis. If the aggrieved parties cannot resolve their grievance/s at this level on an informal basis they can then take their grievance to the Commune People's Committee. Or through monthly meetings, or the party cell meeting and/or unexpected events, the local people take this opportunity to raise their problems to the district level.

Mediation is conducted on a voluntary basis at the community level through community mediation group in all cases of dispute resolution and conflict management. The mediators, who are directly selected or elected by the people, usually the most respected individual within the community. In case of surveyed areas such as Tam Dinh and Thuong Lo communes, they are community leaders and elders.

The FGRM for the ER-P was based on and with the lesson-learnt from the GRM proposed by the UN-REDD Programme and based on the intensive consultation with relevant stakeholders on the ground- however there are certain revisions to suit with NCR, as well as World Bank requirements. Further training sessions should be necessary to ensure awareness and capacity building to relevant personnel so that FGRM becomes fully functional. At present, there have been still no questions, feedback and complaints about emission reduction as mentioned below in Box 4, so the FGRM is built on the basis of 08 hypothetical scenarios and solutions suitable for each situation.

The collaborative forest management arrangements outlined above should be utilized as far as possible at community level for responding to inquiries, and addressing complaints, conflicts, disputes and other grievances, before pursuing formal grievance redress procedures. In REDD+ implementation areas or situations where collaborative forest management arrangements do not exist and are not planned, or where they are not able to resolve a grievance, then the FGRM procedure set out can be applied. The safeguards officer at local level may act as a facilitator and advisor in assisting the parties to a grievance

process, but actual resolution of formal grievances is handled by institutions that are independent, as governed by the relevant laws.

Moreover, pursuant to the Forestry Law 2017 and Decree No. 156/2018/ND-CP detailing the implementation of a number of articles of the Forestry Law: in the PFES contracts and forest allocation contracts, there is always one article on Dispute settlement where two parties commit to resolve or clarify all disputes arising during or outside the contract performance process through negotiation. In case the dispute cannot be resolved through negotiation, the case will be resolved in accordance with applicable laws and regulations.

The project FCPF-2 collaborated with UN-REDD to finalize the FGRM at the national level and an expert proposed regulations adapted to ER-P operational implementation in NCR areas. More than 10 consultation workshops were held on the ESMF in 2018 (in June and then at the provincial level in November and December of 2018) and the supporting documents of the ER-PD, including two at the central level and in each ERP province. Participants at the provincial level included PPMU members, Forest Protection Management Boards, Special-use Forest Management Boards and Forestry State Companies and total of 2386 were consulted, including 627 women, 1759, men and 1261 ethnic minorities.

Two additional consultation workshops were held on the FGRM were held with participation of 133 members, in which: 25 women and 15 ethnic minority people. It is observed that the FGRM processes that are commonly understood in compliance with the Law on Grassroots Mediation are being practiced by the local people. Moreover, the institutions and forests management entities involved to implement safeguards and work with communities will carry out a number of activities, including capacity building and training on FGRM.

Grassroots mediation can be deployed as a first measure to directly manage grievances and/or conflicts that occur at the grassroots level. It does not require any fee or payment by involved parties. Users' accessibility is considered the highest because mediation can be conducted anywhere such as at home, community cultural house, and at any time: evenings, holidays, or weekends. Because this mechanism does not require participation from local government representatives and is voluntary between two disputants, they have more freedom to identify steps to resolve the grievance. Decisions reached are documented by the community leaders and willingly enforced because it was based on the mutual consent between disputing parties. For the cases which successfully were handled at grassroots level, no record has been made at CPC. For the cases went up to CPC, they would be filed at CPC office commonly in hard copies and reported case by case, disaggregated by type mostly land conflict, overlapping forest boundary; by the results whether they are finished at commune level or transfer up to higher levels. The annual social economic situation report at the commune level generally includes this type of information.[44] Ideally most affected people prefer grievance resolution at the local level.

Noteworthy, unofficial rules had been used to settle grievances within the community. These rules are among others, customary laws, traditional customs, social morality. For the majority of ethnic minority

[44] It is found during the field that: In 2019, there are 16 cases in land and forest land dispute recorded by CPC Legal Department in Thuong Lo commune, Nam Dong district, Thua Thien Hue province. Out of these 16 cases, there is a dispute that mediation got failure 3 times, as a consequence, it had been brought up to district level to resolve. No case recorded in other visited communes. In 2020, Phong My CPC, Phong Dien district, Thua Thien Hue province received 14 grievances submitted by the local people which all had been resolved successfully. In 2021, this CPC received 32 grievances submitted by the local people of which 5 cases went to commune Party, 27 cases received at CPC's "one door department". 13 out of 27 cases are categorized as land dispute.

groups in survey sites, the application of these unofficial rules is more persuasive than official legal rules because the former recognizes their customary laws and practices.

According to local interviewees from Nghe An and Thua Thien Hue provinces, the use of customary laws and regulations in mediation could be more effective and stable than that of the government and to a certain extent, customary law is more effective than national law in terms of grievance prevention.

Firstly, there are limitations to what can be resolved in accordance to the provisions contained in the Law on Grassroots Mediation (2013). For example, grievances over land use rights as a result of errors made by the authorities in the measurement and issuance of certificates cannot be resolved through mediation. As such, the number of mediation cases at grassroot level is quite limited.

Secondly, as a voluntary mechanism, the mediated agreement is not binding because it lacks the implementation power of government authorities; the mediator can only urge prompt implementation of the settlement agreement. According to Vietnamese civil laws, the settlement agreement is not considered a binding contract between the parties. As such when a party reneged on the agreement, the other party cannot sue for breach of contract. This makes implementation of the settlement agreement vulnerable and uncertain.

Thirdly, the capability of the mediator is often not high due to a lack of basic training, especially in legal knowledge. Funding support for the mediator is also very modest, and the legal mechanisms for their work are limited. Hence, it affects the motivation and sense of responsibility of the mediators.

Fourthly, grassroots mediation functions are not systematically distributed in many communities. For example, there are times when many organizations work on the same case, and other times when there is no support for the case. Mediators who are also village chiefs and government officials from civil organizations such as the Vietnam Fatherland Front, Women's Union, and Farmers Union already receive funding support for their existing roles. As such, other social organizations and individuals who may not have the funding support find it more challenging to take on mediation roles. As a result, the mediation process can become more centralized due to bureaucracy, affecting efficiency and the local voluntary and self-governance structures.

3. The objectives and expected outcomes in the Safeguards Plans have been achieved.

3.1 Assess the overall effectiveness of the management and mitigation measures set out in the Safeguards Plans.

As mentioned above, overall, the management and mitigation measures are business as usual which have been implemented as routine tasks of relevant agencies. The environmental and social mitigation measures have been complied with the WB and Vietnam safeguards requirements and regulations. This is supported by the DDR. The DDR found that the (i) international projects in Vietnam by necessity must, and do include, consultations, consent and targeting of the beneficiaries and there is generally due regard for the environment; (ii) in addition, all four key projects in NCR of Vietnam, poor ethnic minorities communities are important targeted project beneficiaries, although over the life of some of priorities and investments made by the projects have changed considerably; and (iii) during field visits, all the activities implemented showed that there had been consultation and consent. A pro-poor pragmatic approach aimed at targeting and involving ethnic minority beneficiaries has been followed in all cases.

Box 4: FGRM for the four donor projects included in the ER-P

Biodiversity Conservation Corridors Project
Grievances related to any aspect of the project or subproject, including issues on the quantity and price of the lost assets, were expected to be handled through negotiations and were aimed at achieving consensus following the procedures: 1) if any person, ethnic minorities included, is aggrieved by any aspect of the resettlement and rehabilitation program, the grievance shall be filed (oral or written) by the affected person with commune authorities, specifically the Commune People's Committee (CPC) who will act within 15 days upon receipt thereof; 2) if any aggrieved person is not satisfied with the decision from the CPC, they can bring the complaint to the District People's Committee (DPC) within 15 days from the date of the receipt of the decision from the CPC; 3) if the person is still not satisfied with the decision at district level, the person can appeal to the PPC within 15 days of receiving the decision of the DPC. The PPC will reach a decision on the complaint within 15 days upon receipt of the decision from the DPC; and 4) if the person is not satisfied with the decision of the PPC, the case may be submitted for consideration to the District Court within 15 days of receiving the decision of the PPC.

Protection Forests Restoration and Sustainable Management Project (JICA2)
No evidence of a GRM in the environmental and social checklist, but also no evidence reported from fieldwork that any grievances were encountered. Difficult to assess what impact a GRM would make for this project particularly as most investments were made on Forest Management Board land.

Vietnam Forest and Delta Program
Handled on a case-by-case approach. No significant issues have been reported.

Green Annamites Project
Handled on a case by case basis

Source: Due Diligence Report – FCPF Project 2019

3.2 Are the arrangements for quality assurance, monitoring, and supervision effective at identifying and correcting shortcomings in cases when ER-P activities are not implemented in accordance with the Safeguards Plans?

Yes, institutional arrangements for the ER_P as well as for Safeguards Plan implementation have been quite well established. Relevant trainings were conducted. ER-P monitoring and supervision framework has been also developed, trained and in place, including that for safeguards. Quality assurance, monitoring and supervision tasks are therefore properly organized and effective at identifying and correcting shortcomings. As mentioned previously, there is the SIS at the national level. In fact, many of the safeguards related information are available, but fragmented through a wide range of reports (annual reports, M&E reports, meeting minutes, among others) and it needs to be consolidated and integrated into a summary of information on safeguards which will be worked on by the ESU dedicated staff at provincial and national level.

3.3 Describe the supervision and oversight arrangements to ensure that the Safeguards Plans and, if any, subsequent environmental and social documents prepared during Program implementation are implemented. Are these supervision and oversight arrangements effective (e.g., provide meaningful feedback mechanism to implementing entities to allow for corrective actions)?

- Training sessions have been conducted for relevant stakeholders at provincial and local levels on supervision of Safeguards Plans as well as the whole Emission Reduction Program;

- Monitoring and reporting formats are introduced for local staff to use;

- Monitoring and evaluation framework for ER Program has been developed and trained to relevant personnel, including safeguards aspects; and

- Using existing M&E system for PFES program.

The VNFF is not the upper leadership of the FPDFs, but be responsible for: allocate PFES moneys to the FPDFs, guide, check and monitor the management and use of the amount allocated by the VNFF; guide, share experience on Fund management and operations.

Program oversight: VNFF will organize meetings to review the program implementation, provide policy guidance, and assist in coordination on a need basis. PPC and FPDF provides program implementation oversight at provincial level.

Technical oversight: FPDF at provincial level will: (a) provide technical review of provincial investment plans/proposals, consolidating and monitor these plans and (b) extend TA to DARDs, when required, to support implementation at provinces. In this way, implementing entities are informed of meaningful feedbacks for appropriate corrective actions.

In Vietnam, it is understood that REDD+ activities are predominantly implemented on the ground by forest sector entities. However, in some limited cases some level of coordination with other departmental agencies may be required, especially for the program oversight which is crucial to comprise representatives from DONRE, DARD, DPI, PPCs, DOF amongst others.

Currently the State budgets at national and provincial levels do not currently cover associated staffing, training, equipment and other operational costs relating to safeguards. It is suggested that the costs of safeguards operationalization, monitoring and reporting at national and sub-national levels are fully budgeted for and included in Vietnam's 'use of proceeds' from ERPA and GCF results-based payments. Further improvements could also be made to improve the national SIS database structure, for example the indicator set should be reviewed, refined and simplified – especially the prioritization of indicators (some could be made optional) and reduction in sub-indicators where possible. A centralized list of priority REDD+ sites should also be drawn up.

4 Program activities present emerging environmental and social risks and impacts not identified or anticipated in the Safeguards Plans prepared prior to ERPA signature.

4.1 Is the scope of potential risks and impacts identified during the SESA process continue to be relevant to ER Program activities?

Yes. The potential risks and impacts as identified in the SESA have been updated for the monitoring period 2018-2019 through consultation sessions in provinces. The updated potential risks and impacts include those related to land, livelihoods and forest dependency, benefit from forest land, gender/ social exclusion, institutional framework, PLR framework and consultation (see details in Table 4.1 of the ESMF).

The mentioned risks and impacts as identified by the SESA are relevant to ER-P Program. To a certain extent, the risks have been dealt with and certain improvements have been made such as improved livelihoods, enhanced consultations.

4.2 During implementation, has any ER Program activities led to risks or impacts that were not previously identified in those Safeguards Plans prepared prior to ERPA signature?

No additional risks are identified. Given the changes in benefits-sharing activities from ERPA proceeds, including activities that directly and indirectly contribute to emission reduction results, there is identified in Component# 3 – Improving deforestation-free livelihoods which is "Support construction materials for public works of the residential community such as clean water works, lighting, communication, village roads, cultural houses and other works". Although the associated risks have been identified, it is still required actions to manage related risks and impacts as regulated in WB's OPs, namely safeguards screening checklist and forms will be used for all the subprojects to be financed under the ER-P, such as danger from and mitigation of UXOs, issues of erosion and habitat fragmentation when designing fire breaks and/or silviculture infrastructure.

5. Corrective actions and improvements needed to enhance the effectiveness of the Safeguards Plans.

5.1 Provide a self-assessment of the overall implementation of the Safeguards Plans.

- The ESMF identified specified risks and proposed mitigation measures and these are expected to be implemented quite properly by local authorities, communities as well as forestry agencies. This has been reported in the previous sections (section 4). However, experience of safeguards remains a concern given that many of the VNFF staff have not recently been trained on safeguards requirements (some staff previously received training from the FCPF and UNREDD projects), and gap will include the updates introduced through proposed Addendum ESMF (while the contents of the Addendum are mainly expected to be clarifications and simplifications the work on the Addendum is yet to be completed. In addition, the M&E system is in place and guidelines have been provided, but are yet to be implemented on the ground, including the environmental and social indicators.

- The four key projects in the ER-P area are also reported to comply with World Bank safeguards requirements, as contained in the Due Diligence report.

5.2 List any corrective actions and areas for improvements. Take care to distinguish between: (i) corrective actions to ensure compliance with the Safeguards Plans; and (ii) improvements needed in response to unanticipated risks and impacts

The VNFF has undertaken an assessment of what is needed to fill various gaps to be fully compliant with the safeguards expectation

- Training Needs and Assessment – general annual update on training needs with specifics related to safeguards and the operationalization of the BSP;

- Program Operation Manual (POM) – to provide extra detail to support the Decree no. 107 and highlight the requirements of the ESMF including the Addendum to the ESMF;

- Updating of the Safeguard Operation Manual (SOM), this was developed earlier under the FCPF-2 project but is in need of updating, and will also take account of the Addendum to the ESMF;

- Awareness raising and trainings on:

    - POM provide detail on what is required under the ERPA etc.;
    - BSP processes and generally explain the Decree No. 107 and differences to the normal existing PFES approach to implement the program effectively;
    - Update of on the FGRM and specifics for the ER-P; and
    - Updates on the SOM and Addendum to the ESMF;

It is expected that several trainings will be required i.e. at the central VNFF level and for Provincial PFPDFs and for forest owners;

- Financial management (including developing of the accounting system to meet WB requirements for the ERPA etc.); and

- Training will be required on the M&E (to strengthen / update the existing PFES M&E system).

Recruitment of staff for Provincial units

As mentioned in section 5.1, the gaps have been found during the field trip and stakeholder consultation as the VNFF has been tasked to take over the ER-P after the closure of FCPF-2, safeguards issues have not been monitored properly and effectively following the ESMF from mid 2020. Therefore, the VNFF, as noted above. will develop the corrective plan to fill such gap by March 31, 2023 and before receiving the first ER payment. The staff from VNFF and six PFPDFs will be trained on safeguards and monitoring and a reporting plan will also be developed to implement and monitor the safeguards compliance.

5.3 Describe the timeline to carry out the corrective actions and improvements identified above.

A capacity building workplan and budget through December 2023, will be prepared by March 31, 2023. The draft POM will be available March 15, 2023, with the final POM available two weeks after the final audit report.

ANNEX 2: INFORMATION ON THE IMPLEMENTATION OF THE BENEFIT-SHARING PLAN

I. Requirements of FCPF on Benefit Sharing Plans

- The General Conditions Applicable to Emission Reductions Payment Agreements (EPRAs), Section 5.01(b)(i), requires the Program Entity to "*provide evidence satisfactory to the Trustee . . . that the Benefit Sharing Plan has been implemented in accordance with its terms*" as an annex to the ER Monitoring Report.

- The General Conditions Applicable to ERPAs, Section 16.01(vii), also provides that "*failure to observe, implement and meet all requirements contained in . . . the Benefit Sharing Plan . . . provided for under the ERPA (including any feedback and grievance redress mechanism provided for under the ER program, the Benefit Sharing Plan and/or a Safeguards Plan)*" is considered an Event of Default on the part of the Program Entity.

- The Methodological Framework, Criterion 32, requires that information on the implementation of the BSP is disclosed publicly.

- The ERPAs include an additional covenant requiring the Program Entity to "*monitor and report to the Trustee on the implementation of (…) the Benefit Sharing Plan during Reporting Periods (…) The Program Entity shall first monitor and report to the Trustee on the implementation of the Benefit Sharing Plan six (6) months after receipt of the first Periodic Payment and annually thereafter. The Program Entity may coordinate the annual monitoring and reporting of the Safeguards Plans and the Benefit Sharing Plan, provided that the Program Entity notifies the Trustee and the Trustee accepts such coordinated timelines. The Trustee reserves the right to initiate a separate monitoring of the implementation of (…) the Benefit Sharing Plan annually after the date of this [ERPA] by an independent Third Party monitor.*"

- Annex 2 is the primary tool for the Program Entity to provide evidence on whether the BSP has been implemented in accordance with the terms of the BSP.

- The specific content of Annex 2 should be determined based on the terms of the BSP. In general, Annex 2 should address: (i) what the agreed commitments in the BSP are; (ii) To what extent have these commitments been met; (iii) whether the agreed benefit sharing arrangements in the BSP are effective; and (iv) whether any aspects of the BSP should be changed to ensure that the agreed commitments will be achieved.

- Annex 2 should provide a synthesis of existing monitoring data collected as part of the implementation of the BSP. It is based on regular self-reporting of the Program Entity as supplemented from time to time by findings of World Bank supervision missions and independent third party monitoring initiatives including field visits, key informant interviews or periodic performance audits.

II. Monitoring and Reporting Requirements

1. Benefit Sharing Plan Readiness

1.1 Confirm **that the BSP has been completed and endorsed by all relevant parties**. Are there any aspects of the BSP which remain unclear or require further review of endorsement by beneficiaries or other stakeholders? Has the **BSP been made publicly available**?

The BSP has been completed and approved[45] through a broad consultation from central to the local level with representatives of all relevant stakeholders. The Advanced Draft Benefit Sharing Plan (BSP) for the Emission Reduction (ER) Program in the North Central Region (NCR) of Vietnam was approved by the Forest Carbon Partnership Fund (FCPF) Carbon Fund in December 2019. Approval of the Advanced Draft BSP was a requirement to proceed with Emission Reduction Payment Agreements (ERPAs), which were subsequently signed on October 22, 2020. The ERPAs were signed with two conditions of effectiveness for the sale, transfer and payment for emission reductions (ERs) - evidence of the ability to transfer title to ERs and a final BSP. The fulfillment of the two conditions of effectiveness were dependent on authorization from the Prime Minister's Office (Office of the Government, (OOG)) of a Decree that encompass the provisions for MARD's ability to transfer ER Title and the adoption of a final BSP. After over a year of development and consensus building, the Decree titled *Pilot GHG ER result transfer and financial management of ERPA* (referred to in this note as the ERPA Decree) will issue December 2022.

The final BSP (dated 21st February 2023) has been revised following Decree no. 107/2022/ND-CP. The comments of national and subnational stakeholders and the World Bank have been taken into consideration and integrated into the revised BSP. The BSP results from multiple consultations at different levels (communities, provincial, central), legal processing and inputs from NGOs with experience in REDD+ and the ERPA area. The BSP was updated in June 2020 in line with the ERPA terms and the subsequent national and local consultation process on the Decree no. 107/2022/ND-CP. The approval process included the following steps: (1) MARD sent the draft ERPA Decree for official review by all line ministries, agencies and the six provinces of the NCR; (2) the draft ERPA Decree was revised and completed to address comments; and (3) following stakeholder consultations on the BSP in November 2022 and issuance of the Decree no 107 was issues December 28 2022 and the final BSP was approved by the Minister for MARD (Decision No. 641/QD-BNN-TCLN dated 21st February 2023) and FCPF Carbon Fund Participants and the draft Decree was submitted to the Prime Minister and approved as Decree no. 107/2022/ND-CP (28th December 2022). The BSP is publicly disclosed on the government (Vietnam Forest Protection and Development Fund - VNFF) and World Bank websites[46]

1.2 In cases where **capacity building initiatives have been included** as part of the BSP, confirm whether the Program Entity has completed required capacity building measures to ensure system effectiveness. **What other measures are still outstanding**?

The provisions under the Decree no. 107/2022/ND-CP for *Pilot GHG ER result transfer and financial management of ERPA* allow some funding to contribute to strengthen capacities at the provincial level

[45]Decision No. 641/QD-BNN-TCLN dated 21st February 2023, signed by the Minister for MARD.

[46] The website link to the BSP is through http://vnff.vn/erpa-program/mmrs/benefit-sharing?hl=en (tested and working March 14th). The cut and paste direct link to directly download the BSP document is as follows (tested and working March 14th):
http://vnff.vn/xdnld.axd?f=tL8Kjd9I%2bsTiSafIJp1RArm2lsDfnpck4fQDMdsFwAR2D1xgsaeKfwt37AHTieO7eoTLSLiiKD778oYzD4oPYVswll6FzThVQ1AtZ%2f2qx%2fbRKTUF%2bR3hynbW76ZE%2bAWm1V3JcJ%2b14E7Tm%2f%2fGHtnZEbrKGpWL44%2bCOJ%2bOs9XyJac%3d

through the PPC, CPC and PFPDFs. The VNFF has been the recipient of a number of capacity building and training investments from various ODA donors and projects.

Gaps identified

The VNFF was established in 2008, and since then it has been the main innovative finance arm to support sustainable forest development in Vietnam beyond the core public budget. The VNFF hosts a dedicated team and accountants to administer and manage the ER-P payments, and will build on the VNFF PFES implementation experience and allow expansion of BSP activities which are closely aligned to PFES.

The VNFF has developed a roadmap and a formal Action Plan (Decision No. 366/QD-BNN-TCLN dated 19th January 2023 signed by the Minister for MARD) to support the implementation of the BSP and this included the addition of an assessment of the budget and additional staff needed to work in a dedicated environmental and social unit (ESU) to help oversee implementation of the social and environmental safeguards, increased financial management requirements, capacity development and training on the FGRM and the expanded M&E data collection for the six ER-P provinces.

In October 2018, a capacity assessment of the VNFF was completed to review strategic opportunities and gaps for strengthening the institution and enabling it to deliver on an increasingly complex environment, including further engaging the business sector and expanding fiscal arrangements for forest valuation. The capacity assessment also refers specifically to the management of ER-P payments, and focuses on areas in need of capacity development. The VNFF has established a dedicated team to manage the ER-P finances. Vietnam Forestry Administration (VNFOREST) has a successful record in demonstrating its ability to turn this type of financial arrangement into operation in a timely and effective manner that meets all World Bank and international quality standards. The capacity building process has been initiated by VNFOREST, and will allow for effective and efficient management of the result-based payments. The capacity training was provided through 1) the USAID Vietnam Forest and Delta (VFD) project and included training and capacity building on carbon trading, M&E, CPFES for thermal power sector; 2) CIFOR which provided training and capacity building on regional and international carbon trade initiatives and additional capacity building specifically on M&E for PFES and communication skills; and 3) GIZ who provided capacity building on communications and e-payment training for VNFF staff and for provincial fund staff. As introduced in the BSP, the operational costs of the ER-P have been updated to cover the needs of the dedicated VNFF team. VNFF is committed to hiring additional staff to undertake the socio-environmental safeguard related work a final timeline will be developed prior to the end of March 2023 and this will become operationalized with the funds from the first ER payment. The BSP implementation mobilizes a broad range of stakeholders and institutions and builds on an established benefit sharing approach – the Payment for Forest Environmental Services (PFES) which has been implemented in Vietnam since 2010 and has been further refined and developed since then through: 1) the expansion of new services (i.e. PFES for eco-tourism); 2) the legal framework for PFES has been upgraded from a government Decree to be included in the law (PFES is included in the Forest Law (2017) and improved); 3) M&E has been set up and improved; 4) grievance mechanisms were set up at the province and M&E indicators sets were added; 5) e-payments and other payment tools such through postal service were introduced; and 6) PFES charges payment revenue has increased gradually as a result of improvements to the legal system and understanding of the merits of the PFES approach has improved. All of these changes are reported and described in the Independent Evaluation Reports which are available on the VNFF website. The VNFF assessed capacity gaps which are summarized below.

Table A2-1: Gap analysis and capacity filling activities and progress for the VNFF

Recommendations from analysis of the BSP	Update on the progress and situation at VNFF
For the central level, organizing training courses in relation to result-based payments and specific management and use of fund, proposal development, planning and reporting, monitoring and inspection, as well as study tours to explore innovative models for forest financial solutions.	Not done but planned to be undertaken when the ERPA funds become available (also see below). A timeline will be developed by the end of March.
Further building capacities and providing operational tools to access new financial opportunities, including to meet requirements from the Green Climate Fund, to increase cost norm for PFES and increase revenues, to pilot PFES policies to extended sources of pollutions, and to increase and better document PFES socio-environmental impacts.	Financial capacity building not done yet as above waiting for funds. A timeline will be developed by the end of March. Capacity building on socio-environmental work (setting up an ESU) has made progress with some capacity building work being undertaken through and included in Vietnam Forest and Delta (VFD) program training on indicators on socio environmental, some pilots were looked. VNFF is committed to hiring additional staff to undertake the socio- environmental safeguard related work (at central level, and M&E at provincial level and how to collect the data). VNFF was the recipient of additional training from other ODA projects including the FCPF Program on socio and environment issues and safeguards.
Focusing capacity building efforts at provincial level in the NCR on training related to management, inspection and supervision of forest protection and implementation of interventions, payment and impact control, and application of support tools and software. Gaps are also identified in terms of practical solutions for monitoring and inspection, including equipment. It is proposed that Thanh Hoa Provincial Forest Protection and Development Fund will serve as a pilot and focal point to roll out benefit sharing at provincial and sub-provincial level in accordance with BSP provisions.	M&E training was provided and completed through VFD with help from CIFOR in 2020[47]. Revised approach for Thanh Hoa Provincial Forest and Protection Development funds was completed through the VFD program and is program is now closed (in 2021).
Finally, implementation of the BSP is seen as a unique opportunity to systematize the use of digital payment modalities, notably to end users at local	The development of digital payments was introduced from 2018 and about 90% of provinces now use digital payments The process was introduced and with support from GIZ and VFD.

[47] Building upon its foundational work, CIFOR continued to provide evidence-based knowledge and capacity development to support VNFF in the establishment of a participatory national M&E system during 2016–2020.

Recommendations from analysis of the BSP	Update on the progress and situation at VNFF
level. This is expected to improve transparency, accountability, reduce risks of misuse of funds and complaints, and facilitate monitoring and analytical work.	Complaints are handled at provincial level and processes/ mechanisms and this includes a complaint hot line. Forest loss issues are coordinated with FPD rangers.
Planned additional training following a need assessment is required and includes the following: Building financial management capacity on planning, financial reporting and management. Use of the PFES funds. Measurement of results following the results based approach. Training on FGRM (this will be included in the VNFF website). Introduction of the new Decree no. 107 (this is now included on the VNFF web site[48]).	A capacity building workplan and budget through to December 2023, will be prepared by March 31, 2023 (this will detail all the steps required for implementation. This requires a number of actions to take place in parallel to achieve important milestones and in summary these are: i) Training on finances; ii) finalization of the POM (this includes the availability of updates on safeguards related issues (ESMF Addendum), updates to the FGRM (both updates wil be based on the final BSP and will need to be introduced to provinces, and includes updates on reporting mechanisms at the province); iii) introduction of the training on key aspects of the ERPA Decree no. 107 to the PFPDFs; iv) introducing of the BSP (also to the provinces); and vi) updates to the M&E system (also to the provinces). A full and detailed workplan is expected by the end of March together with the draft POM. The final POM (together with the SOM and FM manuals as part of the POM) will available two weeks after the final audit report. The ESMF requires an Addendum to bring it in line with the final BSP and this should also simplify some of the safeguard requirements. The VNFF will submit a draft of the Addendum for Bank review by March 31, 2023, together with the FGRM which will be reviewed in line with the arrangements detailed in the final BSP and operationalized (channels, recording and reporting) by March 31, 2023. Finally, prior to requesting ER payment, MARD will update the World Bank on the status of the workplan and confirm its readiness to receive the first payment.

As can be seen from the above table there are still some outstanding issues related to capacity building, however, as may be appreciated some of these issues have been held in abeyance pending the promulgation of the Decree no. 107/2022/ND-CP (now occurred) which is required to legitimize the activities and this in-turn will help release funding for the associated capacity building activities.

Capacity building on the above will support the VNFF staff to cost-effectively benefit the full forest financial mobilization and management agenda. In addition, the expected collaboration between the ER-P team and other services within VNFF will be expected to strengthen integration of mechanisms for ER payments and PFES; and this will also be monitored through a common monitoring and evaluation (M&E)

[48] https://chinhphu.vn/?pageid=27160&docid=207089&classid=1 (available in Vietnamese)

framework, common planning and budgeting models, institutional arrangements and participation and commitment modality.

1.3 Where relevant, confirm **whether any agreed changes to the benefit** sharing arrangement identified during the previous reporting period have been completed.

As this ER Monitoring Report covers the first Reporting Period, this section has been left intentionally blank. Information will be included in the ER Monitoring Report for the subsequent Reporting Period(s).

2. Institutional Arrangements

2.1 Confirm that the agreed **institutional arrangements** under the BSP are in place and that implementing entities are appropriately resourced to carry out their respective responsibilities.

The main management entitles for the BSP at the national level are MARD, VNFOREST and VNFF. The BSP needs to balance the involvement of a larger and more diverse set of beneficiaries, which may increase transaction costs and complicate the administration of benefits, with the community-level benefit sharing and what effective arrangements can be leveraged to ensure local representative institutions have a voice. Gender impacts are considered; elite capture has to be avoided and a general approach of enabling equitable participation is required. The institutions/ stakeholders involved in the implementation of the BSP and the roles and responsibilities are shown in the following Tables A2-2 and A2-3:

Table A2- 2: Summary of responsibilities for the BSP at the central national level

Entity	Summary of Main Responsibilities Related to the BSP
MARD	Assume the prime responsibility for, and coordinate with concerned ministries, agencies and PPCs to organize and guide the implementation of ERPA; urge, inspect, supervise and promptly handle problems arising in the implementation process according to its competence and by law, ensuring no loss or misuse is caused; report to competent authority for the issues beyond the authority; Assume the prime responsibility for and coordinate with relevant central agencies and localities to report to the Prime Minister on the performance of ERPA implementation before 15 December annually. Prepare a report on ER results and send it to the IBRD. Assume the prime responsibility for, and coordinate with ministries, agencies and localities in reviewing the implementation of ERPA for reporting to the Prime Minister before 30 October 2025
Related ministries	Upon their functions and tasks within the scope of their state management, ministries and branches actively coordinate with the MARD in implementing the Deputy Prime Minister's Decree no.107/2022/ND-CP dated 28 December 2022, and at the same time, direct the units under their Ministries in the implementation of this Decree. Ministries include the Ministry of Finance - MOF, Ministry of Planning and Investment - MPI, Ministry of Justice - MOJ, Ministry of Environment and Natural Resources- MONRE and MARD.
VNFOREST	Support MARD to take lead in overall monitoring of the performance of the ER-P, meeting the required activities. Cooperate with the VNFF to develop an integrated financial plan for REDD+ objectives.

Entity	Summary of Main Responsibilities Related to the BSP
	Participate in M&E of the implementation results of the ER-P, assess the level of contribution to REDD+ objectives. Integrate the results of forest protection and development and ER-P into the data system of forest resource monitoring, forest inventory and Forest Sector Information System and report to MARD on the status of the forest resource, emission reductions of the ER-P and integrate the data into the system of forest resource monitoring and inventory and the forest management information system (FORMIS). Participate in the evaluation process and draw lessons in benefit sharing.
VNFF	VNFF, representative of the PE, will be responsible for monitoring the overall program implementation, including environmental and social compliance of the program. VNFF will have the final responsibility for BSP implementation and environmental performance of the program during the operational phase - responsible for the overall and main implementation activities related to the BSP. VNFF is responsible for development of the integrated financial plan which combines payment for environmental services and various resources for benefit sharing, development of the M&E framework and general report, forest protection contract form, plan to coordinate the implementation of benefit sharing. Participate in disbursement at provincial level.

The VNFF also operates at the provincial level, for the organization of the PFPDFs. The different actors involved in the implementation of the BSP at the provincial level are shown in the following Table A2-3.

Table A2-3: Summary of responsibilities for the BSP at the provincial level

Entity	Summary of Main Responsibilities Related to the BSP
Provincial People's Committee (PPC)	Overall approval of the BSP at the provincial level, issue ERPA implementation plan, provide direction on the implementation of ERPA at the provincial level, coordinate the implementation of ERPA with other on-going programs in the province, mobilize resources for forest protection, management and development in the province. Direct the PFPDFs to cooperate with relevant units to prepare plan for implementation of ERPA; Do not allow to transfer the agreed ER amount under ERPA to other parties; Urge, check, monitor and timely handle issues raised during the implementation of ERPA upon respective competent authority and by law; Annually, report to MARD on the implementation performance of ERPA before 30 October annually. Review and evaluate the implementation of ERPA in the province and report it to MARD before 30 July 2025.
DARD (Department of Agriculture and Rural Development)	Coordinate the appraisal of the results of forest protection and development of provinces, participate in the M&E of the implementation of benefit sharing in the province. Oversee implementation of technical aspects of subprojects under recommendations of related provincial departments and VNFOREST.

Entity	Summary of Main Responsibilities Related to the BSP
Provincial forest protection and development funds (PFPDF)	Be responsible for disbursing funds to beneficiaries according to the agreed set plan approved by the PPC. Develop an integrated financial plan for the BSP with the aim of sustainable forest protection and development. Set up monitoring and evaluation framework and general reports. Disburse money through bank accounts e-payment (non-cash payment) tools to relevant stakeholders for BSP and ER implementation.
District People's Committee (DPC)	Provide information on socio-economic development and data on the status of forest and forestry land management in the pilot area for benefit sharing in the district as stipulated in the Decree no. 107 for the Pilot GHG ER result transfer and financial management of ERPA. Cooperate with DARD and PFPDFs in directing and supervising the implementation of benefit sharing. District People's Committee is the focal point for the FGRM during the benefit sharing process at grassroots level units in the district according to the provisions in the final BSP.
Commune People's Committee (CPC)	Lead and cooperate with local community and stakeholders to develop and implement Forest Protection and Development Plans, and BSP. Hold commune meetings in accordance with the Decree no 107. Cooperate with the provincial M&E Team to carry out the supervision, monitoring, evaluation and approval of the results of forest protection and development and benefit sharing. Provide human resources and meeting rooms necessary for the mediation process; direct the mediation process and give feedback of grievance redress to the people, and resolve complaints related to benefit sharing at the grassroots level.
Special Use and Protection Forest Management Board (SUFMBs, PFMBs) and State Forest Companies (SFCs)	Coordinate with the DARDs, PFPDFs, and CPC to manage and implement the BSP program activities, including safeguards implementation, on the forestland area managed by the SUFMBs, PFMBs, and SFCs.

Budget, workplan and staffing

The VNFF is already operational and under the ERPA, it is expected that the VNFF will receive USD51.5 million from the Carbon Fund (CF) through the World Bank. The National Fund managed by the VNFF will deduct an amount for the operational and management costs (3.5% or USD 1,802,500) leaving USD49.698M in accordance with the Master Financial Plan and the annual financial plan approved by MARD under the provisions of Clauses 2 and (a), Clause 3, Article 9 of the Decree no. 107/2022/ND-CP for *Pilot GHG ER result transfer and financial management of ERPA* dated December 28, 2022.

The VNFF has developed a roadmap to support implementation of the BSP and this includes the additional budget planning to support the implementation of the BSP, additional staff that are needed to work in a dedicated environmental and social unit (ESU) which will oversee the implementation of the social and environmental safeguards, increased financial management required, capacity development and training

on the FGRM and the expanded M&E data collection for the six ER-P provinces. A workplan and budget, including capacity building plan for safeguards (including the FGRM), will be prepared by March 31, 2023.

The VNFF is operational and has the provincial funds PFPDFs which implement the PFES in the provinces and these would also implement the BSP. To be effective in the implementation process, VNFF will establish an Environmental and Social Unit (ESU) with at least two safeguards staff to help with the safeguards aspects of the Program in consultation with MARD as the PE and/or hire independent safeguards and benefits sharing consultants where necessary.

2.2 Confirm that any regulatory or administrative approvals required for implementing the BSP have been obtained.

There is a comprehensive policy and legal framework backing the BSP and this is primarily supported by the Decree no. 107/2022/ND-CP for *Pilot GHG ER result transfer and financial management of ERPA* which follows the Law on Forestry (2017) and other relevant and supporting legislation Decrees and Circulars. The Decree no. 107/2022/ND-CP became effective upon issuance on December 28, 2022. The Decree no. 107/2022/ND-CP is also in line with the National REDD Action Plan (Decision No. 419/QD/TTg) and the policy for the forest sector (Resolution no. 84/NQ-CP). The VNFF is legally mandated to implement the BSP through Decision No. 641/QD-BNN-TCLN dated 21st February 2023, signed by the Minister for MARD and Payment for Forest Environmental Services (PFES). The policy for the PFES, which is also relevant for the BSP, is set out in Decree No. 156/2018/ND-CP. The VNFF reports to the MARD and the Vietnam Administration of Forestry (VNFOREST).

2.3 **Assess whether all BSP stakeholders** (beneficiaries and administrators) clearly understand their obligations, roles and responsibilities associated with the BSP. This assessment could be based on, for example, **findings and feedback received during field implementation** support missions, during interviews with beneficiaries, issues raised through public consultation meetings, beneficiary monitoring or grievance mechanisms.

Through broad and iterative consultations and active communication through the support of the FCPF Project during the last eight years, all BSP stakeholders, including beneficiaries and administrators, clearly understand their roles, responsibilities, obligations and benefits related to the BSP. In addition, the VNFF has been operating the PFES fund on which the BSP is broadly based, and therefore provides the VNFF with good operational experience for implementing the BSP. Implementation of the PFES has matured and has seen improvements that have included investment in capacity building at the central and provincial levels through increased staffing levels as responsibilities have been better understood and in financial management and for distribution of payments, improvements to the M&E system and the grievance system.

The design of the ER-P (and this contributed to the design of the BSP) is the outcome of a comprehensive stakeholder consultation process that included all the ER provinces. Participation methods included village-level meetings with households (in particular, the views of ethnic minority households were targeted), focus group discussions particularly with women, workshops, participatory forest transects, natural resource assessments, and interviews of key informants. Consultations have sought to identify local people's views regarding opportunities and constraints arising from forest and land resource access and use, including possible land use conflicts, and the security of their livelihoods including access to forests.

Roles and responsibilities related to the ERPA Decree no. 107/2022/ND-CP

The VNFF was established in 2008, and since then it has been the main innovative finance arm to support sustainable forest development in Vietnam beyond the core public budget. VNFF is tasked with operating the PFES program in Vietnam. The program, primarily aims to reward and support the efforts of forest managers in Vietnam to protect and manage forested areas, which in turn provide environmental services including watershed protection, biodiversity conservation and carbon sequestration.

At village and commune levels, the team preparing the BSP has used focus group discussion techniques to consult local communities, especially focusing on ethnic minorities, and their leaders at the village and commune and all consultations have been documented[49]. More recent consultations have taken place from May 2021 and March 2022[50] where MARD issued consultation requirements to the six ER-P area provinces[51]. Further consultation took place in August and October 2022. A final series of high-level consultations including provincial level and cross sector consultation on the draft Decree *Pilot GHG ER result transfer and financial management of ERPA*[52] culminated in several meetings to endorse the approach to develop the BSP a final workshop and meeting was held in November 2022. Detailed information is included in the BSP, Section 2.1.1 and Annexes 5.6 and 5.9.

2.4 Confirm that a system is in place for recording the distribution of benefits and associated obligations to eligible beneficiaries. For example, are payment information systems, payment tracking and monitoring systems, bank accounts, accounting and financial control mechanisms, and payment modalities in place and functional?

It is confirmed that as the VNFF and VNFOREST have demonstrated that the existing PFES system is compatible with the BSP. The capacity of the VNFF and the Provincial Funds (PFPDFs) will be further developed in preparation (including receiving training and capacity building) for implementation of the added activities of the result-based payments from ER-Program results. This will be aided by a comprehensive Financial Management Manual and Guidelines for the BSP which is expected to be in place in 1st Quarter 2023 as required by an Action Plan that the VNFF is required to follow. The legal requirements for the planning recording and distribution of the benefits are included in the Decree no. 107/2022/ND-CP and these requirements have been followed up by a legal Decision No. 366/QD-BNN-TCLN from the Minister for MARD on an Action Plan for implementing the Decree no. 107/2022/ND-CP which confirms that the POM[53], financial management planning and master financial plan must be in place by the end of 1st Quarter 2023.

2.5 Confirm that agreed **accountability mechanisms are in place and functional** (e.g., stakeholder participation arrangements; agreed public information disclosure procedures; independent third party monitoring and or performance audit mechanisms; **dispute resolution and grievance redress** mechanisms).

[49] See, for example, the SESA, ESMF and draft BSPs.

[50] The final part of the consultations coincided with the spread of the Covid-19 pandemic and consultations were kept in line with the government Covid-19 requirements on limits to meetings and contacts when these were in effect up to about March 2022.

[51] Documents No. 2757/BNN- TCLN dated May 13, 2021; Doc. 4239/BNN-TCLN dated July 7, 2021; and Doc. 1281/BNN-TCLN dated March 8, 2022. This is the 3rd time MARD has consulted and collected written feedback from stakeholders on the PM Decision, later issued as the Decree *Pilot GHG ER result transfer and financial management of ERPA*.

[52] Later passed as Decree no. 107/2022/ND-CP dated 28 December 2022.

[53] The draft POM will be available March 15, 2023, with the final POM available two weeks after the final audit report.

It is confirmed that accountability mechanisms are in place in the VNFF as these are based on the existing PFES and, were included in the ESMF and FGRM (these were publicly available from October 2021). Further work is required including updates to the Safeguard Operation Manual (SOM) and operational manuals of the M&E and Financial Management (which are separate manuals but would also appear as sections of the POM). These are included in the VNFF Roadmap/ Action Plan for the operationalization of the Decree no. 107/2022/ND-CP and the BSP. The Decree no. 107/2022/ND-CP includes the requirements for accountability and also includes the requirements for dispute resolution and grievances redress. Processes for how potential complaints arising from the implementation of the BSP would be addressed follow the fully detailed and operational FGRM[54], including technical guidelines, regulations, and a work plan for strengthening implementation of the FGRM will be reviewed in line with the arrangements detailed in the Addendum to the ESMF and final BSP and operationalized (channels, recording and reporting) by March 31, 2023. The grievance redress mechanism operates at the village, district and provincial level. In any case where the complaint and feedback mechanism are inconsistent with or contrary to the provisions of the Law on Complaints and Decree No. 124/2020/ND-CP dated October 19, 2020 of the Government providing detailed provisions of a number of articles and measures to implement the Law on Complaints and relevant laws shall comply with the provisions of the Law on Complaints, Decree No. 124/2020/ND-CP and relevant laws.

2.6 Confirm that the Feedback and Grievance **Redress Mechanisms (FGRM) is functional to** record and address feedback and grievances related to the implementation of the BSP. Confirm the number and types of grievance received and submitted to the FGRM and how and whether they were addressed.

The FGRM is based on the existing and well-established laws of Vietnam and shall comply with the provisions of the Law on Complaints has been prepared. This is consistent with the government's e-governance policies and requirements for public access as mandated under the Land Law (2013) and the delivery of better quality and transparent public services including the public provision of land information and dispute resolution and conflict management. Processes for how potential complaints arising from the implementation of the BSP would be addressed and follow the fully detailed and operational FGRM[55], including technical guidelines, regulations, and a work plan for strengthening implementation of the FGRM. The FGRM is applied throughout the implementation of the ER-P, including for the implementation of safeguard instruments as developed in the ESMF, and the implementation of the BSP. Detailed information is included in section 2.4 in Annex 1.

2.7 Confirm that adequate human and financial resources have been allocated or maintained for implementing the BSP.

The Decree no. 107/2022/ND-CP on Pilot GHG ER result transfer and financial management of ERPA, dated 28 December 2022 provides for the budget, financial planning and general funding for the implementation of the BSP as per the following Figure A2-1 which follows the Decree (see Articles 6 and 8 of the Decree

[54] The FGRM will be placed on the VNFF website. Note that the VNFF already operates a grievance complaint mechanism at the provincial level, so has some experience of the processes. However, additional work will be required to ensure all offices are familiar with the FGRM.

[55] The FGRM will be updated following the Addendum to the ESMF and be placed on the VNFF website. Note that the VNFF already operates a grievance complaint mechanism at the provincial level, so has some experience of the processes. However, additional work will be required to ensure all offices are familiar with the FGRM.

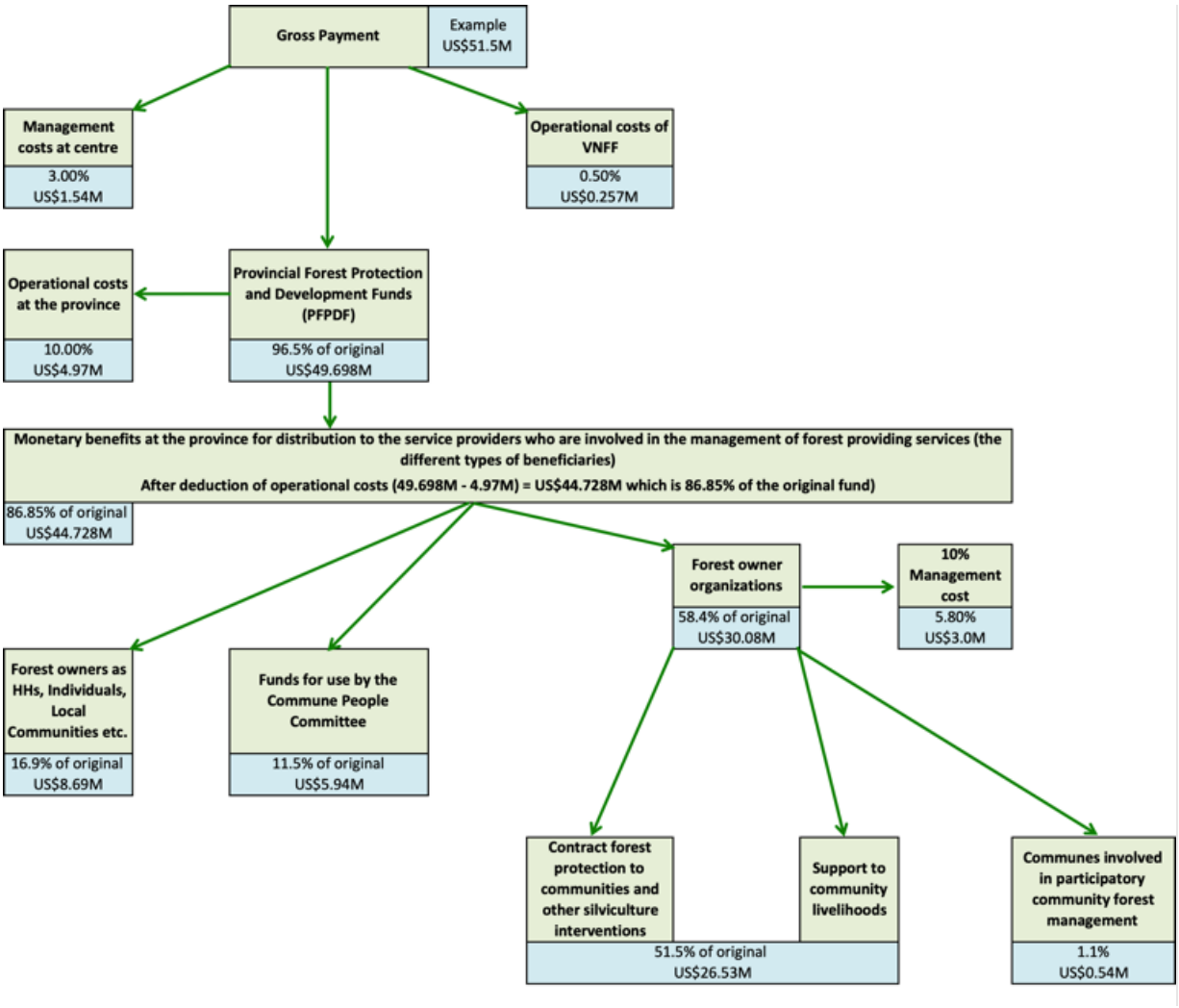
which provides details). The VNFF is entitled to make up to a maximum deduction[56] of 0.5% of the total amount received, and deposit interest (if any), to spend on management activities and deduct up to a maximum of 3% of the total proceeds from ERPA funds to spend on forestry related activities for emission reduction at the central level[57] including activities such as and including inspection, monitoring, measuring, communication, etc. For the PFPDF, a maximum of 10% of the total amount is allowed (the amount for distribution from the VNFF to the PFPDF (after the 3.5% deduction) is considered to be 100%) and interest on deposit (if any) to spend on management activities, forestry related activities to reduce emissions at the local level, and some activities on testing, monitoring, communication, etc.

The VNFF and through the PFPDF has adequate human resources as they have been operational and decentralized for a number of years already. The additional activities related to the ERPA requirements have been reviewed and as noted, capacity building has been taking place and the VNFF has developed a roadmap and now an Action Plan (the legal Decision No. 366/QD-BNN-TCLN signed by the Minister for MARD dated 19th January 2023) to support implementation of the BSP. The preparatory roadmap work included an assessment of the budget, additional staff needed to work in a dedicated environmental and social unit (ESU), to help oversee implementation of the social and environmental safeguards, increased financial management requirements, capacity development and training on the FGRM and the expanded M&E data collection for the six ER-P provinces.

[56] Deduction rates at VNFF and the provincial Funds are done in accordance with the Decree no. 156/2018/NĐ-CP dated 16/11/2018 of the Government on guiding and enforcement of the Forestry Law.

[57] These deduction rates are subject to change i.e. no "no objection letter" has been received from MOF.

Figure A2 – 1: Distribution of the fund flow for the BSP



3. Status of Benefit Distribution

3.1 Summarize the **distribution of all monetary and non-monetary benefits** during the reporting period.

As this ER Monitoring Report covers the first Reporting Period, no ER payments have been made (pending completion of validation and verification) or benefits distributed. However, the following information illustrates the general approach to benefit distribution as outlined in the BSP.

As indicated in the Decree no. 107/2022/ND-CP and the BSP, activities eligible for benefit sharing and distribution under the first result-based payments are detailed in Table A2-4.

Table A2-4: Eligible activities for benefit sharing and distribution following Decree no. 107/2022/ND-CP

Group of activities	Summary of activities	Detailed description of the expected activities
Group 1	**Forestry interventions to contribute to ER** (following Article 6, clause 1)	a) Review and draft regulations, guidelines and finalization of related policies on GHG ER in the forestry sector; b) Review, monitor the changes of forest carbon stock, control of natural forest conversion, sustainable forest management interventions, prolonging life cycle of the planted forests for enhanced forest sequestration and absorption; c) Enhance sustainable forest protection and management, law enforcement; d) Capacity building for entitled organizations and entities directly participating in forest protection and management activities.
Group 2	**Forest-based activities that directly contribute to GHG emission** reduction (following Article 6, clause 2)	a) Protection of natural forest; b) Silviculture interventions by law and approved by the competent authorities[58].
Group 3	**Livelihood development support activities** (following Article 6, clause 3). **[at the community level]**	a) Support agricultural and forestry extension activities, plant varieties and animal breeds; site management and economic development of planted forests; equipment for processing agricultural and forestry products, study visits; building demonstration models of livelihood development associated with forest protection and development;

[58] Silviculture activities are described and are required to follow the government Circular 29/2018/TT-BNNPTNT dated 16 Nov. 2018 of MARD. It is noted that the advanced draft BSP included nine different silviculture models. The Circular more correctly, describes the various silvicultural interventions and measures on forest development. The Circular provides an official guidance and approach for silviculture and updates the BSP on what can be funded. This does not preclude the nine models but introduces some more flexibility on what can be implemented and is in line with government regulations.

Group of activities	Summary of activities	Detailed description of the expected activities
		b) Support construction of public works of the residential community such as clean water works, lighting, communication, village roads, cultural houses and other works; c) Support propaganda activities, technical training, development of conventions, regulations, and commitment to law enforcement.
Group 4	**Operational costs** (following Article 6, clause 4)	a) Program administration and management, including financial administration, coordination of activities and stakeholders, etc.; b) M&E activities; c) ER measurement, verification and reporting; d) Communication and propaganda; e) Inquiries, complaints and feedback -related activities.

The BSP and its implementation are based on a participatory and inclusive approach, as reflected in various tools applying to the BSP implementation including safeguard instruments (for example the ESMF and supporting instruments). The benefits from emission reductions are carbon benefits and can be paid to beneficiaries directly as monetary benefits or indirectly as non-monetary benefits, as long as they remain consistent with the four components. Based on the actual needs and desire of the stakeholders, different forms of benefits are identified. Monetary benefits may be in the form of remuneration for forest patrols, allowances for participation in coordination activities, or part-time supervision work. The non-monetary benefits may come in the form of small investment grants schemes, technical support packages for local communities or people implementing deforestation-free sustainable agriculture models, agroforestry or sustainable management and use of non-timber forest products.

The benefits will be shared according to the Decree no. 107/2022/ND-CP and the BSP (Decision No. 641/QD-BNN-TCLN) and the approved annual plan, which is based on the PFES mechanism and involves local communities, state forest owners such as Forest Management Boards and State Forest Companies and their partners, and get about 96.5% of the total payments of local level.

Table A2-5: Categories of the Beneficiaries of the ER- Program result-based payments

Categories of beneficiaries following Article 5 of the Decree No.107/2022/ND-CP	Access to the fund and responsibilities	References in the Decree *Pilot GHG ER result transfer and financial management of ERPA*
There are five general categories of beneficiaries defined by the Decree for the six provinces.	Categories of beneficiaries a) Forest owner specified in Article 8 of the Forestry Law is assigned to manage natural forest. b) The CPC and other organizations assigned by the State for management of natural forest by law.	Article 5

Categories of beneficiaries following Article 5 of the Decree No.107/2022/ND-CP	**Access to the fund and responsibilities**	**References in the Decree *Pilot GHG ER result transfer and financial management of ERPA***
	c) The community and the CPC who have signed a participatory forest management agreement with the forest owner organization. d) The VNFF and the PFPDFs in the NCR. e) Others involved in forest related GHG emission reduction and absorption activities in the six provinces The PFPDF managers coordinate with relevant agencies mainly DARD in consolidating the forest area and beneficiaries and submitting it to the PPC for approval.	
Annual fund flow to beneficiaries.	Beneficiaries and spending norms are approved through an annual financial plan of forest owners as organizations. Submission to the competent authority for approval and sends it to the PFPDF.	Point c), Clause 3, Article 9 Spending norms are set under Point c), Clause 3, Article 3
Details of the categories of the beneficiaries		
Forest owners stipulated in Article 8 of the Forestry Law who are assigned to manage natural forest by the state.	The PFPDF coordinates with relevant agencies in consolidating the forest area and beneficiaries, and submitting it to the PPC for approval (for the fund operating directly under the PPC), report prepared by DARD and submit it to the PPC (for the fund operating directly under DARD).	Point b), Clause 3, Article 9 clause 3 Article 8 Point b), Clause 2, Article 6 of the Decree
CPC and other organizations assigned by the state to manage natural forest by law.	Drafting a plan to use the proceeds serving the management and protection of forests shall be submitted to the district-level People's Committees for approval.	Clause 5, Article 8
Forest owners as households, and individuals.	Based on the natural forest area assigned to manage, the PFPDF will pay to forest owners who are households, individuals, and communities. Registered with the CPC as forest owners to participate in forest management activities. Annually, the community representative (village leader, etc.) conducts a meeting to agree on the proposed contents, plan, budget estimation for submission to the forest owner as organization and the CPC. Forest owners being households, individuals and communities are entitled to use the full amount of emission reduction payments to manage, protect and develop forests and improve living standards.	Clause 4 of Article 8 Point d, Clause 3,

Categories of beneficiaries following Article 5 of the Decree No.107/2022/ND-CP	Access to the fund and responsibilities	References in the Decree *Pilot GHG ER result transfer and financial management of ERPA*
Local communities, CPCs signed forest protection contract/ agreement with forest owner as organization.	Drafting a plan to use the proceeds serving the management and protection of forests shall be submitted to the district-level People's Committees for approval for the case of CPC. Additionally, the BSP also requires CPC to identify the poorer and more vulnerable households that will benefit from the commune-managed livelihood interventions that are also non-forest based. Registered with the CPC if a forest owner is a community to participate in forest management activities. Annually, the community representative (village leader, etc.) conducts a meeting to agree on the proposed contents, plan, budget estimation for submission to the forest owner as organization and the CPC for co-signing.	Clauses 6 and 7, Article 8
VNFF and PFPDFs in the NCR.	Management costs – the VNFF is allowed to deduct a maximum 0.5%; PFPDFs are allowed to deduct a maximum 10% to cover these costs.	Point a), clause 1, clause 2 Article 8
Others involved in CO_2 emission reduction.	VNFF (the VNFF is specified in the first instance as it mandated to implement the Decree and distribute the funds).	Point đ) clause 2 Article 5

The national fund will distribute ER Payment for the provinces according to natural forest area and performance as stipulated by the ERPA Decree no 107. The performance of each province is represented by a Gi - factor calculated as below.

Equation A2-1: Calculation of the natural forest area of the province the Gi factor

Where:

G factor = $(G_i + S_i) / 2$

G_i = Natural forest area of the province / natural forest area of the region

S_i = REDD+ performance of the province / REDD+ performance of the region

*(REDD+ performance of the province = (hectares delivered under each model of intervention in the province * ER)*

REDD+ performance of the region = hectares delivered under each ER models in the region ER factor*

The average G for calculating provincial proceeds amount = (Proportion of natural forest area of the province / natural forest area of the whole NCR + the Rate of contribution to reducing emissions of the province / total emission reduction of the whole NCR (%);

The natural forest area according to Decision No. 1558/QD-BNN-TCLN dated April 13, 2021 announcing the current state of national forests as of December 31, 2020;

Ratio of contribution to ER of the province/total ER of the whole NCR is calculated upon the data of the First ER Report in 2 years 2018-2019.

3.2 Indicate in a table format the number and type of beneficiaries who received benefits during the reporting period (examples of tables to be used and expanded upon below). The tables should include information on:

- The type of benefits distributed, including monetary or non-monetary benefits;
- The criteria for distributing the benefits;
- The processes and timeline for distributing the benefits (e.g., whether the benefits are distributed one-time or continuous/periodic);
- Who the beneficiaries are, including a break-down of the beneficiaries by gender, civil society organizations (CSOs), Indigenous Peoples, and local communities; and
- Any specific agreements signed with the beneficiaries for them to receive the benefits, and the key terms of such agreements.

As this ER Monitoring Report covers the first Reporting Period, no ER payments have been made or benefits distributed to beneficiaries, and this section has been left intentionally blank. Information will be included in the ER Monitoring Report for the subsequent Reporting Period.

3.3 Do beneficiaries receive adequate implementation support to assist in the management and use of benefits distributed to them?

To date no ER payments have been made or benefits distributed to beneficiaries. However, under the BSP, forest owners, (such as SUFMB and the PFMBs) are likely to be the main beneficiaries and will work closely with local community beneficiaries, including the CPCs, to provide adequate implementation support. The PFPDF will be responsible for monitoring disbursement and implementation and are required to report regularly to the VNFF.

3.4 Describe and assess the effectiveness of the mechanisms for ensuring transparency and accountability during the implementation of the BSP, such as participatory monitoring by beneficiaries.

Result based payments have not yet been made, however, the VNFF and the PFPDFs already have much experience of running the PFES payments which requires transparency and accountability and feedback from the PFES grievance process. In addition, the M&E approach for monitoring the BSP disbursement is based on the existing comprehensive PFES M&E system which has the following features: the VNFF has developed a web-based M&E platform to support VNFF and PFPDFs in managing their M&E data. It also enabled the VNFF to digitize reporting and standardize M&E data practices across the country. Monitoring and evaluating the effectiveness of the PFES policy (which will be expanded and used for the BSP (this will

happen right after the approval of the POM[59], training and hiring of short term project staff, then the indicators will be added onto the M&E system, the M&E updates are expected to happen within the Quarter 2)) for forest protection and development, socioeconomic and people's awareness, are collected through a comprehensive set of 18 key indicators that include three sets of indicators based on: 1) institutional organizational and policy; 2) social data; and 3) financial and economic data. The M&E platform enables the VNFF and PFPDFs to customize their indicators and reporting forms - a sample of M&E specific indicators in use with the VNFF include:

- Funds used for forest protection;
- Number of forest violations in PFES areas;
- Percentage of payments made through e-payment;
- Percentage of payments made in a timely manner;
- Ratio of women headed households receiving benefits;
- Ratio of ethnic minority households receiving benefits; and
- Ratio of poor households receiving benefits.

The FGRM is in place and the processes for how potential complaints arising from the implementation of the BSP would be addressed follow the fully detailed and operational FGRM[60], including technical guidelines, regulations, and a work plan for strengthening implementation of the FGRM. The FGRM is applied throughout the implementation of the ER-P, including for the implementation of safeguard instruments as developed in the ESMF, and the implementation of the BSP. Decree no. 107/2022/ND-CP which will be available on the VNFF website, together with the BSP (Decision No. 641/QD-BNN-TCLN) and ESMF. VNFF will also receive trainings and is required by an Action Plan (set by the legal Decision No. 366/QD-BNN-TCLN signed by the Minister for MARD dated 19th January 2023) to develop draft POM by the end of the first quarter of 2023. This would include stand-alone manuals on financial management, M&E and updates to the SOM etc.

3.5 Assess whether Benefit Sharing distributions continue to be relevant to core objectives and legitimacy of the ER Program objectives (e.g., benefit sharing is considered equitable and effective; seeks active participation of recipients; is respectful of customary land rights; enjoys broad community support of Indigenous People; benefit distributions incentivize adoption of emission reduction measures, among others).

As result based payments have not yet been made, it is too early to assess benefit sharing distributions. However, the Decree no. 107/2022/ND-CP provides a comprehensive approach for the benefit sharing and is supported by the Forest Law (2017) which is respectful of access and use of forest rights and supports ethnic minorities who also have their rights supported through a number of legal instruments including Circular 12[61]. As noted the VNFF has a comprehensive M&E system, safeguards, and FGRM etc., and there have also been a number of awareness raising and communication activities in the ER-P that have highlighted the participation of recipients including explaining their rights and responsibilities.

[59] The draft POM will be available March 15, 2023, with the final POM available two weeks after the final audit report.
[60] The FGRM will be placed on the VNFF website. Note that the VNFF already operates a grievance complaint mechanism at the provincial level, so has some experience of the processes. However, additional work will be required to ensure all offices are familiar with the FGRM.
[61] Circular No. 12/2022/TT-BNNPTNT dated September 20, 2022; Guiding a number of forestry activities to implement the national target program for socio-economic development in ethnic minority areas and mountainous areas in the period of 2021-2030.

3.6 Describe the mechanisms that are in place to verify how benefits are used and whether those payments provide sufficient incentive or compensation to participate in program activities to change land use or reduce carbon emissions. To what extent are distribution mechanisms viewed as credible and trusted by beneficiaries?

To date no ER payments have been made or benefits distributed to beneficiaries. However, the mechanisms are indicated in BSP and include a comprehensive M&E system managed by the VNFF, and the planned POM, Financial Management Manual, SOM (which requires some updating), and FGRM for the ER-Program.

3.7 Do beneficiaries understand their continued obligations once benefit distribution has taken place? Is there any evidence that there is a mismatch of expectations among beneficiaries regarding the nature and value of benefits accruing to them? What mechanisms are in place to manage such risks?

The extensive consultation with a wide range of potential beneficiaries has consistently showed that beneficiaries clearly understand their obligations and benefits. This is also an important requirement of the Forest Law (2017) and has been an ongoing awareness issue and activity for the forest entities especially the SUFMBs.

As no payments have actively been made from ERPA funds there is degree of uncertainly and expectation among beneficiaries. However, as PFES has already been actively implemented in many communes and with forest owners the level of expectation is somewhat modified to more realistic levels. There have been a number of awareness raising and communication activities in the ER-P and different donor projects that have highlighted and provided information on the responsibilities of forest owners and communities.

4. Implementation of the Environmental and Social Management Measures for the BSP

4.1 Assess to what extent the measures for managing the environmental and social aspects of BSP activities have been implemented. Refer to applicable sections in the Safeguards Plans where relevant.

The BSP has taken into consideration the importance of natural forest management, the sustainable forest management in environment protection as well as the key role of local communities, ethnic minority people in emission reduction results in particular and environmental protection as well as in socio-economic development in general. See related information in Annex 1. As no ER payments have been made or benefits distributed to beneficiaries, it is too early to report on how environmental and social aspects of BSP activities have been implemented. Information will be included in the ER Monitoring Report for the subsequent Reporting Period.

5. Recommendations for BSP Improvement or Modifications.

5.1 Based on experience during the current reporting period as well as feedback from recipients, identify any specific recommendations for modifying the procedural or substantive content of the BSP, if necessary. Substantive changes may include modifications to eligible beneficiaries; rationale or justification for benefits sharing; form or modality of benefit distribution; structure of dedicated funds established to distribute benefits; obligations of recipient among others.

As the final BSP was only recently approved, it is too early to identify recommendations for modifying or improving the BSP. Information will be included in the ER Monitoring Report for the subsequent Reporting Period.

5.2 Are there procedural or administrative obstacles to timely distribution of benefits (e.g., adequacy of financial channels, ability to use funds)? Are benefits distributed in a timely manner?

As no ER payments have been made or benefits distributed to beneficiaries, it is too early to report on obstacles to timely distribution of benefits. Information will be included in the ER Monitoring Report for the subsequent Reporting Period.

No major problems are foreseen that will impact on the timely distribution of the benefits, however, the operationalization of the ERPA Decree no. 107 requires a number of actions to take place in parallel to achieve important milestones and in summary these are: i) Training on finances; ii) finalization of the POM (this includes the availability of updates on safeguards related issues, updates to the FGRM (both updates need to be introduced to provinces, and includes updates on reporting mechanisms at the province); iii) introduction of the training on key aspects of the ERPA Decree no. 107 to the PFPDFs; iv) introducing of the BSP (also to the provinces); and vi) updates to the M&E system (also to the provinces). A full and detailed workplan is expected by the end of March together with the draft POM, this will be available March 15, 2023, with the final POM available two weeks after the final audit report.

5.3 Is there evidence of other emerging risks that may affect the sustainability or effectiveness of the BSP?

Other than the risks that have already been identified in the ESMF and related documents, along with measures that will ensure the mitigation of potential risks, but currently there is no evidence of additional or emerging risks that may affect the sustainability or effectiveness of the BSP.

5.4 Provide a suggested timeline and an outline of administrative arrangements to introduce any recommended changes.

No recommendations to date as the final BSP was only recently approved and it is too early to report on or recommended changes.

ANNEX 3: INFORMATION ON THE GENERATION AND/OR ENHANCEMENT OF PRIORITY NON-CARBON BENEFITS

Priority Non-Carbon benefits

1. List the **identified set of priority Non-Carbon benefits** and provide necessary details on activities for generation and enhancement of these Non-Carbon benefits. (See questions in sections 2 and 3 below for examples of details on potential specific non-carbon benefits identified).

   Methodology: the information provided has been collected from the available data and reports provided from the VNFF PFES M&E system and other documents of VNFOREST and the provinical Departments of Agriculture and Rural Development (DARDs). The Due Diligence Report (2019) DDR approved by the WB was also used as an important reference for providing reliable information relating to the NCR. However, a field visit in August 2022 that included consultions with a variety of stakeholders, local authorities, NGOs and forest communities has also been used to provide some first hand up to date and releant information.

Table A3-1. List of the identified set of priority Non-Carbon benefits

Priority Non-Carbon Benefit	Details on activities for generation and enhancement Approach (as defined in ERPD including relevant indicators)
Socio-Economic NCB	
Maintaining Sustainable Livelihoods, Culture and Community (Priority NCB)	The ER Program activities have maintained sustainable livelihoods, as well as culture and community in local communities under the ER region of six provinces. Over 3 years implementation from 2018-2021, the provinces invested in bamboo development (77 ha), 98ha for non timber forest products in forest areas, several free-deforestation agriculture cultivation models and 65 good practice models (VietGAP[62]) for rice production. Those activities are implemented mainly in Quang Binh and Quang Tri provinces and total budget for this component is about 686,051 USD [63]. The ER-Program (through USAID Vietnam Forest and Delta Project (VFD)) has supported various sustainable livelihoods models in Nghe An and Thanh Hoa provinces. These include smart rice cultivation, sloping agriculture land techniques, indigenous chicken raising combined with earth worm raising, bio-fertilizer production from agricultural waste, improved cook stoves and biogas, mangrove beekeeping, sustainable maize production, and improved livestock management. For example, the VFD has promoted an integrated agroforestry system in which the medicinal plant *Alpinia Bracteata*, locally referred to as "bon bo", is planted under the forest cover. The "bon bo" agroforestry model has been set up in five villages, involving 286 people, of which around 200 are women in Nghe An province.[64] Similarly, under the ER-program, the USAID Green Annamites has promoted the establishment of community-based forestry models for

[62] VietGAP: Vietnamese Good Agricultural Practices. VietGAP is food safety inspection program from A to Z of the production line. It starts from the farm preparation, cultivation to harvesting, post-harvest storage, including related factors such as: the environment, chemicals, crop protection products, packaging and even the working conditions and welfare of workers in the farm, it is the application of production methods to produce clean and safe products, especially fresh fruit and vegetables.
[63] Emission Reduction Monitoring Report of six provinces, 2020.
[64]USAID, Climate Smart Livelihoods to Support Sustainable Forest Management (https://snv.org/cms/sites/default/files/explore/download/vfd_sl_success_story_climate_smart_livelihoods.pdf)

Priority Non-Carbon Benefit	Details on activities for generation and enhancement Approach (as defined in ERPD including relevant indicators)
	developing Non-Timber Forest Products (NTFPs) under forest canopies and contributed to improved livelihoods for more than 13,387 people through sustainable landscape activities and for 15,321 people through increased economic benefits from natural resource management and biodiversity conservation[65]. Sustainable livelihood models implemented by ER-Program (through other projects, namely the ADB Biodiversity Conservation Corridors Project (BCC), Protection Forests Restoration and Sustainable Management Project (JICA 2) and others) have been maintained and reported[66] [67]. In addition, the ER program has included numerous policies to improve the livelihoods of poor farmers and ethnic minority groups in and around forest areas (for details see Table Annex 3A-2 below). Gender plays an important role in all the livelihood programs. Rural women in Vietnam are key forest stewards and play an important role in agricultural cultivation including forest-based livestock activities. Their decisions often help to determine the way household lands are managed and have a strong impact on food security and climate resilience. For this reason, the ER Program has taken gender into consideration in all activities. Women are involved both as trainers and key beneficiaries of the climate smart agricultural livelihood interventions[68] [69]. There are a number of models in which women play an important role, such as in village-level PFES savings funds implemented through the PFES village regulation activity in Thanh Hoa[70] and Thua Thien Hue provinces[71]. PFES payments have encouraged local communities to participate in the forest protection and management. For example, the survey conducted by CIFOR (2020) in A Luoi district, Thua Thien Hue province found that the benefited households in PFES villages have devoted 6.83 months a year for forest protection work and 77.7% households in PFES villages involved in forest protection while only 1.6% household in a non-PFES village participate in forest protection[72].
Income Generation and Employment (priority NCB).	In the ER region, 19,537 households and 882 communities and smallholder groups have benefited from PFES payments with the average payment rate ranging from 49,250 VND/ha to more than 500,000VND/ha in 2020. In addition, the PFES payment rate has also gradually been increased throughout the year (from 24,106 VND/ha to 443,446 VND/ha in 2015)[73]. The PFES payment not only plays an important role in the management and protection of forests, but also contributes considerably to the income of local communities. It is reported that the livelihood of 50% interviewees improved and income of 30% interviewees also increased

[65] https://vn.usembassy.gov/the-united-states-agency-for-international-development-announces-completion-of-its-green-annamites-project/

[66] MARD and FCPF (2019), Due Diligence Report on Safeguards of Bilateral Donor Four Projects Participating in the ER-P in the North Central Region of Vietnam. (MARD and FCPF (2019).

[67] Richard Rastal & Ngo Huy Toan (2019), Environmental and Social Benefit Risk and Safeguard Assessment for Thanh Hoa and Nghe An Provincial REDD+ Action Plans, SNV.

[68] USAID & ECODIT (2018), Gender Equity and Social Inclusion.

[69] USAID & VFD (2018), Gender Equity and Social Inclusion.

[70] (MARD and FCPF (2019).

[71] Center for International Forest Research (CIFOR) (2020), International Conference on 10 years impact of Payment for Forest Environmental Services in Vietnam. (CIFOR, 2020).

[72] Impact of Payment for Forest Environmental Services in A Luoi, Thua Thien Hue province at "National workshop: 12 years of PFES impacts in Vietnam" on 24 November 2020.

[73] Vietnam Forest Protection and Development Fund (VNFF) (2020). PFES result report in 6 provinces of North Central Region of Vietnam.

Priority Non-Carbon Benefit	Details on activities for generation and enhancement Approach (as defined in ERPD including relevant indicators)
	thanks to PFES payment in Thua Thien Hue province[74]. Households with low and medium PFES payments could only spend money on daily life necessities for the family. Meanwhile, households who were paid a higher PFES rate, could afford to invest not only in forest protection and plantation, but also invested in livelihood development (such as purchase of seedlings, cultivation, improvements to livestock husbandry). For example, 21% of households interviewed in Thua Thien Hue province have used PFES money to repair electricity, buy furniture, renovate cultural houses, build a village welcome gate, and contribute to weddings or funerals[75]. This is complemented by the findings from the site visit that was conducted in August 2022 that the local village households in Phong My commune, Phong Dien district, Thua Thien Hue province has been provided with loans based on PFES payments to invest in their livelihood development activities. In addition to PFES, a number of other international projects implemented in the ER program, namely BCC, JICA2 have supported livelihood activities for local people in the ER region. These projects have also supported the existing and ongoing Government policies and programs listed in Table Annex A3-2 below.
Environment NCBs	
Promotion of Climate-Smart Agriculture (Priority NCB)	Climate-Smart Agriculture has been promoted under the ER Program and through existing international development projects and this has helped to reduce the environmental impact and increase the resilience to climate change. As reported above, the USAID VFD and Green Annamites have promoted climate smart agriculture by providing technical training and inputs including improved seedlings that have resulted in enhancement of the climate resilience of local communities. In addition, the government policies (listed in Annex A3-2 below) have supported poor famers, particularly ethnic minorities in the forest area in the six ER provinces.
Conservation and Protection of Biodiversity (Priority NCB)	Under the ER program, more than 2.2 million[76] ha of existing natural forest with high biodiversity value has been conserved and protected. From the period from 2018-2021, PFES payments for the six provinces of the ER program has reached around 820 billion Vietnamese Dong (VND) (equivalent to US$35.5 millions or US$ 8.9 million/year) accounting for 7% of total PFES payment of the whole country[77]. By 2022, the PFES payments contributed to protecting biodiversity, ecosystems water sources and improving the efficiency of the forest management and protection of more than 1.1 million hectares of forest. It has provided forest environmental services in six provinces, accounting for about 17% of the country's total forest area that are eligible for forest environmental services.
Protection and Maintenance of Ecosystems Services (Priority NCB)	ER Programe has provided support to protecting and maintaining the ecosystem service provided by more than 1.1 million hactres of forested land. In particular, it helped to protect and maintain the ecological services (e.g., water regulation, contributing to the reduction of air pollution, flood control, and contributing to diseases control) attached with natural forest namely: (i) Natural assisted forest regeneration and enrichment planting (5,150 ha); (ii) Afforestation of protection and special use forests (2,076ha); and (iii) Compensation forest planting for converted forests (1,282 ha).

[74] CIFOR (2020).
[75] CIFOR (2020).
[76] Decision No. 2860 / QD-BNN-TCLN dated July 27, 2022, of the Minister of Agriculture and Rural Development on forest change of Viet nam in 2021.
[77] Vietnam Forest Protection and Development Fund (VNFF) (2022).

Priority Non-Carbon Benefit	Details on activities for generation and enhancement Approach (as defined in ERPD including relevant indicators)
	Moreover, the ecosystem services have also been improved and promoted through the transfer of 19,594 ha of existing small timber plantations to consolidate larger timber plantation areas and by adding a new large timber area of 14,330 ha in the upland mountainous area[78.] As a result, the forest area eligible for forest environment services in the six northern central provinces has gradually increased over the years, from only 0.892 million hectares in 2018, 1.046 million hectares in 2019 and to nearly 1.1 million in 2020, accounting for 14%, 16.5% and 17% of the forest area providing forest environmental services of the country respectively[79].
Governance NCBs	
Strengthening of Village Level Socially Inclusive Governance (Priority NCB)	A priority for all projects implemented in ER-P area (and including the design of the ER-P) has always been to involve the local people through intensive consultations. This as particularly the case when considering the forest allocation process and this must be conducted in the participatory manner; communities have participated in both mapping and field surveys. In the last two years, 452,570 ha of natural forest area has been allocated for communities. In this regard, the forest has been better protected with clear forest ownership, titles, community responsibility and mandate. As reported, the USAID VFD program has supported the participatory forestland allocation process in Muong Lat, Thanh Hoa province that helped enable the ethnic minorities communities to secure land use rights and strong stakeholder engagement was seen as a key means to improve forest management. Under the collaborative management approach promoted by the ER Program, relationships between forest management entities (FMEs) and local communities are expected to be less asymmetrical in nature. It is reported that, the collaboration and/or cooperation between FMEs and local communities have been strengthening the forest governance at village level. Specifically, the local communities have been engaged in the forest protection and management activities such as joint forest patrolling with forest rangers of FMEs. In this regard, training on forest patrolling skill and tools have been provided to the local communities.[80, 81]
Forest Governance and Management (Priority NCB)	Following the introduction of the Forestry Law (2017) and Decree 156/2018/ND-CP supported by the ER Program, forest governance and management has been more transparent and strengthened. Supported by the VFD project (2018-2021), the Vietnam Forest Protection and Development Fund (VNFF) under VNFOREST has developed an M&E system to monitor PFES implementation and improve data management, analysis, and reporting. In addition, to improve the relatively inefficient PFES cash-based system, the VNFF has been developing more efficient, secure, and transparent

[78] Emission Reduction Monitoring Reports of six provinces, 2020.

[79] CIFOR (2020).

[80] James Israel Alim, Vu Thi Hien (2018), Customary Tenure Right and REDD+ Potential to Promote Legal Recognition, Customary Tenure System and REDD+: Ensuring Benefits for Indigenous Peoples, Tebtebba and FCPF.

[81] Richard Rastal & Ngo Huy Toan (2019), Environmental and Social Benefit Risk and Safeguard Assessment for Thanh Hoa and Nghe An Provincial REDD+ Action Plans, SNV.

Priority Non-Carbon Benefit	Details on activities for generation and enhancement Approach (as defined in ERPD including relevant indicators)
	electronic payment mechanisms that reduce transaction costs and streamline payment processes [82].
Improved Land Tenure Regime (Priority NCB)	Considerable reform on land tenure and forestland allocation and use has taken place during the period (since 2016 date of the ER-PD) from 2017 onwards with the introduction of the Forestry Law (2017). The law is more in line with the Land Law (2013) and this includes the duration of agricultural land use rights and refers to forestland allocation and use. Clarifications on the agricultural land tenure, and forestland allocation were introduced and emphasized in the Land Law of 2013, and this was supported with the Law on Forestry (2017) which took effect 2019. This later law defined the relevant rights and defined obligations of organizations and individuals that have been allocated forests and forest land and has improved the principles of forest allocation, lease, change of forest use, forest revocation, including legal basis for forest allocation, forest lease or change of forest uses. The law also introduced more decentralization of decision making to the Province including plans on forest allocation, forest lease or change of forest uses developed by district People's Committees these can be approved by provincial People's Committees; the demand for forest use presented in the investment projects of organizations; proposals of forest allocation, lease and change of forest to other uses as applicable for households, individuals and local communities.

The following Table A3-2 provides an update to the table of qualitative indicators (Table 16.1 from the ER-PD) for the priority NBC that were included in the ER-PD.

[82] https://www.usaid.gov/vietnam/documents/vietnam-forests-and-deltas-program

Table A3-2 Updating of the Non Carbon Benefits (NCB) Table 16.1 from the ERPD

Non-carbon benefit	Types of benefit	Future investments	Notes and quantification	ER-P example potential numbers of beneficiaries	Progress
Improved forest governance	Multiple benefits across different populations and sectors	Provincial and District PFMS, SUFs	Reduced incidence of illegal logging and transport of illegal logs	Difficult to quantify	Forest law (2017) introduced from 2019, includes more decentralization under this and the Forest Protection Department (FPD) have a closer working relationship with DARD and the Forest Law is in line with and supports the Land Law (2013). Decision No. 523/QD-TTg of the Prime Minister dated April 1, 2021; approving the Vietnam Forestry Development Strategy for the period of 2021 - 2030, with a vision to 2050. Decision on Promulgating the Plan of the Ministry of Agriculture and Rural Development to implement the Prime Minister's Decision No. 1624/QD-TTg dated November 14, 2019 approving the Implementation Plan of the Voluntary Partnership Agreement between the Socialist Republic of Vietnam and the European Union on forestry law enforcement, forest governance and trade in forest products (VPA/FLEGT Agreement). Vietnam is accelerating the process of completing legal documents. and focus on capacity building for Forest Protection and Customs as well as TLAS operating infrastructure. Accordingly, Vietnam is expected to start licensing FLEGT in 2024-2025. The VPA with the EU, Vietnam is in bilateral negotiations to promote legal timber trade with a number of countries such as: United States and Australia. Legislation on law enforcement and protecting forest from illegal logging and forest conversion (Directive 13/CT-TW dated January 2017; and Decree 01/2019/ND-CP dated January 2019). These legislations are aimed at: improving the effectiveness and efficiency of state management of forest protection and development; building a strong ranger force; and establishing a mechanism for strict management and supervision of projects on forest conversion for other purposes, especially hydropower development, mineral exploitation etc. A Decision to stop harvesting from natural forest and strictly control of conversion forests to other use purposes was introduced (Decision 2242/QD-TTg, 2014).

Non-carbon benefit	Types of benefit	Future investments	Notes and quantification	ER-P example potential numbers of beneficiaries	Progress
(i) Increased domestic demand	Improved domestic forest demand and prices	Forest sector policy, FLEGT work			The export value of timber and forest products continuously grew at a high level; in 2021, reaching 15.96 billion USD, ranking 5th in the world, 2nd in Asia, 1st in Southeast Asia. See Decision 1624 above.
(ii) Improved policy	Feedback and links to policy	Investment in the PFMS, MRV, Forest sector policy, FLEGT work			As above. Decision No. 1382/QD-BNN-TCLN dated April 15, 2022 of the Ministry of Agriculture and Rural Development on promulgating a set of indicators to monitor and evaluate the implementation of the Vietnam Forestry Development Strategy 2021- 2030, vision to 2050. National REDD+ Action Plan (NRAP) updated (Decision 419/QD-TTg dated 5 April 2017). Targets are: stabilizing natural forest area of at least the 2020 level by 2030; increasing forest cover to 45% (subsequently revised to 43%). Master plan on development of agricultural production to 2020 and vision to 2030 (Decision 124/QD-TTg 2012 dated 2 February 2012). Targets set out in the decision are: i) Cassava: stabilizing cassava planted area at 450,000 ha by 2020; and limiting the use of land with slope gradients below 15°, mainly in the Northeast and Northwest, South Central Coast, Central Highlands and Southeast regions; ii) Coffee: maintaining a stable production area of 500,000 ha; and iii) Rubber: stabilizing production area at 800,000 ha. A goal of the Vietnam Forestry Development Strategy for 2021–2030 and vision to 2050 is to keep forest cover stable at 42% to 43% of the national terrestrial area, effectively contributing to the implementation of NDC commitments.
(iii) International cooperation	Improved cross boarder cooperation	More contacts; national and international	Reduced transport of illegal logging; MoUs in place with Lao and Cambodia	Useful forum for dialogue; Difficult to quantify;	FLGET has made progress (see the Decision 1624 above). The Timber Legality Assurance (TLA) TLA 8 was organized by Vietnam Administration of Forestry (VNFOREST) in December with the European Forestry Institute (EFI) and Asia FLEGT Program with the participation of 60 delegates from 10 ASEAN countries and 03 partner countries including China., Japan and Korea together with representatives of the EU Delegation. UNFCCC, continued commitment to the Paris Agreement and the NDC together with COP26 commitments. Vietnam joined LEAF (Lowering of emissions by accelerating forest finance) with a Proposal and a Letter of Intent.

Non-carbon benefit	Types of benefit	Future investments	Notes and quantification	ER-P example potential numbers of beneficiaries	Progress
					Vietnam has committed to the Aichi Biodiversity Targets and continues with commitments to CITES.
Sustainable rural livelihoods including:	Improved livelihoods	Communities in and around PFMBs, SUFs SFCs;	Poverty alleviation, empirical figures,	321+ communes	See above. Also see Circular 12/2022/TT-BNNPTNT below.
(i) Improved livelihoods	Value chains, NTFPs, (but note contributions of CFM)	Collaborative approaches	Value of NTFPs and other crops	Value of NTFPs in region	See above Policies on supporting livelihoods and budgets for forest protection and development. The PFES mechanism (Decree 156/2018/ND-CP), Decision 38/2016/QD-TTg, and Decision 24/2012/QD-TTg. Also see Circular 12/2022/TT-BNNPTNT below.
(ii) Improved land tenure	Secure tenure through provision of LURCs	Expansion of LURC	Value of forest land LURC ~ VND35M;	From FSDP project	See above and the Forest Law (2017) clarifies overlaps with Land Law (2013). The National Assembly has issued Resolution No. 112/2015/QH13 on strengthening land originating from state-owned agricultural and forestry farms run by agroforestry companies, forest management boards and organizations, and used by other organization, households, individuals, provincial authorities have found it difficult to implement the resolution. Also see Circular 12/2022/TT-BNNPTNT below
(iii) Improved forest tenure	More secure access to forest resources	Improve policy; Communities in and around PFMBs, SUFs SFCs			See above and Forest Law (2017) implemented from 2019 is in line with the Land Law (2013) and provides clearer rights to occupy and use. Decision No. 809/QD-TTg dated July 12, 2022 of the Prime Minister. The Government approves the Sustainable Forestry Development Program for the period of 2021- 2025. Also see Circular 12/2022/TT-BNNPTNT Article 11 Conferral of sustainable forest management certificates; And Circular No. 28/2018/TT-BNNPTNT dated November 16, 2018.

Non-carbon benefit	Types of benefit	Future investments	Notes and quantification	ER-P example potential numbers of beneficiaries	Progress
Biodiversity conservation and enhanced ecosystem services	Ecosystem services	Investment on establishing value (total economic value - TEV) of SUFs in the landscape (investments from VFD and GIZ)	SUFs; PFES	17 SUFs core and buffer zone population is about 91,529 hh; people inside core zone is about 5,126 (about 1,075 hh)	National Capacity Development Plan for Protected Area Management in Viet Nam to 2025, with a vision to 2030. Support for biodiversity and conservation comes from from GIZ, KfW and USAID. Also see Circular 12/2022/TT-BNNPTNT below Article 8 Management and protection of special-use forests; support for population residing at buffer zones of special-use forests.
Climate change adaptation	Sustainable livelihoods; feedback and links to policy;	Access to different types of loans; IFAD Climate Change work in Quang Binh and Ha Tinh; VFD climate change work in Thanh Hoa and Nghe An; and investments from provincial CCAPs e.g. investment in mangrove, coastal forest areas	Investment and benefits from Climate Change Action Plans	Population potentially affected by climate change (areas at greatest risk from climate change are coastal areas of TT Hue, Thanh Hoa);	Vietnam has set a target of reducing Greenhouse Gas Emissions (GHG) by 9% by 2030 or by 27% with international support. COP26 commitments Vietnam's international commitments, especially the COP26 commitment to bring net emissions to "zero" by 2050; review, update, ensure synchronization, consistency and conformity with the approved regional and national planning. The government issued Decision No 450/QD – TTg in April 2022, to 2030 with a vision for 2050 of ensuring that the environment is restored and the right to living in a clean and safe environment is fulfilled. The aim is to develop a society in harmony with nature and a circular economy, towards the goal of being carbon neutral by 2050. Vietnam is developing a plan for mitigating emission in land use, land use change and forestry (LULUCF) for 2021–2030.
Better awareness and preparedness for natural disasters /reduced impact	Avoided or reduced cost for disasters floods, landslides	Investment in forest management. Forest wind breaks as defense against Typhoons; Watershed management		Large benefit value through avoided or reduced impacts from floods and reduced losses from typhoons	Enactment of the Law on Natural Disaster Prevention and Control in 2013, (Law No. 33/2013/QH13) and this has been supported by a series of decrees enacted by the government; “Disaster management” includes disaster risk reduction, mitigation/preparedness, relief and recovery. Vietnam has further systematized its Disaster Risk Management (DRM) and disaster response capability, referred to disaster management Vietnam’s multi-agency approach, led by the Vietnam Disaster Management Authority (VNDMA), is well coordinated[83]. Vietnam’s National Strategy for Natural Disaster Prevention and Control to 2030, with vision to 2050, (Decision No. 379/QD-TTg 2021 the National Strategy on natural disaster prevention through 2030) sets as a common goal for 2030, the promotion of proactive action to prevent and combat natural disaster, adaptation to climate change,

[83] Vietnam Disaster Management Reference Handbook, Centre for Excellence in Disaster Management and Humanitarian Assistance (CFE-DM), December 2021.

Non-carbon benefit	Types of benefit	Future investments	Notes and quantification	ER-P example potential numbers of beneficiaries	Progress
					and efforts to minimize the loss of life and property of the State and people. It states the GoV's vision by 2050 for the proactive prevention and control of natural disaster; prompt response to natural disaster; rapid and sustainable recovery and reconstruction; and the creation of conditions for sustainable economic and development.
Better involvement of ethnic minorities	Indirect more mainstreaming of ethnic minorities; direct benefits to livelihoods; collaborative forest management	Technical options available for forestry;	(Poverty figures from the quantitative survey soon to be available)	Contribution to reducing some aspects of poverty that blights ethnic minority hhs	Circular 12/2022/TT-BNNPTNT: To guide a number of forestry activities to implement the Sustainable Forestry Development Program and the National Target Program for Socio-Economic Development in the ethnic minority and mountainous areas in the 2021-2030 period. Phase I: from 2021 to 2025 (12/2022/TT-BNNPTNT September 20 2022) and includes actions for households of ethnic minorities, poor Kinh households; village communities in area II and III communes (Program 30a) in ethnic minority areas ethnic minorities and mountainous areas; organizations and individuals follows. National Target Program for Socio-Economic Development ethnic minority and mountainous areas in the period of 2021-2030, phase I: from 2021 to 2025 (hereinafter referred to as Decision No. 1719/QD-TTg). And this also follows Decision 866 QD-TTg dated June 16, 2017 of the Prime Minister. Decision No.1719/ QĐ-TTg 2021 approving the national target program on socio-economic development for the mountainous and ethnic-inhabited areas for the 2021-2030 period in the first phase from 2021-2025. This is in the initial stage of implementation and monitoring program is expected to take place around November 2022 - March 2023.

Other Non-Carbon benefits and additional information as linked to Monitoring and Evaluation Framework

2. If applicable linked to **any other (non-priority identified) Non-Carbon benefits**, or if not already covered above linked to Priority Non-Carbon benefits, provide the following additional details:

Livelihood enhancement and sustainability

2.1. Is your CF program testing ways to sustain and enhance livelihoods (e.g. one of your program objective/s is explicitly targeted at livelihoods; your approach to non-carbon benefits explicitly incorporates livelihoods)?

In the period of 2018-2022, it was found that forest-dependent communities look towards non-carbon benefits generically related to a sustainable improvement in their existing livelihoods. The non-carbon benefits identified by most of these communities include the allocation of titled forest land on either an individual household or community basis, the unfettered right to gather NTFPs from forest land under the control of PFMBs, SUFs and SFC or other private sector investors, tree felling for domestic use (houses and other physical structures, the right to gather firewood, and infrastructure improvements in health, education, rural water supply and connectivity (roads and bridges).

In addition, the ER Program was explicitly targeted at livelihood enhancement in terms of climate smart agriculture for local communities. The ER-P includes components that focuses on the adoption of improved agricultural practices and diversification livelihoods of forest dependent people. This helps addresses the key agricultural drivers of deforestation and forest degradation and supports the adoption of climate-smart and deforestation free agricultural practices in mountainous and coastal areas of the ER-P provinces. In particular, in over 3 years of implementations, the provinces have invested in bamboo development (77 ha), 98 ha for non timber forest products in forest areas, several free-deforestation agriculture cultivation models and 65 good practice model (VietGAP) for rice production. Those activities are implemented mainly in Quang Binh and Quang Tri provinces and total budget for this component is about 686,051 USD.[84]

In addition, the government policies (listed in Annex A3-3 below) has supported poor farmers, particularly the ethnic minorities in the forest area in ER region of six provinces.

[84] Emission Reduction Monitoring Reports of six provinces, 2020.

Table A3-3. Government policies and programs to improve the livelihoods of poor farmers and ethnic minority groups in and around forest areas.

Government legal document	Description
Decision 1722/QD-TTg of the Prime Minister dated September 2, 2016, on approving the National Target Program on Sustainable Poverty Reduction during 2016-2020.	Specific objectives are to improve livelihoods and enhance the living quality of the poor, ensuring per capita income of poor households nationwide at the end of 2020 increases 1.5 times (for the poorest households in particular difficult districts, communes and villages, or poor ethnic minority households the target is to increase income 2 times). The planned budget for this program is US$2 billion, though assuming a conservative estimate that only 30% will materialize this equates to over US$600million.
Decree No. 75/2015/ND-CP dated September 9, 2015, on mechanism and policy of forest development associated with the policy on sustainable and rapid poverty reduction and assistance to ethnic minorities for the period 2015 – 2020	This Decree provides for the mechanism and policy on encouraging forest protection, regeneration, afforestation, non-timber forest product development, income improvement associated with policy on sustainable and rapid poverty reduction for the period 2015 – 2020. In this regards, 400,000 VND/ha/year will be provided for the ethnic minorities for forest protection. The assistance to additional plantation and assistance under the design – estimate with a maximum of 1,600,000 VND/ha/year in the first 03 years and 600,000 VND for the next 03 years.
Decision 24/2012/QD-TTg dated June 1, 2012, on the Policy for Development Investment for SUFs for the period 2011-2020.	This creates a benefit sharing mechanism for all village communities involved in the protection and development of SUFs; with a state budget VND 40 million per annum to villages in the buffer zones of SUFs. During the site visit conducted in SUFs of Phong Dien Nature Reserve in August 2022, this funding is important to the villagers of the SUFs which has been allowing the local villagers on the following contents: investment in improving production development capacity (agricultural extension, forestry extension, plant varieties, breeds, equipment for processing small-scale agro-forestry products); support construction materials for villages (for community public works such as clean water, electricity, lighting, communication, village roads, cultural houses).
Decree 05/2011/NĐ-CP of the Government, dated on January 1, 2011 on ethnic minority affairs.	Provides support and engagement of ethnic minorities in livelihood improvement, management of natural resources, education, vocational trainings and medical support.
Resolution No. 30a/2008/NQ-CP of the Government, dated 27 December 2008 on rapid and sustainable poverty reduction in 61 poverty districts.	This provides incentives and support to agricultural production, engagement in forest protection and development, job and income generation, land and forests allocation to local people in these poorest districts.
Decision No. 449/QĐ-TTg of the Prime Minister dated on March 12, 2013, on approving the ethnic minorities affair strategy towards 2020.	Key support program to improve gender equity and women development for ethnic minority groups.

Government legal document	Description
Program 135 supports the development of production, livelihood diversification and scaling up of poverty reduction for communes with difficulties.	Focuses on areas near the border, secure areas etc. Support is for the development of agricultural production, forestry, fisheries; contributing to disaster risk reduction, climate change adaptation, income increases and living standards improvement for people.
Decree 156/2018/ND-CP of the Government dated November 16 2018[85] on guiding implementation of Forestry Law 2017, including Payment for Forest Environmental Services.	Provides annual revenue from 50 – 60 million USD paid by hydro power plants and clean water supply companies.
Decision 57/2012/QD-TTg dated September 1, 2012 on approving Vietnam's forest protection and development plan for the period 2011-2020.	Regulating policies on providing food support to upland people/communities in order to mitigate natural forest fire and deforestation for cultivation, and to promote forest plantations on cultivated (forestry) land.
Decision 59/2012 / QD-TTg dated December 24, 2012 on the legal aid policy for the poor, ethnic minorities in poor communes in the period 2013-2020.	This regulates policies on legal assistance for the poor and ethnic minority people in poor communes for the period 2013-2020.
Decree 119/2016/ND-CP dated August 23, 2016, on policies sustainable management protection development coastal forests.	The policies are as following: 1) localities must review and convert the coastal land areas planned for production forests that are eroded or affected by sand to coastal protection forests; 2) localities have to relocate construction works that affect protected coastal forests; 3) investment projects have to respect the regulations of the law on forest protection and development. Improved coastal forest management under Decree 119 will strengthen coastal resilience and increase adaptive capacity to climate change.
Decision No. 07/2012/QĐ-TTg dated on Feb 08, 2012, of the Prime Minister on a number of policies to strengthen forest protection.	Support commune budgets to ensure regular expenditure for forest protection activities under the management of CPC.
Decision No. 38/2016/QD-TTg dated September 14, 2016 on promulgating certain policies on forest protection and development of and investment in infrastructure, assignment of public duties to agro-forestry companies.	The decision aims to achieve sustainable poverty reduction objectives and prevent poverty relapse; make contribution to the economic growth, guarantee social security benefits, improve the life, increase income of people, especially people in poor regions, facilitate the poor and poor households in accessing basic social services (health, education, housing, tap water, hygiene and access to information), and make contribution to the achievement of poverty reduction goal during 2016 – 2020 under the National Assembly's Resolution.
See Table A3-2 above for additional government policy documents and measures	

[85] Supported by the FCPF phase 2 project.

Biodiversity

2.2. Is your CF program testing ways to conserve biodiversity (e.g. one of your program objective/s is explicitly targeted at biodiversity conservation; your approach to non-carbon benefits explicitly incorporates biodiversity conservation)?

The ER program explicitly targets biodiversity conservation. The biodiversity of the region contains some of Vietnam's most notable forests with high biodiversity value. The landscape of the ER-P includes five internationally recognized conservation corridors (ranked with a 'high' or 'critical' global conservation priority) and includes 17 protected areas 19 important international biodiversity areas. During early years of implementation, the ER-P has effectively addressed drivers of deforestation and forest conversion compared to previous period of 2016-2017. Particularly, the conversion of forests to infrastructure development has been controlled thanks to the Directive No 13 of Central Communist Party and Government Resolution No 71. With such strong legal framework directed by highest legal level (government and prime minister) and other activities supported by the ER-P, forest conversion has been controlled and monitored closely.

At the central level, supported by the ER Program (through the Target Program for Sustainable Forest Development in the period of 2016-2020 issued by Decision 886/QĐ-TTg – Program 886), MARD has advised and submitted to the Prime Minister for approval and implementation of activities under the Decisions: No. 626 / QD-TTg dated May 10, 2017 on the Project on strengthening the management capacity of the conservation area system to 2025, with a vision to 2030 and No. 628 / QD-TTg dated 10 May 2017 on the Urgent Action Plan for Primate Conservation in Vietnam until 2025, vision 2030. In addition, the MARD has presided over and coordinated with ministries, branches and localities to carry out conservation activities of elephant populations in the wild, towards the breeding of home elephants according to the Urgent Conservation Program to conserve elephants and improve capacity to control ivory trade in Viet Nam through 2020. MARD has prepared documents for submission to the Prime Minister for consideration and approval of the Pangolin Conservation Action Plan, the program of breeding and conservation of Sao La species and Bear Conservation Plan in Vietnam.[86] At the local level, the forest rangers and specialized forest protection forces of forest owners (PFMBs, SUFMBs) have also conducted their forest protection and biodiversity conservation plan. For example, Quang Binh province have strengthened the management and conservation of wildlife in the protected area such as: Dong Chau-Khe Nuoc Trong Special-use Forest along the border areas with Laos, and the core zone and the buffer zone of Phong Nha - Ke Bang National Park to prevent hunting, trapping and transporting wild animals in contravention of regulations. The province has also implemented a conservation program of the white-nosed langur in Tuyen Hoa district[87]. Similarly, in Thue Thien Hue province, Phong Dien Nature Reserve and Sao La Nature Reserve there are organized patrols and monitoring of biodiversity, camera traps etc. set to record the presence of rare wildlife species, and the removal of traps. In addition, with support from the USAID Green Annamites project, Thua Thien Hue DARD has established and operated 15 Community Conservation groups, 14 Village Patrol groups and 25 Kid Forest Protection Clubs to mobilize the participation of the community and students in forest protection communication to protect wild animals[88].

[86] Preliminary assessment report on performance result of The National Target Program for Sustainable Forestry Development period 2016-2020 (886 Program) .

[87] Emission Reduction Monitoring Reports of Quang Binh provinces, 2020.

[88] Emission Reduction Monitoring Reports of Thua Thien Hue provinces, 2020.

Protected/conserved areas

2.3. What amount (in ha) of protected or conserved areas are included in your CF program area? Has this amount increased or decreased in the last year? If so, by how much?

The Program 886 (national target programme on sustainable forest development see Annex 1, footnote 25) under the ER-P has supported the increase of protected/conserved areas throughout the years. For example, compared to 2015, the area of special-use forests nationwide in the 2016-2020 period increased by 95.7 thousand hectares partly due to the expansion and establishment of new special-use forests, reaching 100% of the Program's mission.[89] In regard to the ER area, there have been investments for forest protection and management of more than 2,2 million ha of the ER region. The forest area of ER region has increased from 3,103,601 ha, accounting for 57.65% forest cover in 2018[90] to 3,116,921 ha, accounting for 57.76% forest cover by the end of 2019[91], respectively. As such, the forest area of ER region has increased by 13,320 ha and 0.11% of forest cover compared to same period previous year.

Re/afforestation and restoration

2.4. Total forest area re/afforested or restored through program

The program 886 under the ER Program has also supported the restoration of degraded forest areas throughout the years. For example, up to 2020, 25,273 ha (21,060 ha of natural forest, 4,213 ha of planted forest) have been restored, reaching 99.1% of the goal of the whole period 2016-2020. By 2020, 32,300 ha has been recovered (restored by zoning and regeneration of forests), reaching 127% of the program's mission[92].

For the ER area, the Government has also supported a number of activities to protect and maintain the ecosystem services (e.g. water regulation, contributions to air pollution control, flood control, contributions to diseases control) associated with natural forest namely: (i) Natural assisted forest regeneration and enrichment planting (5,150 ha); (ii) Afforestation of protection and special use forests (2,076ha); and, (iii) Compensation for forest planting for converted forests (1,282 ha). Moreover, the ecosystem services have also been secured and promoted by the activities of shifting small timber plantations to larger timber plantations in the area of 19,594 ha and new large plantation of 14,330 ha in the upland mountainous area[93]. The site visit conducted in Nghe An and Thua Thien Hue in August 2022 has also found the multi-species mixed indigenous afforestation model has been implemented by Thuan Thien Sustainable Forestry Cooperative to restore forests on the forest land in Phong Dien Nature Reserve in the 2021-2025 period.

Other projects under the ER-Program namely JICA 2, ADB-BCC project has supported the Thanh Hoa, Nghe An, Quang Tri and Thua Thien Hue province in re/afforestation and restoration activities.

[89] Preliminary assessment report on performance result of The National Target Program for Sustainable Forestry Development period 2016-2020 (886 Program).
[90] MARD decision No 911/QĐ-BNN-TCLN dated 19/3/2019 on the forest status of Vietnam in 2018.
[91] MARD decision No 1423/QĐ-BNN-TCLN dated 15/4/2020 on the forest status of Vietnam in 2019.
[92] Preliminary assessment report on performance result of the National Target Program for Sustainable Forestry Development 2016-2020 (886 Program).
[93] Emission Reduction Monitoring Reports of six provinces, 2020.

Finance and Private Sector partnerships

2.5. Update on CF program budget (as originally presented in ERPD), with updated detail on secured (i.e. fully committed) finance, in US$.

2.5.1. Detail the amount of finance received (including ER payments) in support of development and delivery of your CF program. Figures should only include secured finance (i.e. fully committed): ex ante (unconfirmed) finance or in-kind contributions should not be included:

The Table A3-4 below is compiled from the provincial reports. The budget changed due to the strong commitment from the central to provincial authorities during the implementation of ER in the last two years.

Table A3-4. Investment in the ER program

Amount	Source	Date committed	Public or private finance?	ER-P, grant, loan, equity or other?
(US$)	(e.g. FCPF, FIP, name of gov't department)	(MM/YY)		
35,469,083	Policy for Payment for forest environmental services	Dec-21	Public	ER-P
13,840,321	National Target Program on Sustainable Forest Development	Dec-20	Public	ER-P
2,247,745	Reforestation/Afforestation offset by other projects	Dec-20	Public	ER-P
16,959,830	National governmental financing	Dec-20	Public	ER-P
1,662,074	Overseas Development Assistance projects	Dec-20	Public	Loan
518,807	National credit sources (Vietnam Bank for Social policies - Various credit lines)	Dec-20	Public	Loan
12,369,635	Others	Dec-20	Public	ER-P
83,067,495	**Total**			

Sources: *Emission Reduction Monitoring Reports of six provinces* (2020) with updated in 2022.

2.5.2. Not including ER payments from the FCPF Carbon Fund, what is the value of REDD+ ER payments that your CF projects have received, and that your country has received overall?

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2.5.3. How many formal partnerships have been established between your CF program and private sector entities? Formal partnerships are defined as:

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3. Other Non-Carbon benefits and additional information

Policy development

3.1. Is your CF program involved in the development, reform and/or implementation of policies to help institutions/people/systems/sectors? Please provide information on the approach and any other relevant or related indicators/results.

The ER program supported the development, reform and/or implementation of policies. The ER Program includes actions to strengthen the enabling conditions for emissions reduction. In particular, the activities seek to address the drivers and underlying causes of conversion of degraded forest land to higher-value land uses and factors contributing to inadequate implementation of policies to protect natural forests. This activity is to improve policy guidelines and coordination mechanisms to address the conversion of natural forests. This requires carrying out a policy gap analysis and drafting legal guidelines, carrying out consultations with local authorities and other stakeholders. Policies have been introduced to address this. The Directive 13-CT/TW of the Central Committee on strengthening the Party's leadership in forest management, protection and development and Resolution 71 (promulgating the Government's Action Program to implement Directive No.13), provides the legislative basis for provinces to deliver on this. Following the Resolution 71, one of the tasks of provinces is ''to review, evaluate and strictly control socio-economic development projects and planning which affect forest area and quality'' with specific reference to rubber. The provinces of the NCR are therefore required to review their rubber expansion targets and to ensure compliance with Directive 13. Resolution 71 also requires provinces to review hydropower planning and to strictly implement regulations on afforestation and payment for forest ecosystem services.

The ER program through the FCPF project has supported the General Department of Forestry/Ministry of Agriculture and Rural Development to develop 03 Decrees and 03 Circulars guiding the implementation of the Law on Forestry: Decree No. 156/2018/ND-CP dated November 16, 2018 detailing the implementation of a number of articles of the Law on Forestry; Decree No. 01/2019/ND-CP dated January 1, 2019 on Forest Protection and Specialized Forces for Forest Protection; Decree 35/2019/ND-CP dated 25 April 2019, on penalties for administrative violations against regulations on forestry; Circular No. 29/2018/TT-BNNPTNT dated November 16, 2018 on Regulation on silvicultural measures; Circular No. 27/2018/TT-BNNPTNT dated November 16, 2018 on prescribing the management and traceability of forest products; Circular No. 30/2018/TT-BNNPTNT dated 16 November 2018 regulating the list of main forest plant species; seed recognition and breed source; and material management for major forestry trees. In addition, the project has coordinated and supported the Vietnam Administration of Forestry to organize series of workshops on the implementation of the National Target Program for Sustainable Forestry Development and REDD+ Implementation (Program 886) and the National Action Program on REDD + (Decision 419/QD-TTg dated 5 April 2017), preliminary review of 02 years of implementation of Directive 13.

In addition, the VPA-FLEGT Agreement between Vietnam and the European Union (EU) was signed on October 19, 2018, came into effect on June 1, 2019. By joining this agreement, Vietnam has shown great determination in implementing forest governance as well as developing the wood processing industry in a sustainable way. Although the Agreement was signed only with EU, Vietnam has made a strong commitment under which all timber and timber products, whether exported (to the EU or any other territory/country) or consumed in the domestic market, must be legal timber. In line with the VPA-FLEGT, Vietnam has developed the Vietnam's Timber Legality Assurance System (VNTLAS) which provides a framework for state oversight of logging that will comply with EU timber legal requirements, as stipulated in the TLAS.

Capacity building

3.2. Is your CF program involved in training, education or provision of capacity building opportunities to increase the capacity of institutions/people/systems? Please provide information on the approach and any other relevant or related indicators/results.

The ER program is involved in training, education or provision of capacity building opportunities to increase the capacity of institutions/people/systems. For example, the FCPF readiness grant project has supported variety of capacity building consultation and training courses participated fully by stakeholders from central to provincial and district, commune and village level. At central level, line ministries have been targeted. At local levels, District People Committee (DPCs), Department of Agriculture and Rural Department (DARD) including forest protection department, Department of Natural Resource and Environment (DONRE), Committee of Ethnic Minorities Affairs (CEMA), Women's Union, Commune People Committee (CPC), Forest Management Boards (FMBs) have been closely consulted and provided technical training. Particularly, the local communities including ethnic minorities and women have been consulted and engaged during the ER Program implementation. The M&E system has also monitored the gender and ethnicity disaggregated data of such capacity building activities. Several courses are presented bellows:

At central level, the FCPF readiness grant equipped six provinces in the North Central region with 700 tablets to install specialized software to monitor changes in forest resources and forestland. Coordinated with JICA experts, 53 training courses on tablet application of forest resource and forest land development were organized, including 11 sub-teacher training courses (TOT) and 42 extended training courses for officers of Forest Protection Departments, local forest rangers, Forest Management Boards and Forestry Companies. The total number of trainees participating in training is 941 people in which the female rate is 8% and ethnicity is 5%. Results of the evaluation of the training courses on forest and forestland development monitoring tablet application showed that 93% of the trainees participating in the training course master the theory and practice and 80% of the trainees will apply for monitoring changes in forest resources and forest land in the area in charge.

In 2018, the FCPF readiness project also organized two training courses for 72 trainees on building technical capacity in planting high yielding large timber forests, restoring and restoring natural forests. Trainees were from Protection Forest Management Boards, Agroforestry staff, target commune as well as afforestation households in three communes Son Kim I, Son Linh, Son Tay, Ha Tinh province. In 2019, the FCPF readiness project organized seven consultation workshops on institutions, plans and techniques related to the Targeted Program for Sustainable Forestry Development and ER Program with participants of 482 representatives from provinces who are members of the REDD+ Implementation Steering Committee, DARD, Standing Office of Sustainable Forestry Development Target Program (Program 886), Sub-Department of Forestry, DPCs, DARDs, and FMBs.

At the provincial level, under the FCPF readiness project five consultation workshops on non-forestry solutions related to REDD + readiness were organized with a total of 365 delegates, including representatives from the Department of Agriculture and Rural Development and its affiliates; Resource base and environment; Department of Planning and investment; Industrial and commercial facilities; Transportation facilities; facility construction; Department of Science and Technology; Department of Ethnic Affairs, political and social organizations; representatives of districts and media agencies of the North Central Coast provinces. The FCPF readiness grant supported provinces to supplement and adjust the Provincial REDD + Action Plan (PRAP) in accordance with Decision 419/QD-TTg dated April 5, 2017 of

the Prime Minister and adopted by the PPCs. Provinces are currently implementing PRAP and collecting information on PRAP implementation results according to Decision 419/QD-TTg. In terms of supporting capacity building for forest law enforcement and governance, the PPMUs have organized five provincial workshops, 24 district workshops and 41 communal workshops for a total of 1,784 people for consulting and collecting information on assessing the status of forest law enforcement in forest protection and management in the province and proposing solutions to strengthen forest law enforcement and ensure legal timber. In brief, capacity-building activities supported by FCPF-2 project has engaged around 10,921 people, in which 2,044 female (accounting for 19%) and 1, 870 ethnicities (accounting for 17%).[94]

Other projects (JICA2, ADB-BCC, 886 program, PFES, USAID-VFD, USAID-Green Annamites) under the ER-P have also provided respective capacity building activities for relevant stakeholders, particularly the local communities on forest development and management as well as livelihood development activities.

Environmental and social safeguards prepared under the FCPF Project:

In 2018, there were a series of consultation workshops on the Environmental and Social Management Framework (ESMF) and training workshops for stakeholders on how to implement and comply with the environmental and social safeguards under the ER-P at both national and the local level. These included the participants from the FCPF-2 Provincial Project Management Units (PPMU), the Protection Forest Management Boards (PFMB), the Special-Use Forest Management Boards (SUFMB), state forestry companies (SFC). The workshop organizers particularly targeted participants from grassroot level – communities including the women and ethnic minorities to also join the workshops. There were total of 2,386 participants, in which 267 female (26%) and 1,261 ethnic minorities (53%)[95].

In 2019, there were also a series of consultations on the safeguard operation manual for stakeholders from the PPMUs, representatives of forest owners, provincial DARDs, PFPDFs, Departments of Forest Protection, Forestry Association (NGOs), VUSTA, Center for Agriculture Extension Forest owners, District People's Committee, Commune People's Committee, and participants from grassroot level - communities, the women's union and ethnic minorities. There were total of 475 participants, of which 128 were female (26%) and 52 were ethnic minorities (11%)[96]. In 2020, there were also a series of training workshops on the Safeguard Operation Manual (SOM) however, this will need to be updated to reflect the BSP and also the greater role envisaged for the VNFF and PFDPFs. For stakeholders from the representatives of forest owners, provincial department including DARDs, DONRE, Forest Protection, PFPDFs, Forestry Association (an NGOs), Center for Agriculture Extension Forest owners, District People's Committee, Commune People's Committee, and the participants from grassroot level, communities, the women's union, and ethnic minorities. There were a total of 738 participants, of which 272 were female (37%) and 51 were ethnic minorities (22%)[97].

[94] FCPF 2 implementation result report (2020).
[95] FCPF 2 implementation result report (2020).
[96] FCPF 2 implementation result report (2020).
[97] FCPF 2 implementation result report (2020).

Other

3.3. Is your CF program involved in generation or enhancement of any non-carbon benefits not already covered in this annex? Please provide information on the approach and any other relevant or related indicators/results.

As presented in Annex 1, the Feedback and Grievance Redress Mechanism (FGRM) has been developed in line with the guidance of FCPF and UNREDD Programme during the ER-P design. In this regards, a series of consultation meetings/workshops were organized with the participation of local stakeholder including local NGOs. The results from these workshops have been reflected in the current FGRM to take into account the context of Vietnam. Because the payment from ER-P has not been financed yet and no grievance related to the ER-P has been reported. However, there are some lessons learnt from the PFES that has been operationalizing in the last ten years. According to the local PFPDFs there have been some grievances mostly in terms of the low rate of PFES payment in the area where there have not many hydropower schemes in place. Such grievances were sent directly to the local authorities and then to forest owners and the local PFPDFs for further action and were being addressed in timely manner. It means that the PFES system is rather transparent and effective and would address any grievance. However, such grievances have not been logged and documented in the systematic way.

The new Decree no.107/2022/ND-CP dated 28 December 2022 and BSP have presented the participatory forest management system in order to promote the transparent and effective forest governance structures which then empower the land tenure rights of the local forest dependent communities, particularly the ethnic minorities in the upper forest land area. This will make contribution to respect the customary rights of these communities which then sustain their custom and cultural values. In relation to issues such as building transparent and effective forest governance structures these local communities are seeking to avoid being prosecuted for exploiting natural forest controlled by the state and for the latter to take action against illegal tree felling by outsiders to the local community. Community-based consultations clearly suggest that without legal or legalisable access to forest resources the poor and the near poor simply cannot afford to be effective stewards of the forest.

ANNEX 4: CARBON ACCOUNTING - ADDENDUM TO THE ERPD

Technical corrections

During the communication with FMT and through its training on preparation of monitoring report, it was noted that the technical correction is encouraged in case new data is available. Therefore, Vietnam decided to make the technical correction for reference level.

Summary of technical corrections

Three technical corrections have been made to the Reference Levels setting as follows:

1) The activity data for two periods 2005-2010 and 2010-2015: In the ERPD, the activity data (AD) used for setting the Reference Levels are estimated based on area proportions derived from map classification, not from sample classification. Item 2.a.iii in the positive list of technical corrections in the Guidelines on the application of the methodological framework Number 2 - On technical corrections to GHG emissions and removals reported in the reference period (version 2.0, November 2020) states that acceptable technical corrections include: "Use more robust statistical estimator, including the replacement of map-based estimates by sample-based estimates using unbiased estimators, or replace sample-based estimates by more accurate/precise model based estimates." Therefore, Vietnam has replaced the map-based AD estimates by the sample-based AD estimates for setting the Reference Levels. The detailed calculations of the sample-based AD estimates are provided in the file "accuracy_assessment.xlsx", which is available on the VNFF website at http://vnff.vn/erpa-program/data/accuracy-assessment?hl=en.
2) The AGB densities/carbon densities for 2015: In the ERPD, AGB densities/carbon densities were assumed to be equal to those in 2010. In the MMR, the AGB densities/carbon densities in 2019 have been estimated based on plot measurement data of NFIMAP cycle 5 (period 2016-2020). With the new available of NFIMAP Cycle 5 data, it is possible to interpolate the 2015 AGB densities/carbon densities from those in 2010 and 2019 using the assumption that AGB densities/carbon densities change uniformly during period 2010-2019. It is commonly believed that interpolated values will have higher accuracy (i.e., less bias) than assumed values. Therefore, the use of the interpolated 2015 AGB densities complies with item 1.a in the positive list of acceptable technical corrections,[98] which said: "Replacement of emission or removal factors by others with improved accuracy based on a new National Forest Inventory or terrestrial inventory or new national/local allometric models."
3) The uncertainties of the AD, emission factors, emissions and removals: In the ERPD, uncertainties for AD, emission factors, emissions and removals are reported at the 95% CI (two-tailed). In addition, the combined uncertainties for emissions and removals were estimated using the error-propagation method. However, Indicator 9.2 of the FCPF's Carbon Fund Methodological Framework (Version 3, April 2020) requires: "Uncertainty of the estimate of Emission Reductions is quantified using Monte

[98] FCPF Guidelines on the application of the methodological framework Number 2 - On technical corrections to GHG emissions and removals reported in the reference period" version 2.0, November 2020.

Carlo methods. Underlying sources of error in data and methods for integrated measurements of deforestation, forest degradation and enhancements (e.g., as in a national forest inventory) are combined into a single combined uncertainty estimate and are reported at the two-tailed 90% confidence level." Item 3 in the positive list of allows "Corrections of material errors, omissions and misstatements identified in assumptions, data or calculations used to estimate the historical GHG emissions and removals reported in the reference period. Acceptable technical corrections include the correction of mistakes in calculations, transfer or transcript errors of data, or wrong application of IPCC default values.". Therefore, uncertainties of the AD, emission factors, emissions and removals in the Reference Levels are re-estimated using the 90% CI (two-tailed) and the uncertainties of emissions and removals are re-estimated using a Monte Carlo method.

Start Date of the Crediting Period

The Start Date of the Crediting Period is defined as 1 January 2018 as the FMT Note-3. This meets the definition of the Start Date of the Crediting Period provided in the FCPF Glossary of Terms as:

- The start date is the same (not earlier) as the start date for generating ERs;
- The start date is justified by Government of Vietnam policy and practice in terms of forest inventory implementation.
- The start date is not earlier than 1 January 2016
- The start date does not fall within the Reference Period of 2005-2015
- The ER program is in compliance with all requirements since the start date including Safeguards (see Annex I of this report), carbon accounting practices (section 4 of this report), and double counting (section 6 of this report).

7. CARBON POOLS, SOURCES AND SINKS

7.1 Description of Sources and Sinks selected

The deforestation and forest degradation sources contribute significant emissions in the ER Program. However, there also exist significant removals by sinks from forest enhancement and reforestation. The sources and sinks of the program are presented in the Table below.

Table A4-1. Selection of sources and sinks for emissions and removal accounting

Sources/Sinks	Included?	Justification/Explanation
Emissions from deforestation	Yes	Deforestation has mainly taken place in natural forests such as conversion of forests to agricultural cultivation, infrastructure development etc. In the program area, the spatial analysis of deforestation shows significant area of deforestation. The annual average forest loss is 31,822 ha for the period 2005 - 2015.
Emissions from forest degradation	Yes	Forest degradation is the gradual reduction in density of biomass due to anthropogenic variables such as illegal logging. The annual average forest area of 28,003 ha was degraded during the period 2005 – 2015 and is a significant source of emissions.

Sources/Sinks	Included?	Justification/Explanation
Removals from forest enhancement	Yes	Forest enhancement is accelerated through natural regeneration and forest enrichment. Over the past 20 years, several programs were implemented to restore forest vegetation. It is estimated that the annual average area of 16,345 ha of forests has been regenerated and enhanced during the period of 2005-2015.
Removals from reforestation	Yes	Vietnam has made great efforts in implementing reforestation programs to convert non-forests area to forested area. These programs contributed considerably to the increase of forest cover, particularly from 2000 onward. It is estimated that the annual average area of reforestation in the program area during 2005 – 2015 was about 75,822 ha.
Emissions and/or removals from conservation of carbon stock	No	The national REDD+ activities are not clearly defined for the conservation of carbon stock. Therefore, conservation of carbon stock is not accounted as it is conservatively assumed that emissions are equal to removals.
Emissions and/or removals from sustainable management of forests	No	There is unclear definition of this activity under national REDD+ scheme and there are no clear boundaries for forest areas under sustainable management. Therefore, this activity is assumed to be included in the above REDD+ activities.

7.2 Description of carbon pools and greenhouse gases selected

The selection of carbon pools and greenhouse gases for the construction of FREL/FRL in the NCR is presented the tables below:

Table A4-2. Selection of carbon pools

Carbon Pools	Selected?	Justification/Explanation
Above Ground Biomass (AGB)	Yes	This is the largest carbon pool and is impacted by the sources of deforestation and forest degradation.
Below Ground Biomass (BGB)	Yes	The BGB is a significant carbon pool. As there is no country specific data on BGB, it is estimated using IPCC 2006 default values.
Dead Wood	No	Phuong et al (2009)[99] indicates that average dead wood biomass of forests accounts for less than 2% of total AGB biomass. In addition, in the national forest inventories there are no data on dead wood. The national GHG inventories for LULUCF and national submission of reference level to UNFCCC have not included this pool. In the future, a stepwise approach is proposed to be applied in MMR to improve the measurement of this carbon pool.
Litter	No	Conservative. IPCC 2006 (Vol 4, Chapter 2) notes that Tier 1: Carbon stock of DOM is assumed to be 0 for non-forestland use categories. Litter data is not collected under the national forest inventories and this pool is also excluded in national GHG inventories and national submission of reference level. In the future, a stepwise approach is proposed to be applied in MMR to improve the measurement of this carbon pool.
Soil Organic Carbon (SOC)	No	IPCC 2006 (Ch. 4, Section 4.2.3.1) indicates that the Tier 1 approach accepting there is no change in forest soil carbon with management or soil carbon

[99] Phuong, V.T, 2008.Final report on studying forest valuation in Vietnam. Ministerial level Research Project. Research Center for Forest Ecology and Environment, Hanoi.

		change is zero for mineral soils. In Vietnam, most of the NCR area are covered by mineral soils (Sam et al 2000). Additionally, as per the "Tool for estimation of change in soil organic carbon in the implementation of A/R CDM activities", estimation is required for afforestation/reforestation activities in which site disturbance is more than 10 percent of the area (Clean Development Mechanism Executive Board 55, Annex 21). As the site disturbance in afforestation/reforestation activities is likely to be less than 10 percent of the area, it is not implemented in Reference Scenario. In the future, a stepwise approach is proposed to be applied in MMR to improve the measurement of this carbon pool.
Harvested Wood Products	No	Not required by the Methodological Framework and is thus excluded.

Regarding the GHG gases, the following gases are included in the monitoring of emissions and removals.

Table A4-3. Selection of green house gases

GHG	Selected?	Justification/Explanation
CO2	Yes	The ER Program shall always account for CO_2 emissions and removals. The emissions are caused by deforestation and forest degradation. The removals are generated from reforestation and forest enhancement.
CH4	No	Non-CO_2 gases (such as CH_4, N_2O etc.) are emitted only through incidents of biomass burning. The Initial BUR (MONRE, 2014) indicated that total non-CO_2 gases emissions caused by burning of biomass (for example, forest fire) accounted for 0.04% of the total of Vietnam's emissions. In the NCR, the non-CO_2 emissions are estimated to be less than 1% of total emissions of the region and are not significant. Therefore, non-CO_2 gases are not selected.
N2O	No	See the explanation for CH_4 above

8 REFERENCE LEVEL

8.1 Reference Period

The reference period for the ER-Program conformed to the requirements of the Carbon Fund Methodological Framework (2013), which stipulated that the reference period should be a minimum of 10 years from the latest data available prior to 2013. The newly adopted requirements of the FCPF Methodological Framework (2016) for reference period requires that the end of the reference period end date should be no later than 2 years before the first mission of the TAP (i.e. 2016 – 2 years = 2014). Vietnam has a long history of national forest inventory, monitoring and assessment program (NFIMAP) from 1990 and it is implemented through a 5-year cycle. At the time of developing the referecne level, data from the national forest inventories are only available for 1990 – 2010. Vietnam has already completed the implementation of NFIMAP period 2016-2020 (Cycle 5) and the results have been appraised and approved by VNFOREST.

Based on consultations with the TAP and CFP, it was proposed and agreed that Vietnam would update the Reference Period to 2005-2015, to meet the requirements of the Methodological Framework (2016). The year 2015 is proposed because it is consistent with Vietnam's national forest planning cycles (5 year increments beginning in 1990), and because it provides the most up to date baseline for planning future

REDD+ activities and measuring the future changes in emissions and removals. To develop this Reference Level, Vietnam generated a forest cover map for 2015 following the consistent methodologies used in NFIMAP for generating the previous 2005 and 2010 forest cover maps, and applied Emission and Removal Factors also based on consistent NFIMAP inventory data to estimate total Emissions and Removals over the Reference Period.

The forest cover map for 2010 is defined as the base map for forest type boundaries that are present across years. The 2005 forest cover map has been rectified to match 2010 cover class boundaries where such exist, and the 2010 map was used as the baseline for producing the 2015 map where the same boundaries also existed. To address the concerns raised by the TAP regarding independence of maps and introduction of errors arising when 'differencing' maps. This will also facilitate tracking the time series of change over time for individual parcels, to enable better classification of activities impacting forest cover change and to enable detection of indirect conversion of natural forest to plantation.

Vietnam is choosing to work with the 2005 and 2010 forest cover maps (rather than re-analysing the underlying imagery) because of the significant effort made by multiple international projects in developing and checking those maps, and because the forest cover maps provide the linkage to the estimates of biomass and carbon that can be assessed from the historical forest inventory programs.

8.2 Forest definition used in the construction of the Reference Level

The definition of forests used for Forest Reference Emission Level/Forest Reference Level (FREL/FRL) for Vietnam, follows the definitions provided in Circular 34 (2009)[100]. This definition is in line with the definition of forests used for the national GHG inventory[101]. It is also consistent with the definition of UNFCCC Decision 12/CP.17, categorizes an area as a forest when it meets the following three criteria:

- An ecosystem where the major component is perennial timber trees, bamboos and palms of all kinds of a minimum height of 5m (except new forest plantations and some species of coastal submerged forest species), and capable of providing timber and non-timber forest products and other direct and indirect values such as biodiversity conservation, environmental and landscape protection. New forest plantations of timber trees and newly regenerated forest plantations are identified as forests if they reach the average height of over 1.5m for slow-growing species, and over 3.0m for fast-growing species and have a density of at least 1,000 trees per hectare.
- Having a minimum tree cover of 10% for trees that constitute the major component of the forest.
- Having a minimum plot area of 0.5 ha or forest tree strips of at least 20m in width with at least three tree lines.

Forest classification is consistent with the government forest classification regulation (Circular 34). The forest stratification used for the construction of the ER-P reference level includes the following five types of forest land and non-forest land as shown in table below.

[100] Issued by Ministry of Agriculture and Rural Development in 2009.
[101] MONRE, 2014. Initial Biennial Updated Report (BUR) for 2010.

Table A4-4: Forest stratification

ID	Forest type	Code	Forest / Non-forest
1	Evergreen broadleaf forest, rich forest	EBF-R	Forest
2	Evergreen broadleaf forest, medium forest	EBF-M	Forest
3	Evergreen broadleaf forest, poor forest	EBF-P	Forest
4	Other forests	OFO	Forest
5	Plantation	PLA	Forest
6	Non-forest lands	NOF	Non-forest

8.3 Average annual historical emissions over the Reference Period

Description of method used for calculating the average annual historical emissions over the Reference Period

Vietnam considers it more transparent to present historical emissions and removals separately rather than presenting net emissions/removals. This separation allows a more adequate representation of the trends in both emissions and removals over time and it provides an improved way of monitoring the different efforts of enhancing forest carbon stocks and reducing emissions from deforestation and forest degradation. Therefore, the emission and removals are presented separately in the ER-P.

The approach for estimation of historical emissions and removals is based on Activity Data (AD) and Emission Factors (EF). AD is generated spatially using remote sensing information. To detect land use change, land use change maps are generated by overlaying land cover maps between the inventory cycles. Areas are totaled up by change class (changes between cover classes or land remaining the same) across the three map periods, and summarized in tabular form showing the total area represented as sequence of time series change.

Forest AGB densities are estimated by applying allometric equations to measurement data of National Forest Inventory, Monitoring and Assessment Program (NFIMAP). NFIMAP data exist for 2005 (Cycle 3) and 2010 (Cycle 4). At the time of submitting the ERPD in 2018, there were no NFIMAP data available for 2015, so forest AGB densities for 2015 must be estimated through some other means. Vietnam considered several alternatives including (1) averaging Cycle 3 and Cycle 4; (2) projecting the difference between Cycle 3 and Cycle 4 to get estimates for 2015; and (3) simply using the 2010 estimates, which are considered to be the most reliable, as preliminary estimates of forest AGB densities for 2015. It was decided that the third option, using 2010 forest AGB densities as proxies for 2015, is the simplest and most conservative means for estimating forest AGB densities for 2015. At present, the NFIMAP Cycle 5 has been completed, and its inventory data have been used to estimate the AGB densities in 2019, which are used to calculate the emission reductions for the Reporting period. With the new available of NFIMAP Cycle 5 data, it is possible to interpolate the 2015 AGB densities from those in 2010 and 2019 using the assumption that AGB densities change uniformly during period 2010-2019. It is commonly believed that interpolated values will have higher accuracy (i.e., less bias) than assumed values. Therefore, the use of interpolated 2015 AGB densities complies with item 1.a in the positive list of acceptable technical corrections,[102] which said: "Replacement of emission or removal factors by others with improved accuracy based on a new National Forest Inventory …".

The steps for calculating the average annual historical emissions over the Reference Period are as follows:

[102] FCPF Guidelines on the application of the methodological framework Number 2 - On technical corrections to GHG emissions and removals reported in the reference period" version 2.0, November 2020.

1) Calculation of forest carbon densities:

Forest carbon densities are calculated based on AGB densities, the root-to-shoot (RS) ratio and the carbon fraction (CF). The IPCC default value of RS, which is 0.20 for forest types having AGB densities < 125 tdm/ha (i.e., evergreen broadleaf – poor forest, other forest and plantations) and 0.24 for forest types having AGB densities ≥125 tdm/ha (i.e., evergreen broadleaf – rich forest and evergreen broadleaf – medium forest) is used (IPCC, 2006).[103] The IPCC default value of CF (0.47) is used (IPCC 2006). The formula for calculation of carbon density is as follows:

$$\overline{CD}_i = \overline{AGBD}_i \times (1 + RS) \times CF$$

Where $\overline{CD}_i$ is the carbon density of forest type *i*; $\overline{AGBD}_i$ is the AGB density of forest type *i*; *RS* is the root-to-shoot ratio; *CF* is the carbon fraction coefficient.

2) Estimation of emission factors (EFs):

After calculation of the carbon densities for each forest type in the years 2005, 2010 and 2015, these values were used to calculate the EFs for each land use land cover conversion. The carbon density of "Non-forest land" is assumed to be zero (0). The formular for estimating EFs is:

$$EF_{t1,t2,ij}(\text{tCO2e/ha}) = AF_{ij} \times \left(\overline{CD}_{t1,i} - \overline{CD}_{t2,j}\right) \times 44/12$$

Where:

- $EF_{t1,t2,ij}$ is the EF of the conversion *ij* (changed from land use/land cover *i* in year *t*1 to land use/land cover *j* in year *t*2;
- AF_{ij} are the correction coefficients for EF_{ij} and are set as follows.
    + For conversion types from a forest class to the same class, which may cause emissions or removals, *AF* = 100%.
    + For other conversion types that cause emissions, all of the emission amount is assumed to occur in the current period (i.e., *AF* = 100%).
    + For other conversion types that causes removals (e.g., conversion from EBF-Poor to EBF-Rich), an AF < 100% is applied to reduce the removal amount in the first period that the conversion occurs. This reflects the fact that the forest restoration process occurs slower over time than the change in forest carbon stock (IPCC, 2006). The correction factors for EFs are as follows: $AF = 10\% \times (t2 - t1)$ for conversion from non-forest land to plantation (i.e., 10 years are needed to fully accumulate the carbon stock of plantation); $AF = 5\% \times (t2 - t1)$ for all other conversion types which increases carbon stock (i.e., 20 years are needed to fully accumulate the carbon stock of the new forest type);
- $\overline{CD}_i$ and $\overline{CD}_j$ are, respectively, the carbon density (tC/ha) of land use/land cover *i* in 2005 (or 2010) and land use/land cover j in 2010 (or 2015). If $\overline{CD}_i > \overline{CD}_j$, this conversion will emit CO_2 to the atmosphere; Otherwise, this conversion will remove CO_2 from the atmosphere;
- 44/12 is the constant to convert from C to CO_2.

6) Estimation of emissions and removals:

[103] When the AGB density of one forest type changes from below 125 tdm/ha in one cycle to above 125 tdm/ha in another cycle or vise versa, there will be a suddent change of ~20% in the RS between cycles (from 0.20 to 0.24 or vise versa) and this will cause an artifical change in the BGB density between cycles. To avoid such artifical change in the BGB densities, the AGB densities of NFIMAP Cycle 3 were used to determine the RS for each forest type.

Based on AD generation and estimation of EFs, the emissions and removals during a period *t*1-*t*2, denoted as $E/R_{t1,t2}$, are estimated using the following formula:

$$E/R_{t1,t2} = \sum_{i=1}^{6}\sum_{j=1}^{6} AD_{t1,t2,i,j} \times EF_{t1,t2,i,j}$$

Where: $AD_{t1,t2,i,j}$ is the AD for land use change from class *i* in year *t*1 to class *j* in year *t*2; and $EF_{t1,t2,i,j}$ is the emission factor for land use change from class *i* in year *t*1 to class *j* in year *t*2.

Step 2: Calculation of annual emissions and removals during the reference period

The annual emissions and/or removals during the reference period 2005-2015 (10 years) is calculated using the following formula:

$$\overline{E/R} = \frac{E/R_{2005,2010} + E/R_{2010,2015}}{10}$$

The annual emissions during the reference period is set as the FREL and the annual removals during the reference period is set as FRL of the NCR.

Activity data and emission factors used for calculating the average annual historical emissions over the Reference Period

Activity data

Parameter:	$AD_{t1,t2,l,j}$
Description:	Area of land use and land cover conversion from type *i* in year *t*1 to type *j* in year *t*2. Types *i* and *j* run from 1 to 6 and mean as follows: 1. EBF_R; 2. EBF_M; 3. EBF_P; 4. Other forests; 5. Plantation; and 6. Non-forested land broadleafbroadleaf
Data unit:	Hectare (*ha)*
Source of data and description of measurement /calculation methods and procedures applied:	Primary data sources used for construction of reference level are NFIMAP. To date, Vietnam has completed four cycles of the NFIMAP (1991-1995; 1996-2000; 2000 – 2005; and 2006-2010) and has generated a forest cover map for 2015. All forest cover maps of the four inventory cycles plus the 2015 map have been updated using remote sensing images with automated (eCognition) and manual classification and a consistent forest definition has been prepared with the work programs supported by Finland (Karsten Raae et al., 2010), JICA (2012), MARD (Dien 2015) and UN-REDD (2015). During these updates, all forest changes within these inventory cycles are checked for errors in classification and suitable corrections are made to the forest cover maps by reviewing the satellite imagery taken near the time of map creation. Under the ER-P, the updated forest cover maps of Cycle 3 (2000-2005) and Cycle 4 (2006-2010) for NCR and six provinces of NCR were again updated. The 2005 cover class boundaries were matched to the same boundaries where they existed in 2010. The 2010 cover map was used as the baseline, where identical boundaries existed, for establishing the 2015 map. IPCC Approach 3 was used to develop spatially disaggregated AD using updated forest cover maps for 2005, 2010, and 2015 based on remote sensing images (Landsat, Spot 5). Successive maps are overlaid to detect the land use changes for 2 sub-periods 2005 – 2010 and 2010 – 2015. Land use changes for the periods are then aggregated by time series (2005-2010-2015) for NCR.
Value applied	

REDD+ activities	**2005-2010 (ha)**	**2010-2015 (ha)**
Enhancement	**263,549**	**298,515**
2. EBF_M to 1. EBF_R	18,424	8,614
3. EBF_P to 1. EBF_R	0	34

3. EBF_P to 2. EBF_M	41,799	62,365
4. Other forest to 1. EBF_R	0	0
4. Other forest to 2. EBF_M	0	6
4. Other forest to 3. EBF_P	21,737	5,895
4. Other forest to 5. Plantation	2,728	11,765
5. Plantation to 1. EBF_P	0	3
5. Plantation to 2. EBF_M	0	24
5. Plantation to 3. EBF_P	0	3,593
6. Non forest to 1. EBF_R	0	11
6. Non forest to 2. EBF_P	0	137
6. Non forest to 3. Other forest	159,815	168,407
6. Non forest to 4. Other forest	19,046	37,664
Stable forest	**2,179,707**	**2,302,631**
1. EBF_R to 1. EBF_R	199,241	157,004
2. EBF_M to 2. EBF_M	394,404	413,901
3. EBF_P to 3. EBF_P	1,045,638	1,094,370
4. Other Forest to 4. Other Forest	103,945	101,032
5. Plantation to 5. Plantation	436,479	536,324
Deforestation	**106,703**	**139,238**
1. EBF_R to 6. Non-Forest	632	801
2. EBF_M to 6. Non-Forest	5,708	3,336
3. EBF_P to 6. Non-Forest	75,213	112,974
4. Other Forest to 6. Non-Forest	25,150	22,127
Degradation	**185,299**	**255,874**
1. EBF_R to 2. EBF_M	34,850	65,079
1. EBF_R to 3. EBF_P	8,801	2,453
1. EBF_R to 4. Other Forest	54	9
1. EBF_R to 5. Plantation	424	2
2. EBF_M to 3. EBF_P	84,110	39,377
2. EBF_M to 4. Other Forest	892	126
2. EBF_M to 5. Plantation	1,606	80
3. EBF_P to 4. Other Forest	14,035	12,472
3. EBF_P to 5. Plantation	8,290	40,889
5. Plantation to 4. Other forest	8	117
5. Plantation to 6. Non forest	32,227	95,269
Reforestation	**181,158**	**147,590**
Non-forest_Plantation	181,158	147,590
Stable non forest	**2,228,105**	**2,000,671**
Total	**5,144,520**	**5,144,520**

QA/QC procedures applied:	The reports on the process of generation forest cover maps were appraised by scientific committees before approval.
Uncertainty associated with this parameter:	Key uncertainties for determining the above parameters are misclassification of forest types, particularly the changes in forest types to detect forest degradation and forest enhancement. In addition to the use of remote sensing information, such detection also requires ground survey data and information, therefore errors of ground survey including measurement and sampling errors are considered the key sources of uncertainties for identifying forest degradation and forest enhancement. A total of 55*4* points are sampled and checked for analysis for 6 mentioned land use categories for 2005 – 2010 and 55*6* points for 2010-2015. Olofsson's Method[104] is used to estimate

[104] Good practices for estimating area and assessing accuracy of land change.

	accuracy. The accuracy assessment results show that at 90 % confidence interval, the overall accuracy of land use change detection is 95.4% for the changes in 2005 – 2010 and 94.4% for changes in 2010-2015. The uncertainties for period 2005-2010 and period 2010-2015 are as follows: **Type of change** / **2005-2010 uncertainty (90% CI)** / **2010-2015 uncertainty (90% CI)** Deforestation / 23.37% / 13.65% Forest degradation / 9.65% / 20.49% Reforestation / 8.14% / 7.13% Forest enhancement / 5.67% / 27.37% Stable forest / 3.38% / 3.51% Stable non-forest / 3.09% / 3.68%
Any comment:	*None*

Emission factors

Parameter:	$AGB_{t,i}$ (t = 2005, 2010 or 2015; $1 \leq i \leq 5$)
Description:	Forest AGB density of forest type i at year t.
Data unit:	Tonne of dry matter per ha (tdm/ha)
Source of data or description of the method for developing the data including the spatial level of the data (local, regional, national, international):	Forest AGB densities are estimated using national allometric equations and plot measurement data (DBH) of NFIMAP cycle 3 (for 2005), cycle 4 (for 2010), and cycle 5 (for 2019). AGB densities for 2015 are interpolated from AGB densities for 2010 and 2019 using the assumption that AGB density change in period 2010-2019 is uniform. The Cycles 3 and 4 inventory data came from a systematic sample across all forest lands. All forest conditions (including REDD+ Activities) are sampled in proportion to the area in which they occur, and are thus reflected in the estimates of AGB. This includes all examples of forest plantation in existence during 2001-2010 (the period of NFIMAP Cycles 3 and 4). The biomass equations are available for evergreen broadleaf forests (including plantations) and bamboo forest. Belowground Biomass is estimated using IPCC default value of 0.24 for forest classes with AGB > 125 tdm/ha, and 0.20 for forest classes with AGB < 125 tdm/ha[105]. The total forest carbon is estimated using carbon faction (CF = 0.47). The carbon density of post – deforestation non-forest land is assumed to be zero tC/ha. The carbon density of non-forested land (such as rocky mountain, resident and water areas and other land) is assumed to be zero tC/ha (IPCC 2006 default values). The sources of data used for development of emission factors (EF) are dataset of plot measurement of Secondary Sample Unit (SSU) under NFIMAP cycle 3 (2001-2005, for 2005 EF), cycle 4 (2006-2010 for 2010 EF), cycle 5 (2016-2020 for 2019 EF). The EF for 2015 is interpolated

[105] Table 4.4. of IPCC 2006. AGB of forests values in Vietnam are less than 125 tdm/ha except for Evergreen broadleaf forest – Rich and Evergreen broadleaf forest – Medium, which have AGB > 125 tdm/ha

<table>
<tr><td></td><td>from the EF for 2010 and 2019. For cycles 3 and 4, the area of SSU is 500 m2 (20 x 25 m). This dataset has been reviewed ad updated several times during the study by JICA and for the preparation of the national reference level for REDD+ (JICA 2012; MARD, 2015). The use of this dataset is consistent with the national reference level. There are 23,720 SSUs of 593 Primary Sample Units (PSUs - 1 ha each) for cycle 3 and 16,080 SSUs of 402 PSUs for cycle 4 in the NCR region and this dataset includes information in tree species name, DBH, tree height. That information is used to apply in national allometric equations[106] to estimate AGB for evergreen broadleaf forests, bamboo forests and plantation. The AGB is estimated at tree level, then scale up to plot level and to a hectare of forests. Based on estimated AGB and IPCC default value of root to shoot ratio and carbon fraction, the forest carbon densities of different forest types are calculated. Only the other forests which include bamboo and mangrove forests, the carbon density of mangroves is estimated based on scientific literature review report (Phuong et al 2016). Based on carbon densities estimated for forest types, the EF is calculated</td></tr>
<tr><td>Value applied:</td><td>
<table>
<tr><th rowspan="2">Forest types</th><th colspan="2">2005</th><th colspan="2">2010</th><th colspan="2">2015</th></tr>
<tr><th>Value (tdm/ha)</th><th>U (%)</th><th>Value (tdm/ha)</th><th>U (%)</th><th>Value (tdm/ha)</th><th>U [a] (%)</th></tr>
<tr><td>1.EBF_R</td><td>293.85</td><td>12.85</td><td>254.87</td><td>8.57</td><td>241.10</td><td>4.57</td></tr>
<tr><td>2. EBF_M</td><td>127.59</td><td>1.62</td><td>124.08</td><td>2.25</td><td>126.79</td><td>1.70</td></tr>
<tr><td>3. EBF_P</td><td>55.98</td><td>3.88</td><td>51.62</td><td>5.15</td><td>61.56</td><td>3.95</td></tr>
<tr><td>4. Other forests</td><td>23.34</td><td>8.81</td><td>26.38</td><td>14.83</td><td>36.98</td><td>13.14</td></tr>
<tr><td>5. Plantations</td><td>37.14</td><td>29.75</td><td>41.70</td><td>21.01</td><td>44.32</td><td>10.49</td></tr>
</table>
[a] The uncertainties of 2015 AGB densities are calculated from those of 2010 and 2019 AGB densities using the Monte Carlo simulation method with 10.000 iterations.
</td></tr>
<tr><td>QA/QC procedures applied</td><td>The data processing and carbon densities calculation process was appraised by a scientific committee before approval.</td></tr>
<tr><td>Uncertainty associated with this parameter:</td><td>See the table in the "Value applied" field.

The significant uncertainties for estimating emission and removal factors are associated with uncertainties of forest carbon density estimation and AD of land use changes. The key uncertainty of forest AGB density estimation is a propagation uncertainty of parameters used for the estimation. Such uncertainties include models for estimating forest above biomass, plots measurement error, and sampling error as mentioned above. However, of those potential uncertainty sources, the error of allometric models and measurement error are not applicable to uncertainties analysis for the parameters as there is no data and information.</td></tr>
<tr><td>Any comment:</td><td>None</td></tr>
</table>

[106] Under the support of UNREDD, Vietnam has developed allometric equations for aboveground biomass estimation for several forest types such as evergreen broadleaf forests, bamboo forests and deciduous forests. Those equations are also available to use for national level and eco-region (northeast, north central coast, central highland, southeast).

8.4 Estimated Reference Level

ER Program Reference level (updated)

The updated annual reference level for ERP for 2018-2025 is 12.9 million tCO_2-e of emissions and -6.6 millions tCO_2-e of removals. Comparing to the reference level presented in ERPD, the updated annual emission and removal reference levels are higher than that of ERPD. Annual emission reference level is 2.0 million tCO_2-e (or 18%) higher (in ERPD it was 10.9 million tCO_2-e) and it is 0.3 million tCO_2-e (or 5%) lower in the updated removal reference (-6.3 million tCO2-e for removal reference in ERPD).

Table A4-5. Estimated emissions and removal reference level for ERP

Crediting Period year *t*	Average annual historical emissions from deforestation over the Reference Period (tCO_{2-e}/yr)	If applicable, average annual historical emissions from forest degradation over the Reference Period (tCO_{2-e}/yr)	If applicable, average annual historical removals by sinks over the Reference Period (tCO_{2-e}/yr)	Adjustment, if applicable (tCO_{2-e}/yr)	Reference level (tCO_{2-e}/yr)
2018	2,646,198	10,263,974	-6,648,726	NA	6,261,446
2019	2,646,198	10,263,974	-6,648,726	NA	6,261,446
2020	2,646,198	10,263,974	-6,648,726	NA	6,261,446
2021	2,646,198	10,263,974	-6,648,726	NA	6,261,446
2022	2,646,198	10,263,974	-6,648,726	NA	6,261,446
2023	2,646,198	10,263,974	-6,648,726	NA	6,261,446
2024	2,646,198	10,263,974	-6,648,726	NA	6,261,446
2025	2,646,198	10,263,974	-6,648,726	NA	6,261,446

Calculation of the average annual historical emissions over the Reference Period

The average annual historical emissions (resulted from deforestation and forest degradation) and removals (generated by reforestation and forest enhancement) are estimated separately over the reference period 2005 – 2015. The estimation is based on AD and EFs and the steps implemented are as follows:

1) Develop emissions and removal matrices of provinces

Using the AD (land use change matrix) of the provinces (for 2005 -2010 and 2010 – 2015) and EF/RF, emissions and removal matrices are prepared for provinces for 2005 – 2010 and 2010 - 2015. Those matrices indicate emissions associated with deforestation and forest degradation and removals resulted from reforestation and forest enhancement[107]. The EF used in this analysis represent the average tCO2e/ha for each forest type, based on a statistical sample across the landscape.

For land cover changes which result in emissions, the entire expected emission is assumed to occur over the time period in question. For land cover changes which result in removals (e.g., forest which increases from poor to medium or medium to rich quality), we apply an Adjustment Factor (AF) ranging from 25%

[107] The detailed calculations are available in a separate spread sheet.

to 50% to reduce the expected removals in the year they are first observed. This recognizes that forest accretion occurs more slowly over time than do forest removals (IPCC 2006).

The Adjustment Factors consist of:

- 25% per 5-year inventory cycle for forest land which changes to a higher biomass type. A 25% AF implies an expectation that 4 inventory cycles (20 years) are required for the full accretion of biomass to occur.
- 50% per 5-year inventory cycle for non-forest land which becomes forest plantation. At 50% AF implies 2 inventory cycles (10 years) required for full biomass accretion to occur.

2) Calculate emissions and removals for provinces:

Emissions and removals are accounted for all provinces in NCR based AD and EF using spreadsheet, then aggregated to the provincial scale for the period of 2005 – 2015[108].

3) Estimate emissions and removals for NCR

After the emissions and removals of provinces are estimated, they are aggregated for NCR for 2005 – 2010, 2010-2015, and then 2005 – 2015. Based on the adjusted AD resulted from accuracy assessment of forest cover maps, the emissions and removals are re-estimated for NCR. The final emissions and removals for 2005 – 2015 for NCR.

8.5 Upward or downward adjustments to the average annual historical emissions over the Reference Period (if applicable)

Not applicable. Vietnam is not making an upward or downward adjustment.

8.6 Relation between the Reference Level, the development of a FREL/FRL for the UNFCCC and the country's existing or emerging greenhouse gas inventory

The Reference Level prepared for the NCR is consistent with Vietnam's Submission on Reference Level for REDD+ Results Based Payment to the UNFCCC. The consistencies include the methodology for RL/REL construction such as forest definition, regional stratification, carbon pools, gases, generation of Emission Factors and Activity Data, and use of NFIMAP dataset etc. The construction of Vietnam's Reference Level for the UNFCCC is based on aggregated emissions and removals estimated for eight agro-ecoregions. However, the Reference Level for the NCR is based on a sum of emissions and removals of six provinces in the NCR. The Reference Level for the NCR can be considered as a part of Vietnam's Reference Level for the UNFCCC. The difference between such Reference Levels is the reference period. The Vietnam's Reference Level for UNFCCC is from 1995 – 2010, however, for the NCR it is 2005 – 2015. Such difference is derived from the different requirements for the Reference Level of the UNFCCC and FCPF. One additional difference is that the area estimates for Activity Data produced under the FCPF have been adjusted for bias (following the methods of Olofsson et al 2014); such adjustment was not made to the UNFCCC FREL/FRL.

With regards to the National Greenhouse Gases Inventory (GHGI), the Reference Level relates to the GHG inventory in LULUCF, particularly the Initial Biennial Updated Report (BUR1) of Vietnam for 2010 and the Second Biennial Updated Report (BUR2) for 2014. To date, Vietnam has prepared national GHG

[108] As footnote above. The detailed calculations are available in a separate spread sheet.

inventories for 1994, 2000 and 2010. The estimation of emissions and removals in Reference Level for NCR is more consistent with BUR in terms of forest definition, carbon pools and gases. However, the AD used in the BUR is mainly based on national statistics. Vietnam is in the process of preparing the third BUR and the preparation of Reference Level can contribute to an improvement of estimating the emissions and removals in LULUCF by using the best available forest data generated from remote sensing information and allometric equations for biomass estimation.

Vietnam will consider the improved FCPF methodology of AD and EF estimation for future national GHG inventory updates for LULUCF, which will increase the consistency in reporting. Specifically, Vietnam will continue periodic forest cover mapping under the proposed MMR program, and this consistent mapping will be used for future GHG inventory updates as well as ER reporting. Similarly, Vietnam will update the Emission Factors through the NFIMAP, and will use those data for future national GHG inventory and ER reporting. Finally, Vietnam will explore the utility in including additional carbon pools (soil carbon, dead wood, litter) and any pools which are quantified will be included in both GHG inventory and ER reporting.

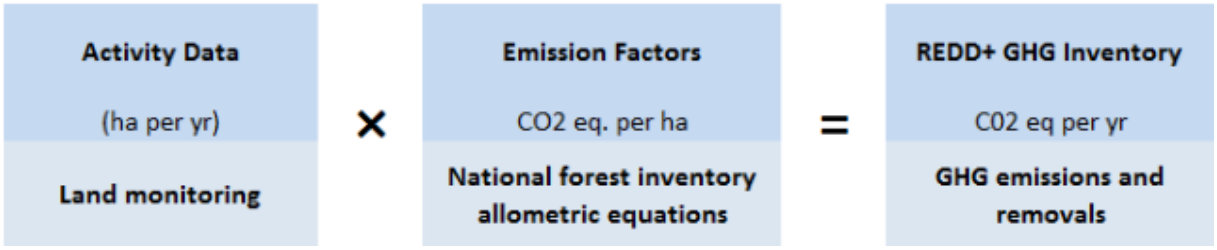
9 APPROACH FOR MEASUREMENT, MONITORING AND REPORTING

9.1 Measurement, monitoring and reporting approach for estimating emissions occurring under the ER Program within the Accounting Area

Line diagrams

The approach for estimating emissions and removals follows the IPCC guidelines, multiplying the activity data (AD) with the emission factors (EF) (**Figure A4-1**)[109].

Figure A4-1: Approach for estimation of emissions and removals



Calculation steps

Monitoring activity data for forests using remote sensing:

To maintain the consistency with historical forest cover maps (FCMs) used in FREL/FRL setting, the approach under the measurement, monitoring and reporting (MMR) of the ER-P to generate FCM year X is proposed as follows: (1) using medium resolution remote sensing imagery to identify the potential forest change areas compared to the base FCM year X-n, where n is either 4 or 5; (2) using ground surveys and/or high resolution remote sensing imagery to delineate all identified areas of changes; (3) reference all final forest strata boundaries to the boundaries existing in the base FCM year X-n, with the forest cover map year X-n as the original basis, to produce the FCM year X. The **Figure A4-2** summarizes the processing

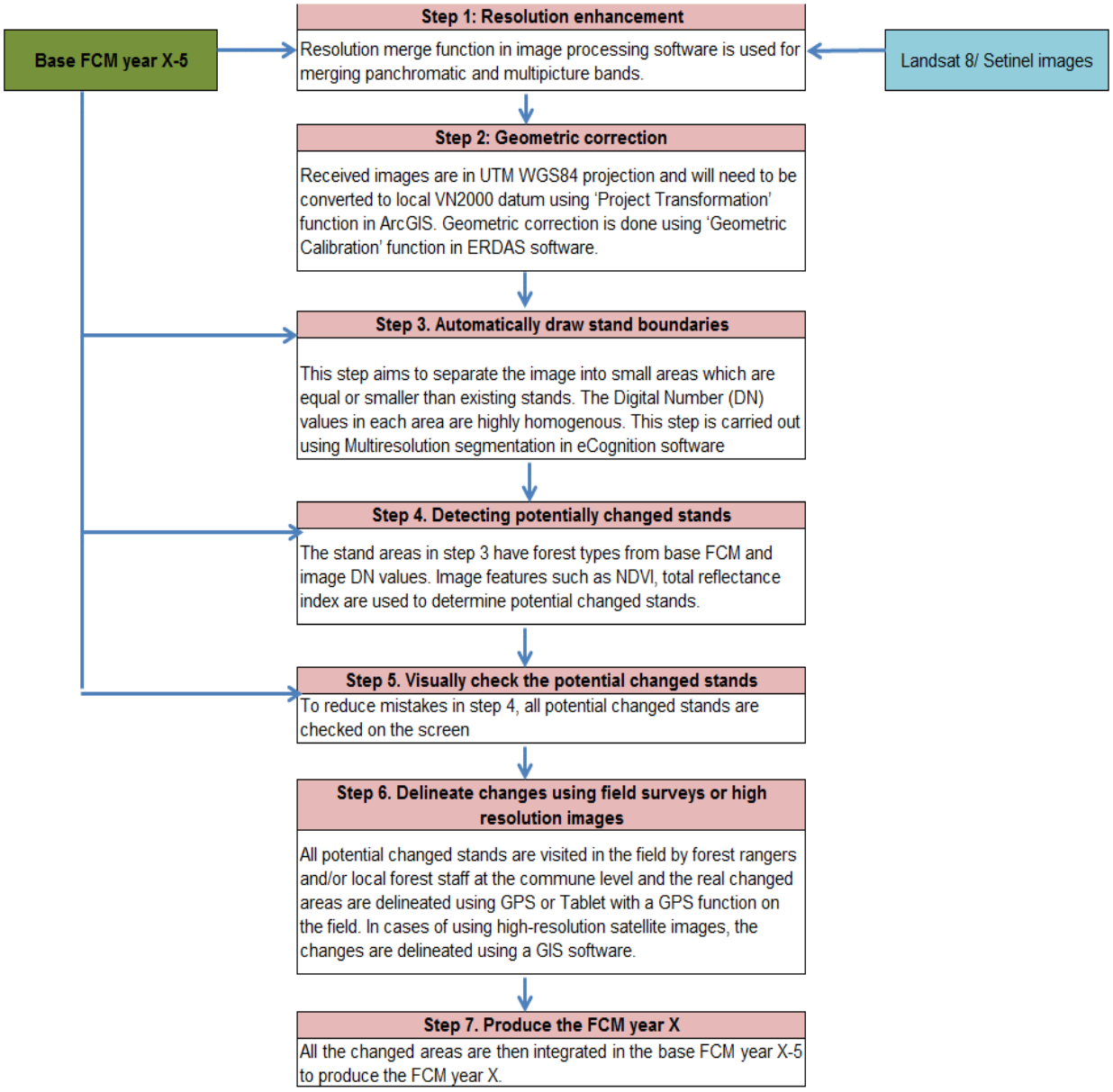
[109] The forest definitions, stratifications, REDD+ activities, carbon pools and gases to be monitored, change matrix are all standardized and follow those already described in Section 8.

steps applying Approach 3 for generating the FCM year X based on medium-resolution satellite images and the FCM year X-n.

The land cover for monitoring includes 6 following types that are consistent with that used in construction of reference level for the ERP:

- Evergreen broadleaf - Rich (EBF-R)
- Evergreen broadleaf - Medium (EBF-M)
- Evergreen broadleaf - Poor (EBF-P)
- Other forest
- Plantations
- Non-forest land

Figure A4-2: Approach for generation of the FCM year X from base FCM year X-n (n = 4 or 5)



All forest and bare land stands in the baseline map are examined based on medium resolution satellite images such as Landsat 8 and/or Sentinel 2. The image features of each stand are calculated for examination. For example, low homogeneity value in a stand indicates a potential change of forest type in the stand; high normalized difference vegetation index (NDVI) value in the bare land stand indicates a potential change from bare land to forest etc. Currently Landsat 8 and Sentinel 2 images are considered to be the most suitable[110].

As for Step 6, high resolution images such as VNREDSat-1, SPOT-6, and SPOT-7 which could be used. One advantage of delineating the changes using GPS or tablet that this process can allow identification of the causes of forest changes.

Generating a forest and land cover change map and matrix:

By using the above procedure, FCM year X are generated for each province in the NCR in a manner consistent with the methods used to generate the forest cover maps used in 2005-2010-2015 for the Reference Level. Each successive map has its boundaries registered to the previous map to maintain consistency in the time series over time. The provincial forest and land use change maps period year X-n to year X are generated by intersecting the provincial FCMs in year X with the corresponding provincial FCMs in year X-n for all the NCR provinces. They are then combined to generate a regional NCR forest and land cover change map. Finally, the resulting areas of Activity Data are adjusted based on statistical analysis of the accuracy assessment described below (e.g. the methods of Olofsson 2014).

The NCR forest and land cover change maps are used to update the time series database of change sequences for individual parcels. The time series for individual parcels are tracked over time to improve the classification of the Activity Data (deforestation, degradation, reforestation, etc.) and to identify areas where forests grow. Adjustment Factors are applied to adjust (reduce) the rates of Removals for land changing from a lower biomass to higher biomass forest class. Land parcels which transition from forest to non-forest, then later from non-forest to plantation, are counted for FCPF purposes as Reforestation/Afforestation; they are tracked as a separate forest-to-plantation class, and the conversion from non-forest to plantation on these land parcels are not counted as Carbon Removals.

Estimating emission factors:

Dataset of NFIMAP cycle 5 (2016-2020) and cycle 6 (2021-2025) is used for the construction of emission factors. The use of this dataset is consistent with the national reference level and the datasets include measurement data of secondary sample units (SSUs) in primary sample units (PSUs)[111].

Sampling design:

After the completion of Cycle 4, of NFIMAP, Vietnam received support from FAO-Finland through the "Support to National Assessment and Long-term Monitoring of the Forest and Trees Resources in Vietnam (NFA)" Project to improve the sampling design of the NFIMAP to be implemented in the 2016-2020 and subsequent cycles. The NFA Project has successfully developed an improved sample plot system that maintains the consistency with the old sample system but is more efficient. This improved sampling design was reviewed by international experts from United States Forest Service and the World Bank and was highly regarded. This sampling design was chosen in the NFIMAP period 2016-2020 or cycle 5 (under the National Target Programme for Sustainable Forest Development period 2016-2020).

[110] The Landsat 8 satellite image include a spatial resolution of 30 m, image size 180 x 180 km, and revisit cycle of 16 days. The characteristics of Sentinel 2 satellite images include spatial resolution of 10m, a swath width of 290km and a five day revisit cycle. Both types of satellite images are free of charge.

[111] The datasets are available at FIPI. The access of the data needs to be authorized by VNForest

Since this is a systematic sample across the landscape, it will capture any changes in carbon removals occurring due to the ER program interventions and other forest management activities, in proportion to the area of the activities across the landscape. This improved sample plot system is also function as part of the national Measurement, Reporting and Verification (MRV) system for REDD+. Therefore, in order for the MMR system in the NCR be consistent with the emerging national MRV system, the improved sample plot system proposed by the NFA Project is selected for generating the EFs for the MMR system in the NCR.

The sample plots system is designed by the systematic method covering whole six provinces (Thanh Hoa, Nghe An, Ha Tinh, Quang Binh, Quang Tri and Thua Thien Hue). On each intersection (grid point) one PSU is established (see Error! Reference source not found.**).**

Main parameters of the sampling design are:

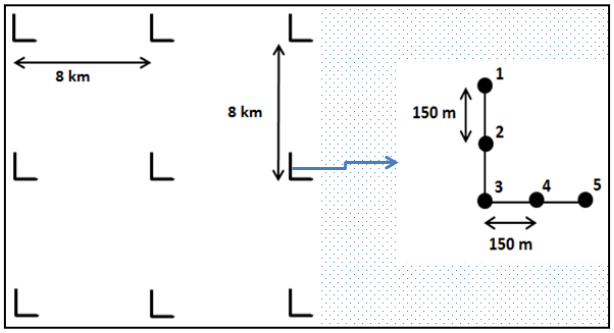
The distance between the PSUs is 8km x 8km;

The PSU is in L shape;

The number of the SSUs in one PSU is five; and

The distance between the SSUs is 150m.

Figure A4-3: Shape and distance between PSUs



In NFIMAP cycle 5, there are 453 PSUs with 2,265 SSUs in the NCR. The numbers of PSUs and SSUs per provinces are provided in Table A4-6. The precise locations of the PSUs will be kept confidential, so as to avoid possible manipulation of the results over time.

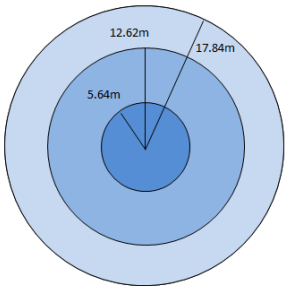
Table A4-6: The number of PSUs and SSUs by provinces in the NCR

No	Province	Number of PSUs	Number of SSUs
1	Thanh Hoa	84	420
2	Nghe An	160	800
3	Ha Tinh	42	210
4	Quang Binh	75	375
5	Quang Tri	45	225
6	Thua Thien Hue	47	235
Total		**453**	**2,265**

Plot design:

During the implementation of NFIMAP cycle 5, the field inventory of the PSUs has been conducted in three years from 2017-2019. The plot design proposed by the NFA Project has been piloted in 2017. The details of this plot design are as follows: One SSU consists of three concentric circular sub-plots with radiuses of 5.63 m (SP1), 12.62 m (SP2) and 17.84 m (SP3), respectively (http://vnff.vn/erpa-program/data/emission-factors?hl=en). The distance mentioned here refers to horizontal distance.

Figure A4-4: Sample plot design for SSU in 2017



- Sub-plot with the area of 100 m^2 and radius of 5.63m (SP1): Measuring trees with DBH ≥ 6 cm; measuring bamboos with DBH ≥ 2 cm
- Sub-plot with area of 500m^2 and radius of 12.62m (SP2) to measure): trees with DBH ≥ 15 cm
- Sub-plot with area of 1,000m^2 and radius of 17.84m (SP3) to measure): trees with the DBH > 25cm

However, after piloting the plot design described above, it is recognized that this plot design is quite complicated for implementation. Therefore, the plot design has been modified for field inventory in 2018 and 2019. The modifications are as follows: (1) the SSU area is 500 m^2 for plantation forest and 1000 m^2 for other LULC types; and (2) all trees with DBH ≥ 6 cm are measured in the SSU area (i.e., the three concentric circular sub-plots are not utilized). The area for measuring bamboos remains the same as in 2017.

Although the inventory plot design in NFIMAP cycle 5 is changed compared with previous NFIMAP cycles 3 and 4, which have been used for establishing the FREL/FRL, the sampling method (i.e., systematic sampling with a grid size of 8 km) is maintained. The change is mainly in the SSU design. From the equations to calculate the mean values of AGB densities for these plot designs, it can be seen that these changes will not affect the mean values of the AGB densities, but only affect the standard errors of the mean values. Consequently, these changes will not cause a bias (i.e., a systematic error) of the change between the means of AGB densities in a period, but only affect the uncertainty of the change. Therefore, it can be said that the Monitoring Period uses an equivalent method of field inventory design with that used to set the Reference Level.

Estimation of AGB densities for all forest types in 2019:

The aboveground biomass (AGB) of individual trees in the SSUs will be estimated using AEs developed by UN-REDD Vietnam for NCR (Gael Sola et al, 2014). Under the UN-REDD Vietnam, a number of AEs for tree level biomass estimation are developed for national and major eco-regions (northeast, NCR, central highland and southeast). A single equation is also developed for national scale application. The equations are prepared for evergreen broadleaf forests, deciduous forests and bamboo forests that cover most forest area in Vietnam, particularly evergreen broadleaf forests. There are several choices available for using the developed AEs depending on data availability measured such as DBH only; DBH and tree height; and DBH, tree height and wood density (WD). The AEs using different predictors have different accuracies. Of these three predictors, DBH can be measured quite accurately. The NFIMAP data can only estimate the tree heights and WD of woody trees indirectly via height curves and species identification, which can generate additional but often unknown uncertainty. Therefore, tree height and WD are not used as predictors for forest carbon density estimation in this work.

Calculation of aboveground biomass (AGB) for individual trees and bamboos:

1) AGB estimation of trees in evergreen broadleaf forests (including plantations): the following AE is used (Huy, 2014):

$$AGB = 0.121155 \times DBH^{2.415395}$$

(observation = 311; MAE% = 33.6%; adjusted R^2 = 0.854)

Where:

AGB is above ground biomass expressed in kg;
DBH is diameter at breast height expressed in cm;

2) Aboveground biomass estimations for bamboo forests, the equations used are based on bamboo species. The equations are as follows (Phuong *et al*, 2014).

- *Bambusa balcooa*:

  $AGB = 0.0612 \times DBH^{2.0848} \times H^{0.2778}$

  (observation = 120; MAE% = n.a; adjusted R^2 = 0.875)

- *Dendrocalamus membranaceus*:

  $AGB = 0.1012 \times DBH^{1.9667} \times H^{0.2778}$

  (observation = 100; MAE% = 16%; adjusted R^2 = 0.875)

- *Bambusa chirostachyoides*:

  $AGB = 0.3558 \times DBH^{1.2154} \times H^{0.2778}$

  (observation = 120; MAE% = n.a; adjusted R^2 = 0.875)

- *Indosasa angustata*:

  $AGB = 0.2829 \times DBH^{1.4306} \times H^{0.2778}$

  (observation = 70; MAE% = n.a; adjusted R^2 = 0.875)

Where:

AGB is above ground biomass expressed in kg;

DBH is diameter at breast height expressed in cm;

H is the height expressed in m.

For other bamboo species, one of the above four equations, which species has the most similar characteristics with the species in question, are applied.

Calculation of AGB density for each SSU

SSUs of NFIMAP in cycles 3 and 4 have rectangular shape with the size of 25 m x 20 m (an area of 0.05 ha). All trees with DBH ≥ 6 cm are measured in this area. SSUs of NFIMAP in cycle 5 were measured in three years 2017, 2018 and 2019. The plot design of NFIMAP Cycle 5 has been changed after the pilot year 2017. For SSUs measured in 2017, each SSU includes three consensus circular sub-plots with the areas of 0.01 ha (to measure trees of DBH class 1: from 6 to < 15 cm), 0.05 ha (to measure trees of DBH class 2: from 15 to 25 cm) and 0.1 ha (to measure trees of DBH class 3: > 25 cm), respectively. For SSUs measured in 2018 and 2019, each SSU is a circular plot having an area of 0.05 ha for plantation forest or 0.1 ha for other land use and forest types.

The AGB density (tdm/ha) of trees in each SSU is calculated by the following formula:

$$AGBD\_T_i = \sum_{j=1}^{nt_i} \frac{AGB\_T_{ij}}{1000} \times \frac{1}{a_{ij}}$$

Where $AGBD\_T_i$ is the AGB density (tdm/ha) of all trees in SSU *i*; nt_i is the number of trees measured in SSU *i*; AGB_T_{ij} is the AGB (kg) of the *j*th tree in SSU *i*; and a_{ij} is the area (ha) of the sub-plot in which the *j*th tree in SSU *i* is measured. For SSUs measured in cycles 3 and 4, a_{ij} = 0.05 ha. For SSUs measured in 2017 of cycle 5, a_{ij} = 0.01 ha if the tree in question is of DBH class 1; a_{ij} = 0.05 ha if the tree is of DBH class 2; and a_{ij} = 0.1 ha if the tree is of DBH class 3. For SSUs measured in 2018 and 2019 of cycle 5, a_{ij} = 0.05 ha for all trees in SSUs of plantation forest and a_{ij} = 0.1 ha otherwise.

Since the area of bamboo measurement in each SSU of cycles 3, 4 and 5 is 0.01 ha, the AGB density (tdm/ha) of bamboos in each SSU is calculated by the following formula:

$$AGBD\_B_i = \sum_{j=1}^{nb_i} \frac{AGB\_B_{ij}}{1000} \times \frac{1}{0.01} = \sum_{j=1}^{nb_i} \frac{AGB\_B_{ij}}{10}$$

Where $AGBD\_B_i$ is the AGB density (tdm/ha) of all bamboos in SSU *i*, nb_i is the number of bamboos in SSU *i*, and AGB_B_{ij} is the AGB (kg) of the *j*th bamboo in SSU *i*.

The AGB density (tdm/ha) of living biomass (here assumed to include only trees and bamboos) in SSU *i*, denoted as $AGBD_i$, is estimated using the following formula:

$$AGBD_i = AGBD\_T_i + AGBD\_B_i$$

Calculation of mean AGB densities for forest types in 2019

The last field inventory year of NFIMAP cycle 5 is 2019. Therefore, the AGB densities calculated from data of NFIMAP cycle 5 can be considered as the AGB densities for the year 2019.

The mean AGB density (tdm/ha) of forest type *i*, denoted as $\overline{AGBD}_i$, is the weighted mean of the AGB density over all SSUs in this forest type with the area of each SSU as the weights.

$$\overline{AGBD}_i = \frac{\sum_{j=1}^{np_i} \sum_{k=1}^{ns_{ij}} AGBD_{ijk} \times a_{ijk}}{\sum_{j=1}^{np_i} \sum_{k=1}^{ns_{ij}} a_{ijk}}$$

Where np_i is the number of PSUs in forest type *i*; ns_{ij} is the number of SSUs in PSU *j* in forest type *i*; $AGBD_{ijk}$ is the AGB density (tdm/ha) of living biomass of SSU *k* in PSU *j* in forest type *i*; and a_{ijk} is the area (ha) of SSU *k* in PSU *j* in forest type *i*.

Regarding the "Other forests" category (i.e., a combination of bamboo and mangrove forests), its mean AGB density is calculated using weighted mean as follows:

$$\overline{AGBD}_o = \frac{\overline{AGBD}_b \times A_b + \overline{AGBD}_m \times A_m}{A_b + A_m}$$

Where: $\overline{AGBD}_b$ is the mean AGB density (tdm/ha) of bamboo forest calculated from its biomass using equations and plot data;
Ab is area (ha) of other forest excluding mangrove forest derived from a forest cover map;
$\overline{AGBD}_m$ is the mean AGB density (tdm/ha) of mangrove forest;
Am is area (ha) of mangrove forest derived from a forest cover map.

Regarding the mangrove forests, there are no measurement plots in PSU in mangrove forests, however there are a number of studies on biomass of mangroves. A review report on biomass and carbon stock suggests that the average weighted carbon density for mangrove forest in the North (Northeast, NCR and South Central Coast) is 35.2 tC/ha and in the South (Southeast and Southwest) is 64.4 tC/ha and at national level is 58.0 tC/ha (Phuong *et al*, 2015). Using the default root-to-shoot ratio of 0.2 and the default carbon

fraction of 0.47 in the 2006 IPCC guidelines (IPCC 2006), the mean AGB density for mangrove forest is calculated to be 62.4 tdm/ha.

Interpolation of the mean AGB densities for forest types in 2015

With the assumption that AGB densities change uniformly over the period 2010-2019, the AGB density for one forest type in 2015 is interpolated from AGB densities for that forest type in 2010 and 2019 using the following formula.

$$\overline{AGBD}_{2015} = \overline{AGBD}_{2010} + 5 \times \frac{\overline{AGBD}_{2019} - \overline{AGBD}_{2010}}{9}$$

Where: $\overline{AGBD}_{2010}$, $\overline{AGBD}_{2015}$, and $\overline{AGBD}_{2019}$ are the mean AGB densities in the years 2010, 2015, and 2019, respectively.

Parameters monitored:

Parameter:	$AD3_{ij}$ ($1 \le i \le 6$; $1 \le j \le 6$)
Description:	Area of land use and land cover conversion from type *i* in 2015 to type *j* in 2019. Types *i* and *j* run from 1 to 6 and mean as follows: 1. EBF-R; 2. EBF-M; 3. EBF-P; 4. Other forests; 5. Plantation; and 6. Non-forested land.
Data unit:	Hectare (ha)
Value monitored during this Monitoring / Reporting Period:	

REDD+ activities	AD 2015-2019 (ha), 90% CI
Enhancement	**101,535**
2. EBF_M to 1. EBF_R	847
3. EBF_P to 1. EBF_R	0
3. EBF_P to 2. EBF_M	8,388
4. Other forest to 1. EBF_R	0
4. Other forest to 2. EBF_M	4
4. Other forest to 3. EBF_P	284
4. Other forest to 5. Plantation	4,504
5. Plantation to 1. EBF_P	0
5. Plantation to 2. EBF_M	29
5. Plantation to 3. EBF_P	272
5. Plantatation to 4. Other forest	10,447
6. Non forest to 1. EBF_R	2
6. Non forest to 2. EBF_P	38
6. Non forest to 3. Other forest	53,104
6. Non forest to 4. Other forest	23,615
Stable forest	**2,720,770**
1. EBF_R to 1. EBF_R	161,841
2. EBF_M to 2. EBF_M	517,721
3. EBF_P to 3. EBF_P	1,244,912
4. Other Forest to 4. Other Forest	143,472
5. Plantation to 5. Plantation	652,824
Deforestation	**27,809**
1. EBF_R to 6. Non-Forest	91

2. EBF_M to 6. Non-Forest	1,433
3. EBF_P to 6. Non-Forest	23,010
4. Other Forest to 6. Non-Forest	3,275
Degradation	**147,937**
1. EBF_R to 2. EBF_M	1,322
1. EBF_R to 3. EBF_P	2,473
1. EBF_R to 4. Other Forest	1,870
1. EBF_R to 5. Plantation	67
2. EBF_M to 3. EBF_P	874
2. EBF_M to 4. Other Forest	1,043
2. EBF_M to 5. Plantation	909
3. EBF_P to 4. Other Forest	25,973
3. EBF_P to 5. Plantation	35,516
5. Plantation to 6. Non forest	77,890
Reforestation	**212,765**
6. Non-forest to 5. Plantation	212,765
Stable non forest	**1,933,704**
Total	**5,144,520**

Source of data and description of measurement/calculation methods and procedures applied:	2019 forest cover map was developed based on remote sensing information (Sentinel 2 and Landsat 8 images). The pre-processing remote was applied. The images segmentation and classification method for forest cover classification was applied. Training samples were developed for images interpretation using eCognition software. Overlaying 2015 cover map and 2019 cover map to detect changes. Independent images were used to assess accuracy of the cover change detection. • Object-based classification annual median Sentinel 2 composite image (Based on Google Earth Engine platform). • Provincial forest and land cover map year 2019 for the six provinces in the NCR. • Combine provincial forest and land use maps of six NCR provinces to generate the regional forest and land cover map for the NCR. • Generate the matrix of area from the regional forest and land cover map. • Illogical conversion in 2015-2019 check and update. Generate REDD+ activities map base-on combination with EF.
QA/QC procedures applied:	• Standard procedure for generating the forest cover map was applied QC/QC at some main step checking as: image data collection, Data pre-processing, Object-based classification, illogical conversion checking. • SOP for Accuracy assessments of the forest cover maps year 2015 and year 2019 are based on interpretation of high-resolution satellite images (Planet) and Google Earth image Google earth engine time series. The 5% sample was used for crosscheck (re-interpretation of independent expert) at sample respond steep, using stratified sampling and applies the method described in Olofsson et al. (2014) to calculate the overall accuracies and area adjusted at CI 90%.
Uncertainty for this parameter:	Cover change are grouped into REDD+ activities (deforestation, forest degradation, forest enhancement and reforestation) and allocated a degree of uncertainty, calculated by means of an assessment of accuracy based on Sample based analysis (Random stratification method) (Oloffson, 2014).

Margin of Error (MoE) of Deforestation (forest 2015 converted to non-forest land 2019) is 14.94% at CI of 90%. MoE of Forest degradation (high carbon density forest in 2015 converted to other low carbon density forest-land in 2019) is 28.62% at CI of 90%. MoE of Reforestation (non-forest land in 2015 converted to forest land in 2019) is 13.45% at CI of 90%; and MoE of Forest enhancement (low carbon density forest in 2015 converted to other high carbon density forest-land in 2019) is 5.67% at CI of 90%.

The uncertainties for AD of period 2015-2019 are as follows:

Type of change	Uncertainty (90% CI)
Deforestation	14.94%
Forest degradation	28.62%
Reforestation	13.45%
Forest enhancement	5.67%
Stable forest	2.42%
Stable non-forest	3.38%

Any comment:

The forest cover maps in 2005, 2010, 2015 and 2019 were generated by object-based segmentation and classification. The total areas of these maps are 5,118,607 ha, 5,118,612 ha, 5,118,646 ha, and 5,118,646 ha, respectively. The total area of the forest cover change maps periods 2005-2010, 2010-2015 and 2015-2019 (generated by overlaying the corresponding forest cover maps) are 5,118,629 ha, 5,118,664 ha, and 5,120,954 ha, respectively. There are small disparities in the total areas among the forest cover maps and the forest cover change maps. In addition, the Emission Reductions Program Document (ER-PD, Submission on January 5, 2018) states that the total area of the NCR is 5,144,520 ha. This area is approximately 25.000 ha larger than the total areas of the forest cover maps and forest cover change maps.

For the total areas of each map to be consistent with each other and with the reported total area of the NCR, the area of 5,144,520 ha was used as the reference area to compute ratio for adjustment for each map using the following equation:

Ratio = (Reference area) / (Total map area)

All map-based area was then adjusted by using the following equation:

Adjusted area = (Map-based area) * Ratio

9.2 Organizational structure for measurement, monitoring and reporting

Organizational structure of agencies associated with MMR is provided in Figure A4-5. The MMR is an integral part of the overall M&E system for the ER-P, other issues, for example, monitoring of safeguards is covered separately and is integrated into the M&E system.

Local communities participate in monitoring activities under Article 32.2 of the current Forest Protection and Development Law (2004), which specifies that “Forest owners shall have to report forest statistics and inventory and monitor forest resource developments under the guidance of, and submit to the

inspection by, specialized forestry agencies of the provinces…". Therefore, local communities can participate in the monitoring system either:

Directly, as forest owners (individual households or collectively as village communities under community forest management); or

Indirectly as subcontracted service providers to larger state-managed forest owners (e.g. state forest companies or protected area management boards).

Figure A4-5: Responsibility of the relevant Ministries, agencies and localities

1) Ministry of Agriculture and Rural Development (MARD)
MARD acts as manager of the ER P and organises a central PMU to manage the implementation of the ER-P

2) Vietnam Administration of Forestry (VNFOREST)
The VNFOREST will supervise the forest monitoring process in the Accounting Area, including:
*Cooperate with the CPMU in selecting suitable national and international consultants; *Connect with People's Committees, branches and agencies of provinces in MMR implementation at provincial level; *Organize annual and final quantity and quality checks of the MMR system and receive outcomes and register carbon certificates for the Accounting Area *Updates the central forest database annually.

3) Program Management Unit (CPMU)
Provide support to MARD in activities such as
*Approval of the MRV implementation plans in six provinces, and review technical issues, procedures and guidance on field measurement, field data collection, quality control, biomass estimation methods, and technical guidelines of each specific work step *Supports MARD in for the approval of cost estimates and in identification of financial resources *Selects national service providers and national consultant teams for implementing change detection using satellite imagery for the ER-P, field verification and update of forest cover maps, accuracy assessment of the land cover change map, calculation of emission reduction, uncertainty assessment of emission reduction results *Selects international consultants for validation of emission reduction results

4) Provincial People Committees and Provincial Program Management Units
Provincial People Committees (PPCs) of the six provinces in the Accounting Area will be the owner of the provincial program. Each PPC will establish a Provincial Program Management Unit (PPMU) to manage all the work in that province. The PPMU will:
*Support the PPCs in establishing provincial MMR teams to verify the potential changes identified by remote sensing and update the confirmed changes to the provincial forest database *Cooperate with the PMU to develop resource plans (human resource and financial resources) for MRV implementation at the provincial level

5) Forest Inventory and Planning Institute (FIPI)
FIPI has been implementing the NFIMAP and this data was used to develop the FREL/FRL for the ER-P. FIPI is also the main agency to implement the forest inventory step of the National Forest Inventory and Statistics (NFIS) for the period 2011-2016 and has a mandate to implement the improved NFIMAP in the future, it is therefore expected that FIPI will implement the following work:
*Develop standard technical guidelines including a field data collection and survey manual; satellite imagery processing manual; QA/QC guidelines and forms; field data management and processing manual *Conduct of forest change detection using remote sensing *Organize field inventory and quality control *Conduct training and support knowledge transfer to provincial MMR teams on forest monitoring, measurement, field verification and update of activity data and forest cover maps; *Provide guidance to national consultants on estimating emission reduction for the Accounting Area, uncertainty assessment of emission reductions

6) Support from central specialized agencies
The central specialized agencies such as Vietnam Academy of Forest Science (VAFS) and Vietnam National University of Forestry will act as potential service providers for the following tasks:
*Conduct a quality assurance for the field inventory implemented by FIPI *Conduct an accuracy assessment of land cover change map 2015-2020 in the Accounting Area

*Provide potential national consultants on estimating emission reduction for the Accounting Area, uncertainty assessment of emission results

7) Local communities

Local communities are expected to participate in the monitoring, pilots are now in place in three provinces in the NCR they are planned for all provinces to introduce the commune PFMS to mobile and electronic equipment such as tablets for forest monitoring system that will link with FORMIS

The selection and management of GHG related data and information

The selection of GHG related data and information

Currently, Vietnam's national forest monitoring system consists of three elements:

(1) National Forest Inventory, Monitoring and Assessment Program (NFIMAP)

Based on a series of Prime Minister's Decisions, NFIMAP has been implemented by FIPI since 1991. So far, five 5-year cycles (Cycle 1: 1991-1995; Cycle 2: 1996-2000; Cycle 3: 2001-2005; Cycle 4: 2006-2010; and Cycle 5: 2016-2020) have been completed. It is, however, not being implemented for the period 2011-2015. This is because a NFIS (see below) is being implemented during this period. The NFIMAP Cycle 5 (2016-2020) has been completed at the end of 2020 and the results have been appraised and approved by VNFOREST. The NFIMAP Cycle 6 (2021-2025) is now being implemented. The Program uses remote sensing in combination with ground surveys to monitor forest resources changes. Each cycle has generated provincial forest cover maps at the scale of 1:100,000; regional forest cover maps at the scale of 1: 250,000; and a national forest cover map at the scale 1:1,000,000. Data from a systematic sample plot system were also collected in each cycle. The forest cover maps and sample plot data of NFIMAP Cycle 3 and Cycle 4 are used for FREL/FRL setting in the Accounting Area. The MMR of the ER-P is based mainly on the NFIMAP. The sample plot data are used for EFs calculation and the forest cover maps of NFIMAP are used for AD generation in the Accounting Area.

(2) National Forest Inventory and Statistics (NFIS) Projects

Based on Prime Minister's Decisions, several NFIS Projects have been carried out in the past and the latest NFIS Project was being implemented during 2011-2016. In the latest NFIS Project, there are two stages in generating the forest cover maps: (i) "Forest survey stage" - interpretation of RS imagery will be used in combination with ground surveys to generate non-cadastral-dossier-based forest cover maps (which are called the "forest inventory maps"); (ii) "Forest statistics stage" - the forest inventory maps will be used as inputs to overlay with the cadastral-based forest owner boundary maps to generate the cadastral dossier-based forest cover maps (which are called the "forest statistics maps"). The forest statistics maps will be printed out as a deliverable to each forest owner for verification and revised as necessary. As the generation of forest statistics maps employs a participatory method, higher accuracy is expected compared to the forest inventory maps.

The scales of forest cover maps are 1:10,000 or 1: 25,000 for the commune level, 1:50,000 for the district level, and 1:100,000 for the provincial level. During the forest inventory stage, a system of sample plots is inventoried to estimate the mean volume stocks for each forest type. These sample plot data can also be used to estimate the mean carbon stocks in AGB pool for each forest type. The main agency to implement the forest inventory stage is FIPI under MARD. For the forest statistics stage, the main actors are provincial authorities and local forest owners with the technical support from national institutions such as FIPI, Vietnam National Forest University and Vietnam Academy of Forest Sciences.

Due to the coarse frequency (almost every ten years) and the different approach on generating the FCMs, the FCMs of NFIS will not be used to generate the AD the ER-P. However, these FCMs can be used as a reference layer for AD verification and improvement.

(3) Annual Forest and Forestry Land Resources Monitoring and Reporting Program (Program No. 32 or FRMS)

This Program has been conducted by FPD under VNFOREST since 2001 following the Directive No. 32/2000/CT-BNN-KL dated 27/03/2000 by MARD. Based on forest baseline maps of the latest NFIS Project, forest rangers collect information on changes in the communes under their responsibility, and then update these changes in a database. These updates are usually based on reports from forest owners and do not require remote sensing imagery or field surveys. Data are then aggregated through the FPD system from commune to district to province up to the central level. The Program has generated a dataset on area of forest and forestry land, broken down by drivers, forest owners, forest functions, and administrative units. However, this dataset still has some limitations, including: (i) the data are just for forest area; there is no data on forest stocks; (ii) the data on area changes cannot be tracked spatially as they are not associated with maps; and (iii) Recently, with support from JICA, this element has been improved by addressing limitations on accuracy, credibility, transparency and quality assurance of Program no. 32. Where forests are allocated to villages a Village Based Forest Patrolling Team will be established and undertake forest patrols and report to commune-based forest rangers. The team will conduct field measurements of forest change and submit the collected data to a data server. Satellite images and photographs are used to verify forest changes, and the resulting information is used to update forest cover maps and the use of a tablet-based approach will allow update information to be sent to a data server.

Among the three systems above, NFIMAP is the main source of information to construct FREL/FRL and calculate REDD+ emission reductions. FRMS is not integrated yet to the MRV for REDD+ but contributes alongside NFIMAP to the monitoring of the National REDD+ Action Program, and its provincial plans.

The FRMS is the main data source for official forest area in Vietnam however it is not used for the REDD+ MRV for the following reasons:

- FRMS data was not used for the FREL/FRL construction. Therefore, it couldn't be used for the calculation of REDD+ results for the sake of consistency.
- FRMS mainly provides updates on deforestation and reforestation; it is challenging to obtain timely updates on changes in forest conditions using FRMS system (due to its forest stratification of 98 forest types). Therefore, this prevents calculating reduced emissions from forest degradation and enhanced removals from forest restoration based on FRMS data.
- FRMS doesn't include the measurement of forest plots for monitoring timber volumes and forest carbon stocks as a basis to update EF/RF.

However, FRMS contains invaluable information on forest ownership and especially on new forest plantations which cannot be easily interpreted using medium resolution satellite images. Thus, Vietnam is working on integrating this system into the safeguards information system for REDD+.

The management of GHG related data and information

All of the GHG related data and information are managed by VNFOREST using an information system. This information system has a GIS database that store all the maps and data collected by the MMR as well as

information about the methods, and a web-based information portal to provide information to stakeholders, users and reviewers. Detailed information on key data and methods to enable the reconstruction of the Reference Level, and the reported emissions/removals are documented and made publicly available online via this web-based portal. The following information will be made publicly available online:

- Forest definition;
- Definition of classes of forests;
- Choice of activity data, and pre-processing and processing methods;
- Choice of emission/removal factors and description of their development;
- Estimation of emissions/removals, including accounting approach;
- Disaggregation of emissions by sources and removal by sinks;
- Estimation of accuracy, precision, and/or confidence level, as applicable;
- Discussion of key uncertainties;
- Rationale for adjusting emissions, if applicable; and
- Methods and assumptions associated with adjustment, if applicable.

In addition, the following spatial information, maps and/or synthesized data will be displayed publicly:

- Accounting Area;
- Activity data (e.g., forest-cover change or transitions between forest categories);
- Emission factors;
- Average annual emissions over the Reference Period;
- Adjusted emissions, if applicable; and
- Any spatial data used to adjust emissions, if applicable.

Processes for collecting, processing, consolidating and reporting GHG data and information

For the ER-P to be performance-based, a MMR is needed to estimate ERs generated by the ER-P. To be consistent with Decision 11/COP19, the MMR will be built based on existing forest monitoring systems.

As mentioned in Section 9.1.5, the proposed MMR will rely on an improved Annual Monitoring of Forest and Forestry Land Programme, which uses NFIS results as a base, to generate the AD. The improved NFIMAP proposed by the NFA Project will be used to generate EFs/RFs for the MMR of the ER-P.

The ER-P, when approved, will be nested into the national REDD+ implementation to avoid double accounting of emission reduction and/or removal enhancement at the national level. This means that the FREL and/or FRL of the Accounting Area will be nested into the national FREL and FRL to be submitted to the UNFCCC. Similarly, the emission reduction and/or removal enhancement resulting from REDD+ activities in the Accounting Area will be nested into the national REDD+ performance to be reported to UNFCCC as a mitigation action in a technical annex of Biennial Report Updates.

Therefore, in addition to reporting the performance of the ER-P to FCPF Carbon Fund following required template, the ER-P also needs to report biennially its performance to the Vietnam REDD+ Office (VRO), which is the focal point for national REDD+ implementation and has the mandate to oversee and coordinate all REDD+ projects/programs in Vietnam, to be included in Biennial Report Updates and submitted to UNFCCC. Information to be reported to VRO includes:

- FREL and/or FRL of the Accounting Area, prepared on the basis of agreed guidelines (Decision 12/CP.17 and the FCPF Methodological Framework Document), IPCC methodologies (including the 2003 Good Practice Guidance for Land Use, Land Use Change and Forestry), and other relevant

information (historical data, information on methods, approaches, models and assumptions used, pools/gases, and activities included in FREL and/or FRL and the reasons for any omission);

- Information on forest-related emissions/removals resulting from REDD+ activities in the Accounting Area (prepared following agreed guidelines in Decision 12/CP.17 and Decision 13/CP.19 and IPCC methodologies) and other relevant information (information on methods, approaches, models and assumptions used, pools/gases, and activities included and the reasons for any omission); and
- Information on how safeguards are respected and addressed (Decision 1/CP.16) in the ER-P.

The biennial reports on REDD+ performance in the Accounting Area to VRO needs to ensure that:

- There is consistency in methodologies, definitions, comprehensiveness, and information provided between the assessed reference level and the results of the implementation of the activities;
- The data and information provided in the report is transparent, consistent, complete and accurate, and adherence to the guidelines; and
- The results are accurate, to the extent possible.

Systems and processes that ensure the accuracy of the data and information

The accuracy of field measurement data is ensured and controlled by a quality assurance/quality control (QA/QC) protocol.

The accuracy of AD is ensured by conducting an accuracy assessment of the forest cover map following the method of Olofsson (2014). In the case the overall accuracy of the forest cover map is below a threshold (70%), more ground truthing is conducted to enhance the accuracy of the forest cover map above this threshold.

The accuracy of EF and emission reduction is ensured by organized a scientific committee of 5-7 experts having deep knowledge on REDD+ and GHG inventories to appraise the results.

Design and maintenance of the Forest Monitoring System

In Viet Nam, the Development of Management Information System for Forestry Sector – Phase I (FORMIS I) Project (2009-2013) has developed a system with adequate structure and capacity for integrating and sharing data through standard interfaces. The FORMIS system comprises of three sub-systems: (i) the databases for storing quantitative and qualitative data collected and managed by agencies inside and outside of the FORMIS system; (ii) the platform for providing capacity for integration of existing and new data and applications, security, exposing data and business functionalities in standardized manners; and (iii) the content delivery layer for including different channels such as the portal for delivering the information to the target users and for accessing various applications. However, due to time limitation, only a limited amount of data has been put into the databases of the FORMIS system at the end of the Project. The Development of Management Information System for Forestry Sector – Phase II (FORMIS II) project started in May 2013 and lasted until 2018. FORMIS II aims to integrate most of forest resources data including the results of the NFIS 2011-2016 into the system developed by FORMIS I. The Government of Viet Nam has given priority to integrate forest-related data of the provinces in the Accounting Area into the FORMIS system and use FORMIS as the information system of the ER-P.

Systems and processes that support the Forest Monitoring System, including Standard Operating Procedures and QA/QC procedures

There are standard operating procedures for: (1) conducting plot measurement in the field, (2) inputting the field data into a database using a software developed based on FAO's Open Foris Collect, (3) Field data

processing, calculation and reporting, (4) Forest cover mapping. These SOPs are available in Vietnamese as NFIMAP's technical guidelines.

A QA/QC protocol for field measurement data is also available. The QA/QC team controls the quality of measurements of the plots measured by other field teams. The purpose of the QA/QC is to ensure that the team has conducted measurements according to the instructions and in a correct way. Furthermore, results of control measurements can be used for training purposes, that is, to find out issues unclear to the teams after training.

The controlling measurements are conducted within 1–2 weeks after the measurements by the initial team. The QA/QC team is equipped with same equipment and devices as the field teams. Measurement data shall be recorded in hardcopy form and handed over to responsible persons. The results of the control measurements are reported by using a control measurement checklist. The QA/QC team hands over the checklists to the field work manager. Feedback is given both to the field team and field work manager who is in charge of field work. The QA/QC team shall detect and observe shortcomings and errors in measurements conducted by normal field teams in the feedback session. Differences in measurements between QA/QC team and field team are stated, and unclear issues are clarified. It must be taken into account that every field team is controlled. The reports can be used for evaluating reliability of the field data. Measurements that were found to be difficult shall be emphasized in future training.

Role of communities in the forest monitoring system

The role of local communities in the implementation of the proposed ER-P forest monitoring system is as follows:

- Identifying and monitoring the key drivers of forest cover change, forest degradation, and carbon stock enhancement across the landscape;
- Assisting in field data collection for estimating forest carbon stocks and EFs;
- Assisting in accuracy assessments of (spatial and non-spatial) activity data generated for REDD+, for verifying or validating remote sensing products; and
- Accessing AD, EF and emission reduction information from the national REDD+ information system and conducting basic analysis to inform management interventions.
- Participatory forest monitoring under the proposed ER-P will be integrated into a modified annual monitoring of forest and forestry land program to be implemented by the FPD, which has the mandate and human resource capacity (at all levels of administration from commune to national level), to engage with forest owners and local communities[112].

9.3 Relation and consistency with the National Forest Monitoring System

A measurement, monitoring and reporting (MMR) system for implementation of Vietnam's REDD+ has been developed based on the existing programs/projects. The NFIMAP has been used to generate the AD and EFs while the NFIS in combination with the Program no. 32 have been used to verify and improve the AD generated by NFIMAP as well as providing safeguards information. This system allows sub-national forest monitoring at the provincial level. Provincial forest cover maps will be generated every 5 years, based on medium resolution satellite imagery with the previous map as a base for generating AD. Since the Accounting Area of the ER-P consists of six provinces, the AD of the ER-P are aggregated from all data generated by the sub-national forest monitoring operating in each of the six provinces so the AD are fully consistent with the national measurement, monitoring and reporting system for REDD+. The MMR relied

[112] Consistent with the Criterion 16 of the FCPF Carbon Fund Methodological Framework.

on an approach which relies on the use of medium resolution satellite imagery and the base FCM year X-5 to generate the AD.

The plot measurement data of NFIMAP are used to generate EFs for the MMR of the ER-P. The NFIMAP will generate the EFs at the regional level every 5 years, and the latest EFs were generated in 2019 based on the NFIMAP period 2016-2020 (all the sample plots have been inventoried by the end of 2019). Since the Accounting Area of the ER-P covers fully one region (the NCR) of Vietnam, the EFs of the ER-P MMR are also calculated based on the same raw plot data, although, the equations applied to calculate the EFs are somewhat different (the equation applied to calculate the AGB of timber trees for national REDD+ reporting uses DBH, Height and WD as three input variables while that applied in ER-P MMR uses DBH as the only input variable).

Since the NFIMAP is a national program, its technical procedures are all standard technical procedures for Vietnam. Therefore, the ER-P MMR, which is based on data generated by the NFIMAP, will also follows these standard technical procedures in Vietnam.

12 UNCERTAINTIES OF THE CALCULATION OF EMISSION REDUCTIONS

12.1. Identification and assessment of sources of uncertainty

Sources of uncertainty	Analysis of contribution to overall uncertainty
Activity Data	
Measurement	This source of uncertainty is applicable to cases where activity data is based on sampling. This is linked to the visual interpretation of operators and/or field positioning and it may be the origin of both systematic and random errors. Usually this source of error is high as evidenced by recent studies. Quantification methods for this source of error are in a research phase and have not been applied in operational contexts. Therefore, countries shall address this through robust QA/QC procedures that address both systematic and random error. Robust QA/QC procedures include: • Written Standard Operating Procedures including detailed labelling protocols; • Use of adequate5 source of imagery and multiple imagery sources for labelling. • Training procedures for interpreters, to ensure the correct implementation of SOPs; • Re-interpretation of a number of sample units to ensure that SOPs are implemented correctly and identify areas for improvement.
Representativeness	This source of uncertainty is related to the representativeness of the estimate which is related to the sampling design. If the sample is not representative for the area of interest or the time of interest (e.g. not all elements of the population or region of interest are included in the sampling frame; deforestation is not measured for the period of interest), the estimate given by the sample will not be representative and this can be a cause of bias. Biases must be avoided as far as practical and this can be avoided through a correct sample design which can be ensured through adequate QA/QC processes. This source of uncertainty might be High or Low depending on the circumstances and REDD Countries may assess the magnitude. Vietnam assesses this source of uncertainty is low.
Sampling	Sampling uncertainty is the statistical variance of the estimate of area for the applicable forest transitions that are reported by the ER Program. This source of error is random, but the selection of the estimator might be a source of error. ER Programs shall use

Sources of uncertainty	Analysis of contribution to overall uncertainty
	reference data and unbiased estimators for estimating activity data and its uncertainty, as recommended by the GFOI MGD. See FAQ on area estimation and section 5.1.5 of the MGD(GFOI 2016), *Good practices for estimating area and assessing accuracy of land change* by Olofsson et al. (2014), for more information on how estimates can be produced using unbiased estimators of activity data. Selection of a proper estimator would also be a source of uncertainty which would be addressed via QA/QC procedures.
Extrapolation	This source of uncertainty is relevant when a stratified estimation (i.e. forest cover change map as stratification and sample) is applied. This source of uncertainty is related to the extrapolation of an estimate of the population to subpopulations which may lead to bias. In some cases, ER Programs have estimated a variable of interest at the level of the Accounting Area, such as deforestation in hectares, and then they have inferred the variable of interest per forest type using a map, e.g. deforestation is 1000 ha according to the sample, the maps indicates that 30% of deforestation is in forest type A and 70% in forest type B, so it is inferred that 300 ha of deforestation in forest type A and 700 ha in forest type B based on the map areas. This source of error may be a source of bias which is difficult to quantify. 2006 IPCC guidelines, state that "...*where biases cannot be prevented, it is good practice to identify and correct them when developing a mean estimate*...". ER Programs should avoid using these methods and if they are not able to avoid them, they should justify if this will lead to an overestimation of Emission Reductions and apply any corrective measures. These errors may be avoided with QA/QC procedures. This source of uncertainty might be High or Low depending on the circumstances and REDD Countries may assess the magnitude. Vietnam assesses this source of uncertainty is low.
Approach 3	This source of uncertainty exists when there is no tracking of lands or IPCC Approach 3. This occurs in cases when, for instance, an ER Program conducts two independent surveys to estimate activity data in period 1 and period 2 (e.g. dividing the reference period in two subperiods) without conducting tracking of lands. In this example, there is a risk that transitions are counted twice. For instance, if a unit of land transits from forest to non-forest, and then back to forest and then non-forest, there is a risk that deforestation is "double counted" if there is not a system to ensure tracking of lands. Solutions in this case are to avoid independent surveys (through permanent sample units) or to define transition rules and ensure that interpreters look at the past history of the sample unit to ensure that the transitions rules are respected. This is mitigated through the introduction of strong QA/QC measures.
Emission factor	
DBH measurement	Measurement of DBH, height, and plot delineation are subject to errors. Errors may be caused by multiple factors such as poor training, poor measurement protocols, etc. While measurement errors are significant at the tree level, they usually average out at plot level and inventory level (Chave et al. 2004). Picard et al. (2015) also found the measurement error to be small when compared to the other errors. The FMT conducted an assessment of the contribution of this source of error (c.f. Annex) and found that this source of error should be negligible for Emission Reduction estimation, provided minimal QA/QC procedures are in place. The contribution of this source of error to random error is low, yet QA/QC procedures should be in place to avoid systematic errors.
H measurement	
Plot delineation	

Sources of uncertainty	Analysis of contribution to overall uncertainty
	In Vietnam case, H is not used as a parameter to estimate the emission reductions and therefore the uncertainty of H measurement does not affect the combined uncertainty of emission reductions.
Wood density estimation	This source of error pertains the selection of wood density. Many allometric equations rely on wood specific gravity - WSG (also referred to as basic wood density) as one of the independent variables. WSG is usually not measured, which is acceptable, but sourced from scientific publications and databases such as http://www.globallometree.org (registration required), the Global Wood Density Database (Chave et al. 2009, Zanne et al. 2009) or the 2006 IPCC guidelines. The random error from the use of WSG is low, but the lack of QA/QC procedures can lead to high systematic errors, this includes having strong protocols to identify the tree species and decision trees to attribute WSGs to each tree. In Vietnam case, wood density is not used as a parameter to estimate the emission reductions and therefore the uncertainty of wood density estimation does not affect the combined uncertainty of emission reductions.
Biomass allometric model	Allometric models/equations include several sources of uncertainty: • Choice of the allometric equation • Uncertainty attached to estimated model coefficients and the residuals of the model According to Picard et al. (2015) and Chave et al. (2014) the main source of uncertainty is the selection of the allometric equation. The lack of validation of the allometric equation should be considered as a source of bias, discussed, and addressed as far as practical by the REDD Country. QA/QC procedures shall be in place to ensure that the best allometric model is used and that any identified bias have been addressed. If bias is identified and this could lead to an Overestimation of Emission Reductions, this could be addressed by making the allometric model more conservative through the application of correction factors. In terms of uncertainty attached to the model coefficients, according to Chave et al. (2014), the prediction uncertainty of their pantropical allometric equations at plot level ranges from 10-15% for plots of 0.25 ha and 5-10% for plots of 1 ha, and this could result in 5.31% for estimates of aboveground biomass stocks. In terms of uncertainty of Emission Reductions it is expected that the contribution of this source of error is low due to interactions with other sources (c.f. Annex).
Sampling	This is applicable for cases when the carbon densities of forest used to derive emission factors are based on a terrestrial inventory based on a probabilistic design. Sampling uncertainty is the statistical variance of the estimate of aboveground biomass, dead wood or litter. This source of uncertainty is random. Selection of a proper would also be a source of uncertainty which is systematic and would be addressed via QA/QC procedures.
Other parameters (e.g. Carbon Fraction, root-to-shoot ratios)	Some other parameters are used to estimate emission factors, such as emission factors, aboveground biomass in non-forest land and root-to-shoot ratios. These are usually not measured but sourced from scientific publications, databases or the 2006 IPCC Guidelines. This can lead to both random and systematic errors. The random error of each individual parameter might be low but the aggregated effect might be high. Moreover, the lack of QA/QC procedures for the selection of the values may lead to high systematic errors.
Representativeness	This source of uncertainty is related to the representativeness of the estimate which is related to the sampling design. If the sample is not representative for the area of interest (i.e. each element in area of interest has a known inclusion probability >0 and some random process is used to select elements), the estimate given by the sample will

Sources of uncertainty	Analysis of contribution to overall uncertainty
	not be representative and can cause bias. Biases must be avoided as far as practical and this can be avoided through a correct sample design which can be ensured through adequate QA/QC processes.
Integration	
Model	The combination of AD & EF does not necessarily need to result in additional uncertainty. Usually, sources of both random and systematic error are the calculations themselves (e.g. mistakes made in spreadsheets) and the process of data preparation (e.g. pre-processing, data cleansing, data transfer, etc). All models are simplification of reality, and this simplification could be a source of bias to emission reductions. All these sources are addressed with adequate QA/QC processes.
Integration	This source of uncertainty is related to the lack of comparability between the transition classes of the Activity Data and those of the Emission Factors. Activity Data is usually estimated through remote-sensing observations, whereas Emission Factors for a specific forest type could be based on ground-based observations of the forest type. These may not be comparable, and it may represent a source of bias.

12.2. Quantification of uncertainty in Reference Level Setting

Parameters and assumptions used in the Monte Carlo method

The Monte Carlo Method was applied to assess uncertainties of emissions and removals estimates in reference level. In this analysis, all parameters associated with emissions and removals estimates are simulated with assumption of normal probability distribution. The parameters analyzed are as follows:

Table A4-7: Summary of parametters and assumption used in Monte Carlo

Parameter included in the model	Parameter values	Range or standard deviations		Error sources quantified in the model (e.g. measurement error, model error, etc.)	Probability distribution function	Source of assumptions made
		Lower	Upper			
Above Ground Biomass (AGB)	AGB densities of 5 forest types for 2005, 2010, and 2019. See MC model for values.	Various	Various	Sampling	Normal	N/A
Activity Data (AD)	AD for three periods: 2005-2010, 2010-2015, 2016-2019. See MC analysis for complete listing.	Various	Various	Sampling	Normal	N/A
Root to Shoot Ratio	0.20 for AGB < 125 t.d.m/ha or 0.24 for AGB > 125 t.d.m/ha[113]	0.0204	0.0245	Measurement	Normal	GOFC-GOLD sourcebook

[113] When the AGB density of one forest type changes from below 125 tdm/ha in one cycle to above 125 tdm/ha in another cycle or vise versa, there will be a suddent change of ~20% in the RS between cycles (from 0.20 to 0.24 or vise versa) and this will cause an artifical change in the BGB density between cycles. To avoid such artifical change in the BGB densities, the AGB densities of NFIMAP Cycle 3 were used to determine the RS for each forest type.

						2015, Table 2.3.3, page 72
Carbon Fraction	0.47	.00647	.00647	Measurement	Normal	IPCC 2006, Volume 4

The details of description on parameters, parameters values, standard errors and probability distribution function are provided in separate spreadsheet[114]

Quantification of the uncertainty of the estimate of the Reference level

Table A4-8. Estimates of uncertainties for reference level using Monte Carlo method

		Deforestation (emissions)	Forest degradation (emissions)	Enhancement of carbon stocks (total removals)
A	**Median**	5,286,897	20,465,201	-13,289,628
B	**Upper bound 90% CI** (Percentile 0.95)	5,831,520	24,949,013	-10,577,494
C	**Lower bound 90% CI** (Percentile 0.05)	4,749,342	16,055,644	-15,981,289
D	**Half Width Confidence Interval at 90% (B – C / 2)**	541,089	4,446,684	2,701,898
E	**Relative margin (D / A)**	10%	22%	20%
F	**Uncertainty discount**	**4%**	**4%**	**4%**

Sensitivity analysis and identification of areas of improvement of MRV system

Similar to the sensitivity analysis of emission reduction for reporting period, the sensitivity analysis of reference level was conducted for all input parameters and single parameter (AD, AGB, RS and CF). As the results, AGB and AD are most significant factors influencing uncertainty of the estimates. Therefore, the improvement of accuracy for these factors should be considered.

Table A4-9. Sensitivity results summary – refeneference level (2 years)

Senarios and impacts	Total Emission Reductions	Emissions - Deforestation	Emissions - Degradation	Total removal	Removal - Enhancement	Removal - Reforestation	Total emission reduction and removal enhancement
With All Uncertainty Terms	17%	10%	22%	20%	25%	17%	41%
Dropping AGB Uncertainty	5%	10%	6%	4%	5%	7%	10%
Dropping AD Uncetainty	17%	4%	22%	20%	24%	16%	40%
Dropping RS Uncertainty	18%	10%	22%	20%	24%	17%	40%
Dropping CF Uncertainty	17%	11%	22%	20%	24%	17%	41%
Impacts of AGB to overal uncertainty	12%	0%	16%	16%	20%	10%	30%
Impacts of AD to overal uncertainty	0%	6%	0%	0%	0%	1%	1%
Impacts of RS to overal uncertainty	0%	0%	0%	0%	0%	0%	0%
Impacts of CF to overal uncertainty	0%	0%	0%	0%	0%	1%	0%

[114] Spreadsheet of MC analysis is available at: http://vnff.vn/erpa-program/mmrs/mc-analysis?hl=en

Document history

Version	Date	Description
Final version	September 2023	• Check the consistency between the AD used for estimates of emissions and removals and AD generated from maps; • Correct all mistakes and inconstencies • Correct the estimtes of emissions and removals for reference period and emission reductions
Final draft	April 2023	• Section 2.2.2: a footnote has been added to explain how to choose the root-to-shoot ratio (R) for different types of forest. • Section 3.1 (field "Any comment" of the Table on parameter $AD1_{ij}$): A description of the adjiustment procedure for making total map-based area consistent overtime has been added. • Section 3.2 (field "Value monitored during this Monitoring / Reporting Period:" of the Table on ABG(t,i)): An explanation on how to estimate the uncertainties for 2015 AGB densities has been added. • Corrected calculation of ERs available using new template in MMR1 (page 42) and sheet "ERs available" in Excel file on Calculation and uncertainty analysis • Added and edited text for displacement in Section 1.1 and reversal assesment (section 7) • Checked and secured all weblinks provided in the MMR1 are operational • Revised Annex 1-3 (page 41-110) • Provided additional statistical data (table 2) at page # 3 and their data sources in the footnotes • Added "document story" section
3	May 2022	• Page 1 and section 8 have been adjusted to reflect the dentition of Total ERs • Correct all weblinks to the documents related to MMR1
2	December 2021	• Section 5.2 was adjusted to allow the reporting of the uncertainty estimates for both the reporting period and the crediting period. • Section 8 has been adjusted to clarify that countries can also report ERs jointly and not only in separate calendar years. • Cross-references have been corrected • Information about the start date of the crediting period has been requested in annex 4.
1	June 2021	MMR1 submitted